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

11/16/2010

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

FROM: Plan Amendment Program Specialist

SUBJECT: City of Oregon City Plan Amendment
DLCD File Number 002-10

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

Appeal Procedures*

DLCD ACKNOWLEDGMENT or DEADLINE TO APPEAL: Tuesday, November 30, 2010

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

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

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

Cc: Pete Walter, City of Oregon City
Gloria Gardiner, DLCD Urban Planning Specialist
Jennifer Donnelly, DLCD Regional Representative
Bill Holmstrom, DLCD Transportation Planner

<paa> YA

FORM 2 DLCD Notice of Adoption

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

DATE STAMP
☐ In person ☐ electronic ☐ mailed
DEPT OF
NOV 10 2010
LAND CONSERVATION AND DEVELOPMENT
For Office Use Only

Jurisdiction: **CITY OF OREGON CITY** Local file number: **PZ 10-01 / ZC 10-01**

Date of Adoption: **11/3/2010** Date Mailed: **11/9/2010**

Was a Notice of Proposed Amendment (Form 1) mailed to DLCD? ☐ Yes ☐ No Date:

☐ Comprehensive Plan Text Amendment ☐ Comprehensive Plan Map Amendment

☐ Land Use Regulation Amendment ☐ Zoning Map Amendment

☐ New Land Use Regulation ☐ Other:

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

AMENDED THE CITY'S COMPREHENSIVE PLAN MAP FROM COUNTY FU – FUTURE URBAN TO MUC - MIXED USE CORRIDOR AND CHANGED THE CITY ZONING MAP FROM COUNTY - FU-10 TO MUC-1 – MIXED USE CORRIDOR DISTRICT FOR THE PROPERTY IDENTIFIED AS CLACKAMAS COUNTY MAP 3-2E-10C, TAX LOT 800. NO DEVELOPMENT IS PROPOSED AT THIS TIME.

Does the Adoption differ from proposal?

No, No explanation is neccessary

Plan Map Changed from: **COUNTY FU - FUTURE URBAN** to: **MUC - MIXED USE CORRIDOR**

Zone Map Changed from: **COUNTY – FU-10** to: **MUC-1 – MIXED USE CORRIDOR**

Location: **19896 Beavercreek Road, Oregon City, OR 97045** Acres Involved: **9.59**

Specify Density: Previous: **1 DWELLING** New: **NA – NO DEV. PROPOSED**

Applicable statewide planning goals:

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

Was an Exception Adopted? ☐ YES ☒ NO

Did DLCD receive a Notice of Proposed Amendment...

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**

DLCD file No. 002-10 (18401) [16405]

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

OREGON DEPT. OF TRANSPORTATION REGION #1, METRO, CLACKAMAS COUNTY, CLACKAMAS FIRE DISTRICT #1, CLACKAMAS RIVER WATER (CRW), OREGON CITY SCHOOL DISTRICT 62, TRI-COUNTY SERVICE DISTRICT (SEWER)

Local Contact: **PETE WALTER, AICP** Phone: **(503) 496-1568** Extension:

Address: **221 Molalla Ave, Suite 200** Fax Number: **503-722-3880**

City: **OREGON CITY, OR** Zip: **97045** E-mail Address: **pwalter@orcity.org**

ADOPTION SUBMITTAL REQUIREMENTS

This Form 2 must be received by DLCD no later than 5 days after the ordinance has been signed by the public official designated by the jurisdiction to sign the approved ordinance(s)
per ORS 197.615 and OAR Chapter 660, Division 18

1. This Form 2 must be submitted by local jurisdictions only (not by applicant).
2. When submitting, please print this **Form 2** on light **green paper if available**.
3. Send this Form 2 and **One (1) Complete Paper Copy and One (1) Electronic Digital CD** (documents and maps) of the Adopted Amendment to the address in number 6:
4. **Electronic Submittals: Form 2 – Notice of Adoption will not be accepted via email or any electronic or digital format at this time.**
5. The Adopted Materials must include the final decision signed by the official designated by the jurisdiction. The Final Decision must include approved signed ordinance(s), finding(s), exhibit(s), and any map(s).
6. **DLCD Notice of Adoption must be submitted in One (1) Complete Paper Copy and One (1) Electronic Digital CD via United States Postal Service, Common Carrier or Hand Carried to the DLCD Salem Office and stamped with the incoming date stamp.** (for submittal instructions, also see # 5)] **MAIL** the **PAPER COPY and CD** 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

7. Submittal of this Notice of Adoption must include the signed ordinance(s), finding(s), exhibit(s) and any other supplementary information (see ORS 197.615).
8. Deadline to appeals to LUBA is calculated **twenty-one (21) days** from the receipt (postmark date) of adoption (see ORS 197.830 to 197.845).
9. In addition to sending the Form 2 - Notice of Adoption to DLCD, please notify persons who participated in the local hearing and requested notice of the final decision at the same time the adoption packet is mailed to DLCD (see ORS 197.615).
10. **Need More Copies?** You can now access these forms online at **http://www.lcd.state.or.us/**. You may also call the DLCD Office at (503) 373-0050; or Fax your request to: (503) 378-5518.

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

Notice of Decision

November 9, 2010

FILE NO.: PZ 10-01: Comprehensive Plan Map Amendment
ZC 10-01: Zone Change

FILE TYPE: Type IV – Quasi-Judicial Land Use Decision

OWNER: Marylwood, LLC
Att: Phil Gentemann
7128 SW Gonzaga St
Portland, OR 97223

APPLICANT: Theta, LLC, Attn. Bruce Goldson
PO Box 1345
Lake Oswego, OR 97035

REQUEST: Approval of a Comprehensive Plan Map Amendment from County FU – Future Urban to MUC - Mixed Use Corridor and a Zoning Map Change from County - FU-10 To MUC-1 – Mixed Use Corridor District for the Property identified as Clackamas County Map 3-2E-10C, Tax Lot 800.

LOCATION: 19896 Beavercreek Road
Clackamas County Map 3-2E-10C, Tax Lot 800

IN-HOUSE DISTRIBUTION	MAIL-OUT DISTRIBUTION
☑ Building Official	☑ Citizen Involvement Council (CIC)
☑ Development Services Manager	☑ County CPOs Beavercreek Hamlet
☑ Public Works	☑ Neighborhood Association Chair
☑ City Engineer/Public Works Director	☑ Neighborhood Association land Use Chair
☑ Geotechnical Services (GIS)	☐ Fire Marshal
☑ Parks Manager	☑ Clackamas County – Joe Marek
☐ Addressing	☑ Clackamas County – Ken Kent
	☑ School District# 62
	☑ Tri-Met
	☑ Oregon Dept. of Transportation - ~~Sonya Kazen~~ DIV. REVIEW
	☐ ~~Oregon Dept. of Transportation – Loretta Kiefer~~
	☑ DLCD
	☑ Metro
	☐ Other:

Public Testimony:
Christine Kosinski
Elisabeth Graser-Lindsay

Tom O'Brien

CONDITIONS OF APPROVAL

Planning Files: PZ 10-01 / ZC 10-01

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.

2. Public facilities/infrastructure locations shall be provided as determined by the future development's conditions of approval.

3. Future developments shall obtain the appropriate Erosion Prevention and Sedimentation Control permit(s) at the time of construction plan submittal.

4. Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

5. If the Beavercreek Road Concept Plan (BRCP) is formally adopted subsequent to approval of the proposed rezoning, as part of any subsequent site plan design review approval, master plan, phased development review, or other appropriate review, the development shall comply with the BCRP, and any design and performance standards adopted thereto.

6. If the Beavercreek Road Concept Plan is not yet adopted at the time the applicant seeks development approval, the applicant's proposal shall be consistent with the intent and purpose of the Mixed Employment Village, which is to provide retail, office, civic and residential uses in an urban, pedestrian friendly and mixed use setting that is transit supportive in its use, density and design. Development shall create an active urban environment that incorporates pedestrian-friendly amenities, urban building design consistent with the Beavercreek Road Concept Plan and cost effective green development practices. At a minimum, the overall development site shall achieve an average minimum floor area ratio (FAR) of 0.25 and a minimum building height of thirty-four feet except for accessory structures or buildings under one thousand square feet. The applicant may seek to modify these standards through the master plan adjustment or variance process with city approval.

7. In accordance with OCMC 17.29.070, the required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs. An individual phase of a project approved through the Master Plan process OCMC 17.65 shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, including phased development, that the required density for the project will be achieved at project build-out.

ORDINANCE NO. 10-1012

AN ORDINANCE AMENDING A PORTION OF THE CITY'S COMPREHENSIVE PLAN MAP FROM COUNTY FU – FUTURE URBAN TO MUC - MIXED USE CORRIDOR AND TITLE 17: ZONING, CHAPTER 17.06.030: A PORTION OF THE OFFICIAL ZONING MAP, OF THE OREGON CITY MUNICIPAL CODE, FROM COUNTY - FU-10 TO MUC-1 – MIXED USE CORRIDOR DISTRICT FOR THE PROPERTY IDENTIFIED AS CLACKAMAS COUNTY MAP 3-2E-10C, TAX LOT 800.

WHEREAS, the City of Oregon City has adopted Comprehensive Plan and Zoning Maps to implement the Comprehensive Plan in conformance with statutory requirements and the requirements of the Statewide Land Use goals; and

WHEREAS, the City of Oregon City Comprehensive Plan and Zoning Maps may be amended and updated as necessary upon findings of facts that satisfy approval criteria in the City of Oregon City Municipal Code Section 17.68.020; and

WHEREAS, the owner of the subject site, identified as Clackamas County Map 3-2E-10-C, Tax Lot 800, has requested the approval of a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land; and

WHEREAS, the proposed comprehensive plan designation of the site as MUC supports the Mixed Use Corridor District zoning designation, and

WHEREAS, the zone change from FU-10 District to MUC-1 is for a property that is has been located within the City's Urban Growth Boundary since 1979;

WHEREAS, the MUC-1 Zone meets the intent of the Comprehensive Plan Policies for mixed-use development, housing choices and increased density near activity centers and along the Beavercreek Road corridor;

WHEREAS, the subject property is not within the Metro Urban Growth Functional Management Plan Title 4 (Industrial and Employment Land) area that has been slated for redesignation out of Title 4 land on Metro's Urban Design Type Map; and therefore the City need not wait for the Title 4 map change before proceeding with the rezoning; and

WHEREAS, based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known; and

WHEREAS, the city considers the construction of the Meyers Road Extension between High School Ave and OR-213 by 2027 a reasonably likely improvement that will be demonstrate compliance with the Transportation Planning Rule (OAR 660-12-0060), and the project is identified in the City's capital improvement program and the city collects SDCs for this project's cost; and

WHEREAS, the projected transportation and public infrastructure impacts resulting from a zone change from FU-10 to MUC-1 Mixed Use Corridor District shall be required to comply with the specific Conditions of Approval and all applicable city regulations at the time a development is proposed on the property, and the applicant has demonstrated compliance with the Transportation System Plan, Public Infrastructure Master Plans and Oregon City Municipal Code; and

WHEREAS, notice of the proposed comprehensive plan map amendment and zone change was mailed to residents within 300 feet of the subject site and the Beavercreek Hamlet; and, in addition, signs were posted on the property, notice was published in a local newspaper and the City held public hearings where the objectives and concepts of the proposal were presented and discussed; and

WHEREAS, on August 30th, 2010, the Planning Commission held a public hearing and, after considering all the public testimony and reviewing all the evidence in the record, recommended approval of the requested comprehensive plan amendment and zone change (with conditions) to the City Commission by a 4 – 0 vote; and

WHEREAS, on October 6th, 2010, the City Commission held a public hearing and took testimony from the Hamlet of Beavercreek and subsequently extended the written comment period for 7 days to consider additional arguments; and

WHEREAS, on October 20th, 2010, the City Commission allowed additional testimony from the Hamlet of Beavercreek and voted not to consider a portion of the additional information submitted by the Hamlet concerning the finding that the construction of Meyers Road was reasonably likely to be constructed ; and

WHEREAS, on November 3rd, 2010, the City Commission, after considering all of the public testimony and written arguments, found that the application, as conditioned, met all of the applicable approval criteria for a comprehensive plan amendment and zone change; and

WHEREAS, approving the comprehensive plan amendment and zone change is in compliance with the Goals and Policies of the Oregon City Comprehensive Plan and as proposed and conditioned is in compliance with all applicable city requirements.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. The requested comprehensive plan map amendment Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation (PZ 10-1), and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district (ZC 10-1) are hereby approved as proposed by the applicant with conditions for the property identified as Clackamas County Map 3-2E-10C, Tax Lot 800 and the Comprehensive Plan Map and Zoning Map are hereby changed accordingly.

Section 2. The comprehensive plan amendment and zone change are approved as proposed by the applicant with the conditions of approval attached to this Ordinance as Attachment A, Exhibit 1.

Section 3. The Commission adopts the findings and conclusions from the August 30, 2010 Planning Commission staff report, included as Attachment A, Exhibit 2, and the

Supplemental Findings, dated October 26, 2010, included as Attachment A, Exhibit 3 and incorporated herein to support the City's approval to amend the comprehensive plan map and zoning map.

Read for the first time at a regular meeting of the City Commission held on the 3rd day of November 2010, and the City Commission finally enacted the foregoing ordinance this 3rd day of November 2010.

ALICE NORRIS, Mayor

Attested to this 3rd day of November 2010

Nancy Ide, City Recorder

Approved as to legal sufficiency:

City Attorney

OREGON CITY
Community Development Department
221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

SUPPLEMENTAL FINDINGS

October 26, 2010

On October 20, 2010, the Hamlet of Beavercreek ("HBC") submitted a letter and read the letter into the record at the City Commission hearing, generally reiterating the comments provided in the October 13, 2010 letter that the Hamlet submitted into the record. As part of the comments from the HBC, issues were raised concerning the city finding that the construction of Meyers Road was "reasonably likely" to occur and requesting that the finding be amended to indicate that Meyers Road "will be" built. The Commission determined, by a vote of 4-0-1, that the information/request set out in the second full paragraph of page 2 of the HBC letter, starting on the fifth line of that paragraph, was new issue and would not be considered.

The Commission determined that proposed condition of approval 6 shall be amended to more specifically incorporate the design details envisioned in the Beavercreek Road Concept Plan for the Mixed Employment Village, which this property is located within. The Commission finds that condition of approval 6 shall read as follows:

6. *If the Beavercreek Road Concept Plan is not yet adopted at the time the applicant seeks development approval, the applicant's proposal shall be consistent with the intent and purpose of the Mixed Employment Village, which is to provide retail, office, civic and residential uses in an urban, pedestrian friendly and mixed use setting that is transit supportive in its use, density and design. Development shall create an active urban environment that incorporates pedestrian-friendly amenities, urban building design consistent with the Beavercreek Road Concept Plan and cost effective green development practices. At a minimum, the overall development site shall achieve an average minimum floor area ratio (FAR) of 0.25 and a minimum building height of thirty four feet except for accessory structures or buildings under one thousand square feet. The applicant may seek to modify these standards through the master plan / adjustment or variance process with city approval.*

At the September 20, 2010 meeting, the Commission determined that the Ordinance would be brought back to the November 3, 2010 meeting for a first reading of the Ordinance,

incorporating these supplemental findings and the revised condition of approval 6 into their decision.

At the October 6, 2010 public hearing, the Commission closed the public hearing but left the written record open until October 13, 2010 for additional comments. On October 13, 2010, the HBC submitted written comments into the record for planning files PZ 10-01 and ZC 10-01, an application to amend the Comprehensive Plan and Zoning of a 9.59-acre property located at 19896 Beavercreek Road. These supplemental findings are adopted by the City Commission with respect to the issues raised by HBC in its October 13 letter.

GENERAL FINDINGS

The City Commission finds that this is an application for a plan amendment and to rezone a parcel of land that is within the City of Oregon City. As such, the applicant's obligation is to address the requirements of the Oregon City Comprehensive Plan and Municipal Code, Statewide Planning Goals and Oregon Administrative Rule (OAR) 660-12-0060 (Transportation Planning Rule, or "TPR"), which contains the applicable transportation criteria for a zone change analysis. The essential requirement of the TPR is to ensure that the transportation system can accommodate the net effect of the change in use, either as planned or through mitigation.

A thorough Land Use Application and a transportation impact analysis (TIA) addressing the relevant approval criteria were completed and submitted to the City for consideration. The TIA was prepared by Kittelson and Associates, licensed professional traffic engineers, and is dated June 21, 2010. This analysis was reviewed and its findings accepted by the Oregon Department of Transportation (ODOT) and by city staff and the Planning Commission. Specifically, the finding of the TIA is that the plan amendment and rezone would have a "significant effect" (as stipulated in the TPR and defined by ODOT as an increase of more than 0.1 in the volume-to-capacity ratio) at the intersection of Highway 213 (OR 213) and Meyers Road. Further, this significant effect can be mitigated thru the Meyers Road extension and by providing a dedicated right-turn lane that would serve traffic movements from Meyers Road to northbound OR 213. Finally, ODOT and city staff have concurred that all other applicable TPR requirements are met.

The specific issues raised by HBC are set out and addressed below.

SPECIFIC FINDINGS IN RESPONSE TO HBC COMMENTS

HBC COMMENT: "Title 11 first requires that local governments place interim measures on the new urban land to protect it from urbanization before a plan is completed and adopted. When new land is brought into the urban growth boundary, Metro collaborates with local cities and counties to plan how the new communities will be developed and served by roads, schools and other urban services.

In December 2002, the Metro Council voted to expand the urban growth boundary by 18,638 acres. In 2004 and 2005, the Metro Council voted to expand the urban growth boundary by an additional 2,500 acres for industrial land purposes. Before this land is converted from rural to urban use, Metro requires that it be planned by the local city or county that will provide services for the new urban area.

This 9.59 acre parcel was previously part of the Beavercreek Road Concept Plan and subject to Title 11 requirements. Oregon City now proposes to develop this parcel separately and states Title 11 will not apply since this property was brought into the UGB in 1979 (prior to Title 11 requirements), and furthermore, is no longer subject to Title 11 requirements since the Concept plan has not been approved.

We question Title 11 status for this property. Please clarify if this parcel was under Title 11 when part of the Beavercreek Road Concept Plan. And if so, then explain why the City now states that it is not? Also, because this parcel was not annexed into the City until 2008, when Metro required compliance with Title 11, wouldn't this property now be subject to the requirements of Title 11?"

FINDING: The City Commission finds that Title 11 is applicable to properties that have been recently added to a jurisdiction's Urban Growth Boundary (UGB), after Title 11 took effect, which is not the case for the subject site. This property was added to the Oregon City UGB in 1979, at which time a Metro Design Type was assigned to the property. The property was

included in the Concept Planning process, but was not required to be reviewed under Title 11; Metro so concurs. The timing of the annexation of the property is irrelevant to determining compliance with Title 11, which, once again, is required for properties added to a UGB since Title 11 took effect, but is not a requirement for annexation into a city.

Hence, the City Commission finds that Title 11 is not applicable to this site and the approval criteria have been met.

HBC COMMENT: "The proposed density for this 9.59 acre parcel was much higher when part of the Beavercreek Road Concept Plan under MEV zoning, however now the density is being reduced. The city must transfer this density and where will that be? Understand that as the city transfers density further out, the rural lands of the Hamlet of Beavercreek and other surrounding County CPO's will be pressured by urbanization coming directly up against their boundaries."

FINDING: The City Commission finds that this comment does not identify an approval criterion which is supposedly not being met. It is unclear which "density" or density requirement the HBC comment is referring to. Though housing is one of the envisioned uses within the Mixed Employment Village (MEV), the Beavercreek Road Concept Plan Job and Housing Density Assumptions did not assume any housing units would be constructed within the MEV when demonstrating compliance with the minimum housing requirements within the Beavercreek Road Concept Plan. The Beavercreek Road Concept Plan identified the MEV as a transition area between the North Employment Campus and the South Neighborhood and would allow a mix of retail, office, civic and residential uses with an active street level developed with 3-5 story buildings. The applicant has proposed the MUC-1 zoning designation, which allows similar uses to those proposed for the area in the Beavercreek Road Concept Plan and buildings up to 3 stories. The staff report outlines how the application complies with the goals and policies of the Oregon City Comprehensive Plan, such as mixed use developments along corridors, zoning with supporting services for residential and office, and the efficient use of public infrastructure. Again, HBC points to no actual approval standard it would assert the applicant has failed to meet.

Thus, the City Commission find that the application is consistent with the Goals and Policies of the Oregon City Comprehensive Plan; the above comments fail to demonstrate any approval criteria are not met; and the applicant has demonstrated compliance with the applicable approval criteria.

HBC COMMENT: "Testimony was brought forward by a member of the Hamlet of Beavercreek, stating that taking this 9.59 acre parcel out of the Concept Plan would allow for 'piecemeal Development'. The Beavercreek Road Concept Plan, as well as Title 4 land, has not been planned or approved, therefore we do not know what the plan will look like. If development begins on this 9.59 acre parcel prior to the Concept Plan being planned and approved, then how will the city and developer understand the proper development of this parcel so that it actually blends in with the Concept Plan and appears as though it is part of this entire community? If planning is not correctly executed for this 9.59 acre parcel it just could become a project which the city will regret. We do not believe this is what you want, but rather we feel you want to develop a concept plan for which you can take much pride."

FINDING: Again, the City Commission finds that Title 11 is applicable to properties that have been recently added to a jurisdiction's Urban Growth Boundary (UGB), after Title 11 took effect, which is not the case for the subject site. This property was added to the Oregon City UGB in 1979, at which time a Metro Design Type was assigned to the property. The property was included in the Concept Planning process, but was not required to be reviewed under Title 11; Metro so concurs. The timing of the annexation of the property is irrelevant to determining compliance with Title 11, which, once again, is required for properties added to a UGB since Title 11 took effect, but not for annexation into a city.

HBC has identified no applicable approval standard with which the applicant has not complied.

Thus, the City Commission finds that Title 11 is not applicable to this site and the approval criteria have been met. Until such time that the Beavercreek Road Concept Plan is approved and the implementing zoning is adopted, any development on the site will be designed to comply with the site plan and design review standards of the Municipal Code and all conditions of approval adopted by the City Commission. Further, the City Commission finds that Condition of Approval No. 5 is specifically designed to address any transition which may be required

when the Concept Plan is adopted and implemented; HBC has failed to explain why that condition is insufficient to serve this purpose.

The City Commission finds that the application is consistent with the Goals and Policies of the Oregon City Comprehensive Plan; the above comments fail to demonstrate that any approval criteria are not met; and the applicant has demonstrated compliance with the applicable approval criteria.

HBC COMMENT: "Testimony was given at both the September 15th, and October 6th, 2010 hearings regarding financial concerns on the part of the applicant. The applicant explained that he is seeking a Zone change for this property which will allow him to obtain the necessary financing for this parcel and that apparently without a Zone change the lender may consider foreclosure. City Attorney, Ed Sullivan, quickly brought to the attention of the Commission that they cannot consider the financial concerns of the applicant as part of their decision to approve, or disapprove, these land use applications."

FINDING: The City Commission finds that the city attorney is correct. The City Commission finds that the financial circumstances of the applicant provide neither a basis for approval nor a basis for denial for this application. The City Commission specifically disregards for all purposes herein the applicant's professed need to obtain rezoning in order to retain its financing.

HBC COMMENT: "Certainly Transportation is one of the largest concerns with respect to this proposed development since both Beavercreek Road and Highway 213 are already at their maximum capacity. A letter from Gail Curtis, AICP, Senior Planner of ODOT, states the proposed rezoning would have a significant effect, per the requirements of OAR 660-12-0060, on the intersection of State Highway OR-213 and Meyers Road and that appropriate mitigation for the impact from this development is required. ODOT states the TIA identified that with the addition of a westbound right-turn lane at the OR 213/Meyers Rd intersection and the Meyers Rd extension that the intersection operation improves. ODOT recognized that the westbound right-turn lane is also needed to mitigate for the traffic impacts associated with the Beavercreek Road Concept Plan area. ODOT then states it supports the findings and recommended

mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213:

1. The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is 'reasonably likely' to be provided by the planning horizon (year 2027.)

2. The land use decision includes a condition requiring the applicant to contribute funding to Oregon City for construction of the westbound right-turn lane at the OR 213/Meyers Rd intersection."

FINDING: The City Commission finds that, as noted in the overview, above, the rezone has a "significant effect" at the OR 213/Meyers Road intersection that can be adequately mitigated by the provision of a right-turn lane from Meyers Road to northbound OR 213. The Oregon Department of Transportation requested the City condition any future development application for the property with a proportional fair share contribution to the construction of this mitigation. The City has agreed to impose this condition and does so here. The City has also made the finding that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027.)

The City Commission hence finds that the comments submitted present no basis for determining the applicant has failed to comply with the relevant approval standards and that the proposed conditions of approval address the needed transportation improvements to comply with the Oregon City Municipal Code, Comprehensive Plan and TPR requirements.

HBC COMMENT: "Regarding Condition 2, the Hamlet seeks clarification. If the applicant is seeking Zone change for financial reasons, can the applicant financially contribute funding to the City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection? Additionally, what is the total amount of funding required from the applicant and when is it due to the City?"

FINDING: The City Commission finds that the financial circumstances of the applicant provide neither a basis for approval nor a basis for denial for this application. The City

Commission specifically disregards for all purposes herein the applicant's professed need to obtain rezoning in order to retain its financing.

Secondly, the City Commission finds that pursuant to Condition of Approval No. 4, the applicant is required to contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection before receiving building permits. If the applicant lacks the ability to pay the required funds, no project can be developed on the subject site. The total amount of funding required from the applicant will be determined prior to the issuance of building permits.

HBC COMMENT: "The provision to extend Meyers Road to 213 makes no sense! The City is proposing to virtually take traffic from the overloaded Beavercreek/Meyers intersection and dump it out onto another already overloaded intersection at Meyers and Highway 213. This doesn't seem to be mitigation, but rather is nonsensical."

FINDING: The City Commission finds that the Meyers Road extension is identified in the City's Transportation System Plan; it is not being proposed for the first time as a part of this amendment and rezone. The TIA considered the effect of extending the Meyers Road connection, in relation to the rezone. The TIA finding is that with the Meyers Road extension the rezone has a significant effect at the OR 213/Meyers Road intersection, which can be mitigated by providing a westbound right-turn lane from Meyers Road to northbound OR 213. HBC has submitted no credible evidence or argument to the contrary.

The City Commission also finds that the above comment expresses an opinion but does not address any relevant approval criteria, and finds that there are no facts offered to support this opinion. The City Commission finds that the TSP and relevant transportation approval criteria are met.

HBC COMMENT: "Have you also considered that you are proposing to place future heavy traffic on Meyers Road, by the High School, where speed limits are posted 20 MPH? These slower speeds will queue traffic dramatically and create a traffic mess in this vicinity."

FINDING: The City Commission finds that the traffic analysis of the Beavercreek Road/Meyers Road intersection approved by ODOT and city staff found no significant effect from the proposed zone change, including the purported effect described in the above comment. HBC has submitted no cognizable evidence or credible argument to the contrary.

The City Commission finds that based upon the traffic analysis prepared by the applicant and reviewed by city and ODOT staff and the conditions of approval adopted here, the relevant transportation approval standards are met.

HBC COMMENT: "We bring your attention also to the Traffic Report addressing the intersection of Molalla Avenue and Highway 213. The report shows (357) trips onto Molalla without the Meyers Road extension and a count of 325 trips with the extension, please explain why it would be down 22 trips? Additionally, why would you propose to put even more traffic onto the Intersection of Highway 213 and Molalla Avenue when this will create a heavier back up in traffic? Currently, traffic at the Peak Hour on Highway 213 and Molalla backs up to the Haggen's Market and beyond."

FINDING: When previously missing street segments such as the Meyers Road extension are completed, motorists revise their travel patterns to travel more directly via the newly completed street. This explains why the traffic volumes will be different at the location noted by HBC (the northbound left-turn from OR 213 to Molalla Avenue). Those drivers will be able to simply cross OR 213 at Meyers Road, rather than travel north on OR 213 to turn left onto Molalla Avenue. There are locations where the volumes will increase (sometimes significantly), as a result of the new connection. The redistribution of travel due to the Meyers Road extension was discussed, reviewed against the approval criteria, and approved by ODOT and city staff. The TIA indicates that with the Meyers Road extension being completed, there is no significant effect to the OR 213/Molalla Avenue intersection as a result of the proposed zone change. HBC has submitted no cognizable evidence or credible argument to the contrary.

Thus, the City Commission finds that based upon the traffic analysis prepared by the applicant and reviewed by city and ODOT staff, the relevant transportation approval standards are met.

HBC COMMENT: "Again, the proposal to extend Meyers Road does not make any sense. This is a small two-way street with stop signs only and no signal until Warner Milne Road. The only way that an extension of Meyers Road will be helpful is if the City dramatically improves Meyers Road and puts it through to Leland Rd, preventing traffic from being dumped onto Highway 213. In its current state, Meyers Road is not beneficial in any way to moving anything other than lesser amounts of traffic east and west between Beavercreek Rd and Glen Oak Rd."

FINDING: The City Commission finds that this comment and its criticism of the Meyers Road extension contain several errors of fact. Meyers Road is signalized at OR 213. Meyers Road already directly connects from OR 213 to Leland Road. Meyers Road is constructed to City standard as a Minor Arterial from OR 213 to approximately Frontier Parkway, including curb, gutter, and complete sidewalk on the north side and a majority of the sidewalk on the south side, on-street striped bike lanes, and one travel lane in each direction. Finally, Meyers Road does NOT connect Beavercreek Road to Glen Oak Road, nor is it planned to connect these two roadways. The Meyers Road extension from OR 213 to Beavercreek Road is an identified improvement in the TSP needed to improve local connectivity, provide a complete, connected transportation system and provide transportation options.

The City Commission hence finds that the above opinion of HBC is inaccurate and does not address any relevant approval criteria; that there are no facts offered to support this opinion; and that the TSP and relevant transportation approval criteria are in fact met.

HBC COMMENT: "Finally, let us not lose sight of the real elephant in the room, and that is for the intersection of Beavercreek Road and Highway 213. This is where our attentions should be focused, now and in the future, since this is the true pinch point for vehicular traffic in this entire region. Continued stresses, from all future development by the City, will have great effects upon this intersection, which even with continual expansion, fails miserably."

FINDING: The City Commission finds that, while the above comment may reflect HBC's opinion, it presents no facts to dispute the conclusion in the TIA prepared by licensed professional traffic engineers that no significant effect will result from the proposed rezone at the OR 213/Beavercreek Road intersection. The TIA was prepared in consultation with and

reviewed by ODOT and city staff and found to comply with all applicable transportation standards as proposed or with the recommended conditions of approval.

The City Commission again finds that based upon the traffic analysis prepared by the applicant and reviewed by city and ODOT staff, the relevant transportation approval standards are met.

HBC COMMENT: "The Hamlet of Beavercreek's Findings in the City's Staff Report is that many discrepancies exist in the statements."

FINDING: The City Commission finds that the above general comment is unclear and its meaning is indecipherable. HBC has not credibly and factually identified any relevant discrepancies or errors in the TIA, the findings made by the Planning Commission or contained in the Staff Report, or in the underlying "statements" upon which those documents rely.

The City Commission finds that the application as proposed, with the recommended conditions of approval, complies with the applicable approval criteria for a Comprehensive Plan Amendment and Zone Change.

HBC COMMENT: "We do not believe the applicant has adequately demonstrated compliance with the Transportation Impacts, nor has the applicant proved that a Zone change to MUC-1 would be desirable for this land."

FINDING: The City Commission finds that the methodology, approach, analysis procedures, findings, and recommendations contained in the TIA have been discussed with and reviewed and approved by ODOT and city staff, and HBC points to no evidence and raises no argument which would place that approval in question. The TIA fully documents that the TPR requirements for a zone change are met with the existing and planned transportation system, including the provision of a right-turn lane from Meyers Road to northbound OR 213. No one has presented credible evidence to the contrary.

The City Commission finds that the application as proposed, with the recommended conditions of approval, complies with the applicable approval criteria for a Comprehensive Plan Amendment and Zone Change.

HBC COMMENT: "We fail to see how this proposed development will benefit Oregon City. We do not understand why you are deviating from the Concept Plan for one property owner? And now you are decreasing density, from the previous MEV zoning in the Concept Plan, where this property was to be the 'cornerstone' of the plan? We question where will the density be transferred to within the Concept Plan? Lastly, why are you creating absolutely huge expenses for a transportation system that will be needed once development is proposed? Why would you do this just for a 9.59 acre parcel? It doesn't pen out and seems to be a terrible waste of taxpayer dollars at a time when the economy simply does not support this type of wasteful spending. It seems the intelligent and prudent decision would be to wait until the Beavercreek Road Concept Plan is designed and adopted, along with the Title 4 lands. We feel this 9.59 acre parcel should be placed back into the Concept Plan and allowed to be developed as originally intended under MEV zoning."

FINDING: Here, HBC recapitulates several of the comments addressed above, especially with respect to the Concept Plan and questions of density. Hence, the City Commission in turn incorporates here its findings with respect to those concerns, set out above. HBC again fails to point to any failure of the applicant to comply with the approval standards in this case.

The City Commission finds that the application as proposed, with the recommended conditions of approval, complies with the applicable approval criteria for a Comprehensive Plan Amendment and Zone Change.

HBC COMMENT: "Rather it is more desirable to return this property to the Concept Plan, allowing it to be developed as intended and to be part of a 'planned community'. This property was intended to be the Cornerstone of the Concept Plan, however when taken away from the Concept Plan this current land use application will deter from the overall vibrancy and uniqueness originally intended for this land. The applicant has not demonstrated compliance with Goal 6.1 Air Quality, please note that Beavercreek Road is identified as a transportation corridor which is NOT walkable. The applicant has not demonstrated compliance with Goal 6.1 Air Quality, please note that Beavercreek Road is identified as a transportation corridor that is not walkable."

FINDING: The City Commission finds that the above thoughts relating to the Concept Plan have been addressed in its findings above. The City Commission again finds as it did with respect to the issue of compliance with the Concept Plan, above.

With respect to Goal 6.1 Air Quality, Policy 6.1.1 of the Comprehensive Plan states:

Promote land-use patterns that reduce the need for distance travel by single-occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

The following finding was prepared for the Planning/City Commission staff report, and the City Commission reiterates it here: The applicant indicates that one of the major concepts of a sustainable community is that services in the neighborhood are "walkable." The future development plans for this site will include provisions for pedestrian and bicycle modes of transportation. In addition, as a part of this plan, Beavercreek Road has been identified as a transportation corridor, where multiple forms of transportation will be available. The MUC-1 zone allows and encourages mixed use development. Permitted uses in the MUC-1 zone include both residential and commercial uses which promote and encourage alternate forms of transportation. These concepts together with design review will encourage a development that meets this policy. Thus, the City Commission finds that the applicant has adequately demonstrated compliance with this policy.

The City Commission finds that if this property is developed, the applicant will be required to comply with the Oregon City Municipal Code for the design of the buildings, street improvements (including sidewalks) and provisions for pedestrian and bicycle access. It is difficult to understand how providing such needed amenities would not be in compliance with the above goal and policy of the Comprehensive Plan.

The City Commission finds that no facts have been submitted demonstrating that the above policy is not being met by the proposed application.

HBC COMMENT: "The Hamlet feels Statewide Goal 14 has not been met. The applicant believes the proposed zoning and Comp Plan designation MUC 1 will be in concert with the goals of the city. We have already outlined that it would be best to keep this parcel in the

Concept Plan where it will be developed as a planned community. These are just a few ways in which the applicant has failed to adequately demonstrate that this is the best use for this 9.59 acre parcel. It is probable that the Hamlet could have indicated more discrepancies if it had been given the opportunity to fully participate in the hearings before the Planning Commission."

FINDING: Statewide Planning Goal 14 – Urbanization, states:
To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. All necessary public utilities are available to the site at this time in order to allow for its development to urban densities. For this reason, this application is consistent with an orderly and efficient transition from rural to urban land use.

The City Commission finds these statements of the applicant to be correct. The comments submitted by HBC fail to demonstrate how development of this property would not provide for the orderly and efficient transition from rural to urban land use; would not be able to accommodate urban populations and employment; or would not give rise to a use of land within the City limits which is efficient.

The City Commission thus finds that Statewide Planning Goal 14 is met.

With respect to the Concept Plan, the City Commission reiterates its findings on this issue above and incorporates them by reference here.

With respect to HBC's right to participate, the City Commission finds that the notice given by the City in this matter was fully compliant with all legal requirements. The City Commission

finds that, in addition, HBC was given an extra opportunity to comment on the application at a second hearing, and an additional opportunity thereafter to submit further comments in writing.

HBC COMMENT: "Our final concern is regarding 'Partnering'. We ask that Oregon City partner with the Hamlet of Beavercreek, as well as other Hamlets and County CPO's bordering Oregon City. Often, Oregon City plans development without regards to it's effect upon the neighboring communities which is what has happened in these two land use applications. Development on either Beavercreek Road or Highway 213 could have detrimental affects upon the citizens living in Beavercreek, as well as other outlying rural areas, which is why we have placed strong emphasis upon this development. Oregon City seems oblivious to issues facing it's neighbors, therefore how can you appropriately plan for the future? The answer is, you simply cannot. Only by Partnering with your neighbors will you be able to achieve appropriate and efficient planning for this entire section of Clackamas County. Planning into the future must change. The Hamlet of Beavercreek will be vigilant in the future as urban cities expand. We will be vigilant in protecting our rural lands, our small farms, our creeks and streams with fish and wildlife. We will protect and preserve our rural community and it's way of life. This is what the 6500 citizens of the Hamlet of Beavercreek have asked for. They want to design their future and the destiny of their community. We ask Oregon City to partner with our Hamlet on all future development and we ask that you show respect for our community and that you listen to the 6500 voices who are asking only to be heard and acknowledged.

At the October 6th, 2010 City Commission meeting, the city chose to extend an olive branch to the Beavercreek community by giving the Hamlet until 5 PM on October 13th to submit written testimony, however they are being bound, by the City, to testify only to the Staff Report and Application and have been forbidden to bring forth any new facts. We continue to feel that Oregon City has breached the requirements of state Goal 1 by choosing to ignore the 6500 people of the Hamlet. At the upcoming City Commission meeting on October 20th, 2010, the City will have the opportunity to redeem it's latest actions upon the Hamlet of Beavercreek by making the decision to remand Land Use applications ZC 10-01 and PZ 10-01 back to the Planning Commission allowing the Hamlet of Beavercreek to **testify to any and all comments, concerns and facts,** rather than holding them hostage, stating they can only testify to the Staff Report and application."

FINDING: The City Commission finds that the application was noticed as required by the Oregon City Municipal Code, including mailing to all property owners within 300 feet of the site, the City neighborhood association and CIC, posting land use notice signs on the property frontage, including Beavercreek Road, advertising the application and public hearings in the newspaper and posting the land use application on the City web site. The land use application was sent to the Clackamas County Planning Department and Transportation Department, requesting comments. The County did not submit any comments indicating any issues with the proposed application. No one was denied the right to timely participation in this case.

The City Commission finds that the noticing of the land use application was performed in compliance with the requirements of the Oregon City Municipal Code, which is also in compliance with Statewide Planning Goal 1.

CONCLUSION

The relevant issue as to the plan amendment and zone change as a whole is not one's opinion as to whether they are "desirable" but, rather, whether the requested plan amendment and zone change comply with the specific, relevant approval standards. For all the reasons set out in the Findings adopted by the Planning Commission and the Supplemental Findings set out here, the City Commission finds and concludes that HBC has not raised any persuasive argument that the applicant has failed to meet its burden of proof as to any of the approval standards in this case. The applicant has in fact met that burden as to each of those standards, and its application should be and is approved with conditions by the City Commission.

PDX_DOCS:457553.1 [34758.00100]

AGENDA
City of Oregon City, Oregon
WEDNESDAY, NOVEMBER 3, 2010

REGULAR MEETING OF THE CITY COMMISSION
7:00 P.M.

City Commission:	***Meeting held at:***
Alice Norris, Mayor	City Hall
Doug Neeley, Commission President	Commission Chambers
James Nicita	625 Center Street
Rocky Smith, Jr.	Oregon City, OR 97045
Daphne Wuest	503-657-0891

6:00 p.m. EXECUTIVE SESSION OF THE CITY COMMISSION

a. Pursuant to ORS 190.660(2)(e): To conduct deliberations with persons designated by the governing body to negotiate real property transactions.

7:00 p.m. REGULAR MEETING

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1. Convene Regular Meeting of November 3, 2010, and Roll Call

2. Flag Salute

3. Ceremonies, Proclamations, Presentations

4. Citizen Comments

   This section of the agenda allows citizens up to 3 minutes to present information relevant to the City, not related to items on the agenda. As a general practice, the City Commission does not engage in discussion with those making comments. Prior to speaking, citizens should fill out a form (available in the back of the Chambers) and hand it to the City Recorder. Begin speaking by stating your name and residing city.

5. Adoption of the Agenda

6. Public Hearings

7. General Business

4-68 a. Ordinance for Introduction, No. 10-1012, Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor Designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor District, for a 9.6-acre parcel of land located at 19896 Beavercreek Road. PZ 10-01 / ZC 10-01.
Staff: Tony Konkol, Community Development Director.

69-71 b. Second Reading, Ordinance No. 10-1010, Adoption of Solar Installation Code
Staff: Tony Konkol, Community Development Director

72-79 c. Resolution No.10-28 Adopting Fees for Solar Installation Specialty Code
Staff: Tony Konkol, Community Development Director

80-84 d. Resolution No. 10-29, Committing Local Political and Financial (Local Match) Support for the Downtown Oregon City Connective Corridor - Pedestrian and Bicycle Improvements- Main

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7. General Business

Street 5th to 15th Streets (Phases 1 and 2), Oregon City, Oregon, and Endorsing the Application for Oregon Department of Transportation Flexible Funds
Staff: Nancy Kraushaar, City Engineer and Public Works Director

8. Consent Agenda

This section allows the City Commission to consider routine items that require no discussion and can be approved in one comprehensive motion. An item may only be discussed if it is pulled from the consent agenda.

85-86 a. Minutes of the October 12, 2010 Joint Work Session
Staff: Nancy Ide, City Recorder

87-90 b. Minutes of the October 12, 2010 Work Session
Staff: Nancy Ide, City Recorder

91-97 c. Public Water Main Easement for the Oregon City Shopping Water Meter Replacement Project - City Public Works File No. Ci10-0010
Staff: Nancy Kraushaar, City Engineer and Public Works Director

98-107 d. Public Storm Facilities and Drainage Easement for Lot 11 of Mays Point Subdivision - City Planning File No. TP06-02
Staff: Nancy Kraushaar, City Engineer and Public Works Director

108-114 e. Minutes of the October 20, 2010 Regular Meeting
Staff: Nancy Ide, City Recorder

9. Communications

a. City Manager

b. Mayor

Mayoral Appointment of Blane Meier to the Transportation Advisory Committee for the term November 3, 2010 to December 31, 2011.

c. Commissioners

10. Adjournment

ORDER OF THE VOTE NO. 2
Neeley, Wuest, Smith, Nicita, Norris

Citizen Comments: The following guidelines are given for citizens presenting information or raising issues relevant to the City but **not listed on the agenda**.

- Complete a Comment Card **prior to the meeting** and submit it to the City Recorder.
- When the Mayor calls your name, proceed to the speaker table and state your name and city of residence into the microphone.
- Each speaker is given 3 minutes to speak. To assist in tracking your speaking time, refer to the timer at the dais.
- As a general practice, the City Commission does not engage in discussion with those making comments.

If you wish to speak to an item **on the agenda**, complete the Comment Card, submit it to the City Recorder, and the Mayor will call your name when the item is addressed on the agenda.
Agenda Posted October 29, 2010 at City Hall, Pioneer Community Center, Library, City Web site.
Video Streaming & Broadcasts: The meeting is streamed live on Internet on the Oregon City's Web site at

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10. Adjournment

www.orcity.org and available on demand following the meeting. The meeting can be viewed live on Willamette Falls Television on Channels 23 and 28 for Oregon City and Gladstone residents; Channel 18 for Redland residents; and Channel 30 for West Linn residents. The meetings are also rebroadcast on WFTV. Please contact WFTV at 503-650-0275 for a programming schedule.

City Hall is wheelchair accessible with entry ramps and handicapped parking located on the east side of the building. Hearing devices may be requested from the City Recorder prior to the meeting. Disabled individuals requiring other assistance must make their request known 48 hours preceding the meeting by contacting the City Recorder's Office at 503-657-0891.

Agenda Item No. 7a
Meeting Date: 03 Nov 2010

COMMISSION REPORT: CITY OF OREGON CITY

TO:	Honorable Mayor and City Commission
FROM:	Pete Walter, Planner
PRESENTER:	Tony Konkol, Community Development Director
SUBJECT:	First Reading, Ordinance No. 10-1012, Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor Designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor District, for a 9.6-acre parcel of land located at 19896 Beavercreek Road. PZ 10-01 / ZC 10-01
Agenda Heading: General Business	
Approved by: David Frasher, City Manager	

RECOMMENDED ACTION (Motion):

Staff recommends that the City Commission approve the first reading of Ordinance Number 10-1012, which will amend the Comprehensive Plan designation from Future Urban to Mixed Use Corridor and approve a Zone Change from County: Future Urban 10-acre minimum to Mixed Use Corridor - 1, for a 9.6-acre parcel of land located at 19896 Beavercreek Road.

BACKGROUND:

At the October 20th, 2010 meeting, the City Commission considered the additional information submitted into the record and requested that Condition of Approval No. 6 be amended to incorporate additional information to ensure that the intent and vision of the Beavercreek Road Concept Plan is implemented if the property is developed prior to the adoption of the concept plan implementing zoning code. Condition of Approval No. 6 has been updated to incorporate the direction provided by the Commission.

At the October 6th, 2010 meeting, the City Commission held a public hearing on this application. The City Commission left open the public record for this item to allow the submission of additional written comments. The Commission specified that any written public comments must be received no later than 5:00 P.M., October 13, 2010. All comments must address the existing record and no new evidence may be submitted.

On August 30th, 2010, the Planning Commission voted 4-0 to recommend approval of the proposed Comprehensive Plan Amendment and Zone Change to the City Commission, with Conditions.

BUDGET IMPACT:

FY(s):
Funding Source:

ATTACHMENTS:

ORDINANCE NO. 10-1012

AN ORDINANCE AMENDING A PORTION OF THE CITY'S COMPREHENSIVE PLAN MAP FROM COUNTY FU – FUTURE URBAN TO MUC - MIXED USE CORRIDOR AND TITLE 17: ZONING, CHAPTER 17.06.030: A PORTION OF THE OFFICIAL ZONING MAP, OF THE OREGON CITY MUNICIPAL CODE, FROM COUNTY - FU-10 TO MUC-1 – MIXED USE CORRIDOR DISTRICT FOR THE PROPERTY IDENTIFIED AS CLACKAMAS COUNTY MAP 3-2E-10C, TAX LOT 800.

WHEREAS, the City of Oregon City has adopted Comprehensive Plan and Zoning Maps to implement the Comprehensive Plan in conformance with statutory requirements and the requirements of the Statewide Land Use goals; and

WHEREAS, the City of Oregon City Comprehensive Plan and Zoning Maps may be amended and updated as necessary upon findings of facts that satisfy approval criteria in the City of Oregon City Municipal Code Section 17.68.020; and

WHEREAS, the owner of the subject site, identified as Clackamas County Map 3-2E-10-C, Tax Lot 800, has requested the approval of a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land; and

WHEREAS, the proposed comprehensive plan designation of the site as MUC supports the Mixed Use Corridor District zoning designation, and

WHEREAS, the zone change from FU-10 District to MUC-1 is for a property that is has been located within the City's Urban Growth Boundary since 1979;

WHEREAS, the MUC-1 Zone meets the intent of the Comprehensive Plan Policies for mixed-use development, housing choices and increased density near activity centers and along the Beavercreek Road corridor;

WHEREAS, the subject property is not within the Metro Urban Growth Functional Management Plan Title 4 (Industrial and Employment Land) area that has been slated for redesignation out of Title 4 land on Metro's Urban Design Type Map; and therefore the City need not wait for the Title 4 map change before proceeding with the rezoning; and

WHEREAS, based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known; and

WHEREAS, the city considers the construction of the Meyers Road Extension between High School Ave and OR-213 by 2027 a reasonably likely improvement that will be demonstrate compliance with the Transportation Planning Rule (OAR 660-12-0060), and the project is identified in the City's capital improvement program and the city collects SDCs for this project's cost; and

WHEREAS, the projected transportation and public infrastructure impacts resulting from a zone change from FU-10 to MUC-1 Mixed Use Corridor District shall be required to comply with the specific Conditions of Approval and all applicable city regulations at the time a development is proposed on the property, and the applicant has demonstrated compliance with the Transportation System Plan, Public Infrastructure Master Plans and Oregon City Municipal Code; and

WHEREAS, notice of the proposed comprehensive plan map amendment and zone change was mailed to residents within 300 feet of the subject site and the Beavercreek Hamlet; and, in addition, signs were posted on the property, notice was published in a local newspaper and the City held public hearings where the objectives and concepts of the proposal were presented and discussed; and

WHEREAS, on August 30th, 2010, the Planning Commission held a public hearing and, after considering all the public testimony and reviewing all the evidence in the record, recommended approval of the requested comprehensive plan amendment and zone change (with conditions) to the City Commission by a 4 – 0 vote; and

WHEREAS, on October 6th, 2010, the City Commission held a public hearing and took testimony from the Hamlet of Beavercreek and subsequently extended the written comment period for 7 days to consider additional arguments; and

WHEREAS, on October 20th, 2010, the City Commission allowed additional testimony from the Hamlet of Beavercreek and voted not to consider a portion of the additional information submitted by the Hamlet concerning the finding that the construction of Meyers Road was reasonably likely to be constructed ; and

WHEREAS, on November 3rd, 2010, the City Commission, after considering all of the public testimony and written arguments, found that the application, as conditioned, met all of the applicable approval criteria for a comprehensive plan amendment and zone change; and

WHEREAS, approving the comprehensive plan amendment and zone change is in compliance with the Goals and Policies of the Oregon City Comprehensive Plan and as proposed and conditioned is in compliance with all applicable city requirements.

NOW, THEREFORE, OREGON CITY ORDAINS AS FOLLOWS:

Section 1. The requested comprehensive plan map amendment Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation (PZ 10-1), and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district (ZC 10-1) are hereby approved as proposed by the applicant with conditions for the property identified as Clackamas County Map 3-2E-10C, Tax Lot 800 and the Comprehensive Plan Map and Zoning Map are hereby changed accordingly.

Section 2. The comprehensive plan amendment and zone change are approved as proposed by the applicant with the conditions of approval attached to this Ordinance as Attachment A, Exhibit 1.

Section 3. The Commission adopts the findings and conclusions from the August 30, 2010 Planning Commission staff report, included as Attachment A, Exhibit 2, and the

Supplemental Findings, dated October 26, 2010, included as Attachment A, Exhibit 3 and incorporated herein to support the City's approval to amend the comprehensive plan map and zoning map.

Read for the first time at a regular meeting of the City Commission held on the 3rd day of November 2010, and the City Commission finally enacted the foregoing ordinance this ___ day of ____ 2010.

_____
ALICE NORRIS, Mayor

Attested to this _____ day of _____ 2010

_____
Nancy Ide, City Recorder

Approved as to legal sufficiency:

_____
City Attorney

CITY COMMISSION CONDITIONS OF APPROVAL

Planning Files: PZ 10-01 / ZC 10-01

ORDINANCE: 10-1012

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.

2. Public facilities/infrastructure locations shall be provided as determined by the future development's conditions of approval.

3. Future developments shall obtain the appropriate Erosion Prevention and Sedimentation Control permit(s) at the time of construction plan submittal.

4. Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

5. If the Beavercreek Road Concept Plan (BRCP) is formally adopted subsequent to approval of the proposed rezoning, as part of any subsequent site plan design review approval, master plan, phased development review, or other appropriate review, the development shall comply with the BCRP, and any design and performance standards adopted thereto.

6. If the Beavercreek Road Concept Plan is not yet adopted at the time the applicant seeks development approval, the applicant's proposal shall be consistent with the intent and purpose of the Mixed Employment Village, which is to provide retail, office, civic and residential uses in an urban, pedestrian friendly and mixed use setting that is transit supportive in its use, density and design. Development shall create an active urban environment that incorporates pedestrian-friendly amenities, urban building design consistent with the Beavercreek Road Concept Plan and cost effective green development practices. At a minimum, the overall development site shall achieve an average minimum floor area ratio (FAR) of 0.25 and a minimum building height of thirty-four feet except for accessory structures or buildings under one thousand square feet. The applicant may seek to modify these standards through the master plan adjustment or variance process with city approval.

Ord. 10-1012: Attachment A, Exhibit 1.

7. In accordance with OCMC 17.29.070, the required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs. An individual phase of a project approved through the Master Plan process OCMC 17.65 shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, including phased development, that the required density for the project will be achieved at project build-out.

Ord. 10-1012: Attachment A, Exhibit 1.

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

AUGUST 30, 2009 PLANNING COMMISSION HEARING

FILE NO.:	PZ 10-01: Comprehensive Plan Map Amendment ZC 10-01: Zone Change
APPLICANT/ OWNER	Marylwood, LLC, Attn: Phil Gentemann 7128 SW Gonzaga St Portland, OR 97223
REPRESENTATIVE:	Theta, LLC PO Box 1345 Lake Oswego, OR 97035
REQUEST:	The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.
LOCATION:	19896 Beavercreek Road Clackamas County Map 3-2E-10C, Tax Lot 800
REVIEWER:	Pete Walter, AICP, Associate Planner Bob Cullison, Development Services Manager
RECOMMENDATION:	Recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing.

PROCESS: Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing) may appeal the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when it becomes final. THE APPLICATION IS ON FILE AT THE OREGON CITY CITY HALL. IF YOU HAVE ANY QUESTIONS ABOUT THIS APPLICATION, PLEASE CONTACT THE PLANNING DIVISION OFFICE AT (503) 722-3880.

I. ***BACKGROUND***:

The property in question is annexed to Oregon City. It is designated Future Urban on the City's Comprehensive Plan. In order to develop the property the applicant has taken the first step of applying for a change to the Comprehensive Plan designation and city zoning.

The applicant has chosen to amend the Comprehensive Plan designation from Future Urban to Mixed Use Commercial, and has applied for a Zone Change from FU-10 – Future Urban to MUC-1, Mixed Use Corridor.

The major review criteria are consistency with the Oregon City Comprehensive Plan and Statewide Planning Goals. The goals and objectives of the Beavercreek Road Concept Plan have not been used as review criteria since the plan was remanded to the City and to Metro by the Land Use Board of Appeals (LUBA) on appeal.

Additionally, since the proposed zone change has been determined to affect an ODOT transportation facility, State Highway OR-213, the applicant has to show compliance with the State Transportation Planning Rule OAR 660-12-0060 (TPR), and has submitted a Traffic Impact Analysis pursuant to state and city guidelines in this regard.

II. ***BASIC FACTS:***

1. **Property Description**: The subject property is located at 19896 Beavercreek Road in Oregon City, also known as T3S-R2E-10C tax lot 800. The property is 9.59 acres in size, triangular in shape and is relatively flat with slopes not exceeding 5% (running SE to NW).

   The subject property is surrounded by undeveloped land to the north, northeast and southeast, and was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Carrington Place, an existing residential subdivision zoned R-6, and existing single family residential lots zoned R-3.5 and R-10 are all to the southwest, and the Oregon City High School is to the northwest, both of which are located across Beavercreek Road from the subject site. A 50-foot wide Williams Natural gas pipeline corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area except for parking/maneuvering, open space and/or setbacks. The signalized intersection of Meyers and Beavercreek Road is located along the subject property frontage.

2. **Zoning/Permitted Use:** The property is zoned Future Urban – 10, which is a County holding zone with a 10-acre minimum lot size. The site is also under Farm Use tax deferral.

3. **Surrounding Uses/Zoning:** Properties to the north, east and south of the subject site are zoned FU-10, and are part of the same 122-acre annexation approved by the voters that annexed the subject parcel in 2008 (Oregon City Planning file AN 07-02, Metro File CL1807). The property contains five (5) single-family dwellings. It is currently zoned FU-10 "Future Urbanizable". Properties to the west across Beavercreek Road include Oregon City High School (Zoned R-8 Single Family Residential) and city subdivisions zoned R-6 Single Family Residential and R-3.5 Dwelling District.

4. **Density Calculations:**There is currently one house on the property. If the proposed application is approved the property could be developed with a variety of uses including multi-family residential use. .

5. **Comments:** Notice of the proposed plan amendment and zone change requesting comments was sent to the Department of Land Conservation and Development, advertised in the Clackamas Review, mailed to property owners within 300 feet of the subject site and the property was posted with a Land Use Action sign requesting comments.

   Comments were received from the following persons:

   Mike Mermelstein, Caufield Neighborhood Association. (Exhibit F). The Caufield Neighborhood Association is concerned that the permitted uses under MUC-1 is too broad, and would like to see the list narrowed and more focused. The Neighborhood Association is also concerned about the appearance of commercial and development along Beavercreek Road.

   Regarding the Caufield Neighborhood Association's comments, the applicant has requested re-zoning to MUC-1, which if approved would affect the allowable uses of the property. However, the applicant does not propose to narrow or alter the zoning code language governing permitted uses in the MUC-1 zone district. A request to narrow the range of permissible uses for the MUC-1 zone district would require a separate, Legislative amendment to the zoning code that would need to be approved by the Planning Commission and City Commission. Such a request has not been proposed.

   A specific development proposal is not proposed at this time. Future development of the site would require a separate Site Plan and Design Review application, at which time the adopted architectural and landscaping design review requirements of the Oregon City Municipal Code would apply.

   Gail Curtis, AICP, Senior Planner, Oregon Department of Transportation, (Exhibit D). ODOT reviewed the application and provided comments regarding the impact of the proposed rezoning on Highway 213. The proposed rezoning would have a significant effect, per the requirements of OAR 660-12-0060, on the intersection of the State Highway OR-213 and Meyers Road and is required to provide appropriate mitigation for the impact.

   The issues raised by the comments submitted that address an approval criteria have been addressed throughout the report and staff has provided findings, and when appropriate, conditions, to address the issues raised and to ensure that the proposal complies with the approval criteria.

DECISION-MAKING CRITERIA:

Municipal Code Standards and Requirements

OCMC Title 17, Zoning:	Chapter 17.29 - "MUC"—Mixed-Use Corridor District Chapter 17.50, Administration and Procedures Chapter 17.68, Zone Changes and Amendments
Oregon City Comprehensive Plan (2004)	Relevant Goals and Policies (OCMC 17.68.020.A.)
Statewide Planning Goals	OAR 660-015-000(1) – (14)
Metro 2040 Urban Growth Functional Plan	Titles 1 and 7.

OREGON CITY MUNICIPAL CODE

17.50.050 - Preapplication conference and neighborhood meeting.

A. Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents. Conditional use, subdivision, or site plan and design review (excluding minor site plan and design review) applications shall schedule and attend a meeting with the city-recognized neighborhood association in whose territory the application is proposed. Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended. The applicant shall send, by certified mail, return receipt requested, a letter to the chairperson of the neighborhood association and the citizen involvement committee describing the proposed project. A meeting shall be scheduled within thirty days of the notice. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall hold their own meeting after six p.m. or on the weekend, with notice to the neighborhood association, citizen involvement committee, and all property owners within three hundred feet. If the applicant holds their own meeting, a copy of the certified letter shall be required for a complete application. The meeting shall be held within the boundaries of the neighborhood association or in a city facility.

Finding: The applicant advertised and held a neighborhood meeting with the Caufield Neighborhood Association on January 26th, 2010 to discuss the proposal with affected property owners. This standard is met.

B. Preapplication Conference. Prior to submitting an application for any form of permit, the applicant shall schedule and attend a preapplication conference with city staff to discuss the proposal. To schedule a preapplication conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the city, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans. The purpose of the preapplication conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal. The planning division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the preapplication conference. Notwithstanding any representations by city staff at a preapplication conference, staff is not authorized to waive any requirements of this Code, and

any omission or failure by staff to recite to an applicant all relevant applicable land use requirements shall not constitute a waiver by the city of any standard or requirement.

C. A preapplication conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant must schedule and attend another conference before the city will accept a permit application. The community development director may waive the preapplication requirement if, in the director's opinion, the development does not warrant this step.
(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

Finding: The applicant attended the required pre-application conference on November 9, 2009 (See Exhibit A4), and submitted the formal application within 6-months of the pre-application conference. This standard is met.

17.68.020 Zone Changes and Amendments - Criteria
The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.
The applicant states that as outlined within this narrative below, the requested zone change and comprehensive plan amendment are consistent with the applicable goals and policies of the City's Comprehensive Plan.

According to the applicant, the goal of the proposal is to establish a City zone so that the property may be developed in the future to the highest and best use. As development occurs on the easterly side of Beavercreek Road, the applicant believes this proposed zoning and comprehensive plan designation will be in concert with the goals of the City. The Mixed Use Corridor (MUC) District is designed to apply along selected sections of the transportation corridors.

Goal 2.3 Corridors
Focus transit-oriented, higher intensity, mixed-use development along selected transit corridors.

Policy 2.3.1
Ensure planning for transit corridors includes facilities and access management, aesthetics (including signage and building facade improvements), infill and redevelopment opportunities, high-density residential development, and business assistance to existing businesses.

Finding: The applicant indicates that the subject property is at the existing signalized intersection of Beavercreek and Meyers Roads and will serve as the only access from the transit corridor. This connection will provide for connectivity and circulation opportunities to a future connected local street network. The MUC-1 zone will allow for mixed use development that could include high density residential and a variety of medical, office and retail uses. Since development and use is not proposed as a part of this application, specific building requirements (aesthetics, facades, etc.) will be reviewed at the time a site plan and design review application is submitted. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.4 Neighborhood Livability
Provide a sense of place and identity for residents and visitors by protecting and maintaining neighborhoods as the basic unit of community life in Oregon City while implementing the goals and policies of the other sections of the Comprehensive Plan.

Policy 2.4.2
Strive to establish facilities and land uses in every neighborhood that help give vibrancy, a sense of place, and a feeling of uniqueness; such as activity centers and points of interest.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The property was originally designated low density residential and was subsequently designated Future Urban by the City in 2004. As development occurs on the easterly side of Beavercreek Road, the applicant believes this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the city. The MUC-1 designation allows for a variety of uses which all relate to potential services and housing options that could help create the vibrant core area that is the goal of the City. Since development and use are not specifically proposed as a part of this application, specific requirements would be reviewed under the future design review application. The permitted uses offer opportunities when development occurs to project a vibrancy and uniqueness through architecture, landscaping and mixed uses. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.3
Promote connectivity between neighborhoods and neighborhood commercial centers through a variety of transportation modes.

Finding: Please see findings under OCMC 17.68.020(C) regarding the applicant's Transportation Impacts, compliance with the Transportation Planning Rule, and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. Bus service is already available at Highway 213, Beavercreek Road and Molalla Road with service to Clackamas Community College. In time, Tri-Met bus service will be extended to the site and already provides conductivity to the light rail at Clackamas Town Center. The Beavercreek road cross section provides for bike lanes. Access to the site will be at the signalized intersection of Beavercreek and Meyers Roads which provides connectivity from the existing residential neighborhoods, school and this future mixed use. With the potential uture design review application for the subject property, transportation requirements will be addressed to meet this policy. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.4
Where environmental constraints reduce the amount of buildable land, and/or where adjacent land differs in uses or density, implement Comprehensive Plan and zoning designations that encourage compatible transitional uses.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. When annexed, the property was assigned the Clackamas County zoning

designation of FU-10, which is a "holding" zone requiring a 10-acre minimum lot size. The surrounding farmland property to the north, northeast and southeast was brought into the UGB in 2002/2004 and has a Comprehensive Plan designation of Future Urban. The requested MUC-1 zone allowed uses fall into this category and would be consistent with these goals. There are no environmental constraints on the subject property. However, there is a 50-foot wide gas corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area. This strip would be suitable for parking/maneuvering, open space and/or setbacks. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.5
Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Finding: The applicant indicates that there are no plans for a neighborhood school on this property. Oregon City High School is located to the northwest of the subject site. The MUC-1 zone includes assisted living facilities, parks and childcare centers as allowed uses. Public or private education facilities are allowed as a Conditional Use in the MUC zone. Therefore, no barriers would be created by allowing this requested zone change and comprehensive plan amendment. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.5 Retail and Neighborhood Commercial
Encourage the provision of appropriately scaled services to neighborhoods.

Policy 2.5.1
Encourage the redevelopment of linear commercial corridors in ways that encourage expansion of existing businesses and infill development, and at the same time reduces conflicting traffic movements, improves the aesthetic character of these commercial areas, and encourages trips by transit, bicycling and walking.

Finding: Complies with Conditions. Please see findings under OCMC 17.68.020(C) regarding the applicant's Transportation Impacts, compliance with the Transportation Planning Rule, and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. With the potential future design review application for the subject property, these goals will be addressed to meet this policy. Limited access from Beavercreek Road will reduce conflicting traffic movements and provide an avenue for conductivity and circulation with a future local street network. Bike lanes are included in the Beavercreek Road design and will encourage ridership from this site to residential areas. The proposed mixed use corridor district encourages improved aesthetic character by requiring substantial landscaping minimums.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from County FU-10 to the Mixed Use zone.

Given a significant affect was identified under the TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2). The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from County FU-10 Future Urban to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 2.5.2
Allow and encourage the development of small retail centers in residential neighborhoods that provide goods and services for local residents and workers. Generally, these centers should be located at the intersections of two or more streets that are classified as neighborhood collectors or higher.

Finding: The applicant indicates that the subject property is located at the intersection Beavercreek and Meyers Roads which are classified as neighborhood collectors or higher. The Mixed Use Corridor District has the range of permitted uses that could provide the local residents with vital goods, services and employment. Beavercreek Road has been identified as a transportation corridor. The subject property is at the signalized intersection of Beavercreek and Meyers Road. The MUC-1 zone would allow for a variety of retail and medical uses that could potentially serve the community. While the development plans for the site will be determined at a future date, the proposed plan amendment and zone change are consistent with this policy. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.5.4
Encourage the development of successful commercial areas organized as centers surrounded by higher density housing and office uses, rather than as commercial strips adjacent to low-density housing.

Finding: The applicant indicates that the subject property is on the easterly side of Beavercreek Road and separated from low density housing. The MUC-1 zone allows for mixed use development along corridors which includes multi-family housing. Thus, any future development of the site that may include commercial areas would be consistent with this policy. The currently existing housing near the site across Beavercreek

Road is a combination of residential zones including R-6, R-3.5 and R-10. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.6 Industrial Land Development
Ensure an adequate supply of land for major industrial employers with family-wage jobs.

Policy 2.6.8
Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which if approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals.

Finding: The subject property is not identified as employment land on Metro's 2040 Map and was not brought into the Urban Growth boundary to meet regional employment needs. The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current holding zone is County FU-10 Future Urban, which has a 10-acre minimum lot size. The property was included as a part of the Beavercreek Road Concept Plan, however it was brought into the UGB prior to the Title 11 concept planning requirement and therefore may be considered for rezoning irrespective of the status of the Beavercreek Road Concept PlanThe requested zone of MUC-1 would allow for a variety of uses that will add employment opportunities to the area and meet the goals of the Beavercreek Road Concept Plan. Many of the permitted uses in the MUC zone, such as professional services, dental services, and veterinary clinics are family-wage jobs. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.7 Oregon City Comprehensive Plan Land-Use Map
Maintain the Oregon City Comprehensive Plan Land-Use Map as the official long-range planning guide for land-use development of the city by type, density and location.

Policy 2.7.1
Maintain a sufficient land supply within the city limits and the Urban Growth Boundary to meet local, regional, and state requirements for accommodating growth.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current Oregon City Comprehensive Plan map (Ordinance No. 08-1014) identifies this area as FU - future urban. Permitted uses in the MUC-1 zone offer an array of uses including multi-family and commercial uses. These allowed uses are consistent with the goals and policies to accommodate growth. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.7.2
Use the following 11 land-use classifications on the Oregon City Comprehensive Plan Land-Use Map to determine the zoning classifications that may be applied to parcels:

- *Low Density Residential (LR)*
- *Medium Density Residential (MR)*
- *High Density Residential (HR)*
- *Commercial (C)*
- *Mixed Use Corridor (MUC)*
- *Mixed Use Employment (MUE)*

- *Mixed Use Downtown (MUD)*
- *Industrial (I)*
- *Public and Quasi-Public (QP)*
- *Parks (P)*
- *Future Urban Holding (FUH)*

Finding: The applicant indicates that the requested comprehensive plan amendment would change the zoning designation of this site to MUC, which is an allowed classification under this policy and would help in meeting the goals of property use for the area. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.7.3
Recognize the design types of Metro's 2040 Growth Concept. Establish boundaries for the Regional Center in Downtown Oregon City; Corridors along 7th Street, Molalla Avenue, Beavercreek Road, and Highway 99; Industrial areas; and for Inner and Outer Neighborhoods.

Finding: The applicant indicates that the Metro 2040 Growth Concept map designated this property as an "outer neighborhood", which is a very low density residential designation. The property was designated FU-10 in 2004, and included in the concept planning process for the Beavercreek Road Concept Plan due to it's being contiguous with lands along Beavercreek Road that were undergoing Concept Planning pursuant to Metro Title 11. As a part of the Beavercreek Concept Plan this property was envisioned to be a sustainable community with high-density mixed-use employment and housing. Beavercreek Road has been identified as a transportation corridor, and the subject property is at the intersection of Beavercreek Road and Meyers Road. The MUC-1 zone and the corresponding uses together with an MUC Comprehensive plan designation fit in with these goals. The applicant indicates that Metro has provided support of the proposal. **The applicant has adequately demonstrated compliance with this policy.**

Goal 6.1 Air Quality
Promote the conservation, protection and improvement of the quality of the air in Oregon City.

Policy 6.1.1
Promote land-use patterns that reduce the need for distance travel by single-occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

Finding: The applicant indicates that one of the major concepts of a sustainable community is that services in the neighborhood are "walkable." The future development plans for this site will include provisions for pedestrian and bicycle modes of transportation. In addition, as a part of this plan, Beavercreek Road has been identified as a transportation corridor, where multiple forms of transportation will be available. The MUC-1 zone allows and encourages mixed use development. Permitted uses in the MUC-1 zone include both residential and commercial uses which promote and encourage alternate forms of transportation. These concepts together with design review will encourage a development that meets this policy. **The applicant has adequately demonstrated compliance with this policy.**

Goal 8.1 Developing Oregon City's Park and Recreation System

Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Policy 8.1.5
Identify and construct a network of off-street trails throughout the city for walking and jogging.

Finding: The applicant indicates that an MUC-1 zone would not interfere with any adopted trail being developed in the future. Further, there is a 50-foot wide gas corridor easement that runs across the northerly corner of the property, which creates a strip of unbuildable area that may be suitable for a walking trail per the easement guidelines. Specific plans for a trail network on the parcel would be required at the time a development is proposed. **The applicant has adequately demonstrated compliance with this policy.**

Goal 9.8 Transportation System
Recognize the importance of the land use-transportation link and encourage businesses to locate in areas already served by the type of transportation system they need.

Policy 9.8.1
Through coordination with TriMet and local employers, encourage and promote the use of mass transit to travel between residential areas and employment areas.

Finding: The applicant indicates that Beavercreek Road has been identified as a major arterial transportation corridor in the City's Transportation System Plan. An MUC-1 zone would encourage mixed-use development that would benefit from multi-modal transportation. Currently bus service is available at the intersection of Beavercreek Road and Hwy. 213, and to the Clackamas Junior College on Hwy. 213. Future service to the High School and this property is expected when justified. This would be examined and reviewed more closely at time of development application (site plan and design review). **The applicant has adequately demonstrated compliance with this policy.**

Policy 9.8.5
Work with the Oregon Department of Transportation to preserve and improve the capacity of Highway 213 and its intersection with I-205.

Finding: Complies with Conditions. Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis and the required mitigation. The applicant indicates that a traffic report has been prepared that studies the effects of various uses allowed by the MUC-1 zone to the area. The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change. Mitigation has been identified. A more detailed review would be required at time of development application (site plan and design review). **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 9.8.7
Assess methods to integrate the pedestrian, bicycle and elevator transportation modes into the mass transit system.

Finding: Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the Beavercreek Road has been identified as a major arterial transportation corridor in the City's Transportation System Plan as well as a Transit Corridor from the entrance to Clackamas Community College campus north.. Major Arterial roads are required to be built to provide a full range of transportation modes. Compliance with this standard is feasible and will be reviewed at the time a development application is proposed for the property. An MUC-1 zone would encourage mixed use development that would benefit from multi-modal transportation. This will be examined and reviewed more closely at time of development application (site plan and design review). **The applicant has adequately demonstrated compliance with this policy.**

Goal 10.1 Diverse Housing Opportunities
Provide for the planning, development and preservation of a variety of housing types and lot sizes.

Policy 10.1.3
Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Finding: the applicant indicates that currently the subject property has a holding zone of FU-10. The proposed rezoning to MUC-1 is reasonable given the zones goals of mixed use and high density residential. The multi-family use allowed under MUC-1 would allow for a potential alternative to single family homes already in the area. **The applicant has adequately demonstrated compliance with this policy.**

Goal 11.1 Provision of Public Facilities
Serve the health, safety, education, welfare, and recreational needs of all Oregon City residents through the planning and provision of adequate public facilities.

Policy 11.1.4: Support development of underdeveloped or vacant buildable land within the city where public facilities and services are available or can be provided and where land use compatibility can be found relative to the environment, zoning and comprehensive plan goals.
Policy 11.1.6

Enhance efficient use of existing public facilities and services by encouraging development at maximum levels permitted in the Comprehensive Plan, implementing minimum residential densities, and adopting an Accessory Dwelling Unit Ordinance to infill vacant land.

Findings: The adequacy of respective Public Facilities is addressed below.

Water, Sewer, and Stormwater Facilities

According to the Oregon City Development Services Manager, the sanitary line at the end of Emerson Court does not extend to Beavercreek Road. But if an easement was obtainable, the sewer line could be extended and would work to serve the subject property for development or if an easement cannot be obtained, the applicant can connect into the public system by going south to Glen Oak and replacing a section of sanitary line to a manhole about 330 feet to the west. Public sewer services are available and sized to accommodate additional flows from this property. The property is appropriately sized so that stormwater be handled on-site and eventually directed to the nearest natural drainageway and compliance is feasible. The water line in Beavercreek Road is a 16-inch line.

Transportation
Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis.

Schools
Oregon City School District did not comment on this application.

Police
The impact of approximately nine acres of mixed-use development on the capacity of the police is minimal and would be addressed when the actual development application is submitted. When the property was annexed, a Development Agreement (Exhibit G) was approved to assure adequate police services would be provided to new development on the property. At this time the applicant feels confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire Protection
Fire protection for property would be provided by Clackamas Fire District #1. Applicant indicates that the much larger Oregon City High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

Staff has reviewed the applicant's proposal and finds that the public facilities and services are presently capable of supporting the requested comprehensive plan amendment and zone change. With the exception of transportation system impacts, as described under Section 17.68.020(B) and (C), **the applicant has adequately demonstrated compliance with this policy.**

Goal 12.1 Land Use-Transportation Connection
Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.

Policy 12.1.3
Support mixed uses with higher residential densities in transportation corridors and include a consideration of financial and regulatory incentives to upgrade existing buildings and transportation systems.

Finding: Conditionally Complies. Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the proposed MUC-1 zone would encourage mixed uses that would benefit from being on Beavercreek Road which has been designated a transportation corridor. **The applicant can assure this standard is met through Condition of Approval 4.**

Goal 12.5 Safety
Develop and maintain a transportation system that is safe.

Policy 12.5.1
Identify improvements that are needed to increase the safety of the transportation system for all users.

Finding: Conditionally Complies. Please refer to the findings under Section 17.68.020 (C) for a detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the traffic analysis has identified improvements that will be needed to increase the safety of the local transportation system. Beavercreek Road has been identified as a major arterial transportation corridor in the city's Transportation System Plan. Major Arterial roads are required to be built to provide a full range of transportation modes. Compliance with this standard is feasible and will be reviewed at the time a development application is proposed for the property. The applicant states that the proposed MUC-1 would encourage mixed-use development that would be benefited by multi-modal forms of transportation. **The applicant can assure this standard is met through Condition of Approval 4.**

Goal 12.6 Capacity
Develop and maintain a transportation system that has enough capacity to meet users' needs.

Policy 12.6.1
Provide a transportation system that serves existing and projected travel demand.

Finding: Please refer to the findings under Section 17.68.020(C) for a detailed analysis of the applicant's Traffic Impact Analysis and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. Capacity of the transportation system would be reviewed in more detail at time of development application.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from FU-10 to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2). The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period of 2027.

With the mitigation measures identified by the applicant in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 12.6.2
Identify transportation system improvements that mitigate existing and projected areas of congestion.

Finding: Please see findings for Policy 12.6.1 above.

Goal 13.2 Energy Conservation
Plan public and private development to conserve energy.

Policy 13.2.1
Promote mixed-use development, increased densities near activity centers, and home-based occupations (where appropriate).

Finding: The applicant indicates that at this time the property owner is proposing a zone change from FU-10 to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. The MUC-1 Zone would appear to meet the intent of this policy for mixed-use development and increased density near activity centers and along corridors. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed MUC zoning and comprehensive plan designation will be in concert with the goals of the City, and the above policy. **The applicant has adequately demonstrated compliance with this policy.**

Goal 14.1 Urban Growth Boundary
Establish, and amend when appropriate, the Urban Growth Boundary in the unincorporated area around the city that contains sufficient land to accommodate growth during the planning period for a full range of city land uses, including residential, commercial, industrial, and institutional.

Policy 14.1.2
Concept plans that provide more detail than the city's Comprehensive Plan will be required prior to development of lands within the Urban Growth Boundary.

Finding: This property was brought into the UGB prior to the concept planning requirement. (Exhibit I). The applicant indicates that the property was added to the UGB in 1979 and was not subject to the concept

planning requirements of Title 11. Surrounding farmland property was brought into the UGB in 2002 and 2004. No changes to the UGB are proposed as a part of this application.

The Beavercreek Road Concept Plan was adopted by the City in 2008. While the concept plan is the subject of a LUBA remand to the city and Metro in order to reconcile certain findings regarding adopted Design Type consistency with the Metro 2040 plan, the adopted concept plan does provide a publicly shared vision for development of lands, including the subject property, within the Urban Growth Boundary. **The applicant has adequately demonstrated compliance with this policy.**

Goal 14.3 Orderly Provision of Services to Growth Areas
Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

Policy 14.3.1
Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.

Policy 14.3.2
Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.

Policy 14.3.4
Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

Finding: Amendments to the Capital Improvement Program have been adopted to assure orderly provision of services to growth areas in accordance with this policy. The most recent updates include an updated Transportation System Development Charge (TSDC) that does include urban level development assumptions within the Beavercreek Concept Plan area. The new TSDC's were adopted by Resolution 09-02 (Exhibit H). Additionally, the City TSDC includes 30% of the estimated costs of State Facility Projects that are located within the City limits, which includes impacted intersections on Highway 213. **The applicant has adequately demonstrated compliance with this policy.**

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed in the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.

Sewer, Water, Storm Drainage, Recreation, Good and Services, Fire, Police

Finding: The adequacy of these public facilities and services was address above under Goal 11.1.1. Adequacy of Transportation Facilities is addressed below.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

Trip Generation

The applicant has submitted a TPRA which provides an explanation of the rationale for a mixed use development scenario based on the proposed zoning, overall parcel size, and limitations imposed on the parcel by the required street network necessary to develop adjacent lands east of the parcel within the Urban Growth Boundary. It further provides a detailed analysis of trip generation using a combination of land uses consistent with MUC-1 zoning consisting of the following:

- Shopping center (20,000 square feet)
- Office (80,000 square feet)
- Townhouse/condominium (30 units)

The TPRA indicates that the net increase was calculated to be 173 new primary trips due to the rezoning.

Transportation Planning Rule

For zone changes and comprehensive plan amendments, the City must make findings that the proposed amendment complies with the TPR OAR 660-012-0060. There must be substantial evidence in the record to either make the finding of "no significant effect" on the transportation system, or, if there is a significant effect, assurance that the allowed land uses are consistent with the identified function, capacity, and performance standard of the transportation facility within the planning horizon (year 2027).

The City's Transportation Consultant, Replinger and Associates, reviewed the applicant's Transportation Planning Rule Analysis (TPRA) Exhibit C.

Analysis Period

The TPRA uses year 2027 as the horizon year. Traffic volumes for this year were developed based on previous analyses and on the values from the regional transportation model and consultation with ODOT and the City.

Operations / Intersection Analysis

Traffic operations analysis was conducted for the PM peak hour for 2027 with and without the proposed rezoning. In addition, at ODOT's request, the analysis was conducted using two versions of the street network:

1) With the planned extension of Meyers Road between Highway 213 and Beavercreek Road; and
2) Without the extension of this section of Meyers Road.

The analysis indicates that the intersections along Highway 213 from Beavercreek Road to Meyers Road are expected to exceed ODOT's mobility standards by 2027 without the development, but that other intersections are calculated to meet operational standards. The engineer notes that this is consistent with the analysis conducted for the Beavercreek Road Concept Plan, although that plan is the subject of a remand from the Land Use Board of Appeals (LUBA).

The "with rezoning" analysis adds the predicted 173 additional trips to the original year 2027 volumes. ODOT determined that if the rezoning caused the volume-to-capacity ratio (v/c) to increase by more than 0.01, they considered it to be a significant impact and thus requires mitigation. For the street network scenario that assumes Meyers Road is not extended, the two locations at which this criterion is met are: Highway 213/Molalla Avenue and Highway 213/Meyers Road. This is shown in the Applicant's TPRA on Table 5, which is provided here:

Table 5 Forecast Year 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.12	**+0.03**
OR 213/ Meyers Road	0.99	0.98	1.00	**+0.02**
OR 213/ Glen Oak Road	0.99	1.31	1.32	+0.01

For the scenario that assumes Meyers Road is extended, the only intersection potentially exceeding the >0.01 v/c criterion is Highway 213/Meyers Road. This is shown in the Applicant's TPRA on Table 6, which is provided here:

Table 6 Forecast 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.09	–
OR 213/ Meyers Road	0.99	1.13	1.17	**+0.04**
OR 213/ Glen Oak Road	0.99	1.29	1.29	–

Reasonably Likely Improvements

ODOT provided comments (Exhibits D. and E.) regarding the proposed project. For evaluation of local plan amendments and zone changes, Section 660-12-0060 of the TPR requires that needed improvements either have committed funding, are in a financially constrained Metropolitan Planning Organization (MPO) transportation plan, or are "reasonably likely" to be provided by the end of the planning period in order for the capacity provided by the needed improvement to be considered "available" to the proposed amendment.

The key location is Highway 213/Meyers Road. Meyers Road between Highway 213 and Beavercreek Road is included in the City's TSP. As a new road in a new corridor, its implementation is more dependent on development than an already-existing facility that needs to be upgraded.

Since adoption of the TSP, the easterly segment of Meyers Road has been constructed and a condition of approval placed on the Clackamas Community College which makes it highly likely that the westerly portion will be constructed within the 16-year planning horizon assessed for the proposed rezoning (Exhibit K). The central segment is somewhat more dependent on development. Since the traffic forecasts for 2027 are predicated on considerable regional development, it seems highly likely that both the development assumed in the College's Master Plan and the development of the privately held parcels in the central segment will occur by 2027.

Furthermore, the cost of the Meyers Road Extension from Highway 213 to High School Lane was included in the City's 2009 Transportation System Development Charge Study, with a city funding responsibility of 100%, with a total estimated cost of $10,000,000 and an SDC eligible cost of $5,415,282 (Exhibit N). The city is already collecting SDC's for this needed improvement.

Subsequently, it is reasonable to assume that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027).

Proposed Mitigation

The applicant's engineer indicates that the addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 improves the operations of the intersection such that it's performance in the "with rezoning" scenario is better than the 2017 scenario without the rezoning. The engineer also calculates that the addition of a northbound through lane on Highway 213 allows either 2017 scenario to meet ODOT's mobility standards.

ODOT supports the findings and recommended mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213: 1)The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027), and 2) The land use decision includes a condition requiring the applicant to contribute funding

to City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection (Exhibit K).

The applicant has demonstrated that mitigation is readily available to offset the impact. The addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 is shown to substantially improve the performance of the intersection. Though a right-turn lane is not specifically identified in the TSP at this location, the addition of a right-turn lane where a collector or minor arterial intersects a major highway is a fairly common feature.

Mr. Replinger states that the needed mitigation may be considered a Transportation System Management measure that is supported by policies in the TSP, Oregon Highway Plan and Metro's RTP. At this particular location, the College's plans for development place no significant constraints on a modest expansion of right-of-way for Meyers Road in this quadrant.

Mr. Replinger concludes that the applicant has demonstrated that the improvements identified the system can, with modest mitigation, accommodate the proposed rezoning.

Therefore, Staff recommends that the Planning Commission apply the following Condition of Approval:

Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

The applicant can assure this standard is met through Compliance with Condition of Approval 4.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment.

The applicant has addressed statewide planning goals in addition to the Goals and Policies of the Comprehensive Plan as outlined below.

Statewide Planning Goal 1: Citizen Involvement - OAR 660-015-0000(1)

To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases ofthe planning process.

The governing body charged with preparing and adopting a comprehensive plan shall adopt and publicize a program for citizen involvement that clearly defines the procedures by which the general public will be involved in the on-going land-use

Planning process. The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and of information that enables citizens to identify and comprehend the issues. Federal, state and regional agencies, and special- purpose districts shall coordinate their planning efforts with the affected governing bodies and make use of existing local citizen involvement programs established by counties and cities.

Finding: The applicant indicates that this application procedure allows for citizen involvement and communication throughout the entire process. Before this land use application was submitted an informational meeting was held with the Caufield Neighborhood Association and surrounding neighbors within 300 feet of the subject property. The submittal included a mailing list of these neighbors within 300 feet of the subject property and the Caufield Neighborhood Association Chairs so that the City could send notices of application and invitation to attend and/or participate in the public hearing held by the planning commission and the city commission. Finally, should this application be approved, a notice will be sent to all people of standing who participated in these public hearings giving them a final opportunity to appeal the decision if desired. **The statewide planning goal is met.**

Statewide Planning Goal 2: Land Use Planning - OAR 660-015-0000(2)

PART I -- PLANNING

To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and action.

Finding: The applicant indicates that this zone change and comprehensive plan amendment request is being reviewed for consistency with all applicable City Code sections, the City Comprehensive Plan, Statewide Goals, Metro designations, etc. by the process of this Type IV decision which entails a quasi-judicial process with at least one public hearing by the planning commission and one public hearing by the city commission. The applicant has been prepared pursuant to the applicable Administration and Procedures codified in OCMC Chapter 17.50 and the process for Zone Changes and Plan Amendments in OCMC 17.68. **The statewide planning goal is met.**

Statewide Planning Goal 6: Air, Water And Land Resources Quality - OAR 660-015-0000(6)

To maintain and improve the quality of the air, water and land resources of the state. All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources.

Finding: The applicant indicates that this zone change and comprehensive plan amendment request will allow for the subject property to be designated with a City zone so that it may be developed in the future to the highest and best use. Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone. All waste discharges from future development will be accommodated with a utility system

designed to City standards so as not to threaten or violate applicable state or federal environmental quality statutes, rules or standards. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. Water quality measures for storm water will be incorporated into final plans to meet or exceed the requirements of the City. **The statewide planning goal is met.**

Statewide Planning Goal 9: Economic Development - OAR 660-015-0000(9)

To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens. Comprehensive plans and policies shall contribute to a stable and healthy economy in all regions of the state. Such plans shall be based on inventories of areas suitable for increased economic growth and activity after taking into consideration the health of the current economic base; materials and energy availability and cost; labor market factors; educational and technical training programs; availability of key public facilities; necessary support facilities; current market forces; location relative to markets; availability of renewable and non-renewable resources; availability of land; and pollution control requirements.

Finding: The applicant indicates that the Mixed Use Corridor District has been identified by the city to be designed along selected sections of specified transportation corridors including Beavercreek Road. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. The permitted uses offer a wide variety of potential to increase the economic growth and provide facilities to support current markets. The allowed uses in an MUC-1 zone will help contribute to the goals of providing a stable and healthy economy with potential employment opportunities and/or alternative housing options to the typical single family home. **The statewide planning goal is met.**

Statewide Goal 10: Housing - OAR 660-015-0000(10)

To provide for the housing needs of citizens of the state.
Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.

Finding: The applicant indicates that MUC-1 zone allows for multi-family housing and assisted living facilities which would contribute a more varied housing option to the overall housing inventory of the City. **The statewide goal is met.**

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

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a frameworkfor urban and rural development.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Public facilities are presently capable of supporting any of the uses

allowed within an MUC-1 zone. All services are available at the site and have capacity and framework to serve the urbanization of this property and the adjacent rural areas. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. The future development of this site, once the City zone and comprehensive plan designation are set, will allow for timely, orderly and efficient use of public services. **The statewide goal is met.**

Statewide Goal 12: Transportation - OAR 660-015-0000(12)

To provide and encourage a safe, convenient and economic transportation system.
A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

Finding: The applicant indicates that Beavercreek Road has been identified as a major arterial transportation corridor. The applicant's traffic analysis supported mixed use including commercial, industrial, and multi-family uses with Beavercreek Road being the primary transportation corridor. Tri-met currently serves Clackamas Community College with bus service via Molalla Ave, Highway 213, and Beavercreek Road. No service is currently provided to this site, but with development and the adjacent Oregon City High School extension of service is planned. Bus service has direct connections to light rail at Clackamas Town Center with connections to the City of Portland, Gresham, Hillsboro and the Airport. The Beavercreek Road cross section includes bicycle lanes together adjacent to the vehicle lanes. There was sufficient right-of-way dedicated with the High School when coupled with future dedications along the subject property to install the master plan cross section.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from FU-10 to the Mixed Use zone. Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).

The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements,

and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures identified by the applicant in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from FU-10 to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The statewide goal is met.**

Statewide Goal 14: Urbanization - OAR 660-015-0000(14)

To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

Finding: the applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. All necessary public utilities are available to the site at this time in order to allow for its development to urban densities. For this reason, this application is consistent with an orderly and efficient transition from rural to urban land use. **The statewide goal is met.**

COMPLIANCE WITH METRO URBAN GROWTH FUNCTIONAL PLAN (TITLES 1 AND 7)

Findings regarding compliance with Title 1 of the UGFMP - *Requirements for Housing and Employment Accommodation*, and Title 7 – *Housing Choice*, are provided in Exhibit M.

CONCURRENCE WITH THE BEAVERCREEK ROAD CONCEPT PLAN

The subject property was included as part of the Beavercreek Road Concept Plan, which was appealed to LUBA and which was remanded to Metro and the City of Oregon City. Therefore, findings regarding concurrence with the Beavercreek Road Concept Plan are informational only and have been provided in Exhibit L. They should not be considered approval criteria that must be satisfied in order to approve this the Zone Change and Comprehensive Plan Amendment.

According to the Beavercreek Road Concept Plan, the area proposed for plan amendment and re-zoning falls within the "Mixed Employment Village" – MEV plan designation:

"The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian friendly, and mixed use setting. The MEV is intended to be transit supportive in its use mix, density, and design so that transit remains an attractive and feasible option. The MEV allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and

Beavercreek Road sub-districts. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College and Oregon City High School are encouraged. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area."

IV. CONCLUSION AND RECOMMENDATION:

Based on the findings in this Staff Report, the Community Development Director has determined that the applicant has met, or can meet with the recommended Conditions of Approval, the applicable requirements in the Oregon City Municipal Code for approval of the proposed application.

Therefore, the Community Development Director recommends that the Planning Commission recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing, for the Application identified as Planning Files PZ 10-1 and ZC 10-01, for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for the property located at 19896 Beavercreek Road and identified as Clackamas County Map 3-2E-10C, Tax Lot 800.

V. EXHIBITS

The following exhibits are attached to this staff report.

A. Applicant's Land Use Application Packet
   1. City of Oregon City Land Use Application form & list of permit approvals sought
   2. Preliminary title report with legal description
   3. Land Use Narrative
   4. Pre-application Conference Summary
   5. Neighborhood Contact information
   6. Tax Map, Site Map, Comprehensive Plan Map, Beavercreek Road Concept Plan Map
   7. APPENDIX
   8. Traffic Report – *(See B – Exhibit Below)*
   9. Beavercreek Road Concept Plan
   10. Supporting emails, correspondence, annexation agreement
   11. Exhibit Drawings (full sized) – **On File**

B. Transportation Planning Rule Analysis, dated June 21, 2010, prepared by Joe Bessman, PE, PTOE, Senior Engineer, and Chris Bremer, PE, Principal Engineer, Kittelson and Associates, Inc.

C. City Transportation Engineers Review of the Applicant's Transportation Planning Rule Analysis, dated August 9, 2010, prepared by John Replinger, PE, Replinger and Associates.

D. ODOT Comments on Rezoning, dated August 17, 2010, prepared by Gail Curtis, AICP, Senior Planner

E. ODOT Comments on TPR Analysis, dated August 12, 2010, prepared by Avi Tayar, PE, Development Review Team Leader, Region 1 Traffic.

F. Comments of Caufield Neighborhood Association, prepared by Mike Mermelstein (received August 13, 2010).

G. Police Services Development Agreement, Planning File AN 07-01.

H. Resolution 09-02, A Resolution Repealing Resolution 97-56, Adopting A Methodology, Project Lists, And Amounts For The City's Transportation System Development Charge And Establishing Effective Dates, adopted April 1, 2009.

I. Metro Comments, Email, May 1, 2007, regarding waiver of Title 11 compliance.

J. Metro Comments, Regarding the re-zoning proposal.

K. Notice of Decision and Conditions of Approval for Clackamas Community College Master Plan, Planning File CP 07-01, issued June 24, 2008.

L. Concurrence with the Beavercreek Road Concept Plan (For Information purposes only, not approval criteria)

M. Findings for Compliance with the Metro Urban Growth Functional Management Plan *Title 1 - Requirements for Housing and Employment Accommodation,* and *Title 7 – Housing Choice.*

N. Excerpt – 2009 Transportation System Development Charge Study with Cost Estimates for Project R-98 – Meyers Road Extension: Highway 213 to High School Lane.

RECOMMENDED CONDITIONS OF APPROVAL
Planning Files: PZ 10-01 / ZC 10-01
Planning Commission Hearing Date: August 30, 2010

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.

2. Public facilities/infrastructure locations shall be provided as determined by the future development's conditions of approval.

3. Future developments shall obtain the appropriate Erosion Prevention and Sedimentation Control permit(s) at the time of construction plan submittal.

4. Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

OREGON CITY
Community Development Department
221 Molalla Ave. Suite 200 | Oregon City OR 97045
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SUPPLEMENTAL FINDINGS

October 26, 2010

On October 20, 2010, the Hamlet of Beavercreek ("HBC") submitted a letter and read the letter into the record at the City Commission hearing, generally reiterating the comments provided in the October 13, 2010 letter that the Hamlet submitted into the record. As part of the comments from the HBC, issues were raised concerning the city finding that the construction of Meyers Road was "reasonably likely" to occur and requesting that the finding be amended to indicate that Meyers Road "will be" built. The Commission determined, by a vote of 4-0-1, that the information/request set out in the second full paragraph of page 2 of the HBC letter, starting on the fifth line of that paragraph, was new issue and would not be considered.

The Commission determined that proposed condition of approval 6 shall be amended to more specifically incorporate the design details envisioned in the Beavercreek Road Concept Plan for the Mixed Employment Village, which this property is located within. The Commission finds that condition of approval 6 shall read as follows:

6. *If the Beavercreek Road Concept Plan is not yet adopted at the time the applicant seeks development approval, the applicant's proposal shall be consistent with the intent and purpose of the Mixed Employment Village, which is to provide retail, office, civic and residential uses in an urban, pedestrian friendly and mixed use setting that is transit supportive in its use, density and design. Development shall create an active urban environment that incorporates pedestrian-friendly amenities, urban building design consistent with the Beavercreek Road Concept Plan and cost effective green development practices. At a minimum, the overall development site shall achieve an average minimum floor area ratio (FAR) of 0.25 and a minimum building height of thirty four feet except for accessory structures or buildings under one thousand square feet. The applicant may seek to modify these standards through the master plan / adjustment or variance process with city approval.*

At the September 20, 2010 meeting, the Commission determined that the Ordinance would be brought back to the November 3, 2010 meeting for a first reading of the Ordinance,

incorporating these supplemental findings and the revised condition of approval 6 into their decision.

At the October 6, 2010 public hearing, the Commission closed the public hearing but left the written record open until October 13, 2010 for additional comments. On October 13, 2010, the HBC submitted written comments into the record for planning files PZ 10-01 and ZC 10-01, an application to amend the Comprehensive Plan and Zoning of a 9.59-acre property located at 19896 Beavercreek Road. These supplemental findings are adopted by the City Commission with respect to the issues raised by HBC in its October 13 letter.

GENERAL FINDINGS

The City Commission finds that this is an application for a plan amendment and to rezone a parcel of land that is within the City of Oregon City. As such, the applicant's obligation is to address the requirements of the Oregon City Comprehensive Plan and Municipal Code, Statewide Planning Goals and Oregon Administrative Rule (OAR) 660-12-0060 (Transportation Planning Rule, or "TPR"), which contains the applicable transportation criteria for a zone change analysis. The essential requirement of the TPR is to ensure that the transportation system can accommodate the net effect of the change in use, either as planned or through mitigation.

A thorough Land Use Application and a transportation impact analysis (TIA) addressing the relevant approval criteria were completed and submitted to the City for consideration. The TIA was prepared by Kittelson and Associates, licensed professional traffic engineers, and is dated June 21, 2010. This analysis was reviewed and its findings accepted by the Oregon Department of Transportation (ODOT) and by city staff and the Planning Commission. Specifically, the finding of the TIA is that the plan amendment and rezone would have a "significant effect" (as stipulated in the TPR and defined by ODOT as an increase of more than 0.1 in the volume-to-capacity ratio) at the intersection of Highway 213 (OR 213) and Meyers Road. Further, this significant effect can be mitigated thru the Meyers Road extension and by providing a dedicated right-turn lane that would serve traffic movements from Meyers Road to northbound OR 213. Finally, ODOT and city staff have concurred that all other applicable TPR requirements are met.

The specific issues raised by HBC are set out and addressed below.

SPECIFIC FINDINGS IN RESPONSE TO HBC COMMENTS

HBC COMMENT: "Title 11 first requires that local governments place interim measures on the new urban land to protect it from urbanization before a plan is completed and adopted. When new land is brought into the urban growth boundary, Metro collaborates with local cities and counties to plan how the new communities will be developed and served by roads, schools and other urban services.

In December 2002, the Metro Council voted to expand the urban growth boundary by 18,638 acres. In 2004 and 2005, the Metro Council voted to expand the urban growth boundary by an additional 2,500 acres for industrial land purposes. Before this land is converted from rural to urban use, Metro requires that it be planned by the local city or county that will provide services for the new urban area.

This 9.59 acre parcel was previously part of the Beavercreek Road Concept Plan and subject to Title 11 requirements. Oregon City now proposes to develop this parcel separately and states Title 11 will not apply since this property was brought into the UGB in 1979 (prior to Title 11 requirements), and furthermore, is no longer subject to Title 11 requirements since the Concept plan has not been approved.

We question Title 11 status for this property. Please clarify if this parcel was under Title 11 when part of the Beavercreek Road Concept Plan. And if so, then explain why the City now states that it is not? Also, because this parcel was not annexed into the City until 2008, when Metro required compliance with Title 11, wouldn't this property now be subject to the requirements of Title 11?"

FINDING: The City Commission finds that Title 11 is applicable to properties that have been recently added to a jurisdiction's Urban Growth Boundary (UGB), after Title 11 took effect, which is not the case for the subject site. This property was added to the Oregon City UGB in 1979, at which time a Metro Design Type was assigned to the property. The property was

included in the Concept Planning process, but was not required to be reviewed under Title 11; Metro so concurs. The timing of the annexation of the property is irrelevant to determining compliance with Title 11, which, once again, is required for properties added to a UGB since Title 11 took effect, but is not a requirement for annexation into a city.

Hence, the City Commission finds that Title 11 is not applicable to this site and the approval criteria have been met.

HBC COMMENT: "The proposed density for this 9.59 acre parcel was much higher when part of the Beavercreek Road Concept Plan under MEV zoning, however now the density is being reduced. The city must transfer this density and where will that be? Understand that as the city transfers density further out, the rural lands of the Hamlet of Beavercreek and other surrounding County CPO's will be pressured by urbanization coming directly up against their boundaries."

FINDING: The City Commission finds that this comment does not identify an approval criterion which is supposedly not being met. It is unclear which "density" or density requirement the HBC comment is referring to. Though housing is one of the envisioned uses within the Mixed Employment Village (MEV), the Beavercreek Road Concept Plan Job and Housing Density Assumptions did not assume any housing units would be constructed within the MEV when demonstrating compliance with the minimum housing requirements within the Beavercreek Road Concept Plan. The Beavercreek Road Concept Plan identified the MEV as a transition area between the North Employment Campus and the South Neighborhood and would allow a mix of retail, office, civic and residential uses with an active street level developed with 3-5 story buildings. The applicant has proposed the MUC-1 zoning designation, which allows similar uses to those proposed for the area in the Beavercreek Road Concept Plan and buildings up to 3 stories. The staff report outlines how the application complies with the goals and policies of the Oregon City Comprehensive Plan, such as mixed use developments along corridors, zoning with supporting services for residential and office, and the efficient use of public infrastructure. Again, HBC points to no actual approval standard it would assert the applicant has failed to meet.

Thus, the City Commission find that the application is consistent with the Goals and Policies of the Oregon City Comprehensive Plan; the above comments fail to demonstrate any approval criteria are not met; and the applicant has demonstrated compliance with the applicable approval criteria.

HBC COMMENT: "Testimony was brought forward by a member of the Hamlet of Beavercreek, stating that taking this 9.59 acre parcel out of the Concept Plan would allow for 'piecemeal Development'. The Beavercreek Road Concept Plan, as well as Title 4 land, has not been planned or approved, therefore we do not know what the plan will look like. If development begins on this 9.59 acre parcel prior to the Concept Plan being planned and approved, then how will the city and developer understand the proper development of this parcel so that it actually blends in with the Concept Plan and appears as though it is part of this entire community? If planning is not correctly executed for this 9.59 acre parcel it just could become a project which the city will regret. We do not believe this is what you want, but rather we feel you want to develop a concept plan for which you can take much pride."

FINDING: Again, the City Commission finds that Title 11 is applicable to properties that have been recently added to a jurisdiction's Urban Growth Boundary (UGB), after Title 11 took effect, which is not the case for the subject site. This property was added to the Oregon City UGB in 1979, at which time a Metro Design Type was assigned to the property. The property was included in the Concept Planning process, but was not required to be reviewed under Title 11; Metro so concurs. The timing of the annexation of the property is irrelevant to determining compliance with Title 11, which, once again, is required for properties added to a UGB since Title 11 took effect, but not for annexation into a city.

HBC has identified no applicable approval standard with which the applicant has not complied.

Thus, the City Commission finds that Title 11 is not applicable to this site and the approval criteria have been met. Until such time that the Beavercreek Road Concept Plan is approved and the implementing zoning is adopted, any development on the site will be designed to comply with the site plan and design review standards of the Municipal Code and all conditions of approval adopted by the City Commission. Further, the City Commission finds that Condition of Approval No. 5 is specifically designed to address any transition which may be required

when the Concept Plan is adopted and implemented; HBC has failed to explain why that condition is insufficient to serve this purpose.

The City Commission finds that the application is consistent with the Goals and Policies of the Oregon City Comprehensive Plan; the above comments fail to demonstrate that any approval criteria are not met; and the applicant has demonstrated compliance with the applicable approval criteria.

HBC COMMENT: "Testimony was given at both the September 15th, and October 6th, 2010 hearings regarding financial concerns on the part of the applicant. The applicant explained that he is seeking a Zone change for this property which will allow him to obtain the necessary financing for this parcel and that apparently without a Zone change the lender may consider foreclosure. City Attorney, Ed Sullivan, quickly brought to the attention of the Commission that they cannot consider the financial concerns of the applicant as part of their decision to approve, or disapprove, these land use applications."

FINDING: The City Commission finds that the city attorney is correct. The City Commission finds that the financial circumstances of the applicant provide neither a basis for approval nor a basis for denial for this application. The City Commission specifically disregards for all purposes herein the applicant's professed need to obtain rezoning in order to retain its financing.

HBC COMMENT: "Certainly Transportation is one of the largest concerns with respect to this proposed development since both Beavercreek Road and Highway 213 are already at their maximum capacity. A letter from Gail Curtis, AICP, Senior Planner of ODOT, states the proposed rezoning would have a significant effect, per the requirements of OAR 660-12-0060, on the intersection of State Highway OR-213 and Meyers Road and that appropriate mitigation for the impact from this development is required. ODOT states the TIA identified that with the addition of a westbound right-turn lane at the OR 213/Meyers Rd intersection and the Meyers Rd extension that the intersection operation improves. ODOT recognized that the westbound right-turn lane is also needed to mitigate for the traffic impacts associated with the Beavercreek Road Concept Plan area. ODOT then states it supports the findings and recommended

mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213:

1. The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is 'reasonably likely' to be provided by the planning horizon (year 2027.)

2. The land use decision includes a condition requiring the applicant to contribute funding to Oregon City for construction of the westbound right-turn lane at the OR 213/Meyers Rd intersection."

FINDING: The City Commission finds that, as noted in the overview, above, the rezone has a "significant effect" at the OR 213/Meyers Road intersection that can be adequately mitigated by the provision of a right-turn lane from Meyers Road to northbound OR 213. The Oregon Department of Transportation requested the City condition any future development application for the property with a proportional fair share contribution to the construction of this mitigation. The City has agreed to impose this condition and does so here. The City has also made the finding that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027.)

The City Commission hence finds that the comments submitted present no basis for determining the applicant has failed to comply with the relevant approval standards and that the proposed conditions of approval address the needed transportation improvements to comply with the Oregon City Municipal Code, Comprehensive Plan and TPR requirements.

HBC COMMENT: "Regarding Condition 2, the Hamlet seeks clarification. If the applicant is seeking Zone change for financial reasons, can the applicant financially contribute funding to the City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection? Additionally, what is the total amount of funding required from the applicant and when is it due to the City?"

FINDING: The City Commission finds that the financial circumstances of the applicant provide neither a basis for approval nor a basis for denial for this application. The City

Commission specifically disregards for all purposes herein the applicant's professed need to obtain rezoning in order to retain its financing.

Secondly, the City Commission finds that pursuant to Condition of Approval No. 4, the applicant is required to contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection before receiving building permits. If the applicant lacks the ability to pay the required funds, no project can be developed on the subject site. The total amount of funding required from the applicant will be determined prior to the issuance of building permits.

HBC COMMENT: "The provision to extend Meyers Road to 213 makes no sense! The City is proposing to virtually take traffic from the overloaded Beavercreek/Meyers intersection and dump it out onto another already overloaded intersection at Meyers and Highway 213. This doesn't seem to be mitigation, but rather is nonsensical."

FINDING: The City Commission finds that the Meyers Road extension is identified in the City's Transportation System Plan; it is not being proposed for the first time as a part of this amendment and rezone. The TIA considered the effect of extending the Meyers Road connection, in relation to the rezone. The TIA finding is that with the Meyers Road extension the rezone has a significant effect at the OR 213/Meyers Road intersection, which can be mitigated by providing a westbound right-turn lane from Meyers Road to northbound OR 213. HBC has submitted no credible evidence or argument to the contrary.

The City Commission also finds that the above comment expresses an opinion but does not address any relevant approval criteria, and finds that there are no facts offered to support this opinion. The City Commission finds that the TSP and relevant transportation approval criteria are met.

HBC COMMENT: "Have you also considered that you are proposing to place future heavy traffic on Meyers Road, by the High School, where speed limits are posted 20 MPH? These slower speeds will queue traffic dramatically and create a traffic mess in this vicinity."

FINDING: The City Commission finds that the traffic analysis of the Beavercreek Road/Meyers Road intersection approved by ODOT and city staff found no significant effect from the proposed zone change, including the purported effect described in the above comment. HBC has submitted no cognizable evidence or credible argument to the contrary.

The City Commission finds that based upon the traffic analysis prepared by the applicant and reviewed by city and ODOT staff and the conditions of approval adopted here, the relevant transportation approval standards are met.

HBC COMMENT: "We bring your attention also to the Traffic Report addressing the intersection of Molalla Avenue and Highway 213. The report shows (357) trips onto Molalla without the Meyers Road extension and a count of 325 trips with the extension, please explain why it would be down 22 trips? Additionally, why would you propose to put even more traffic onto the Intersection of Highway 213 and Molalla Avenue when this will create a heavier back up in traffic? Currently, traffic at the Peak Hour on Highway 213 and Molalla backs up to the Haggen's Market and beyond."

FINDING: When previously missing street segments such as the Meyers Road extension are completed, motorists revise their travel patterns to travel more directly via the newly completed street. This explains why the traffic volumes will be different at the location noted by HBC (the northbound left-turn from OR 213 to Molalla Avenue). Those drivers will be able to simply cross OR 213 at Meyers Road, rather than travel north on OR 213 to turn left onto Molalla Avenue. There are locations where the volumes will increase (sometimes significantly), as a result of the new connection. The redistribution of travel due to the Meyers Road extension was discussed, reviewed against the approval criteria, and approved by ODOT and city staff. The TIA indicates that with the Meyers Road extension being completed, there is no significant effect to the OR 213/Molalla Avenue intersection as a result of the proposed zone change. HBC has submitted no cognizable evidence or credible argument to the contrary.

Thus, the City Commission finds that based upon the traffic analysis prepared by the applicant and reviewed by city and ODOT staff, the relevant transportation approval standards are met.

HBC COMMENT: "Again, the proposal to extend Meyers Road does not make any sense. This is a small two-way street with stop signs only and no signal until Warner Milne Road. The only way that an extension of Meyers Road will be helpful is if the City dramatically improves Meyers Road and puts it through to Leland Rd, preventing traffic from being dumped onto Highway 213. In its current state, Meyers Road is not beneficial in any way to moving anything other than lesser amounts of traffic east and west between Beavercreek Rd and Glen Oak Rd."

FINDING: The City Commission finds that this comment and its criticism of the Meyers Road extension contain several errors of fact. Meyers Road is signalized at OR 213. Meyers Road already directly connects from OR 213 to Leland Road. Meyers Road is constructed to City standard as a Minor Arterial from OR 213 to approximately Frontier Parkway, including curb, gutter, and complete sidewalk on the north side and a majority of the sidewalk on the south side, on-street striped bike lanes, and one travel lane in each direction. Finally, Meyers Road does NOT connect Beavercreek Road to Glen Oak Road, nor is it planned to connect these two roadways. The Meyers Road extension from OR 213 to Beavercreek Road is an identified improvement in the TSP needed to improve local connectivity, provide a complete, connected transportation system and provide transportation options.

The City Commission hence finds that the above opinion of HBC is inaccurate and does not address any relevant approval criteria; that there are no facts offered to support this opinion; and that the TSP and relevant transportation approval criteria are in fact met.

HBC COMMENT: "Finally, let us not lose sight of the real elephant in the room, and that is for the intersection of Beavercreek Road and Highway 213. This is where our attentions should be focused, now and in the future, since this is the true pinch point for vehicular traffic in this entire region. Continued stresses, from all future development by the City, will have great effects upon this intersection, which even with continual expansion, fails miserably."

FINDING: The City Commission finds that, while the above comment may reflect HBC's opinion, it presents no facts to dispute the conclusion in the TIA prepared by licensed professional traffic engineers that no significant effect will result from the proposed rezone at the OR 213/Beavercreek Road intersection. The TIA was prepared in consultation with and

reviewed by ODOT and city staff and found to comply with all applicable transportation standards as proposed or with the recommended conditions of approval.

The City Commission again finds that based upon the traffic analysis prepared by the applicant and reviewed by city and ODOT staff, the relevant transportation approval standards are met.

HBC COMMENT: "The Hamlet of Beavercreek's Findings in the City's Staff Report is that many discrepancies exist in the statements."

FINDING: The City Commission finds that the above general comment is unclear and its meaning is indecipherable. HBC has not credibly and factually identified any relevant discrepancies or errors in the TIA, the findings made by the Planning Commission or contained in the Staff Report, or in the underlying "statements" upon which those documents rely.

The City Commission finds that the application as proposed, with the recommended conditions of approval, complies with the applicable approval criteria for a Comprehensive Plan Amendment and Zone Change.

HBC COMMENT: "We do not believe the applicant has adequately demonstrated compliance with the Transportation Impacts, nor has the applicant proved that a Zone change to MUC-1 would be desirable for this land."

FINDING: The City Commission finds that the methodology, approach, analysis procedures, findings, and recommendations contained in the TIA have been discussed with and reviewed and approved by ODOT and city staff, and HBC points to no evidence and raises no argument which would place that approval in question. The TIA fully documents that the TPR requirements for a zone change are met with the existing and planned transportation system, including the provision of a right-turn lane from Meyers Road to northbound OR 213. No one has presented credible evidence to the contrary.

The City Commission finds that the application as proposed, with the recommended conditions of approval, complies with the applicable approval criteria for a Comprehensive Plan Amendment and Zone Change.

HBC COMMENT: "We fail to see how this proposed development will benefit Oregon City. We do not understand why you are deviating from the Concept Plan for one property owner? And now you are decreasing density, from the previous MEV zoning in the Concept Plan, where this property was to be the 'cornerstone' of the plan? We question where will the density be transferred to within the Concept Plan? Lastly, why are you creating absolutely huge expenses for a transportation system that will be needed once development is proposed? Why would you do this just for a 9.59 acre parcel? It doesn't pen out and seems to be a terrible waste of taxpayer dollars at a time when the economy simply does not support this type of wasteful spending. It seems the intelligent and prudent decision would be to wait until the Beavercreek Road Concept Plan is designed and adopted, along with the Title 4 lands. We feel this 9.59 acre parcel should be placed back into the Concept Plan and allowed to be developed as originally intended under MEV zoning."

FINDING: Here, HBC recapitulates several of the comments addressed above, especially with respect to the Concept Plan and questions of density. Hence, the City Commission in turn incorporates here its findings with respect to those concerns, set out above. HBC again fails to point to any failure of the applicant to comply with the approval standards in this case.

The City Commission finds that the application as proposed, with the recommended conditions of approval, complies with the applicable approval criteria for a Comprehensive Plan Amendment and Zone Change.

HBC COMMENT: "Rather it is more desirable to return this property to the Concept Plan, allowing it to be developed as intended and to be part of a 'planned community'. This property was intended to be the Cornerstone of the Concept Plan, however when taken away from the Concept Plan this current land use application will deter from the overall vibrancy and uniqueness originally intended for this land. The applicant has not demonstrated compliance with Goal 6.1 Air Quality, please note that Beavercreek Road is identified as a transportation corridor which is NOT walkable. The applicant has not demonstrated compliance with Goal 6.1 Air Quality, please note that Beavercreek Road is identified as a transportation corridor that is not walkable."

FINDING: The City Commission finds that the above thoughts relating to the Concept Plan have been addressed in its findings above. The City Commission again finds as it did with respect to the issue of compliance with the Concept Plan, above.

With respect to Goal 6.1 Air Quality, Policy 6.1.1 of the Comprehensive Plan states:

Promote land-use patterns that reduce the need for distance travel by single-occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

The following finding was prepared for the Planning/City Commission staff report, and the City Commission reiterates it here: The applicant indicates that one of the major concepts of a sustainable community is that services in the neighborhood are "walkable." The future development plans for this site will include provisions for pedestrian and bicycle modes of transportation. In addition, as a part of this plan, Beavercreek Road has been identified as a transportation corridor, where multiple forms of transportation will be available. The MUC-1 zone allows and encourages mixed use development. Permitted uses in the MUC-1 zone include both residential and commercial uses which promote and encourage alternate forms of transportation. These concepts together with design review will encourage a development that meets this policy. Thus, the City Commission finds that the applicant has adequately demonstrated compliance with this policy.

The City Commission finds that if this property is developed, the applicant will be required to comply with the Oregon City Municipal Code for the design of the buildings, street improvements (including sidewalks) and provisions for pedestrian and bicycle access. It is difficult to understand how providing such needed amenities would not be in compliance with the above goal and policy of the Comprehensive Plan.

The City Commission finds that no facts have been submitted demonstrating that the above policy is not being met by the proposed application.

HBC COMMENT: "The Hamlet feels Statewide Goal 14 has not been met. The applicant believes the proposed zoning and Comp Plan designation MUC 1 will be in concert with the goals of the city. We have already outlined that it would be best to keep this parcel in the

Concept Plan where it will be developed as a planned community. These are just a few ways in which the applicant has failed to adequately demonstrate that this is the best use for this 9.59 acre parcel. It is probable that the Hamlet could have indicated more discrepancies if it had been given the opportunity to fully participate in the hearings before the Planning Commission."

FINDING: Statewide Planning Goal 14 – Urbanization, states:
To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. All necessary public utilities are available to the site at this time in order to allow for its development to urban densities. For this reason, this application is consistent with an orderly and efficient transition from rural to urban land use.

The City Commission finds these statements of the applicant to be correct. The comments submitted by HBC fail to demonstrate how development of this property would not provide for the orderly and efficient transition from rural to urban land use; would not be able to accommodate urban populations and employment; or would not give rise to a use of land within the City limits which is efficient.

The City Commission thus finds that Statewide Planning Goal 14 is met.

With respect to the Concept Plan, the City Commission reiterates its findings on this issue above and incorporates them by reference here.

With respect to HBC's right to participate, the City Commission finds that the notice given by the City in this matter was fully compliant with all legal requirements. The City Commission

finds that, in addition, HBC was given an extra opportunity to comment on the application at a second hearing, and an additional opportunity thereafter to submit further comments in writing.

HBC COMMENT: "Our final concern is regarding 'Partnering'. We ask that Oregon City partner with the Hamlet of Beavercreek, as well as other Hamlets and County CPO's bordering Oregon City. Often, Oregon City plans development without regards to it's effect upon the neighboring communities which is what has happened in these two land use applications. Development on either Beavercreek Road or Highway 213 could have detrimental affects upon the citizens living in Beavercreek, as well as other outlying rural areas, which is why we have placed strong emphasis upon this development. Oregon City seems oblivious to issues facing it's neighbors, therefore how can you appropriately plan for the future? The answer is, you simply cannot. Only by Partnering with your neighbors will you be able to achieve appropriate and efficient planning for this entire section of Clackamas County. Planning into the future must change. The Hamlet of Beavercreek will be vigilant in the future as urban cities expand. We will be vigilant in protecting our rural lands, our small farms, our creeks and streams with fish and wildlife. We will protect and preserve our rural community and it's way of life. This is what the 6500 citizens of the Hamlet of Beavercreek have asked for. They want to design their future and the destiny of their community. We ask Oregon City to partner with our Hamlet on all future development and we ask that you show respect for our community and that you listen to the 6500 voices who are asking only to be heard and acknowledged.

At the October 6th, 2010 City Commission meeting, the city chose to extend an olive branch to the Beavercreek community by giving the Hamlet until 5 PM on October 13th to submit written testimony, however they are being bound, by the City, to testify only to the Staff Report and Application and have been forbidden to bring forth any new facts. We continue to feel that Oregon City has breached the requirements of state Goal 1 by choosing to ignore the 6500 people of the Hamlet. At the upcoming City Commission meeting on October 20th, 2010, the City will have the opportunity to redeem it's latest actions upon the Hamlet of Beavercreek by making the decision to remand Land Use applications ZC 10-01 and PZ 10-01 back to the Planning Commission allowing the Hamlet of Beavercreek to **testify to any and all comments, concerns and facts,** rather than holding them hostage, stating they can only testify to the Staff Report and application."

FINDING: The City Commission finds that the application was noticed as required by the Oregon City Municipal Code, including mailing to all property owners within 300 feet of the site, the City neighborhood association and CIC, posting land use notice signs on the property frontage, including Beavercreek Road, advertising the application and public hearings in the newspaper and posting the land use application on the City web site. The land use application was sent to the Clackamas County Planning Department and Transportation Department, requesting comments. The County did not submit any comments indicating any issues with the proposed application. No one was denied the right to timely participation in this case.

The City Commission finds that the noticing of the land use application was performed in compliance with the requirements of the Oregon City Municipal Code, which is also in compliance with Statewide Planning Goal 1.

CONCLUSION

The relevant issue as to the plan amendment and zone change as a whole is not one's opinion as to whether they are "desirable" but, rather, whether the requested plan amendment and zone change comply with the specific, relevant approval standards. For all the reasons set out in the Findings adopted by the Planning Commission and the Supplemental Findings set out here, the City Commission finds and concludes that HBC has not raised any persuasive argument that the applicant has failed to meet its burden of proof as to any of the approval standards in this case. The applicant has in fact met that burden as to each of those standards, and its application should be and is approved with conditions by the City Commission.

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The Hamlet of
BEAVERCREEK
PO BOX 587 · BEAVERCREEK · OREGON · 97004

ENTERED INTO THE RECORD
DATE RECEIVED: 10-6-10
SUBMITTED BY: Christine Kosinski
SUBJECT: Item 6a

Alice Norris, Mayor
Jim Nicita, Commissioner
Daphne Wuest, Commissioner
Doug Neeley, Commissioner
Rocky Smith, Commissioner
David Frasher, City Manager
City of Oregon City

October 6, 2010

RE: Land Use Application ZC 10-01 and PZ 10-01
19896 Beavercreek Road - Meyers and Beavercreek Road Intersection
9.59 Acre Parcel brought into the UGB in 1979, annexed to the city in 2008
Contiguous to the Beavercreek Road Concept Plan

Honorable Mayor Norris and City Commission:

The Hamlet of Beavercreek enters this letter into the City of Oregon City records and requests the Oregon City Commission remand the above Land Use applications back to the Oregon City Planning Commission for the purpose of re-opening the hearings to public testimony. Our request is based on the following information.

The Hamlet is enclosing a copy of a notice generated by Oregon City Community Development-Planning. The notice is marked mailed July 16th, 2010 and describes a hearing on ZC 10-01 and PZ 10-01 to be held Monday, August 30th, 2010. The notice was mailed from the Oregon City Planning Division to the Hamlet of Beavercreek, Postmarked September 3rd, 2010, (copy enclosed). This notice was received by the Hamlet of Beavercreek **AFTER THE PLANNING COMMISSION ALREADY MET ON AUGUST 30TH AND APPROVED THE LAND USE APPLICATION** for forwarding to the City Commission at it's next meeting on September 15th, 2010.

MESSAGE PHONE 503-632-8370



We draw your attention to the Oregon City "Notice of Public Hearing" which states the Notice was mailed, July 16, 2010. In fine print, your Notice states " The application and all documents submitted by or on behalf of the applicant are available for inspection at no cost at the Oregon City Planning Division on Molalla Avenue in Oregon City. The staff report, with all the applicable approval criteria, will also be available for inspection seven days prior to the hearing. Any interested party may testify at the public hearing and/or submit written testimony at or prior to the close of the City Commission hearing.

Written comments must be received by close of business at City Hall 10 days before the scheduled hearing to be included in the staff report. Written comments received within 10 days of the hearing will be provided to the Commission at the hearing."

The Hamlet of Beavercreek and its citizens were deprived of inspecting these applications and documents. They were deprived of having the ability to testify at the public hearing and/or submitting written testimony prior to the close of the City Commission hearing within your time frame. They were deprived because they **did not receive notice of these Hearings!**

Both city records and the Agenda from the City Commission meeting of September 15th, 2010 clearly show that the above Land Use applications were brought before the City Commission to seek approval for a Zone change from the current zoning of FU10 to MUC-1 for this 9.59 acre parcel which is located at 19896 Beavercreek Road and is contiguous to the Beavercreek Road Concept Plan.

When Mayor Norris opened the meeting, on September 15th, 2010, to "citizen comments", Christine Kosinski, a member of the Hamlet of Beavercreek made comments to the Commission and inquired why the Hamlet of Beavercreek was not notified of the hearings in front of the Planning Commission on August 30th, 2010? Mrs. Kosinski further commented that there are about 6500 citizens in Beavercreek who rely daily on Beavercreek Road since this is virtually the only way "in and out" of Beavercreek. She further commented that this 9.59 acre parcel **is contiguous to the Beavercreek Rd Concept Plan**, and therefore the Hamlet should have been notified of these hearings since the same requirements that applied to the Concept Plan should apply to this 9.59 acre parcel. She questioned why Oregon City did not recognize this fact and that she felt the city had ignored 6500 citizens from having their voices and concerns heard in violation of state land use Goal One.



Tony Konkol, city planner, stated the city had met the legal requirements of notifying those within 300 feet of the Land Use application. Then Mr. Konkol stated to the Commission, actually we did send notice to the Hamlet, however this was done as an "afterthought".

Commissioner Neeley spoke, asking the Commission to recognize the people of the Hamlet of Beavercreek. Commissioner Neeley stated the Commission should not vote on the Land Use application until their next meeting, allowing the people of Beavercreek to be heard. The Commission approved, but stated that the Hamlet may only bring forth testimony which was brought before the Planning Commission.

The Minutes of the Planning Commission meeting of August 30th, 2010 state that Chair Powell opened the meeting to public testimony, there being none, Chair Powell closed the meeting to public comments and subsequently the Planning Commission approved Land Use Applications PZ 10-01 and ZC 10-01 which were referred on to the City Commission for their next meeting on September 15th, 2010.

This was a travesty to the people of Beavercreek. Did the City of Oregon City purposefully ignore the Hamlet? Certainly because the Hamlet was not timely notified, they now are virtually locked out from giving public testimony since they are confined to testify only to comments brought before the Planning Commission, for which there were none.

By not allowing the 6500 people of the Hamlet of Beavercreek to publicly testify, whose primary access in and out of Beavercreek, is on Beavercreek Road, the City of Oregon City has committed a thoughtless and contemptuous act upon the Hamlet of Beavercreek and has breached the requirements of Goal One.

This land use application is for property that is contiguous to the Beavercreek Road Concept Plan, therefore the same requirements should apply and that would be to timely notify the Hamlet of Beavercreek of these hearings.

Furthermore, The Hamlet goes on record stating that it requests the City of Oregon City send notice of all Land Use applications which effect it's boundaries on both Beavercreek Road and Highway 213. As development occurs in the future along both of these two major corridors, traffic from the rural areas will become increasingly affected since these are the only two major corridors bringing rural residents into the city allowing connection to Oregon's major transportation corridor. The safety of these citizens could also become compromised since heavy traffic will slow down the response times for Fire, Police and Ambulance.

With the above information, we ask that you honor our request to remand Land Use applications ZC 10-01 and PZ 10-01 back to the City Planning Commission, appropriately allowing the voices of the citizens of the Hamlet of Beavercreek to be heard.

Representing the Board of The Hamlet of Beavercreek

Christine Kosinski
Corresponding Secretary and Co-Speaker
The Hamlet of Beavercreek

Encl: Oregon City Notice of Public Hearing
Copy of Postmark on envelope – to the Hamlet – dated Sept 03, 2010

cc: Clackamas County Board of Commissioners
cc: Steve Wheeler, Clackamas County
cc: Cam Gilmour, Clackamas County
cc: Gail Curtis, ODOT
cc: Hamlet of Mulino
cc: Hamlet of Molalla Prairie
cc: Ray Valone, Metro
cc: Michael Jordan, Metro
cc: Carlotta Collette, Metro

OREGON CITY
Community Development – Planning
221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

NOTICE OF PUBLIC HEARING
Notice Mailed: July 16, 2010

HEARING DATE:	On **Monday, August 30, 2010** the **City of Oregon City Planning Commission** will conduct a **public hearing** at 7:00 p.m., and on **Wednesday, September 15, 2010**, the **City of Oregon City – City Commission** will conduct a **public hearing** at 7:00 p.m. in the **Commission Chambers at City Hall, 615 Center Street, Oregon City 97045** on the following Type IV Land Use Application. Any interested party may testify at the public hearing or submit written testimony at or prior to the close of the City Commission hearing.
FILE NUMBER:	ZC 10-01: Zone Change PZ 10-01: Comprehensive Plan Amendment
APPLICANT:	Theta, LLC PO Box 1345 Lake Oswego, OR 97035
OWNER:	Marylwood, LLC 7128 SW Gonzaga St Portland, OR 97223
REQUEST:	The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.
LOCATION:	19896 Beavercreek Road Clackamas County Map 3-2E-10C, Tax Lot 800
CONTACT PERSON:	Pete Walter, AICP, Associate Planner (503) 722-3789
NEIGHBORHOOD ASSOCIATION:	Caufield Neighborhood Association
CRITERIA:	**Administration and Procedures** are set forth in **Chapter 17.50, Zoning Changes and Amendments** in **Chapter 17.68**, and **"MUC-1" - Mixed Use Corridor** in **Chapter 17.29** of the **Oregon City Municipal Code.** The City Code Book is available on-line at www.orcity.org.

The application and all documents submitted by or on behalf of the applicant are available for inspection at no cost at the Oregon City Planning Division, 221 Molalla Avenue, Suite 200 from 8:00 AM-5:00 PM. The staff report, with all the applicable approval criteria, will also be available for inspection seven days prior to the hearing. Copies of these materials may be obtained for a reasonable cost in advance.

Any interested party may testify at the public hearing and/or submit written testimony at or prior to the close of the City Commission hearing. Written comments must be received by close of business at City Hall 10 days before the scheduled hearing to be included in the staff report. Written comments received within 10 days of the hearing will be provided to the Commission at the hearing. The public record will remain open until the City Commission closes the public hearing.

Please be advised that any issue that is intended to provide a basis for appeal must be raised before the close of the City Commission hearing, in person or by letter, with sufficient specificity to afford the Commission and the parties an opportunity to respond to the issue. Failure to raise an issue with sufficient specificity will preclude any appeal on that issue. Parties with standing may appeal the decision of the City Commission to the Land Use Board of Appeals. Any appeal will be based on the record. The procedures that govern the hearing will be posted at the hearing and are found in OCMC Chapter 17.50 and ORS 197.763.

A city-recognized neighborhood association requesting an appeal fee waiver following issuance of a land use decision pursuant to 17.50.290(C) must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal.

OREGON CITY

Planning Division
P.O. Box 3040
Oregon City, OR 97045

ADDRESS SERVICE REQUESTED

HAMLET OF BEAVERCREEK
P.O. Box 587
BEAVERCREEK, OR 97004

The Hamlet of
BEAVERCREEK
PO BOX 587 · BEAVERCREEK · OREGON · 97004

RECEIVED
CITY OF OREGON CITY
10 OCT 13 PM 3:28

October 13, 2010

Alice Norris, Mayor
Jim Nicita, Commissioner
Daphne Wuest, Commissioner
Doug Neeley, Commissioner
Rocky Smith, Commissioner
David Frasher, City Manager
City of Oregon City

RE: Land Use Application ZC 10-01 and PZ 10-01
19896 Beavercreek Road – Meyers and Beavercreek Road Intersection
9.59 Acre Parcel brought into the UGB in 1979, annexed to the city in 2008
Contiguous to the Beavercreek Road Concept Plan

Honorable Mayor and City Commission:

The Hamlet of Beavercreek enters this letter into the City of Oregon City records in reference to land use applications ZC 10-01 and PZ 10-01. Comments from the Hamlet, based on the Staff Report for the above land use applications, are addressed in this letter and consist of concerns for:

- ***Title 11 requirements***
- ***Reduced density***
- ***Piecemeal development***
- ***Financial obligations of the applicant***
- ***Transportation issues***
- ***Concerns for Compliance with policy***
- ***Partnering with your neighboring Hamlets and County CPO's***

Title 11 first requires that local governments place interim measures on the new urban land to protect it from urbanization before a plan is completed and adopted. When new land is brought into the urban growth boundary, Metro collaborates with local cities and counties to plan how the new communities will be developed and served by roads, schools and other urban services.

MESSAGE PHONE 503-632-8370



In December 2002, the Metro Council voted to expand the urban growth boundary by 18,638 acres. In 2004 and 2005, the Metro Council voted to expand the urban growth boundary by an additional 2,500 acres for industrial land purposes. Before this land is converted from rural to urban use, Metro requires that it be planned by the local city or county that will provide services for the new urban area.

This 9.59 acre parcel was previously part of the Beavercreek Road Concept Plan and subject to Title 11 requirements. Oregon City now proposes to develop this parcel separately and states Title 11 will not apply since this property was brought into the UGB in 1979 (prior to Title 11 requirements), and furthermore, is no longer subject to Title 11 requirements since the Concept plan has not been approved.

We question Title 11 status for this property. Please clarify if this parcel was under Title 11 when part of the Beavercreek Road Concept Plan. And if so, then explain why the City now states that it is not? Also, because this parcel was not annexed into the City until 2008, when Metro required compliance with Title 11, wouldn't this property now be subject to the requirements of Title 11?

The proposed density for this 9.59 acre parcel was much higher when part of the Beavercreek Road Concept Plan under MEV zoning, however now the density is being reduced. The city must transfer this density and where will that be? Understand that as the city transfers density further out, the rural lands of the Hamlet of Beavercreek and other surrounding County CPO's will be pressured by urbanization coming directly up against their boundaries.

Testimony was brought forward by a member of the Hamlet of Beavercreek, stating that taking this 9.59 acre parcel out of the Concept Plan would allow for "piecemeal development". The Beavercreek Road Concept Plan, as well as Title 4 land, has not been planned or approved, therefore we do not know what the plan will look like. If development begins on this 9.59 acre parcel prior to the Concept Plan being planned and approved, then how will the city and developer understand the proper development of this parcel so that it actually blends in with the Concept Plan and appears as though it is part of this entire community? If planning is not correctly executed for this 9.59 acre parcel it just could become a project which the city will regret. We do not believe this is what you want, but rather we feel you want to develop a concept plan for which you can take much pride.



Testimony was given at both the September 15th, and October 6th, 2010 hearings regarding financial concerns on the part of the applicant. The applicant explained that he is seeking a Zone change for this property which will allow him to obtain the necessary financing for this parcel and that apparently without a Zone change the lender may consider foreclosure. City Attorney, Ed Sullivan, quickly brought to the attention of the Commission that they cannot consider the financial concerns of the applicant as part of their decision to approve, or disapprove, these land use applications.

Certainly Transportation is one of the largest concerns with respect to this proposed development since both Beavercreek Road and Highway 213 are already at their maximum capacity. A letter from Gail Curtis, AICP, Senior Planner of ODOT states the proposed rezoning would have a ***significant effect***, per the requirements of OAR 660-12-0060, on the intersection of State Highway OR-213 and Meyers Road and that appropriate mitigation for the impact from this development is required. ODOT states the TIA identified that with the addition of a westbound right turn lane at the OR 213/Meyers Rd intersection and the Meyers Rd extension that the intersection operation improves. ODOT recognized that the westbound right turn lane is also needed to mitigate for the traffic impacts associated with the Beavercreek Road Concept Plan area. ODOT then states it supports the findings and recommended mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213:

1. The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027.)
2. The land use decision includes a condition requiring the applicant to contribute funding to Oregon City for construction of the westbound right turn lane at the OR 213/Meyers Rd intersection.

Regarding Condition 2, the Hamlet seeks clarification. If the applicant is seeking Zone change for financial reasons, can the applicant financially contribute funding to the City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection? Additionally, what is the total amount of funding required from the applicant and when is it due to the City?

The provision to extend Meyers Road to 213 makes no sense! The City is proposing to virtually take traffic from the overloaded Beavercreek/Meyers intersection and dump it out onto another already overloaded intersection at Meyers and Highway 213.
This doesn't seem to be mitigation, but rather is nonsensical. Have you also considered that you are proposing to place future heavy traffic on Meyers Road, by the High School, where speed limits are posted 20 MPH?



These slower speeds will queue traffic dramatically and create a traffic mess in this vicinity. We bring your attention also to the Traffic Report addressing the intersection of Molalla Avenue and Highway 213. The report shows (357) trips onto Molalla without the Meyers Road extension and a count of 325 trips with the extension, please explain why it would be down 22 trips? Additionally, why would you propose to put even more traffic onto the Intersection of Highway 213 and Molalla Avenue when this will create a heavier back up in traffic? Currently, traffic at the Peak Hour on Highway 213 and Molalla backs up to the Haggen's Market and beyond.

Again, the proposal to extend Meyers Road does not make any sense. This is a small two-way street with stop signs only and no signal until Warner Milne Road. The only way that an extension of Meyers Road will be helpful is if the City dramatically improves Meyers Road and puts it through to Leland Rd, preventing traffic from being dumped onto Highway 213. In it's current state, Meyers Road is not beneficial in any way to moving anything other than lesser amounts of traffic east and west between Beavercreek Rd and Glen Oak Rd.

Finally, let us not lose sight of the real elephant in the room, and that is for the intersection of Beavercreek Road and Highway 213. This is where our attentions should be focused, now and in the future, since this is the true pinch point for vehicular traffic in this entire region. Continued stresses, from all future development by the City, will have great effects upon this intersection, which even with continual expansion, fails miserably.

We fail to see how this proposed development will benefit Oregon City. We do not understand why you are deviating from the Concept Plan for one property owner? And now you are decreasing density, from the previous MEV zoning in the Concept Plan, where this property was to be the "cornerstone" of the plan? We question where will the density be transferred to within the Concept Plan? Lastly, why are you creating absolutely huge expenses for a transportation system that will be needed once development is proposed? Why would you do this just for a 9.59 acre parcel? It doesn't pen out and seems to be a terrible waste of taxpayer dollars at a time when the economy simply does not support this type of wasteful spending. It seems the intelligent and prudent decision would be to wait until the Beavercreek Road Concept Plan is designed and adopted, along with the Title 4 lands. We feel this 9.59 acre parcel should be placed back into the Concept Plan and allowed to be developed as originally intended under MEV zoning.

The Hamlet of Beavercreek's **Findings** in the City's Staff Report is that many discrepancies exist in the statements. We do not believe the applicant has adequately demonstrated compliance with the Transportation Impacts, nor has the applicant proved



that a Zone change to MUC-1 would be desirable for this land. Rather it is more desirable to return this property to the Concept Plan, allowing it to be developed as intended and to be part of a "planned community". This property was intended to be the Cornerstone of the Concept Plan, however when taken away from the Concept Plan this current land use application will deter from the overall vibrancy and uniqueness originally intended for this land. The applicant has not demonstrated compliance with Goal 6.1 Air Quality, please note that Beavercreek Road is identified as a transportation corridor which is NOT walkable. The Hamlet feels Statewide Goal 14 has not been met. The applicant believes the proposed zoning and Comp Plan designation MUC 1 will be in concert with the goals of the city. We have already outlined that it would be best to keep this parcel in the Concept Plan where it will be developed as a planned community. These are just a few ways in which the applicant has failed to adequately demonstrate that this is the best use for this 9.59 acre parcel. It is probable that the Hamlet could have indicated more discrepancies if it had been given the opportunity to fully participate in the hearings before the Planning Commission.

Our final concern is regarding "Partnering". We ask that Oregon City partner with the Hamlet of Beavercreek, as well as other Hamlets and County CPO's bordering Oregon City. Often, Oregon City plans development without regards to it's effect upon the neighboring communities which is what has happened in these two land use applications. Development on either Beavercreek Road or Highway 213 could have detrimental affects upon the citizens living in Beavercreek, as well as other outlying rural areas, which is why we have placed strong emphasis upon this development. Oregon City seems oblivious to issues facing it's neighbors, therefore how can you appropriately plan for the future? The answer is, you simply cannot. Only by Partnering with your neighbors will you be able to achieve appropriate and efficient planning for this entire section of Clackamas County.

Planning into the future must change. The Hamlet of Beavercreek will be vigilant in the future as urban cities expand. We will be vigilant in protecting our rural lands, our small farms, our creeks and streams with fish and wildlife. We will protect and preserve our rural community and it's way of life. This is what the 6500 citizens of the Hamlet of Beavercreek have asked for. They want to design their future and the destiny of their community. We ask Oregon City to partner with our Hamlet on all future development and we ask that you show respect for our community and that you listen to the 6500 voices who are asking only to be heard and acknowledged.



At the October 6th, 2010 City Commission meeting, the city chose to extend an olive branch to the Beavercreek community by giving the Hamlet until 5 PM on October 13th to submit written testimony, however they are being bound, by the City, to testify only to the Staff Report and Application and have been forbidden to bring forth any new facts.

We continue to feel that Oregon City has breached the requirements of state Goal 1 by choosing to ignore the 6500 people of the Hamlet. At the upcoming City Commission meeting on October 20th, 2010, the City will have the opportunity to redeem it's latest actions upon the Hamlet of Beavercreek by making the decision to remand Land Use applications ZC 10-01 and PZ 10-01 back to the Planning Commission allowing the Hamlet of Beavercreek to **testify to any and all comments, concerns and facts,** rather than holding them hostage, stating they can only testify to the Staff Report and application.

The final decision now rests with the City. We ask that you consider the information we have brought before you in our letter. We ask that you acknowledge the request of the people of the Hamlet of Beavercreek by properly remanding Land Use applications ZC 10-01 and PZ 10-01 back to the Planning Department allowing them to appropriately participate in these land use hearings, as defined under citizen participation, in state Goal 1.

Representing the Board of The Hamlet of Beavercreek

Christine Kosinski

Christine Kosinski
Corresponding Secretary and Co-Speaker
The Hamlet of Beavercreek

cc: Clackamas County Board of Commissioners
cc: Steve Wheeler, Clackamas County
cc: Cam Gilmour, Clackamas County
cc: Gail Curtis, ODOT
cc: Hamlet of Mulino
cc: Hamlet of Molalla Prairie
cc: Ray Valone, Metro
cc: Michael Jordan, Metro
cc: Carlotta Collette, Metro

The Hamlet of
BEAVERCREEK
PO BOX 587 · BEAVERCREEK · OREGON · 97004

ENTERED INTO THE RECORD
DATE RECEIVED: 10-20-10
SUBMITTED BY: Christine Kosinski
SUBJECT: Item 7a

Alice Norris, Mayor
Jim Nicita, Commissioner
Daphne Wuest, Commissioner
Doug Neeley, Commissioner
Rocky Smith, Commissioner
David Frasher, City Manager
City of Oregon City

October 20, 2010

RE: Land Use Application ZC 10-01 and PZ 10-01
19896 Beavercreek Road – Meyers and Beavercreek Road Intersection
9.59 Acre parcel brought into the UGB in 1979, annexed to the city in 2008
Contiguous to the Beavercreek Road Concept Plan

Honorable Mayor Norris and Commission:

The Hamlet of Beavercreek enters this letter into the City of Oregon City records for the above land use applications. The Hamlet extends their appreciation to Oregon City by recognizing the fact that the City gave them 7 days in which to respond to the staff report and application from the City. The Hamlet adequately responded within the given time frame.

We bring to your attention, that Tony Konkol, Planner for Oregon City, sent e-mail to the Hamlet last night at 6:38PM attaching a staff memorandum from the City in response to the many concerns raised by the Hamlet of Beavercreek. Understand, that once again, this late notice did not give the Hamlet time to fully study the staff report and adequately respond to you tonight. We hope in the future that Oregon City will notify the Hamlet in a more timely fashion, giving them the necessary time to study the land use file and reply.

In our letter of October 13th, 2010, the Hamlet brought forth many strong concerns for consideration and questioned the reasoning of the city in allowing this zone change to be considered for approval. Even though, in Oregon City's staff memorandum, each of our

MESSAGE PHONE 503-632-8370

ENTERED INTO THE RECORD
DATE RECEIVED:
SUBMITTED BY:

concerns were addressed, it is consistently pointed out by city staff that the Hamlet of Beavercreek either failed to demonstrate which criteria are not met, or that there are no facts offered to support this opinion, or that the Hamlet has submitted no cognizable evidence or credible argument to the contrary.

The Hamlet takes exception to these comments on the part of city staff. If the city had been dutiful and a good neighbor, we should have been rightfully notified in July of 2010 of the Planning Commission hearings for these land use applications. Because the Hamlet was notified, after the Planning Commission had already met and approved the application, they were completely left out and deprived of having the ability to fully participate from the beginning of the hearings in front of the Planning Commission.

Issues and concerns such as "piecemeal development" were not addressed in your staff memorandum and we continue to question the findings in the transportation report. For example, the city states it has made the finding that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027). The Hamlet takes exception with the language "reasonably likely" and would like the city to replace this with language stating that the Meyers Road extension improvement **will be** built at the time development is approved for both of these land use applications at Meyers and Beavercreek Roads. To state "reasonably likely" is not good enough since we all recognize the fact that traffic in this area is already very heavy. To wait until the year of 2027 is far too late and not acceptable since traffic in this area will have become prohibitively difficult. The Hamlet of Beavercreek states that the Kittleson report and City staff report fails to identify any true mitigation for the transportation issues which currently exist. What you have proposed is simply NO mitigation that will be effective for these traffic impacts.

Also, under transportation in the City's staff memorandum, city staff states "the TIA was prepared in consultation with and reviewed by ODOT and city staff and found to comply with all applicable transportation standards." We point out once again that the Hamlet of Beavercreek was not invited to be a part of these meetings and therefore their concerns were never heard.

We question the lower density of this 9.59 acre parcel, even though you fail to recognize this in your staff memorandum. When this parcel was previously part of the Concept Plan, a much larger market and retail center were planned and this area was to be the "cornerstone" for this community. By taking it away from the Concept Plan, where will your "cornerstone" now be. We continue to have concerns that the city will request to transfer density in the future which is certain to place more density towards our rural lands.



We want you to know that the Hamlet does not question that Oregon City can legally do this, and we do not question your ability in this land use application, however we do question whether this zone change makes sense. Oregon City has dedicated much time, energy and hundreds of thousands of dollars into designing and developing a Concept Plan. Why is the City now willing to throw all of this away and now consider re-zoning this 9.59 acre parcel for just ONE person? Additionally, will the City do this for every other person involved in the Concept Plan? Do you realize you are setting a precedent for just ONE person? Are you willing to take this risk?

We wonder why the City is in such a hurry to approve this Zone Change from MEV to MUC-1 when the applicant is on record stating they propose NO development at this time. It makes more sense for the City to recognize it's neighbors by remanding this land use application back to the Planning Commission, allowing the Hamlet of Beavercreek to participate in these hearings.

Oregon City has fought the notification of the Hamlet of Beavercreek on a mere technicality. We feel that since this parcel is contiguous to the Beavercreek Road Concept Plan, and because 6500 people in the community of Beavercreek must rely daily on this road, that notice of the Planning Commission hearings should have been timely sent to the Hamlet of Beavercreek. For the record, the Hamlet of Beavercreek boundaries are only 826 feet from Land Use application Z10-01, therefore Oregon City is truly fighting the Hamlet over a technicality.

In ending, we continue to request that the City correct it's past actions upon the Hamlet and remand these land use applications back to the Planning Commission.

Additionally, we understand from County staff that Mr. Konkol has informally agreed to send all future land use application notices to both the Hamlet of Beavercreek (HOB), the Holcomb-Outlook CPO and the Central Point-Leland-New Era CPO, which are the three CPO's bordering the City of Oregon City. The Hamlet of Beavercreek requests the City Commission to act upon this agreement tonight by formally writing this agreement into City Code, and after approved, we ask that all land use notices be sent by both U.S. mail as well as e-mail, as a precaution in the event that mail is not timely delivered.

We sincerely thank you for recognizing the Hamlet of Beavercreek and their concerns regarding these land use applications. We look forward to working with you, as a partner, on all future land use applications.

Representing the Board of The Hamlet of Beavercreek

Christine Kosinski

Christine Kosinski
Corresponding Secretary and Co-Speaker
The Hamlet of Beavercreek
Corr.sec@HamletofBeavercreek.org

Cc: Clackamas County Board of Commissioners
Cc: Steve Wheeler, Clackamas County
Cc: Cam Gilmour, Clackamas County
Cc: Gail Curtis, ODOT
Cc: Hamlet of Mulino
Cc: Hamlet of Molalla Prairie
Cc: Ray Valone, Metro
Cc: Michael Jordan, Metro
Cc: Carlotta Collette, Metro

Agenda Item No. 3b
Meeting Date: 30 Aug 2010

COMMISSION REPORT: CITY OF OREGON CITY

TO:	Planning Commission
FROM:	Tony Konkol, Community Development Director
PRESENTER:	Pete Walter, Planner
SUBJECT:	PZ 10-01 and ZC 10-01. The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.
Agenda Heading: Public Hearing	
Approved by: Tony Konkol, Community Development Director	

RECOMMENDED ACTION (Motion):

Recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing.

BACKGROUND:

Please refer to the attached Staff Report and Recommended Conditions of Approval.

BUDGET IMPACT:

FY(s):
Funding Source:

ATTACHMENTS:

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

AUGUST 30, 2009 PLANNING COMMISSION HEARING

FILE NO.:	PZ 10-01: Comprehensive Plan Map Amendment ZC 10-01: Zone Change
APPLICANT/ OWNER	Marylwood, LLC, Attn: Phil Gentemann 7128 SW Gonzaga St Portland, OR 97223
REPRESENTATIVE:	Theta, LLC PO Box 1345 Lake Oswego, OR 97035
REQUEST:	The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.
LOCATION:	19896 Beavercreek Road Clackamas County Map 3-2E-10C, Tax Lot 800
REVIEWER:	Pete Walter, AICP, Associate Planner Bob Cullison, Development Services Manager
RECOMMENDATION:	Recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing.

PROCESS: Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing) may appeal the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. The city commission decision is the city's final decision and is appealable to the land use board of appeals (LUBA) within twenty-one days of when it becomes final. THE APPLICATION IS ON FILE AT THE OREGON CITY CITY HALL. IF YOU HAVE ANY QUESTIONS ABOUT THIS APPLICATION, PLEASE CONTACT THE PLANNING DIVISION OFFICE AT (503) 722-3880.

I. ***BACKGROUND***:

The property in question is annexed to Oregon City. It is designated Future Urban on the City's Comprehensive Plan. In order to develop the property the applicant has taken the first step of applying for a change to the Comprehensive Plan designation and city zoning.

The applicant has chosen to amend the Comprehensive Plan designation from Future Urban to Mixed Use Commercial, and has applied for a Zone Change from FU-10 – Future Urban to MUC-1, Mixed Use Corridor.

The major review criteria are consistency with the Oregon City Comprehensive Plan and Statewide Planning Goals. The goals and objectives of the Beavercreek Road Concept Plan have not been used as review criteria since the plan was remanded to the City and to Metro by the Land Use Board of Appeals (LUBA) on appeal.

Additionally, since the proposed zone change has been determined to affect an ODOT transportation facility, State Highway OR-213, the applicant has to show compliance with the State Transportation Planning Rule OAR 660-12-0060 (TPR), and has submitted a Traffic Impact Analysis pursuant to state and city guidelines in this regard.

II. ***BASIC FACTS:***

1. **Property Description**: The subject property is located at 19896 Beavercreek Road in Oregon City, also known as T3S-R2E-10C tax lot 800. The property is 9.59 acres in size, triangular in shape and is relatively flat with slopes not exceeding 5% (running SE to NW).

   The subject property is surrounded by undeveloped land to the north, northeast and southeast, and was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Carrington Place, an existing residential subdivision zoned R-6, and existing single family residential lots zoned R-3.5 and R-10 are all to the southwest, and the Oregon City High School is to the northwest, both of which are located across Beavercreek Road from the subject site. A 50-foot wide Williams Natural gas pipeline corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area except for parking/maneuvering, open space and/or setbacks. The signalized intersection of Meyers and Beavercreek Road is located along the subject property frontage.

2. **Zoning/Permitted Use:** The property is zoned Future Urban – 10, which is a County holding zone with a 10-acre minimum lot size. The site is also under Farm Use tax deferral.

3. **Surrounding Uses/Zoning:** Properties to the north, east and south of the subject site are zoned FU-10, and are part of the same 122-acre annexation approved by the voters that annexed the subject parcel in 2008 (Oregon City Planning file AN 07-02, Metro File CL1807). The property contains five (5) single-family dwellings. It is currently zoned FU-10 "Future Urbanizable". Properties to the west across Beavercreek Road include Oregon City High School (Zoned R-8 Single Family Residential) and city subdivisions zoned R-6 Single Family Residential and R-3.5 Dwelling District.

4. **Density Calculations:**There is currently one house on the property. If the proposed application is approved the property could be developed with a variety of uses including multi-family residential use..

5. **Comments:** Notice of the proposed subdivision with details of the development and requesting comments was sent to the Department of Land Conservation and Development, advertised in the Clackamas Review, mailed to property owners within 300 feet of the subject site and the property was posted with a Land Use Action sign requesting comments.

   Comments were received from the following persons:

   Mike Mermelstein, Caufield Neighborhood Association. (Exhibit F). The Caufield Neighborhood Association is concerned that the permitted uses under MUC-1 is too broad, and would like to see the list narrowed and more focused. The Neighborhood Association is also concerned about the appearance of commercial and development along Beavercreek Road.

   Regarding the Caufield Neighborhood Association's comments, the applicant has requested re-zoning to MUC-1, which if approved would affect the allowable uses of the property. However, the applicant does not propose to narrow or alter the zoning code language governing permitted uses in the MUC-1 zone district. A request to narrow the range of permissible uses for the MUC-1 zone district would require a separate, Legislative amendment to the zoning code that would need to be approved by the Planning Commission and City Commission. Such a request has not been proposed.

   A specific development proposal is not proposed at this time. Future development of the site would require a separate Site Plan and Design Review application, at which time the adopted architectural and landscaping design review requirements of the Oregon City Municipal Code would apply.

   Gail Curtis, AICP, Senior Planner, Oregon Department of Transportation, (Exhibit D). ODOT reviewed the application and provided comments regarding the impact of the proposed rezoning on Highway 213. The proposed rezoning would have a significant effect, per the requirements of OAR 660-12-0060, on the intersection of the State Highway OR-213 and Meyers Road and is required to provide appropriate mitigation for the impact.

   The issues raised by the comments submitted that address an approval criteria have been addressed throughout the report and staff has provided findings, and when appropriate, conditions, to address the issues raised and to ensure that the proposal complies with the approval criteria.

DECISION-MAKING CRITERIA:

Municipal Code Standards and Requirements

OCMC Title 17, Zoning:	Chapter 17.29 - "MUC"—Mixed-Use Corridor District Chapter 17.50, Administration and Procedures Chapter 17.68, Zone Changes and Amendments
Oregon City Comprehensive Plan (2004)	Relevant Goals and Policies (OCMC 17.68.020.A.)
Statewide Planning Goals	OAR 660-015-000(1) – (14)
Metro 2040 Urban Growth Functional Plan	Titles 1 and 7.

OREGON CITY MUNICIPAL CODE

17.50.050 - Preapplication conference and neighborhood meeting.

A. Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents. Conditional use, subdivision, or site plan and design review (excluding minor site plan and design review) applications shall schedule and attend a meeting with the city-recognized neighborhood association in whose territory the application is proposed. Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended. The applicant shall send, by certified mail, return receipt requested, a letter to the chairperson of the neighborhood association and the citizen involvement committee describing the proposed project. A meeting shall be scheduled within thirty days of the notice. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall hold their own meeting after six p.m. or on the weekend, with notice to the neighborhood association, citizen involvement committee, and all property owners within three hundred feet. If the applicant holds their own meeting, a copy of the certified letter shall be required for a complete application. The meeting shall be held within the boundaries of the neighborhood association or in a city facility.

Finding: The applicant advertised and held a neighborhood meeting with the Caufield Neighborhood Association on January 26th, 2010 to discuss the proposal with affected property owners. This standard is met.

B. Preapplication Conference. Prior to submitting an application for any form of permit, the applicant shall schedule and attend a preapplication conference with city staff to discuss the proposal. To schedule a preapplication conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the city, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans. The purpose of the preapplication conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal. The planning division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the preapplication conference. Notwithstanding any representations by city staff at a preapplication conference, staff is not authorized to waive any requirements of this Code, and

any omission or failure by staff to recite to an applicant all relevant applicable land use requirements shall not constitute a waiver by the city of any standard or requirement.

C. A preapplication conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the applicant must schedule and attend another conference before the city will accept a permit application. The community development director may waive the preapplication requirement if, in the director's opinion, the development does not warrant this step.
(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

Finding: The applicant attended the required pre-application conference on November 9, 2009 (See Exhibit A4), and submitted the formal application within 6-months of the pre-application conference. This standard is met.

17.68.020 Zone Changes and Amendments – Criteria
The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.
The applicant states that as outlined within this narrative below, the requested zone change and comprehensive plan amendment are consistent with the applicable goals and policies of the City's Comprehensive Plan.

According to the applicant, the goal of the proposal is to establish a City zone so that the property may be developed in the future to the highest and best use. As development occurs on the easterly side of Beavercreek Road, the applicant believes this proposed zoning and comprehensive plan designation will be in concert with the goals of the City. The Mixed Use Corridor (MUC) District is designed to apply along selected sections of the transportation corridors.

Goal 2.3 Corridors
Focus transit-oriented, higher intensity, mixed-use development along selected transit corridors.

Policy 2.3.1
Ensure planning for transit corridors includes facilities and access management, aesthetics (including signage and building facade improvements), infill and redevelopment opportunities, high-density residential development, and business assistance to existing businesses.

Finding: The applicant indicates that the subject property is at the existing signalized intersection of Beavercreek and Meyers Roads and will serve as the only access from the transit corridor. This connection will provide for connectivity and circulation opportunities to a future connected local street network. The MUC-1 zone will allow for mixed use development that could include high density residential and a variety of medical, office and retail uses. Since development and use is not proposed as a part of this application, specific building requirements (aesthetics, facades, etc.) will be reviewed at the time a site plan and design review application is submitted. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.4 Neighborhood Livability
Provide a sense of place and identity for residents and visitors by protecting and maintaining neighborhoods as the basic unit of community life in Oregon City while implementing the goals and policies of the other sections of the Comprehensive Plan.

Policy 2.4.2
Strive to establish facilities and land uses in every neighborhood that help give vibrancy, a sense of place, and a feeling of uniqueness; such as activity centers and points of interest.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The property was originally designated low density residential and was subsequently designated Future Urban by the City in 2004. As development occurs on the easterly side of Beavercreek Road, the applicant believes this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the city. The MUC-1 designation allows for a variety of uses which all relate to potential services and housing options that could help create the vibrant core area that is the goal of the City. Since development and use are not specifically proposed as a part of this application, specific requirements would be reviewed under the future design review application. The permitted uses offer opportunities when development occurs to project a vibrancy and uniqueness through architecture, landscaping and mixed uses. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.3
Promote connectivity between neighborhoods and neighborhood commercial centers through a variety of transportation modes.

Finding: Please see findings under OCMC 17.68.020(C) regarding the applicant's Transportation Impacts, compliance with the Transportation Planning Rule, and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. Bus service is already available at Highway 213, Beavercreek Road and Molalla Road with service to Clackamas Community College. In time, Tri-Met bus service will be extended to the site and already provides conductivity to the light rail at Clackamas Town Center. The Beavercreek road cross section provides for bike lanes. Access to the site will be at the signalized intersection of Beavercreek and Meyers Roads which provides connectivity from the existing residential neighborhoods, school and this future mixed use. With the potential uture design review application for the subject property, transportation requirements will be addressed to meet this policy. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.4
Where environmental constraints reduce the amount of buildable land, and/or where adjacent land differs in uses or density, implement Comprehensive Plan and zoning designations that encourage compatible transitional uses.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. When annexed, the property was assigned the Clackamas County zoning

designation of FU-10, which is a "holding" zone requiring a 10-acre minimum lot size. The surrounding farmland property to the north, northeast and southeast was brought into the UGB in 2002/2004 and has a Comprehensive Plan designation of Future Urban. The requested MUC-1 zone allowed uses fall into this category and would be consistent with these goals. There are no environmental constraints on the subject property. However, there is a 50-foot wide gas corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area. This strip would be suitable for parking/maneuvering, open space and/or setbacks. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.4.5
Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Finding: The applicant indicates that there are no plans for a neighborhood school on this property. Oregon City High School is located to the northwest of the subject site. The MUC-1 zone includes assisted living facilities, parks and childcare centers as allowed uses. Public or private education facilities are allowed as a Conditional Use in the MUC zone. Therefore, no barriers would be created by allowing this requested zone change and comprehensive plan amendment. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.5 Retail and Neighborhood Commercial
Encourage the provision of appropriately scaled services to neighborhoods.

Policy 2.5.1
Encourage the redevelopment of linear commercial corridors in ways that encourage expansion of existing businesses and infill development, and at the same time reduces conflicting traffic movements, improves the aesthetic character of these commercial areas, and encourages trips by transit, bicycling and walking.

Finding: Complies with Conditions. Please see findings under OCMC 17.68.020(C) regarding the applicant's Transportation Impacts, compliance with the Transportation Planning Rule, and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. With the potential future design review application for the subject property, these goals will be addressed to meet this policy. Limited access from Beavercreek Road will reduce conflicting traffic movements and provide an avenue for conductivity and circulation with a future local street network. Bike lanes are included in the Beavercreek Road design and will encourage ridership from this site to residential areas. The proposed mixed use corridor district encourages improved aesthetic character by requiring substantial landscaping minimums.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from County FU-10 to the Mixed Use zone.

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

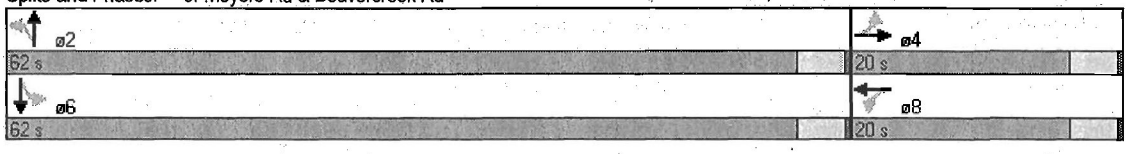
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.993	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1869	0
Flt Permitted	0.757						0.112					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	213	1881	0	1900	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		102									7	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1329	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.81	
Control Delay	41.7	0.5					3.0	3.4			11.4	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.0	3.4			11.4	
Queue Length 50th (ft)	29	0					1	90			338	
Queue Length 95th (ft)	59	0					5	178			#923	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	394					186	1645			1635	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.81	

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 83.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1869	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1564	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.0	
Delay (s)	43.6	36.8					1.9	2.9			9.8	
Level of Service	D	D					A	A			A	
Approach Delay (s)		42.0			0.0			2.9			9.8	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

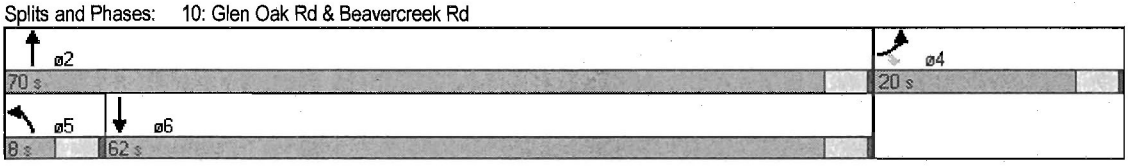
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.977	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1856	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1856	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			23	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1282	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.87	
Control Delay	44.2	13.8	51.0	3.8	18.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	18.9	
Queue Length 50th (ft)	54	0	14	85	342	
Queue Length 95th (ft)	95	23	39	163	#1023	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1478	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.87	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.6	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1857	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1857	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	216
RTOR Reduction (vph)	0	26	0	0	6	0
Lane Group Flow (vph)	97	3	25	656	1276	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1407	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.69	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.91	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	10.1	
Delay (s)	44.4	38.1	110.5	3.2	18.8	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	18.8	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	16.4	HCM Level of Service		B
HCM Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	92.8	Sum of lost time (s)		12.0
Intersection Capacity Utilization	77.5%	ICU Level of Service		D
Analysis Period (min)	15			

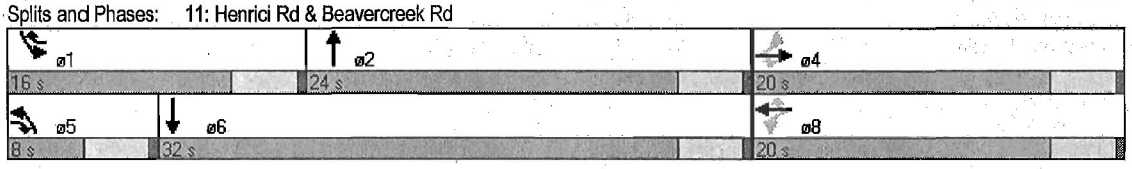
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Attachment B
City MUC Zoning Code Provisions

Oregon City, Oregon, Code of Ordinances >> Title 17 - ZONING >> Chapter 17.29 - "MUC"—MIXED -USE CORRIDOR DISTRICT >>

Chapter 17.29 - "MUC"—MIXED-USE CORRIDOR DISTRICT

Editor's note—

Ord. No. 08-1014, adopted Jul. 1, 2009, repealed Chapter 17.29 in its entirety and enacted new provisions to read as herein set out. Prior to amendment, Chapter 17.29 pertained to similar subject matter. See Ordinance Disposition List for derivation.

Sections:

17.29.010 - Designated.
17.29.020 - Permitted uses—MUC-1 and MUC-2.
17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.
17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.
17.29.050 - Dimensional standards—MUC-1.
17.29.060 - Dimensional standards—MUC-2.
17.29.070 - Floor area ratio (FAR).

17.29.010 - Designated.

The Mixed-Use Corridor (MUC) District is designed to apply along selected sections of transportation corridors such as Molalla Avenue, 7th Street and Beavercreek Road, and along Warner-Milne Road. Land uses are characterized by high-volume establishments such as retail, service, office, multi-family residential, lodging, recreation and meeting facilities, or a similar use as defined by the community development director. A mix of high -density residential, office, and small-scale retail uses are encouraged in this District. Moderate density (MUC-1) and high density (MUC-2) options are available within the MUC zoning district. The area along 7th Street is an example of MUC-1, and the area along Warner-Milne Road is an example of MUC-2.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.020 - Permitted uses—MUC-1 and MUC-2.

A. Banquet, conference facilities and meeting rooms;

B. Bed and breakfast and other lodging facilities for up to ten guests per night;

C. Child care centers and/or nursery schools;

D. Indoor entertainment centers and arcades;

E. Health and fitness clubs;

F. Medical and dental clinics, outpatient; infirmary services;

G. Museums, libraries and cultural facilities;

H. Offices, including finance, insurance, real estate and government;

I. Outdoor markets, such as produce stands, craft markets and farmers markets that are operated on the weekends and after six p.m. during the weekday;

J. Postal services;

K. Parks, playgrounds, play fields and community or neighborhood centers;

L. Repair shops, for radio and television, office equipment, bicycles, electronic equipment, shoes and small appliances and equipment;

N. Residential units, multi-family;

O. Restaurants, eating and drinking establishments without a drive through;

P. Services, including personal, professional, educational and financial services; laundry and dry-cleaning;

Q. Retail trade, including grocery, hardware and gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores, and similar, provided the maximum footprint for a stand alone building with a single store or multiple buildings with the same business does not exceed sixty thousand square feet;

R. Seasonal sales, subject to Oregon City Municipal Code Section 17.54.060;

S. Assisted living facilities; nursing homes and group homes for over fifteen patients;

T. Studios and galleries, including dance, art, photography, music and other arts;

U. Utilities: Basic and linear facilities, such as water, sewer, power, telephone, cable, electrical and natural gas lines, not including major facilities such as sewage and water treatment plants, pump stations, water tanks, telephone exchanges and cell towers.

V. Veterinary clinics or pet hospitals, pet day care.

W. Home occupations;

X. Research and development activities;

Y. Temporary real estate offices in model dwellings located on and limited to sales of real estate on a single piece of platted property upon which new residential buildings are being constructed;

Z. Residential care facility.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.

The following uses are permitted in this district when authorized and in accordance with the process and standards contained in Chapter 17.56:

A. Ancillary drive-in or drive-through facilities;

B. Emergency service facilities (police and fire), excluding correctional facilities;

C. Gas stations;

D. Outdoor markets that do not meet the criteria of Section 17.29.020H.;

E. Public utilities and services including sub-stations (such as buildings, plants and other structures);

F. Public and/or private educational or training facilities;

G. Religious institutions;

H. Retail trade, including gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores and any other use permitted in the neighborhood, historic or limited commercial districts that have a footprint for a stand alone building with a single store in excess of sixty thousand square feet in the MUC-1 or MUC-2 zone;

I. Hotels and motels, commercial lodging;

J. Hospitals;

K. Parking structures and lots not in conjunction with a primary use;

L. Passenger terminals (water, auto, bus, train).

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.

The following uses are prohibited in the MUC district:

A. Distributing, wholesaling and warehousing;

B. Outdoor sales or storage;

C. Correctional facilities;

D. Heavy equipment service, repair, sales, storage or rental[2] (including but not limited to construction equipment and machinery and farming equipment);

E. Kennels;

E. Motor vehicle and recreational vehicle sales and incidental service;

F. Motor vehicle and recreational vehicle repair/service;

G. Outdoor sales or storage;

H. Self-service storage facilities.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.050 - Dimensional standards—MUC-1.

A. Minimum lot areas: None.

B. Maximum building height: Forty feet or three stories, whichever is less.

C. Minimum required setbacks if not abutting a residential zone: None.

D. Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every one foot of building height over thirty-five feet.

E. Maximum allowed setbacks.

1. Front yard: Five feet (may be extended with Site Plan and Design Review (Section 17.62.055).
2. Interior side yard: None.
3. Corner side setback abutting street: Thirty feet provided the Site Plan and Design Review requirements of Section 17.62.055 are met.
4. Rear yard: None.

F. Maximum lot coverage of the building and parking lot: Eighty percent.

G. Minimum required landscaping (including landscaping within a parking lot): Twenty percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.060 - Dimensional standards—MUC-2.

A. Minimum lot area: None.

B. Minimum floor area ratio: 0.25.

C. Minimum building height: Twenty-five feet or two stories except for accessory structures or buildings under one thousand square feet.

D. Maximum building height: Sixty feet.

E. Minimum required setbacks if not abutting a residential zone: None.

F.

Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every two feet of building height over thirty-five feet.

G. Maximum Allowed Setbacks.

1. Front yard: Five feet (may be expanded with Site Plan and Design Review Section 17.62.055).
2. Interior side yard: None.
3. Corner side yard abutting street: Twenty feet provided the site plan and design review requirements of Section 17.62.055 are met.
4. Rear yard: None.

H. Maximum site coverage of building and parking lot: Ninety percent.

I. Minimum landscaping requirement (including parking lot): Ten percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.070 - Floor area ratio (FAR).

Floor area ratios are a tool for regulating the intensity of development. Minimum FARs help to achieve more intensive forms of building development in areas appropriate for larger-scale buildings and higher residential densities.

A. Standards.

1. The minimum floor area ratios contained in 17.29.050 and 17.29.060 apply to all non-residential and mixed-use building development, except stand-alone commercial buildings less than ten thousand square feet in floor area.
2. Required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs.
3. An individual phase of a project shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, that the required density for the project will be achieved at project build out.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

Attachment C
Horizon Year Proposed
Zoning Operations
Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	57	264	7	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m95	#602	m38	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

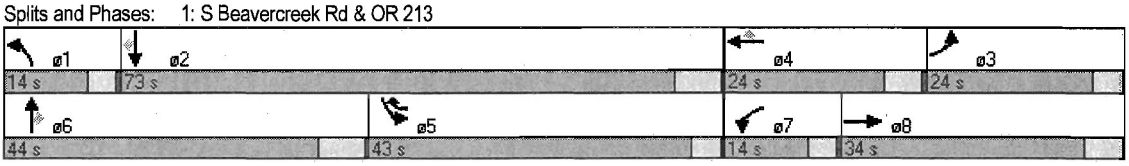
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.1	25.9	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	86.3	58.7	31.0	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	C	F	F	C
Approach Delay (s)		132.6			102.5			56.5			78.6	
Approach LOS		F			F			E			E	

Intersection Summary				
HCM Average Control Delay	89.9	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.11			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	105.0%	ICU Level of Service	G	
Analysis Period (min)	15			

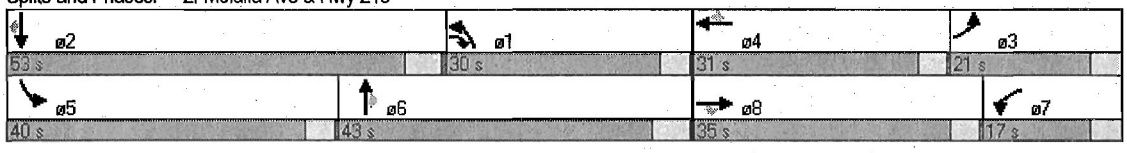
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.91	1.53	0.79	0.66	1.06	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	441	~501	230	0	~366	259	96	~467	~847	12
Queue Length 95th (ft)	#273	305	563	#778	334	97	m#513	m305	m150	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.91	1.53	0.72	0.64	1.06	0.58	0.40	1.05	1.20	0.25

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	564	405	279	80	376	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.21	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.86	1.53	0.79	0.27	1.06	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.9	57.3	52.0	46.7	54.0	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.09	1.17	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	11.3	256.0	10.9	0.5	56.2	1.6	1.1	28.4	90.3	0.0
Delay (s)	61.3	62.4	49.1	313.3	62.9	47.2	114.6	45.8	44.0	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		54.8			149.0			67.2			102.2	
Approach LOS		D			F			E			F	

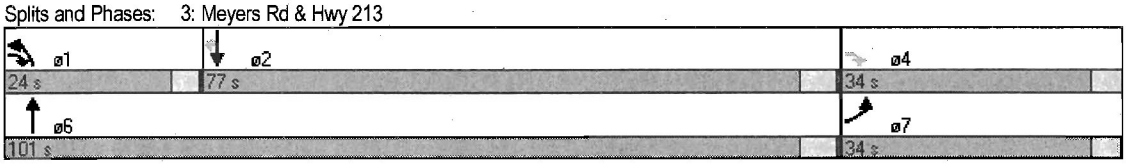
Intersection Summary			
HCM Average Control Delay	95.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.12		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	108.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	330	262	807	1813	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				323	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	347	276	849	1908	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	347	276	849	1908	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	
Control Delay	89.9	34.1	113.3	12.1	24.8	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	34.1	113.3	12.1	24.8	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	222	~249	339	~920	3	
Queue Length 95th (ft)	#555	321	#435	458	m367	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	976	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	330	262	807	1813	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	347	276	849	1908	549
RTOR Reduction (vph)	0	6	0	0	0	146
Lane Group Flow (vph)	395	341	276	849	1908	403
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.16	0.46	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.54	1.01	0.63	1.00	0.49
Uniform Delay, d1	51.6	32.1	57.0	9.4	30.5	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.55	0.04
Incremental Delay, d2	37.3	0.9	57.3	2.3	6.8	0.2
Delay (s)	88.9	33.0	114.3	11.7	23.6	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.8			36.9	18.6	
Approach LOS	E			D	B	

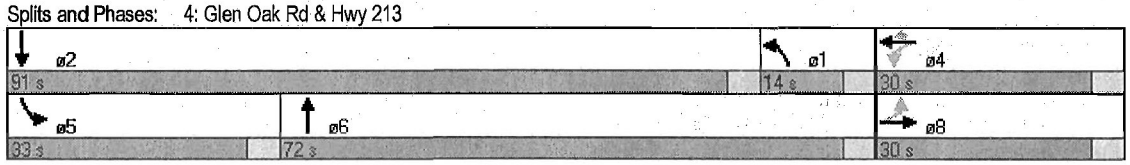
Intersection Summary				
HCM Average Control Delay	30.9	HCM Level of Service	C	
HCM Volume to Capacity ratio	1.00			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	95.4%	ICU Level of Service	F	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.977		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1856	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.538			0.676		0.950			0.950		
Satd. Flow (perm)	0	999	0	0	1284	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				225		6			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	246	225	26	864	0	383	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.74			0.94	0.45	0.20	0.94		0.95	1.46	
Control Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			216	0	22	679		334	~2292	
Queue Length 95th (ft)		#238			#387	70	53	#974		#534	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		211			264	503	150	962		413	1263	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.74			0.93	0.45	0.17	0.90		0.93	1.46	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 131.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1856	1576	1787	1823		1805	1835	
Flt Permitted		0.54			0.68	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		998			1285	1576	1787	1823		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
RTOR Reduction (vph)	0	6	0	0	0	180	0	3	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	246	45	26	861	0	383	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		25.9			25.9	25.9	5.8	66.7		28.5	89.4	
Effective Green, g (s)		26.9			26.9	26.9	6.8	67.7		29.5	90.4	
Actuated g/C Ratio		0.20			0.20	0.20	0.05	0.51		0.22	0.68	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		202			260	319	91	927		400	1246	
v/s Ratio Prot							0.01	c0.47		0.21	c1.01	
v/s Ratio Perm		0.15			c0.19	0.03						
v/c Ratio		0.74			0.95	0.14	0.29	0.93		0.96	1.48	
Uniform Delay, d1		49.9			52.4	43.6	60.8	30.5		51.2	21.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.8			40.9	0.2	1.7	15.0		33.7	221.8	
Delay (s)		63.7			93.3	43.8	62.5	45.5		84.9	243.1	
Level of Service		E			F	D	E	D		F	F	
Approach Delay (s)		63.7			69.7			46.0			216.0	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	150.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.32		
Actuated Cycle Length (s)	133.1	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.7%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

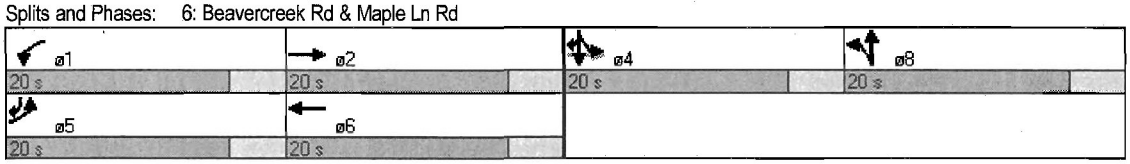
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	206	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4	4 5
Permitted Phases		4										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	140		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	175	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.53		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.7		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM Average Control Delay	45.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.92			
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	83.7%	ICU Level of Service	E	
Analysis Period (min)	15			

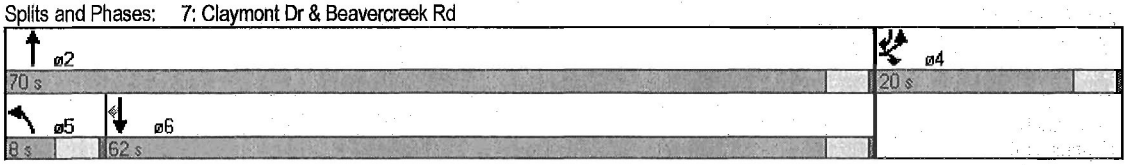
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 100
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.859			0.852			0.993			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1632	0	1805	1619	0	1805	1869	0	1805	1869	0
Flt Permitted	0.715			0.746			0.078			0.325		
Satd. Flow (perm)	1358	1632	0	1417	1619	0	148	1869	0	618	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			7			8	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	17	0	76	65	0	11	771	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.33	0.08		0.44	0.26		0.09	0.51		0.06	0.87	
Control Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Length 50th (ft)	24	0		34	0		1	103		3	357	
Queue Length 95th (ft)	55	18		73	33		7	217		11	#918	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	275	343		287	379		120	1522		503	1522	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.05		0.26	0.17		0.09	0.51		0.06	0.87	

Intersection Summary

Area Type: Other

Cycle Length: 82

Actuated Cycle Length: 79.2

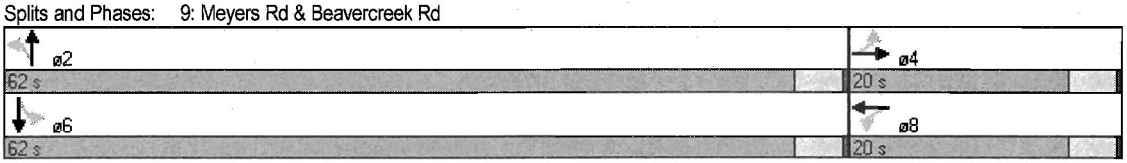
Natural Cycle: 90

Control Type: Semi Act-Uncoord

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.85		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1632		1805	1619		1805	1870		1805	1869	
Flt Permitted	0.71	1.00		0.75	1.00		0.08	1.00		0.32	1.00	
Satd. Flow (perm)	1358	1632		1418	1619		147	1870		617	1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
RTOR Reduction (vph)	0	14	0	0	57	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	3	0	76	8	0	11	770	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Effective Green, g (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	171		149	170		117	1487		491	1486	
v/s Ratio Prot		0.00			0.00			0.41			c0.71	
v/s Ratio Perm	0.04			c0.05			0.07			0.05		
v/c Ratio	0.37	0.02		0.51	0.05		0.09	0.52		0.07	0.89	
Uniform Delay, d1	33.3	32.1		33.9	32.2		1.8	2.9		1.8	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.0		2.9	0.1		1.6	1.3		0.3	8.3	
Delay (s)	35.0	32.1		36.8	32.3		3.4	4.1		2.0	14.0	
Level of Service	C	C		D	C		A	A		A	B	
Approach Delay (s)		34.3			34.7			4.1			13.7	
Approach LOS		C			C			A			B	

Intersection Summary				
HCM Average Control Delay	12.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	83.9%	ICU Level of Service	E	
Analysis Period (min)	15			

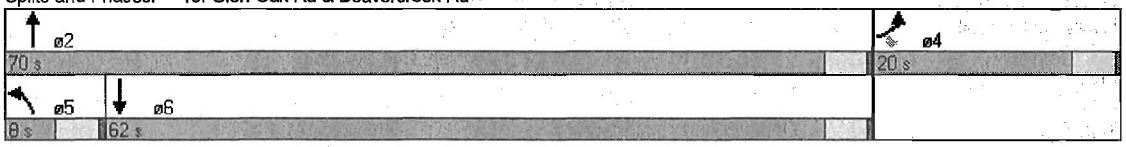
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.972	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1847	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1847	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			29	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	122	29	25	659	1074	277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	29	25	659	1351	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.54	0.13	0.32	0.44	0.97	
Control Delay	45.8	13.3	52.3	4.6	31.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.8	13.3	52.3	4.6	31.4	
Queue Length 50th (ft)	67	0	14	94	456	
Queue Length 95th (ft)	114	23	40	182	#1143	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	313	304	78	1499	1398	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.39	0.10	0.32	0.44	0.97	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 92.3
Natural Cycle: 110
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1847	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1847	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	122	29	25	659	1074	277
RTOR Reduction (vph)	0	25	0	0	8	0
Lane Group Flow (vph)	122	4	25	659	1343	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	11.5	11.5	1.7	75.2	69.5	
Effective Green, g (s)	11.5	11.5	1.7	75.2	69.5	
Actuated g/C Ratio	0.12	0.12	0.02	0.79	0.73	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	219	196	32	1509	1356	
v/s Ratio Prot	c0.07		0.01	c0.35	c0.73	
v/s Ratio Perm		0.00				
v/c Ratio	0.56	0.02	0.78	0.44	0.99	
Uniform Delay, d1	39.2	36.6	46.3	3.1	12.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	0.0	74.5	0.9	22.3	
Delay (s)	42.3	36.7	120.9	4.0	34.6	
Level of Service	D	D	F	A	C	
Approach Delay (s)	41.2			8.3	34.6	
Approach LOS	D			A	C	

Intersection Summary				
HCM Average Control Delay	26.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	94.7	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	82.8%	ICU Level of Service	E	
Analysis Period (min)	15			

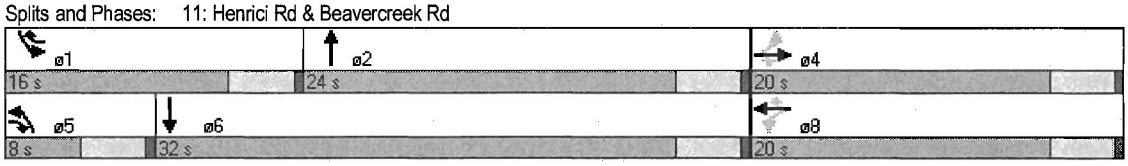
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Attachment D
Horizon Year Operations Analysis Worksheets with Meyers Road Extension

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	58	252	6	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m98	#602	m46	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

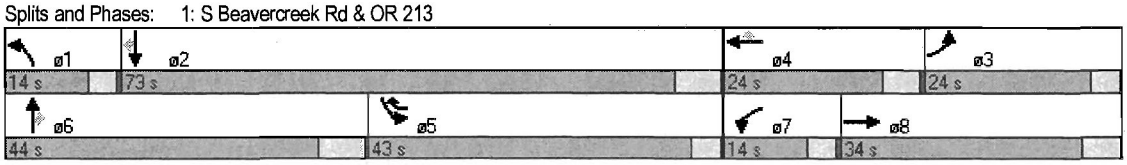
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.35	0.82	1.20	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.2	26.2	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	90.0	65.3	41.8	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	D	F	F	C
Approach Delay (s)		132.1			97.6			63.5			77.0	
Approach LOS		F			F			E			E	

Intersection Summary				
HCM Average Control Delay	89.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.10			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	104.5%	ICU Level of Service	G	
Analysis Period (min)	15			

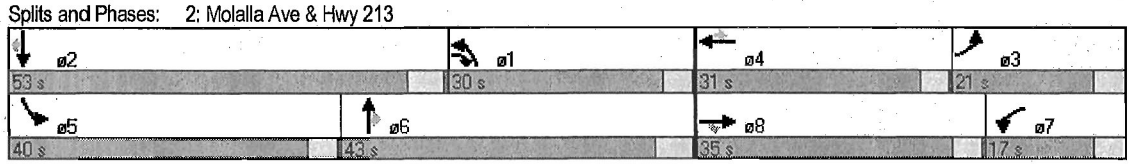
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			27			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.10	0.58	0.80	0.52	0.97	0.59	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~610	133	230	0	281	214	20	228	~1024	13
Queue Length 95th (ft)	#273	225	#779	#223	334	75	m241	m220	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.10	0.58	0.72	0.50	0.97	0.59	0.13	0.66	1.26	0.24

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	17	0	0	69
Lane Group Flow (vph)	184	184	612	168	279	49	342	763	59	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.22		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.04	0.58	0.80	0.17	0.97	0.58	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.0	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	47.0	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	90.9	54.7	64.5	46.3	59.8	34.5	30.9	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	C	C	D	F	B
Approach Delay (s)		82.8			55.5			41.6			121.0	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM Average Control Delay	85.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00		1.00		0.97
Frt		0.903			0.963			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1664	0	1770	1785	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1762	1664	0	1765	1785	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			11			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	447	0	53	418	0	184	842	0	316	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38
Control Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	319		47	~446		~205	~855		~345	~974	8
Queue Length 95th (ft)	#459	#499		#118	#658		#360	#1108		m#262	m515	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	554		79	340		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 150

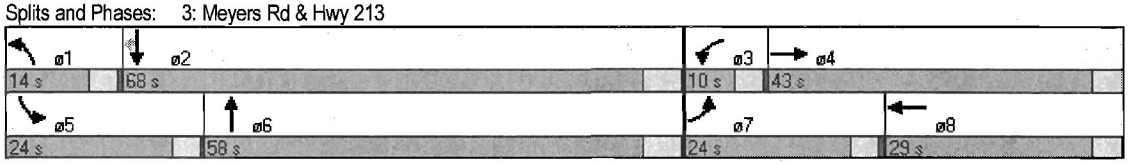
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
RTOR Reduction (vph)	0	48	0	0	9	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	399	0	53	409	0	184	840	0	316	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	341		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.23		c0.10	0.46		c0.18	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.79		0.84	1.20		1.29	1.15		1.21	1.12	0.31
Uniform Delay, d1	57.0	43.1		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.35	0.62	0.19
Incremental Delay, d2	68.3	8.2		60.8	114.7		171.5	81.4		96.2	53.0	0.1
Delay (s)	125.3	51.3		125.6	169.3		233.5	121.8		173.7	74.8	4.3
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.3			164.4			141.8			78.5	
Approach LOS		F			F			F			E	

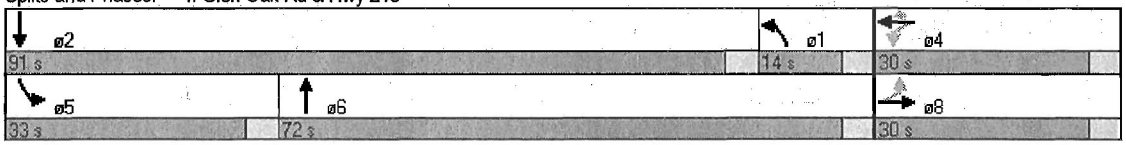
Intersection Summary			
HCM Average Control Delay	101.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	10.0
Intersection Capacity Utilization	109.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.991			0.994	
Flt Protected		0.984			0.986		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1873	1615	1787	1831	0	1805	1836	0
Flt Permitted		0.590			0.797		0.950			0.950		
Satd. Flow (perm)	0	1095	0	0	1514	1576	1787	1831	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	182	101	26	859	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.84			0.73	0.29	0.21	0.82		0.76	1.42	
Control Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		119			143	0	21	538		202	~2154	
Queue Length 95th (ft)		#220			230	49	53	#961		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		250			339	431	163	1060		448	1339	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.62			0.54	0.23	0.16	0.81		0.58	1.42	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 121.8
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1825			1873	1577	1787	1831		1805	1836	
Flt Permitted		0.59			0.80	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1095			1515	1577	1787	1831		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	85	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	182	16	26	857	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		19.0			19.0	19.0	4.7	70.4		22.1	87.8	
Effective Green, g (s)		20.0			20.0	20.0	5.7	71.4		23.1	88.8	
Actuated g/C Ratio		0.16			0.16	0.16	0.05	0.58		0.19	0.72	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177			245	255	82	1059		338	1320	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.12	0.01						
v/c Ratio		0.85			0.74	0.06	0.32	0.81		0.77	1.44	
Uniform Delay, d1		50.3			49.3	43.8	57.0	20.7		47.7	17.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		29.5			11.5	0.1	2.2	4.7		10.1	202.2	
Delay (s)		79.8			60.8	43.9	59.2	25.3		57.8	219.5	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		79.8			54.8			26.3			200.0	
Approach LOS		E			D			C			F	

Intersection Summary			
HCM Average Control Delay	138.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	123.5	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

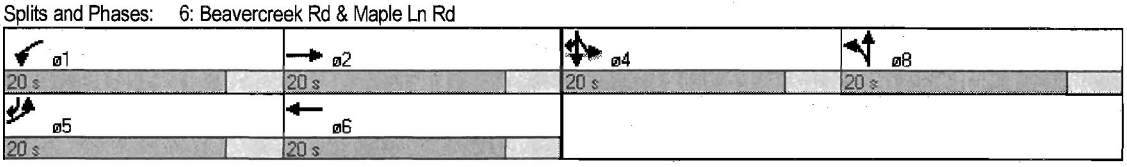
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4	4 5
Permitted Phases		4										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4	4 5
Permitted Phases		4										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM Average Control Delay	40.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	82.2%	ICU Level of Service	E	
Analysis Period (min)	15			

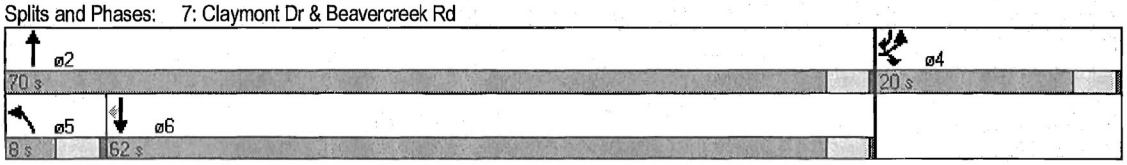
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 90
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary				
HCM Average Control Delay	26.7	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	79.6%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

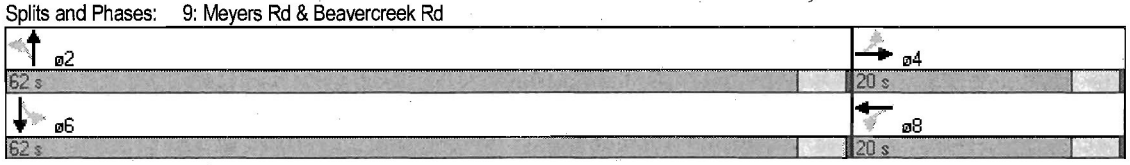
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.989	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1862	0
Flt Permitted	0.757						0.111					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	211	1881	0	1900	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108									12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1330	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.82	
Control Delay	41.7	0.5					3.1	3.4			11.6	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.1	3.4			11.6	
Queue Length 50th (ft)	29	0					1	90			340	
Queue Length 95th (ft)	59	0					5	178			#925	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	399					185	1645			1630	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.82	

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 83.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1862	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1559	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.1	
Delay (s)	43.6	36.8					1.9	2.9			10.0	
Level of Service	D	D					A	A			B	
Approach Delay (s)		42.0			0.0			2.9			10.0	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	8.5	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	77.2%	ICU Level of Service	D	
Analysis Period (min)	15			

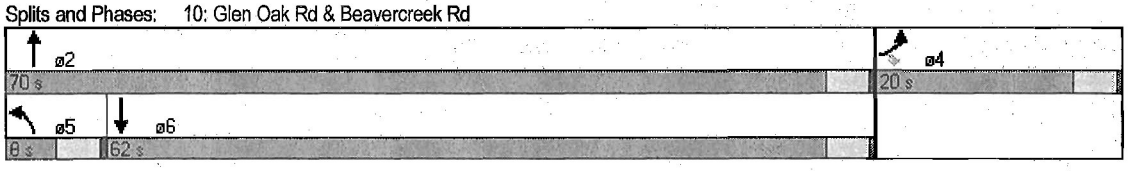
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.980	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1862	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1862	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			19	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1250	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.84	
Control Delay	44.2	13.8	51.0	3.8	17.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	17.3	
Queue Length 50th (ft)	54	0	14	85	317	
Queue Length 95th (ft)	95	23	39	163	#983	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1482	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.84	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 89.6
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1862	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	184
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	97	3	25	656	1245	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1411	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.67	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.88	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	8.3	
Delay (s)	44.4	38.1	110.5	3.2	16.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	16.5	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	15.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	75.7%	ICU Level of Service	D	
Analysis Period (min)	15			

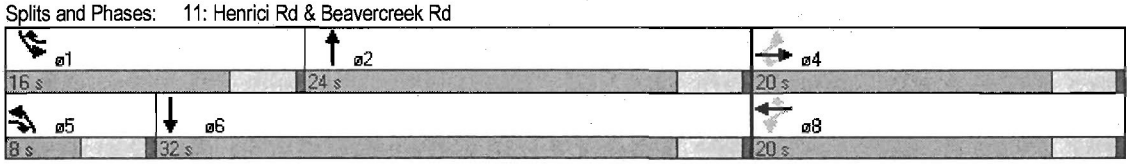
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	58	242	6	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m96	#604	m49	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

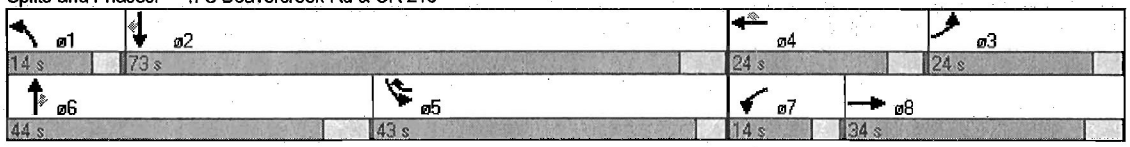
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.36	0.82	1.29	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.0	25.8	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	90.3	64.9	44.9	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	D	F	F	C
Approach Delay (s)		132.6			102.5			63.6			78.6	
Approach LOS		F			F			E			E	

Intersection Summary				
HCM Average Control Delay	91.0	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.11			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	105.0%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			26			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.12	0.58	0.80	0.52	0.97	0.61	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~634	133	230	0	283	236	22	228	~1024	13
Queue Length 95th (ft)	#273	225	#804	#223	334	75	m239	m234	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.12	0.58	0.72	0.50	0.97	0.61	0.13	0.66	1.26	0.24

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

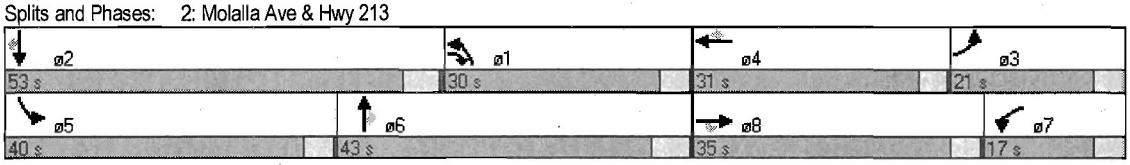
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	16	0	0	69
Lane Group Flow (vph)	184	184	625	168	279	49	342	797	60	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.23		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.06	0.58	0.80	0.17	0.97	0.61	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.4	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	53.7	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	97.6	54.7	64.5	46.3	60.1	35.0	31.0	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	D	C	D	F	B
Approach Delay (s)		87.1			55.5			41.8			121.0	
Approach LOS		F			E			D			F	

Intersection Summary			
HCM Average Control Delay	86.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	102.4%	ICU Level of Service	G
Analysis Period (min)	15		

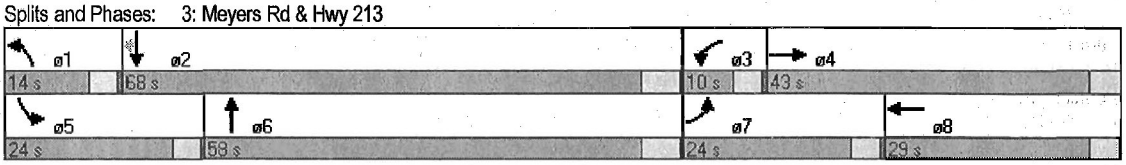
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00		0.97
Frt		0.904			0.956			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1771	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1763	1666	0	1765	1771	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66			14			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	464	0	184	842	0	329	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38
Control Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	~528		~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#746		#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	552		79	339		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 140
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	11	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	453	0	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	506		63	338		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.26		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.80		0.84	1.34		1.29	1.15		1.26	1.12	0.31
Uniform Delay, d1	57.0	43.3		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	8.9		60.8	171.4		171.5	81.4		118.0	53.0	0.1
Delay (s)	125.3	52.2		125.6	226.0		233.5	121.8		195.2	75.0	4.6
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.7			215.7			141.8			82.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	109.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.17		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	112.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.990			0.994	
Flt Protected		0.984			0.984		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1870	1615	1787	1830	0	1805	1836	0
Flt Permitted		0.581			0.765		0.950			0.950		
Satd. Flow (perm)	0	1079	0	0	1454	1576	1787	1830	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	194	101	26	864	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.81			0.77	0.28	0.21	0.83		0.76	1.43	
Control Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		120			155	0	21	566		206	~2201	
Queue Length 95th (ft)		#223			247	49	53	#973		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		244			322	427	161	1047		444	1325	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.64			0.60	0.24	0.16	0.83		0.59	1.43	

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 123.1

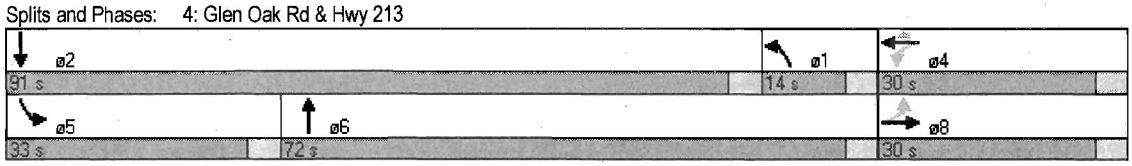
Natural Cycle: 150

Control Type: Actuated-Uncoordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1869	1577	1787	1830		1805	1836	
Flt Permitted		0.58			0.76	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1078			1453	1577	1787	1830		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	84	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	194	17	26	862	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		20.2			20.2	20.2	4.8	70.3		22.3	87.8	
Effective Green, g (s)		21.2			21.2	21.2	5.8	71.3		23.3	88.8	
Actuated g/C Ratio		0.17			0.17	0.17	0.05	0.57		0.19	0.71	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		183			247	268	83	1046		337	1306	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.13	0.01						
v/c Ratio		0.82			0.79	0.06	0.31	0.82		0.77	1.45	
Uniform Delay, d1		50.0			49.6	43.5	57.6	21.7		48.2	18.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		24.6			15.0	0.1	2.2	5.4		10.4	209.0	
Delay (s)		74.5			64.7	43.6	59.7	27.1		58.7	227.0	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		74.5			57.4			28.0			206.8	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM Average Control Delay	142.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	124.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

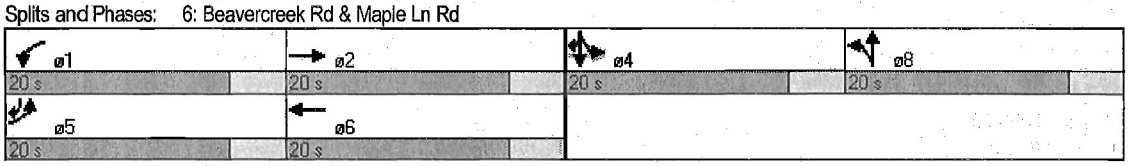
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.939				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1715	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1715	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			39				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	208	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	141		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
l Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	32	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	176	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.54		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.8		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

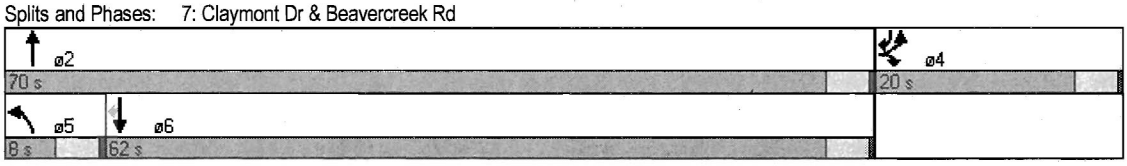
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 100
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

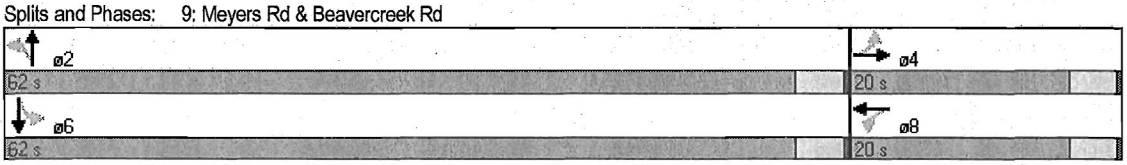
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.914			0.997			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1773	0	1805	1737	0	1805	1876	0	1805	1862	0
Flt Permitted	0.627			0.734			0.083			0.336		
Satd. Flow (perm)	1191	1773	0	1395	1737	0	158	1876	0	638	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			3			12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	36	0	29	111	0	11	752	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.40	0.17		0.19	0.44		0.08	0.49		0.06	0.86	
Control Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Length 50th (ft)	23	8		12	20		1	90		2	326	
Queue Length 95th (ft)	56	34		35	64		6	190		10	#893	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	246	379		288	410		130	1539		523	1529	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.09		0.10	0.27		0.08	0.49		0.06	0.86	

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 77.5
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1773		1805	1736		1805	1876		1805	1862	
Flt Permitted	0.63	1.00		0.73	1.00		0.08	1.00		0.34	1.00	
Satd. Flow (perm)	1192	1773		1394	1736		158	1876		639	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
RTOR Reduction (vph)	0	14	0	0	58	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	22	0	29	53	0	11	751	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Effective Green, g (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	172		135	169		127	1502		512	1491	
v/s Ratio Prot		0.01			0.03			0.40			c0.71	
v/s Ratio Perm	c0.04			0.02			0.07			0.05		
v/c Ratio	0.46	0.13		0.21	0.31		0.09	0.50		0.06	0.89	
Uniform Delay, d1	33.4	32.3		32.6	32.9		1.7	2.6		1.6	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	0.3		0.8	1.1		1.3	1.2		0.2	8.0	
Delay (s)	36.2	32.6		33.4	34.0		3.0	3.8		1.9	13.4	
Level of Service	D	C		C	C		A	A		A	B	
Approach Delay (s)		34.8			33.9			3.8			13.1	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM Average Control Delay	12.1	HCM Level of Service	B
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	82.9%	ICU Level of Service	E
Analysis Period (min)	15		

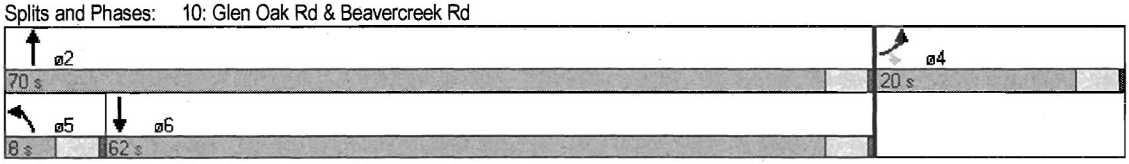
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.979	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1860	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1860	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			21	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	103	29	25	659	1074	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	29	25	659	1272	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.49	0.14	0.31	0.42	0.86	
Control Delay	44.4	13.7	51.2	4.0	18.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.4	13.7	51.2	4.0	18.6	
Queue Length 50th (ft)	57	0	14	88	342	
Queue Length 95th (ft)	100	23	40	168	#1017	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1574	1477	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.09	0.31	0.42	0.86	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.7	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1860	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	103	29	25	659	1074	198
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	103	3	25	659	1267	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	9.1	9.1	1.7	75.9	70.2	
Effective Green, g (s)	9.1	9.1	1.7	75.9	70.2	
Actuated g/C Ratio	0.10	0.10	0.02	0.82	0.75	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	177	158	33	1551	1404	
v/s Ratio Prot	c0.06		0.01	c0.35	c0.68	
v/s Ratio Perm		0.00				
v/c Ratio	0.58	0.02	0.76	0.42	0.90	
Uniform Delay, d1	40.1	37.9	45.4	2.4	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.8	0.0	65.1	0.9	9.7	
Delay (s)	44.9	38.0	110.6	3.3	18.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.4			7.2	18.5	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	16.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	77.2%	ICU Level of Service	D	
Analysis Period (min)	15			

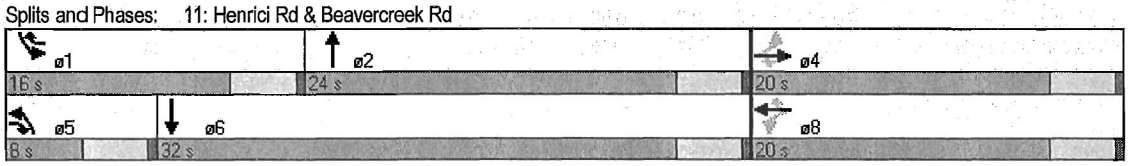
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

Intersection Summary				
HCM Average Control Delay	22.5	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.79			
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	79.5%	ICU Level of Service	D	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		50	150		0	225		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	1.00	1.00		1.00		0.97
Frt		0.904				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1863	1583	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1761	1666	0	1765	1863	1553	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66				41		3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	328	136	184	842	0	329	1842	313
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Detector Phase	7	4		3	8	8	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0	20.0	14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	29.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	21.5%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0	25.0	10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5	3.5	3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0	5.0					5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0	11.0					20.0	20.0
Pedestrian Calls (#/hr)	0	0			0	0					0	0
v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38
Control Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	288	73	~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#476	141	#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150		50	150			225		225
Base Capacity (vph)	275	551		79	345	321	144	746		263	1671	815
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 150

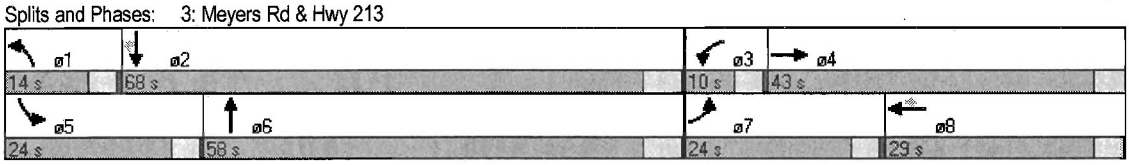
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0	4.0	3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	0	33	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	328	103	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Actuated Green, G (s)	20.0	40.9		4.8	25.7	25.7	10.1	52.2		20.1	62.2	62.2
Effective Green, g (s)	21.0	40.9		4.8	25.7	25.7	11.1	54.2		20.1	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19	0.19	0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	355	296	144	733		264	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.18		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm						0.07						0.15
v/c Ratio	1.05	0.80		0.84	0.92	0.35	1.28	1.15		1.25	1.12	0.31
Uniform Delay, d1	57.0	43.4		64.7	53.7	47.4	62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	9.0		60.8	29.1	0.7	167.8	81.4		113.8	53.0	0.1
Delay (s)	125.3	52.4		125.6	82.7	48.1	229.8	121.8		190.9	75.0	4.6
Level of Service	F	D		F	F	D	F	F		F	E	A
Approach Delay (s)		80.8			78.0			141.1			81.5	
Approach LOS		F			E			F			F	

Intersection Summary					
HCM Average Control Delay	93.9	HCM Level of Service		F	
HCM Volume to Capacity ratio	1.08				
Actuated Cycle Length (s)	135.0	Sum of lost time (s)		11.0	
Intersection Capacity Utilization	104.8%	ICU Level of Service		G	
Analysis Period (min)	15				
c Critical Lane Group					

REPLINGER & ASSOCIATES LLC
TRANSPORTATION ENGINEERING

August 9, 2010

Mr. Pete Walter
City of Oregon City
PO Box 3040
Oregon City, OR 97045

SUBJECT: REVIEW OF TRANSPORTATION PLANNING RULE ANALYSIS – PHIL GENTEMANN – ZC10-01

Dear Mr. Walter:

In response to your request, I have reviewed the Transportation Planning Rule Analysis (TPRA) in support of the proposed rezoning of property owned by Phil Gentemann adjacent to Beavercreek Road. The TPRA was prepared by Chris Brehmer, PE of Kittelson & Associates, Inc. The TPRA is dated June 21, 2010.

The TIA describes a proposal to rezone a 9.73-acre site adjacent to Beavercreek Road in the vicinity of Meyers Road. The site is located east of Beavercreek Road and is in the area analyzed as part of the Beavercreek Road Concept Plan. Final rezoning by the City has not been undertaken on the Beavercreek Road Concept Plan.

According to the Beavercreek Road Concept Plan, the subject parcel is part of a mixed use area and the applicant's requested zoning is Mixed Use Corridor (MUC-1). This is not, however, a specific proposal for a development at this time. Thus, the requested rezoning is based on a reasonable future use of the 9.73-acre site consistent with the MUC-1 zone. Assuming the requested zoning is granted, subsequent analysis will be required as specified by city code to assess the impact of the specific development.

Overall

I find the TPRA addresses the city's requirements and provides an adequate basis to evaluate impacts of the proposed rezoning, but it does not provide adequate basis for a specific development. Items that will need further attention in a subsequent Transportation Impact Analysis (TIA) are identified below as appropriate.

Comments

1. ***Study Area.*** The study addresses the appropriate intersections. It includes an analysis of the following intersections:

    - Highway 213/Beavercreek Road
    - Highway 213/Molalla Avenue
    - Highway 213/Meyers Road

- Highway 213/Glen Oak Road
- Thayer Road/Maplelane Road
- Beavercreek Road/Maplelane Road
- Beavercreek Road/Clairmont Drive
- Beavercreek Road/Loder Road
- Beavercreek Road/Meyers Road
- Beavercreek Road/Glen Oak Road
- Beavercreek Road/Henrici Road

These intersections are appropriate for the purposes of the impact of rezoning. A TIA undertaken for a specific development will also require additional intersections including the site access. Depending on the specific development, some intersections analyzed for this analysis may not need further analysis.

2. ***Traffic Counts.*** The traffic counts were not conducted for this analysis and are not necessary to assess the impact of the rezoning on future year (2027) conditions. Current traffic counts will, however, be required for a TIA undertaken for a specific development.

3. ***Trip Generation.*** The TPRA provides an explanation of the rationale for a mixed use development scenario based on the proposed zoning, overall parcel size, and limitations imposed on the parcel by the street network prescribed by the Beavercreek Road Concept Plan. It further provides a detailed analysis of trip generation using a combination of land uses consistent with MUC-1 zoning consisting of the following:

   - Shopping center (20,000 square feet)
   - Office (80,000 square feet)
   - Townhouse/condominium (30 units)

   Trip generation rates were provided for the PM peak period. Reductions for pass-by trips were accounted for in the calculations for the retail component. A modest reduction was also made to account for internal trips due to the mix of uses anticipated within the MUC-1 area. The net increase was calculated to be 173 new primary trips due to the rezoning.

   For the purposes of the analysis of the rezoning, the development assumptions appear reasonable. A TIA undertaken in support of a specific development proposal will likely be somewhat different.

4. ***Trip Distribution.*** The trip distribution is based on the assignment used for the applicable zone in the regional transportation model. The trip distribution patterns shown and the rationale for them appear reasonable.

5. ***Traffic Growth.*** The TPRA uses year 2027 as the horizon year. Traffic volumes for this year were developed based on previous analyses and on the values from the regional transportation model and consultation with ODOT and the City. The traffic growth is consistent with the land use and development patterns developed by Metro in consultation with its member jurisdictions. The 2027 horizon year was agreed upon by the applicant, ODOT and the City.

The year 2027 traffic volumes are based on moderately high levels of growth in many parts of the region and the surrounding rural areas. This leads to high volumes of through traffic on key corridors, including Highway 213 and Beavercreek Road. Rural development patterns and levels are beyond the control of the City, but clearly have an impact on these facilities.

6. ***Analysis.*** Traffic operations analysis was conducted for the PM peak hour for 2027 with and without the proposed rezoning. In addition, at ODOT's request, the analysis was conducted using two versions of the street network: 1) with the planned extension of Meyers Road between Highway 213 and Beavercreek Road; and 2) without the extension of this section of Meyers Road.

   The analysis indicates that the intersections along Highway 213 from Beavercreek Road to Meyers Road are expected to exceed ODOT's mobility standards by 2027 without the development, but that other intersections are calculated to meet operational standards. The engineer notes that this is consistent with the analysis conducted for the Beavercreek Road Concept Plan.

   The "with rezoning" analysis adds the predicted 173 additional trips to the original year 2027 volumes. ODOT determined that if the rezoning caused the volume-to-capacity ratio (v/c) to increase by more than 0.01, they considered it to be a significant impact and thus requires mitigation. For the street network scenario that assumes Meyers Road is not extended, the two locations at which this criterion is met are: Highway 213/Molalla Avenue and Highway 213/Meyers Road. For the scenario that assumes Meyers Road is extended, the only intersection potentially exceeding the >0.01 v/c criterion is Highway 213/Meyers Road.

   In the engineer's discussion of mitigation, he indicates that the addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 improves the operations of the intersection such that it's performance in the "with rezoning" scenario is better than the 2017 scenario without the rezoning. The engineer also calculates that the addition of a northbound through lane on Highway 213 allows either 2017 scenario to meet ODOT's mobility standards.

7. ***Turn Lanes.*** The analysis did not include a specific analysis of turn lanes at the site access since no specific development is proposed. This analysis will be needed when a specific development proposal is brought forward.

8. ***Crash Information.*** The TIA prepared in support of a specific development proposal will require information on crashes from the preceding three years.

9. ***Pedestrian and Bicycle Facilities.*** When a specific development proposal is presented, the discussion of pedestrian and bicycle facilities will need to be expanded.

10. ***Site Plan and Access.*** The basic concept presented by the applicant clearly indicates his intent to extend Meyers Road east of Beavercreek Road through his site. More details on access and circulation will be required in the site plan for a specific development

11. ***Intersection Spacing.*** Intersection spacing along Meyers Road to the east of Beavercreek Road will need to be addressed with a specific development proposal.

12. ***Sight Distance.*** Site distance is appropriately addressed as part of a specific development proposal. .

13. ***Consistency with the TSP.*** The planned extension of Meyers Road east of Beavercreek Road is consistent with the TSP and Beavercreek Road Concept Plan. Details on frontage improvements will need to be addressed as part of a specific development proposal.

14. ***Conclusions and Recommendations.*** The engineer concludes that the system can accommodate the proposed rezoning with minor mitigation measures. The inclusion of an exclusive right-turn lane on the westbound approach of Meyers Road at Highway 213 improves the intersection's performance to better than that predicted for the "no rezoning" scenario. He further concludes that widening of Highway 213 to a five-lane section throughout the corridor will substantially improve the corridor performance and allow ODOT mobility standards to be met. Part of this is being accomplished incrementally through frontage improvements.

Conclusion and Recommendations

I find the TPRA meets City requirements. The TPRA indicates that development will cause modest increases in traffic. At most locations operational standards will be met in year 2017. The system is expected to be able to accommodate the increase with significant impacts at one or two locations.

The key location is Highway 213/Meyers Road. Meyers Road between Highway 213 and Beavercreek Road is included in the City's TSP. As a new road in a new corridor, its implementation is more dependent on development than an already-existing facility that needs to be upgraded. Since adoption of the TSP, the easterly segment of Meyers Road has been constructed and a condition of approval placed on the Clackamas Community College makes it highly likely that the westerly portion will be constructed within the 16-year planning horizon assessed for the proposed rezoning. The central segment is somewhat more dependent on development. Since the traffic forecasts for 2027 are predicated on considerable regional development, it seems highly likely that both the development assumed in the College's Master Plan and the development of the privately held parcels in the central segment will occur by 2027. It seems inconsistent to assume traffic from the College and private development will occur without construction of the associated infrastructure. I think it is reasonable to assume the "with Meyers Road" scenario is the appropriate one to be used for assessing the rezoning request.

Based on the assumption that Meyers Road is complete from Highway 213 to Beavercreek Road, the question is whether reasonable mitigation can be implemented to offset a "significant" impact at the intersection of Highway 213/Meyers Road. I think the applicant has demonstrated that mitigation is readily available to offset the impact and that the mitigation is rather modest in nature. The addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 is shown to substantially improve the performance of the intersection. Though a right-turn lane is not specifically identified in the TSP at this location, the addition of a right-turn lane where a collector or

minor arterial intersects a major highway is a fairly common feature. I would view it as a Transportation System Management measure that is supported by policies in the TSP, Oregon Highway Plan and Metro's RTP. At this particular location, the College's plans for development place no significant constraints on a modest expansion of right-of-way for Meyers Road in this quadrant. Adding a right-turn lane in connection with the construction of Meyers Road would have a rather modest cost.

The engineer also points out that increasing Highway 213 to a five-lane section is being done incrementally. Adding an exclusive right-turn lane on northbound Highway 213 at Meyers Road would be another incremental step in improving the corridor and it would be consistent with a longer five-lane corridor.

I conclude that the applicant has demonstrated that the system can, with modest mitigation, accommodate the proposed rezoning. Conditions of approval could include measures that cause the developer to participate in proportion to his incremental impact if such are not already covered as part of his Systems Development Charges.

As indicated above, certain elements required in a TIA will need to be addressed in connection with a specific development proposal.

If you have any questions or need any further information concerning this review, please contact me at replinger-associates@comcast.net.

Sincerely,



John Replinger, PE
Principal

Oregon City\2010\ZC10-01.docx

Oregon
Theodore R. Kulongoski, Governor

Oregon Department of Transportation
ODOT Region 1
123 NW Flanders St
Portland, OR 97209
Telephone (503)731-8200
FAX (503)731-8259

August 17, 2010

File code: PLA9-2B-OR213
ODOT Case No:3663

Peter Walter, City Planner
Planning Department
City of Oregon City
PO Box 3040
Oregon City, OR 97045-0304

RE: **PZ 10-01; ZC 10-01 Future Urban to MUC; and FU to MUC-1**

Dear Mr. Walter,

ODOT has reviewed the subject application to change the comprehensive plan designation from "County Future Urban" to "Mixed Use Corridor" and apply the MUC-1 zone for a 9.6 acre site located on Beavercreek Road. The site is located in the vicinity of OR 213. According to the 1999 Oregon Highway Plan (OHP), OR 213 is classified as a district highway/Expressway. According to the OHP the performance standard volume to capacity (v/c) ratio is 0.99. However, since the intersections on OR 213 are already projected to exceed the .99 v/c standard and transportation improvements are not anticipated within the planning horizon (2027) to bring performance to standard, the performance standard is to avoid further degradation. If the proposed zone change or comprehensive plan amendment increases the volume-to-capacity ratio further, it will significantly affect the facility (OHP Action 1F6).

For zone changes and comprehensive plan amendments, local governments must make findings that the proposed amendment complies with the TPR OAR 660-012-0060. There must be substantial evidence in the record to either make the finding of "no significant effect" on the transportation system, or, if there is a significant effect, assurance that the allowed land uses are consistent with the identified function, capacity, and performance standard of the transportation facility within the planning horizon (year 2027).

The Traffic Impact Analysis (TIA) provided a comparison analysis between existing and proposed zoning for the year 2027 both with and without the Meyers Rd extension. The analysis documents a significant effect at OR 213 intersections at the Molalla Ave and Meyers Rd without the Meyers Rd extension and does not identify mitigation. The analysis documents that under the existing zoning with the Meyers Rd extension the OR 213 intersection would operate at a 1.13 v/c ratio and with the proposed zoning the v/c ratio would increase to 1.17. The increase in v/c ratio by .04 would significantly affect the OR 213/Meyers Rd intersection.

The TIA identifies that with the addition of a westbound right turn lane at the OR 213/Meyers Rd intersection and the Meyers Rd extension that the intersection operation

improves to a 1.08 v/c ratio. ODOT recognizes that the westbound right turn lane is also needed to mitigate for the traffic impacts associated with the Beavercreek Concept Plan area. Therefore, it is recommended that the applicant be conditioned to contribute their proportionate share of the right turn lane based on their traffic impact. Additional analysis may be needed to determine proportionate share in relationship to the broader Beavercreek Concept Plan area.

ODOT supports the findings and recommended mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213:

1. The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027) *

2. The land use decision includes a condition requiring the applicant to contribute funding to City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection.

Thank you for providing ODOT the opportunity to participate in this application completeness review. **Please send a copy of the Notice of the formal application to: ODOT Region 1 Planning, Development Review.**

If you have any questions regarding the traffic analysis please contact Avi Tayar at 503-731-8221. Otherwise, please feel free to contact me at 503.731.8206.

Sincerely,

Gail Curtis

Gail Curtis, AICP, Senior Planner

Attach: ODOT Beavercreek Road/Meyer Road Rezone TPR Analysis

c: Avi Tayar, ODOT Region 1 Traffic

* For evaluation of local plan amendments and zone changes, Section 660-12-0060 of the TPR requires that needed improvements either have committed funding, are in a financially constrained Metropolitan Planning Organization (MPO) transportation plan, or are "reasonably likely" to be provided by the end of the planning period in order for the capacity provided by the needed improvement to be considered "available" to the proposed amendment.

Oregon
Theodore R. Kulongoski, Governor

Oregon Department of Transportation
ODOT Region 1
123 NW Flanders St
Portland, OR 97209 - 4037
Telephone (503) 731-8200
FAX (503) 731-8259

TO: Gail Curtis – Senior Planner
Region 1 Planning

FROM: Avi Tayar, P.E.
Development Review Team Leader
Region 1 Traffic

DATE: August 12, 2010

RE: Beavercreek Road/Meyer Road Rezone TPR Analysis
OR 213 (Cascade Hwy South)
Oregon City, Oregon

I have reviewed the Transportation Impact Analysis (TIA) for the proposed Comprehensive Plan and Zone Change for tax lot ZC10-01 located at 19896 Beavercreek Road in the city of Oregon City. The TIA is dated June 21, 2010 and was prepared by Chris Brehmer, PE of Kittelson & Associated, Inc. (KAI).

Introduction
The TIA is for a proposed Comprehensive Plan Amendment and Zone Change (CPA/ZC)) of tax lot ZC10-01 located east of Beavercreek Road and between S Loder Road and S Glen Oak Road. The property is included within the Beavercreek Road Concept Plan area as a future mixed-use center. The Beavercreek Road Concept Plan has not been approved to date. No specific development plan or site entitlements are proposed in conjunction with this zone change. The property is currently designated as Future Urban zoning. The proposal is a request to change the Comprehensive Plan map designation to City Mixed-Use Corridor (MUC-1) zoning. Oregon land use law requires that the Transportation Planning Rule (TPR) be met whenever a land use action requiring a change to existing zone designation is proposed which could have a significant effect on transportation facilities.

The site is in the vicinity of OR 213, Cascade Highway South. ODOT has jurisdiction of this State highway facility and an interest in assuring that the proposed zone change/comprehensive plan amendment is consistent with the identified function, capacity and performance standard of this facility. According to the 1999 Oregon Highway Plan (OHP), OR 213 is classified as a district highway/Expressway. The facility has three to five travel lanes with bicycle lanes and posted speed of 45 mph. According to the OHP the performance standard volume to capacity (v/c) ratio is 0.99. In situations where the highway facility is operating above the OHP mobility standard and transportation improvements are not anticipated within the planning horizon to bring performance to standard, the performance standard is to avoid further degradation. If

the proposed zone change or comprehensive plan amendment increases the volume-to-capacity ratio further, it will significantly affect the facility (OHP Action 1F6).

Existing Zoning Conditions (Future 2027 Horizon Period)
Traffic volumes for the future conditions with traffic generation from the reasonable worse case development under existing land use zoning were analyzed to 2027. The analysis results indicated that all analyzed intersections exceed ODOT mobility standards (0.99) in 2027.

Proposed Zoning Conditions w/o Meyers Rd Extension (Future 2027 Horizon Period)
Traffic volumes for the future conditions with traffic generation from the reasonable worse case development under the proposed land use zoning were analyzed to 2027. The analysis results indicated that all analyzed intersections continue to exceed ODOT mobility standards with a significant effect attributed to the proposed rezone was identified in the following intersections: OR 213 at Molalla Avenue and OR 213 at Meyers Road (increased v/c ratio increment of more than 0.01).

Proposed Zoning Conditions w/ Meyers Rd Extension and Potential Mitigation Measures (Future 2027 Horizon Period)

The TIA also analyzed the OR 213 intersections with the anticipated extension of Meyers Road by 2027 between OR 213 and its existing terminus to the east at High School Avenue. Oregon City has yet to determine if this improvement is "Reasonably Likely Transportation Improvement". Under the existing zoning with the Meyers Rd extension, the OR 213/Meyers Rd intersection is forecast to operate with a v/c ratio of 1.13. With the proposed zoning with the Meyers Rd extension, the OR 213/Meyers Rd intersection is forecast to operate with a v/c ratio of 1.17. The increase in v/c ratio by .04 would significantly effect the OR 213/Meyers Rd intersection. The analysis results indicated that all analyzed intersections continue to exceed ODOT mobility standards with a significant effect attributed to the proposed rezone was identified in the OR 213 at Meyers Road intersection.

In order mitigate the affect of the zone change/comprehensive plan amendment on the transportation facility; the TIA suggests that minor transportation enhancements to the Meyers Road intersection will reduce the v/c ratio to below existing zoning level. The TIA proposes mitigating the significant effect of the rezoning by installing a separate westbound right-turn lane along Meyers Road at the westbound approach intersection with OR 213. The addition of a westbound right-turn lane will improve operation of the intersection and reduce the v/c ratio to below the existing zoning (v/c for existing zoning of 1.13 to proposed mitigation v/c ratio of 1.08).

Conclusion
The proposed zone change and comprehensive plan amendment will have significant effect on the highway mobility and will further degrade the State facility. The TIA recommends the extension of Meyers Rd with the addition of a westbound right turn lane at the OR 213 intersection as mitigation. ODOT has determined that with these mitigations measures constructed within the planning horizon of 2027 that there would not be a significant effect on OR 213. However, in order to rely upon the Meyers Rd extension Oregon City must make a determination that the extension is "reasonably likely" to be constructed within the planning horizon..

Recommendations
The findings section of the TIA lists improvement to the road system to mitigate the impact of the zone change. The mitigated improvement includes extending Meyers Road from OR 213 to its existing terminus (the new westbound approach to OR 213) with a separate left-turn, through, and right-turn lanes. If the City finds the Meyers extension to be "reasonably likely", then it is recommended that the City requires the applicant to contribute funds to the City to pay for the right-turn lane improvement.

If the City doesn't determine the improvement to be reasonably likely, the applicant should be required to address the significant effect due to the proposed zone change. Without any improvements to the study intersections along OR 213, the proposed zone change will have a significant effect on the highway at more than one intersection as indicated above. Therefore, the applicant proposed zone change should not be allowed without other proposed mitigated measures.

If there are any questions regarding the contents of this memorandum, please contact me at (503) 731-8221.

OREGON CITY

Community Development – Planning

221 Molalla Ave. Suite 200 | Oregon City OR 97045
Ph (503) 722-3789 | Fax (503) 722-3880

LAND USE APPLICATION TRANSMITTAL

July 16, 2010

IN-HOUSE DISTRIBUTION

- ☐ Building Official
- ☑ Development Services Manager
- ☐ Public Works Operations
- ☑ City Engineer / Public Works Director
- ☐ GIS
- ☐ Parks Manager
- ☐ Addressing
- ☐ Police
- ☑ Traffic Engineer

MAIL-OUT DISTRIBUTION

- ☑ CICC
- ☑ Neighborhood Association Chair (CAUFIELD)
- ☑ Neighborhood Association Land Use Chair
- ☑ Clackamas County - Transportation
- ☑ Clackamas County - Planning
- ☐ Fire Chief
- ☑ ODOT – Division Review
- ☑ School District# 62
- ☐ Tri-Met
- ☐ Metro - Ray Valone
- ☐ Oregon City Postmaster
- ☑ DLCD (sent w/ DLCD Notice)

COMMENTS DUE BY:	**August 16th, 2010**
HEARING DATE:	**August 30th, 2010 – Planning Commission** **September 15th, 2010 – CC – City Commission**
HEARING BODY:	__Staff Review; _XX__PC; ____HRB; __XX_CC
FILE # & TYPE:	PZ 10-01: Comprehensive Plan Amendment ZC 10-1: Zone Change
PLANNER:	Pete Walter, AICP, Associate Planner
APPLICANT:	Theta, LLC
REQUEST:	The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU" to "MUC-1" Mixed Use Corridor district, for a 9.6 acre parcel of land.
ZONING:	Future Urban
LOCATION:	19896 Beavercreek Road Clackamas County Map 3-2E-10C, Tax Lot 800

RECEIVED
CITY OF OREGON CITY
2010 AUG 13 PM 2:23

This application material is referred to you for your information, study and official comments. If extra copies are required, please contact the Planning Department. Your recommendations and suggestions will be used to guide the Planning staff when reviewing this proposal. If you wish to have your comments considered and incorporated into the staff report, please return the attached copy of this form to facilitate the processing of this application and will insure prompt consideration of your recommendations. Please check the appropriate spaces below.

___ The proposal does not conflict with our interests.
___ The proposal conflicts with our interests for the reasons attached.
X The proposal would not conflict our interests if the changes noted below are included.

See Attached

Signed Mike Magnuson

PLEASE RETURN YOUR COPY OF THE APPLICATION AND MATERIAL WITH THIS FORM.

Caufield Creek Neighborhood Association
Response to the zone change request
PZ 10-01
19896 Beavercreek Road
Oregon City

The Caufield Creek Neighborhood Association realizes that a zoning change at 19896 Beavercreek Road would have to be accomplished in order to develop and/or sell the property. However, the umbrella classification listed under the MUC and MUC-1 designations are too broad. We would like to see the list narrowed and more focused.

We do not want Beavercreek Road to be another Molalla Avenue, where the numerous strip malls have a myriad of restaurants, storage lots, bars, gas stations, convenience stores, auto repair businesses, car part stores, second hand stores, etc. We would like to see some architecture/landscaping standard establish so that the development does not deter from the architecture award winning achievements of the Oregon City High School. The Caufield Neighborhood Association would like to have some input the types of businesses and/or residences that would have a nice appearance and benefit the community.

Mike Mermelstein

Clackamas County Official Records
Sherry Hall, County Clerk

2008-022108

$56.00

03/28/2008 08:44:20 AM

D-ANXCON Cnt=1 Stn=9 DIANNAW
$30.00 $16.00 $10.00

AFTER RECORDING RETURN TO:

City Recorder
City of Oregon City
P. O. Box 3040
Oregon City, Oregon 97045-0304

Map No.: 3-2E-10C
Tax Lot No.: 800
Planning No.: AN 07-02

Grantor(s): MARYLWOOD LLC

ANNEXATION AGREEMENT

This Annexation Agreement ("Agreement") is entered into by and between MARYLWOOD LLC ("Petitioner") and the CITY OF OREGON CITY ("City"), an Oregon municipal corporation on this 19 day of December 2007.

RECITALS

WHEREAS, Petitioner is the record owner of TL 800 (Sec. 10, Twp. 3S, Range 2E, W.M.), approximately 9.7 acres in size, with a street address of 19896 Beavercreek Road, Oregon City, OR 97045 (the "Property"), located in unincorporated Clackamas County and within the City's Urban Growth Boundary (UGB); and described as follows, to wit:

See attached EXHIBIT "A" Legal description and
attached EXHIBIT "B" Sketch for Legal Description; and

WHEREAS, Petitioner has submitted an application to City to annex the Property into the City's corporate limits (City File No. AN 07-02), and the City has accepted and is considering that application; and

WHEREAS, one factor in the City's consideration of Planning File No. AN 07-02 annexation application is whether the City has the capacity or financial resources to provide necessary public services to the Property, most notably law enforcement; and

WHEREAS, City's ability to provide adequate levels of law enforcement to serve the Property is largely dependant upon the availability of funding to pay the cost of these urban services; and

WHEREAS Petitioner recognizes that it is incumbent upon new development to pay the cost of providing urban services and facilities, at sufficient levels, to serve new development, and both parties desire to identify a means by which Petitioner funds the cost of providing law enforcement to the Property if the City consents to annex the Property.

NOW THEREFORE, based on the foregoing Recitals, the mutual covenants provided for in this Agreement, and for valuable consideration, receipt of which is hereby acknowledged, the parties agree as follows:

1. The City agrees to review, process and consider Planning File No. AN 07-02 annexation application in the normal course and apply the customary criteria in that process. Execution of this Agreement by the City shall not be construed in any way to be a promise or guarantee that the annexation, or any other land use approval, will be granted by the City.

2. Petitioner agrees that, in the event that the City gives final approval to annex the Property, Petitioner will pay to City amount specified by attached police funding fee schedule A permitted by City to be constructed on the Property to be used for the provision of law enforcement services. The amount provided for in this paragraph shall be due and payable by Petitioner to the City at the time City issues a building permit for each new dwelling on the Property.

3. The City agrees to use any amount paid to it by Petitioner for law enforcement services as provided in Paragraph 2. The funds provided pursuant to this Agreement are intended as a supplement to the City's current funding of its law enforcement and are not intended to serve as replacement for those funds.

4. The parties agree that this Agreement is not, is not intended to be and shall not be construed as, a "development agreement" under ORS 94.504 to 94.528. In the event any form of legal challenge is brought by any entity not a party to this Agreement challenging the Agreement, the City is under no obligation whatsoever to defend the Agreement.

5. Term, extension and modification: If the Property is not annexed to the City by June 30, 2008, this Agreement shall expire on July 1, 2008 and be of no further force or effect. If the Property is annexed to the City by June 30, 2008, the Agreement shall be valid, binding and enforceable until July 1, 2018, after which it shall expire and be of no further force or effect. This Agreement may be extended or modified at any time prior to expiration upon the mutual written consent of the parties.

6. Agreement runs with the land. The rights and obligations set forth in this Agreement shall be recorded with the title to the Property, and, except as provided in Paragraph 5, shall run with the land and be binding upon the parties to this Agreement, their heirs, successors and assigns.

7. No third party beneficiaries. This Agreement is strictly and solely between the parties signed below, and it shall not create any obligation on the part of either party to perform or pay anything to or on behalf of anyone not a party to this Agreement. This Agreement does not create any rights in favor of or for any person or entity that is not a party to this Agreement.

IT IS SO AGREED:

The City of Oregon City:

Alice Norris

Alice Norris
print name

Date: 03-19-08

MARYLWOOD LLC:

Philip M Gentemann Mgr
Print Name:

Date: December 19, 2007

Philip M. Gentemann
Print Name:

Date: December 19, 2007

CITY OF OREGON CITY

////

////

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19th day of March 2008 by Alice Norris, the Mayor of Oregon City, who swore or affirmed that he/she was authorized to execute the foregoing Annexation Agreement on behalf of the City of Oregon City.

OFFICIAL SEAL
NANCY S. IDE
NOTARY PUBLIC-OREGON
COMMISSION NO. 400033
MY COMMISSION EXPIRES DEC. 1, 2009

Nancy S. Ide
Notary Public for Oregon,
My Commission Expires 12-01-09

MARYLWOOD LLC

OFFICIAL SEAL
BILL MC CORKLE
NOTARY PUBLIC-OREGON
COMMISSION NO. A405812
MY COMMISSION EXPIRES JULY 6, 2010

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19 day of December 2007 by Philip M. Gentemann.

Notary Public for Oregon,
My Commission Expires 7-6-2010

EXHIBIT "A"

LEGAL DESCRIPTION

A tract of land located in the Andrew Hood Donation Land Claim No. 44 in Township 3 South, Range 2 East, of the Willamette Meridian and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said Claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177 on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 1700.16 feet following the South boundary of the said Moehnke Tract to a stone located in the Northeasterly right of way boundary of Clackamas County Market Road No. 11; thence continuing North 89°36' West 36.96 feet to the center line of said Market Road No. 11; thence South 40°37' East 1146.29 feet along the center line of said Market Road No. 11 to a point; thence South 89°35' East 983.34 feet to a point in the East boundary of said Claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said Claim No. 44 to the place of beginning, containing 27.00 acres, more or less, and being a part of the tract of land described in that certain conveyance from J. U. and Anna C. Campbell to Oregon City Golf Club and recorded October 30, 1926 in Book 186 on Pages 232 and 233 Record of Deeds for Clackamas County, Oregon.

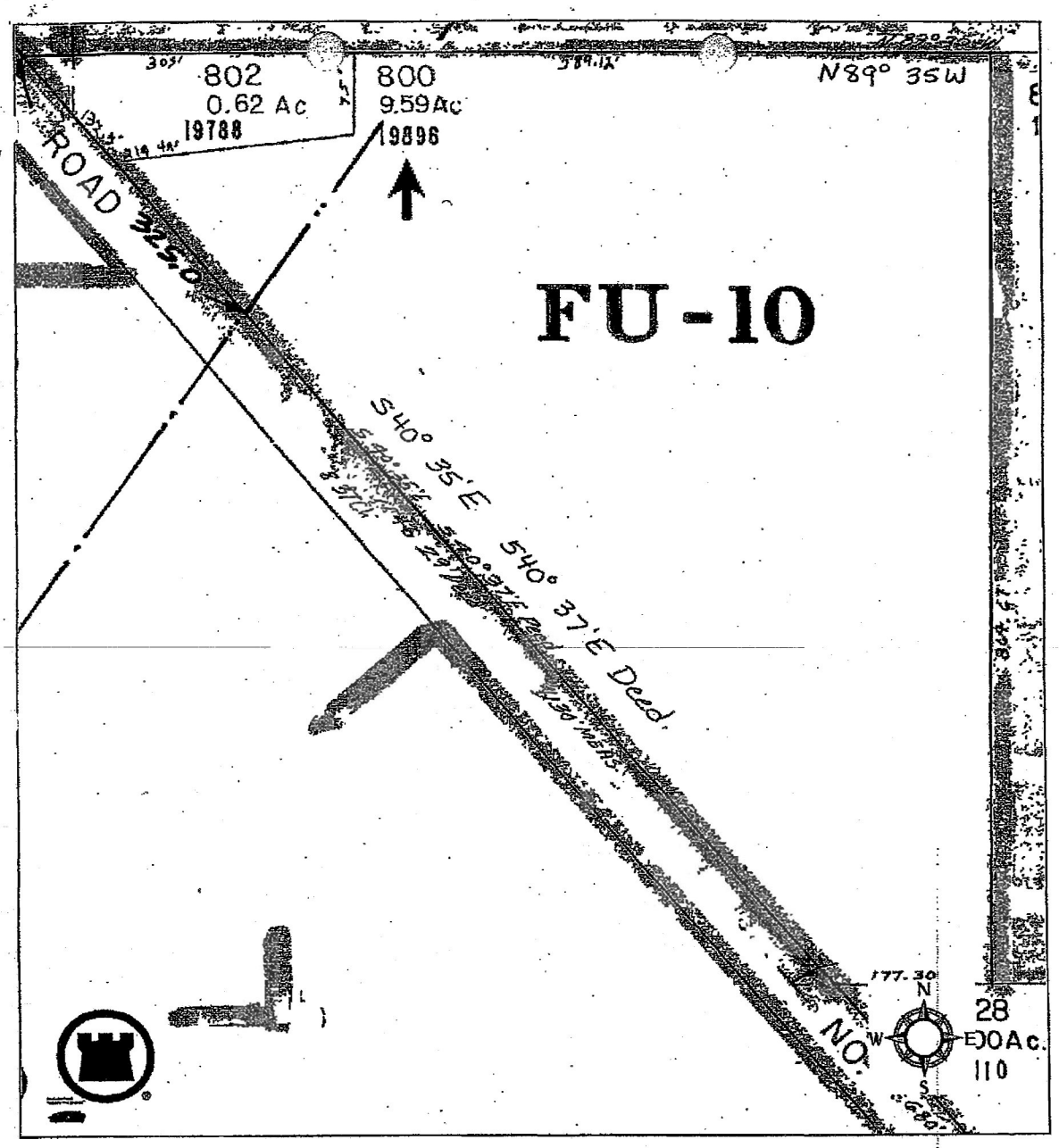
EXCEPTING THEREFROM a tract of land in the Andrew Hood Donation Land Claim No. 44, in Section 10, Township 3 South, Range 2 East, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the point of intersection of the North line of that tract of land conveyed to Edward G. Roberts and Lois N. Roberts by Deed recorded July 6, 1945 in Deed Book 347, Page 111, with the Easterly right of way line of Beavercreek Road, from which point a stone marked + bears North 89°35' West 3.76 feet; thence South 89°35' East along the North line of said Roberts Tract 305 feet to a 5/8-inch by 30-inch iron rod; thence Southerly at right angles to said North line, 75 feet to a 5/8-inch by 30-inch iron rod; thence South 83°52'30" West 219.49 feet to a 5/8-inch by 30-inch iron rod in the Easterly right of way line of Beavercreek Road; thence tracing said Easterly line North 40°35' West 132.50 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM a tract of land located in the Andrew Hood Donation Land Claim No. 44, in Township 3 South, Range 2 East, of the Willamette Meridian, and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177, on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 806.04 feet following the South boundary of said Moehnke Tract to a point; thence South 0°0' West 864.67 feet parallel with the East boundary of said claim No. 44 to a point on the South boundary of a tract of land described in that certain conveyance from Oregon City Golf Course to Edward G. Roberts, et ux, recorded July 2, 1945 in Book 347, Page 111, record of Deeds for Clackamas County, Oregon; thence South 89°35' East 806.04 feet along the South boundary of said Roberts Tract to a point in the East boundary of said claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said claim No. 44 to the place of beginning.

4



CHICAGO TITLE

"This plat is for your aid in locating your land with reference to streets and other parcels.
While this plat is believed to be correct, the company assumes no liability for any loss occurring by reason of reliance thereon."

Map No. 32E10C 00800

CHICAGO TITLE INSURANCE COMPANY
10135 S.E. SUNNYSIDE ROAD Suite 200
CLACKAMAS, OREGON 97015

Exhibit "B"
5

Schedule A
Police Funding Fees
AN 07-0002

LAND USE	SERVICE RATING	FEE
Industrial / Employment	Low	$0.10 / sq. ft.
Commercial / Office	Low	$0.10 / sq. ft.
Urgent Care Clinics, Senior Living Facilities, Apartment Buildings, Hotels	High	$0.20 / sq. ft.
Residential	High	$3,500 / unit

(6)

- About Oregon City
  - Historic Information
  - Latest News
  - Municipal Elevator
    - Elevator Hours
    - Elevator Updates
  - Neighborhoods
  - Our Community
    - Chamber of Commerce
    - Population
  - Photo Gallery
    - New City Hall
    - Riverfront Boulevard
  - Schools
  - Trailnews
  - Video Gallery
  - Visitor Information
  - Community Grants
  - Main Street Oregon City
  - Trolley Rental
- City Departments
  - Building
  - Cemetery
  - Code Enforcement
  - Community Development
  - Finance
  - Fire District #1
  - GIS / Maps
  - Human Resources
  - Library
  - Municipal Court
  - Parks & Recreation
  - Pioneer Center
  - Planning
  - Police
  - Public Works
  - Swimming Pool
  - Utility Billing
- City Government
  - Mayor
  - Boards and Commissions
  - City Commission
  - City Manager

- City Recorder
- Online Services
  - Activity Registration
  - Agendas/Minutes/Videos
  - Building Permits
  - Citizen Requests
  - Inspection Requests
  - List your firm - bids
  - Move In Form
  - Move Out Form
  - Municipal Code
  - OCWebMaps
  - Proposal Results
  - RSS Feeds
  - Records Online
  - Report a Problem
  - Utility Payments
  - Parking Citations

- About
  - Contact Public Works
- PW Director's Welcome
- Faq's
- Services
  - Capital Projects (Engineering)
  - Development Services
  - Operations
    - Stormwater Division
      - NPDES Documents
    - Street Division
    - Wastewater Division
    - Water Division
      - Cross Connections
- Documents
  - Design Standards
  - Development
  - Master Plans
    - Parks and Recreation
      - Parks and Recreation Master Plan
      - Trails Master Plan
    - Planning
      - Beavercreek Road Concept Plan
      - Downtown Community Plan
      - Molalla Avenue Boulevard and Bikeway Improvements Plan
      - Park Place Concept Plan
      - Urban Renewal Plan for Downtown
    - Public Works
      - Sanitary Sewer Master Plan
      - Urban Renewal Plan
      - Water Master Plan

        - Transportation
            - Beavercreek Road Access Management Plan
            - Holcomb Blvd Pedestrian Concept Plan
            - McLoughlin Boulevard Enhancement Plan
            - Transportation System Plan
            - Transportation System Plan Amendment
    - Right-of-Way (ROW) Street Permits
    - System Development Charges (SDC)
    - Traffic Control
        - Speed Bump Packet (Policies and Application)
        - Stop Sign Brochure
    - Traffic Counts and Studies
    - Water Quality Reports
- Bid Info
    - Bid and Proposal Results
        - RFQ for Engineering Services
    - Contractor Listing Info
    - Solicitations
- Construction Projects
    - 2009 Water System Improvements Project
    - McLoughlin Promenade Restoration
    - Warner Milne Road: Beavercreek to Molalla Avenue
    - Downtown Circulation Study
    - Holcomb Blvd Pedestrian Improvement Project
        - Frederick Street to OC Baptist Church
        - Holcomb Elementary to Trailview Estates
        - Trailview Estates to Barlow Crest
    - Hwy 213 Widening
    - McLoughlin Boulevard Enhancement Project Phase I
    - Oregon City/West Linn Bridge Reconstruction
    - Other projects
    - 10th Street/Singer Hill Road UPRR Crossing Improvements
    - 2010 Oregon City Slurry Seal Project
    - 2010 Oregon City Small Works Projects
    - 2010 Pavement Rehabilitation Project
    - 2010 Waterline Improvements Project
    - 8th Street Waterline Improvements
    - Center Street Rehabilitation
    - Glen Oak Road Storm Pond Repairs
    - Hwy 213 - Jughandle
    - Main Street Storm Sewer Improvement Project
    - Railroad Crossing Safety Improvements (10th Street Crossing)

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Oregon City Public Works Department

Oregon City Public Works Department

- publicworks

Transportation SDC Resolution 09-02

This is Resolution 09-02 creating the latest Transportation SDC rates for Vehicles and Bike/Ped rates.

Related Information


Transportation SDC Resolution 09-02

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Public Works Info

- Address:
- 625 Center Street
- Oregon City, OR 97045

- Phone:
- (503)657-0891

- Fax:
- (503)657-7892

- Office Hours:
- M-F 8AM to 5PM

- Operations Address:
- 122 S. Center Street
- Oregon City, OR 97045

- Operations Phone:
- (503)657-8241

- Operations Fax:
- (503)650-9590

- Contacts:
- View

Latest News

- Warner-Milne Road Project Schedule Update

- Bid and Proposal Results
- Construction Update
- Water Quality Reports
- Jughandle Project Open House

Upcoming Events

- Transportation Advisory Committee
  Tue, Sep 21st 6:00pm
- Transportation Advisory Committee
  Tue, Oct 19th 6:00pm
- Transportation Advisory Committee
  Tue, Nov 16th 6:00pm

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- 2009 Transportation SDC Report
- 2010 TAC Agenda Packets
- 301: Standard Manhole for Less Than 27" Pipe
- 302: Shallow Manhole for Less Than 27" Pipe

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  - Pioneer Center
  - Planning
  - Police
  - Public Works
  - Swimming Pool
  - Utility Billing
- City Government
  - Mayor
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  - City Commission
  - City Manager
  - City Recorder
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City of Oregon City | 625 Center Street | Oregon City, OR 97045 | (503)657-0891 | M-F 8AM-5PM
+alcheme creativeSite designed by aHa Consulting and

Phil Gentemann

From: Raymond Valone [valoner@metro.dst.or.us]
Sent: Tuesday, May 01, 2007 8:13 AM
To: phil@centurionhomes.net
Subject: UGB Map

Attachments: taxlot_in_ugb.pdf

TIM O'BRIEN –

taxlot_in_ugb.pdf
(275 KB)

Phil,
The attached map from our Data Resource Center shows the original UGB area along Beavercreek Road, including TL 800 that asked me about, as being within the UGB since 1979. I hope this helps.

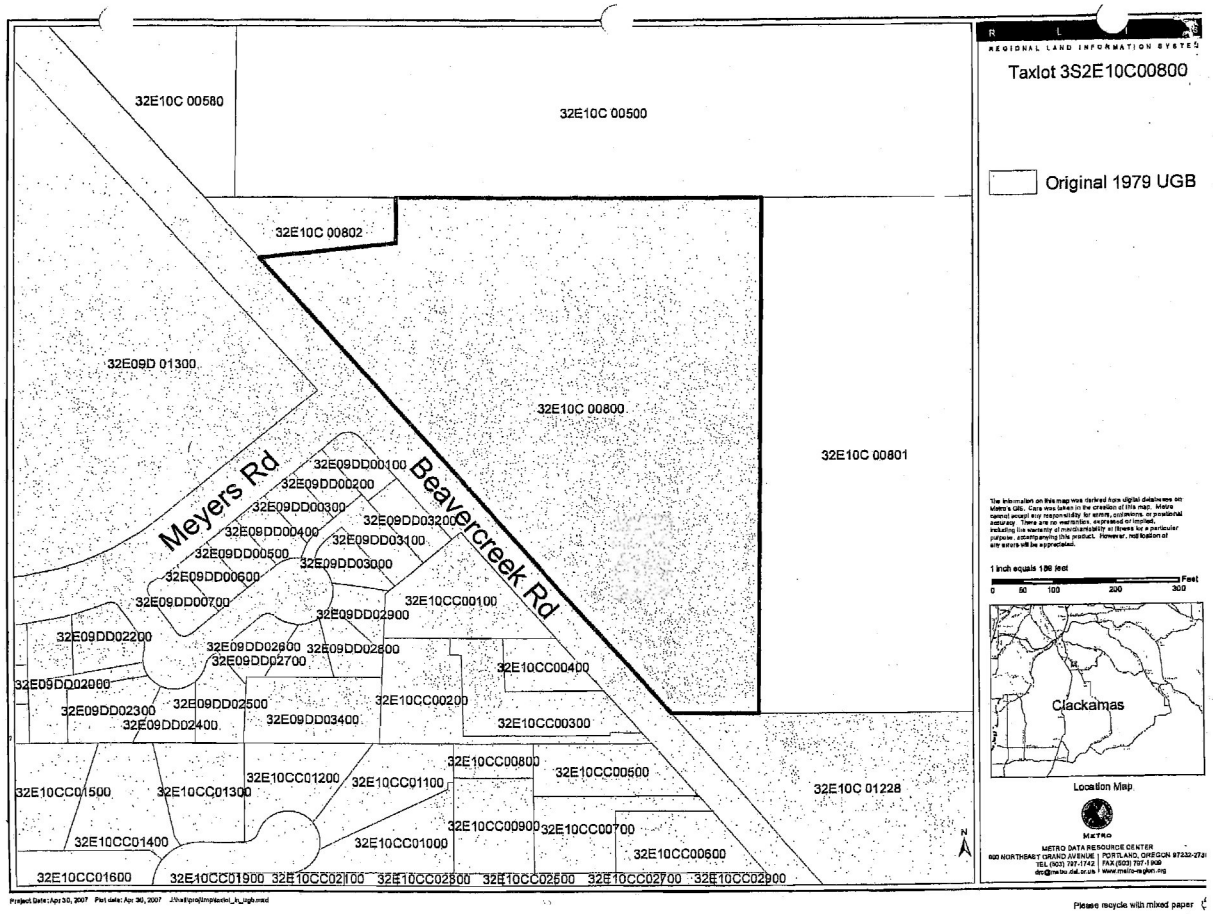
Ray Valone
Principal Planner
Metro
600 NE Grand Avenue
Portland, Oregon 97232
Ph 503-797-1808
Fx 503-797-1930
E-mail: valoner@metro.dst.or.us
Web: http://www.metro-region.org/

PER RAY VALONE
NOT SUBJECT TO TITLE 11
NO CONCEPT PLAN REQUIREMENT

TL 800 SEC 10 TW 3S R2E

19896 Beavercreek Rd

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor



I HEREBY CERTIFY THAT THE FOREGOING IS A COMPLETE AND EXACT COPY OF THE ORIGINAL THEREOF.
Rebecca V. Shoemaker, Archivist
Clerk of the Metro Council

BEFORE THE COUNCIL OF THE METROPOLITAN SERVICE DISTRICT

FOR THE PURPOSE OF ADOPTING AN URBAN GROWTH BOUNDARY FOR THE REGION	)	ORDINANCE NO. 79-77 Introduced by the Planning & Development Committee

Section 1: The Council finds that:

(a) The Metropolitan Service District is required by Oregon Laws 1979, chapter 402 to prepare and adopt an urban growth boundary for the District consistent with applicable statewide planning goals;

(b) The LCDC, upon acknowledgment review pursuant to ORS Chapter 197, has found that additional findings to support the urban growth boundary adopted in December, 1978, by the Columbia Region Association of Governments are required to merit acknowledgment;

(c) Sufficient evidence exists to support the boundary adopted by CRAG; and

(d) It has been determined by LCDC that it is necessary for the District to establish policies for conversion of urbanizable land to urban use beyond the requirements of Statewide Goal No. 14.

Section 2:

(a) The Metropolitan Service District Urban Growth Boundary (UGB), as indicated and described on the map attached hereto as Attachment A and by this reference incorporated herein, is adopted.

(b) Attachment A is a reduced copy of the original map of the UGB, dated 11/8/79, which original is on file at District offices. Where conflicts may exist between the original and a copy

of the UGB, the original shall control.

Section 3:

The document entitled "Urban Growth Boundary Findings," dated November 1979, a copy of which is attached hereto and by this reference incorporated herein, is hereby adopted as the Findings in support of the UGB adopted by Section 2 of this Ordinance.

Section 4:

The record of the adoption of this Ordinance and its attachments is declared to include:

(a) All evidence, testimony and other information submitted to or generated by CRAG in connection with its adoption and amendment of the CRAG Regional UGB in December, 1978, (CRAG Order No. 78-35) and supporting Findings in November, 1978, (CRAG Order No. 78-22).

(b) All evidence, testimony and other information submitted to the LCDC by the District during its UGB acknowledgment proceedings of June, 1979.

(c) All evidence, testimony and other information submitted to or generated by the District relating to this proceeding.

Section 5:

Pursuant to the 1977 Oregon Laws, chapter 665, Section 25, this ordinance supersedes CRAG Order No. 78-22 (November 16, 1978), CRAG Order No. 78-35 (December 21, 1978), and the documents adopted therein, which orders and documents are no longer of any force or effect. Previous orders of CRAG which were superseded by Order No. 78-22 and Order No. 78-35 are not revived except to the extent that

the records and findings supporting such orders have been readopted by Section 3 and Section 4 of this ordinance.

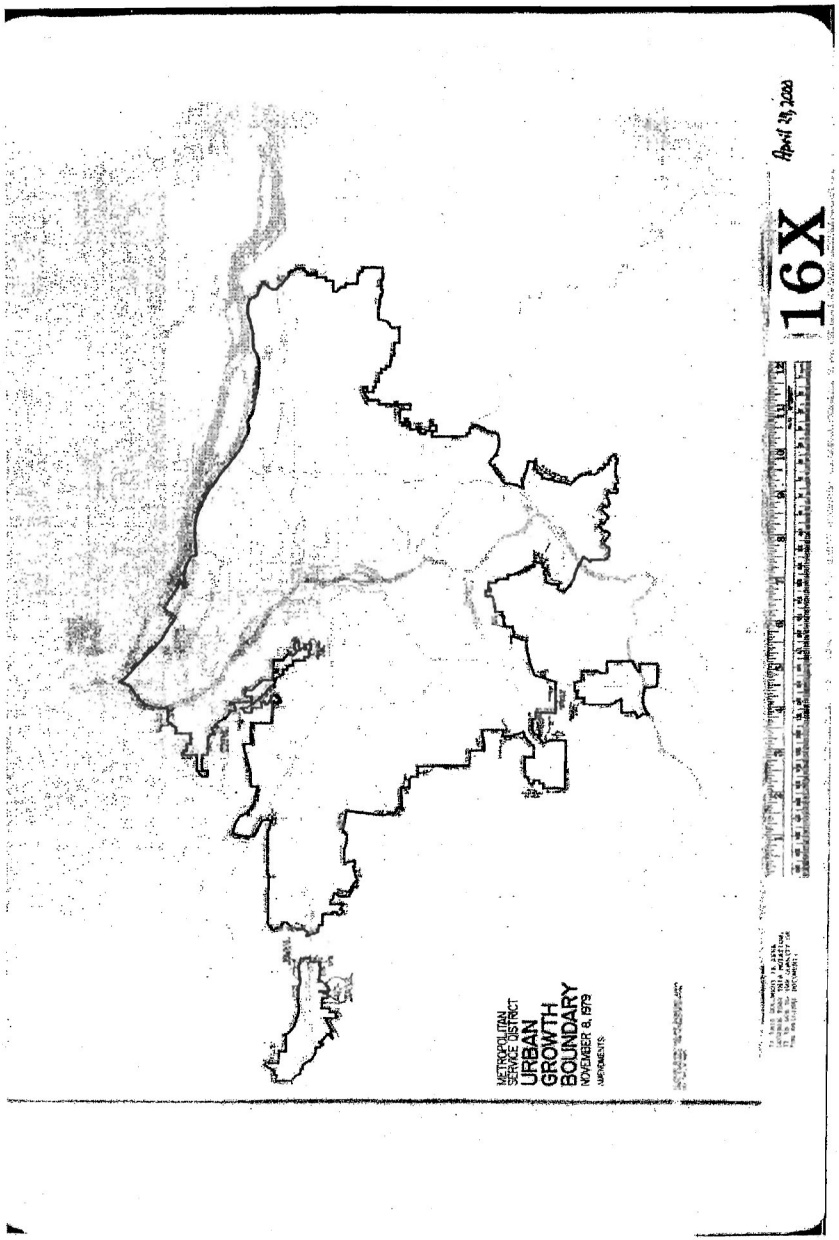
ADOPTED by the Council of the Metropolitan Service District this 8th day of November, 1979.

Presiding Officer

Attest:

Clerk of the Council

AJ/gl
5590A
0065A

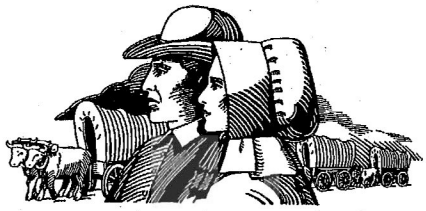


3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

CITY OF OREGON CITY

Land Use Decision

320 WARNER MILNE ROAD
TEL (503) 657-0891
OREGON CITY, OREGON 97045
FAX (503) 722-3880



NOTICE OF TYPE III LAND USE DECISION
File Numbers: CP 07-01
DATE OF MAILING OF THE DECISION: June 24, 2008

APPLICANT/OWNER	**Clackamas Community College – Kirk Pearson** 19600 Molalla Avenue Oregon City, OR 97045
APPLICANT'S REPRESENTATIVES	**Winterbrook Planning – Ben Schonberger** 310 SW Fourth Avenue Portland, OR 97204
REQUEST:	The applicant is requesting the approval of a Concept Development Master Plan for future college development through 2015.
LOCATION:	19600 Molalla Avenue, Oregon City, Oregon 97045

DECISION: On June 23, 2008, after reviewing all of the evidence in the record and considering all of the arguments made by the applicant, opponents and interested parties, the Planning Commission concluded by a 4-0 vote that the Concept Master Plan would meet, or could meet through conditions of approval, all of the requirements of each applicable section of the Oregon City Municipal Code. Therefore, the Planning Commission unanimously **APPROVES WITH CONDITIONS** the application.

PROCESS: Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the city commission, except upon appeal. Applications evaluated through this process include conditional use permits, preliminary planned unit development plans, variances, code interpretations, similar use determinations and those rezonings upon annexation under Section 17.06.050 for which discretion is provided. In the event that any decision is not classified, it shall be treated as a Type III decision. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission or the historic review board hearing is published and mailed to the applicant, recognized neighborhood association and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission or the historic review board, all issues are addressed. The decision of the planning commission or historic review board is appealable to the city commission, on the record. Notice of appeal of any Type II, Type III or IV decision must be received in writing by the planning division within ten calendar days from the date notice of the challenged decision is provided to those entitled to notice. Late filing of any appeal shall be deemed a jurisdictional defect and will result in the automatic rejection of any appeal so filed. The city commission decision on appeal from the historic review board or the planning commission is the city's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

The application, decision, and supporting documents are available for inspection at the Oregon City Planning Division located at 320 Warner-Milne Road, Oregon City, OR 97045, (503) 657-0891, between the hours of 8am and 1pm. Copies of these documents are available (for a fee) upon request.

CONDITIONS OF APPROVAL
Planning File: CP 07-01
Clackamas Community College Master Plan – Phases 1 and 2
Notice of Decision Mailed: June 24, 2008

1. As part of any future Detailed Development Plan, Clackamas Community College shall provide a Traffic Impact Analysis that demonstrates compliance with the Concept Mater Plan. Clackamas Community College, Oregon City, Oregon Department of Transportation and Clackamas County, shall mutually agree to the scope of the Traffic Impact Analysis as appropriate.

2. As part of any Detailed Development Plan, Oregon City and Clackamas Community College shall determine a fee that addresses Clackamas Community College's proportional share of the necessary transportation system improvements. This fee shall be based on the anticipated impacts of the proposed development on the transportation system and the charges will be assessed prior to the issuance of a building permit.

3. The Oregon City level-of-service standards will be used to determine the adequacy of the transportation system, appropriate mitigation measures and proportional share calculations. Oregon Department of Transportation and Clackamas County transportation standards will be utilized when applicable to determine the adequacy of the transportation system.

4. A Detailed Development Plan for Phase 2 development shall include the dedication and construction of Meyers Road from Highway 213 to the eastern property line of the campus and the local street connection to 19842 Molalla Avenue (Clackamas County Map 3-2E-9C, tax lot 700), which is located directly south of the campus. If the Detailed Development Plan for Phase 2 is approved, Clackamas Community College shall dedicate the Meyers Road and local street right-of-way prior to the issuance of a building permit for Phase 2. The local street connection shall be constructed when Meyers Road is constructed. Until the ROW is dedicated, the alignment of the roads will not be guaranteed as it relates to connections to adjacent parcels to the east and south.

5. Clackamas Community College shall mitigate any site-related transportation impacts identified through the Detailed Development Plan Traffic Impact Analysis at the site driveway on Beavercreek Road, to the intersection performance standards established by the City of Oregon City.

6. Parking lot landscaping shall be upgraded concurrently with the approved Concept Master Plan development. A mitigation plan for upgrading the non-conforming parking lots shall be submitted by the applicant with each phase of development. The non-conforming parking areas shall be upgraded proportionally to the percent of new campus building square-footage being constructed (i.e. if 30% of the approved building square-footage is being constructed, then 30% of the non-conforming parking areas must be upgraded).

7. The Master Plan shall be updated, as necessary, to reflect the changes that will be made by addressing the 11 City comments on the Water, Sanitary Sewer, and Stormwater systems report. (Concept Development Plan Review, dated 8/31/07: Exhibit 10).

8. The applicant shall update the Concept Master Plan narrative, mitigation standards and thresholds to reflect the conditions of approval that have been approved and attached to this decision.

9. The applicant shall either leave the level-of-service (LOS) standards in the Site Plan and Design Review regulations (17.62.050.A.16) or the they shall be incorporated into the Clackamas Community College Transportation Plan as a reference to the LOS the City requires development to meet and as the standards that were utilized in the review of the master plan to determine adequacy of the transportation system. This standard will be utilized in determining appropriate mitigation measures and in the calculation of the proportional share required to be paid by the applicant for transportation infrastructure deficiencies.

Beavercreek Road Concept Plan Concurrence

Please Note: The following findings regarding concurrence with the Beavercreek Road Concept Plan are informational only and are not approval criteria that must be satisfied in order to approve this the Zone Change and Comprehensive Plan request.

Goal 1 Complete and Sustainable Community

Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center.

Objective 1.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the proposed MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 1.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. The subject property is buffers the rural lands on the east, south and north by land within the current UBG. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 1.4
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services, and housing for local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 zone permitted uses encourage neighborhood oriented and scaled mixed-use centers by providing employment and housing for local residents of all ages and incomes. Retail, professional and office uses, plus residential uses provide jobs and housing in a neighborhood-oriented environment.

Objective 1.6
Allow the integration of housing and employment uses where practicable.

Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 1.7
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 2 Model of Sustainable Design
Be a model of sustainable design, development practices, planning, and innovative thinking.

Finding: The applicant indicates that the proposed zone change to MUC-1 does foster sustainability by the mixed and transit supportive land uses. Innovative sustainable stormwater management and building supporting LEED certifications can be used when development occurs.

Objective 2.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the MUC-1 zone allows for a variety to uses that could potentially utilize the surrounding City and rural economies.

Objective 2.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands..

Objective 2.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 2.4
Encourage environmentally responsible developments that are economically feasible, enhance livability of neighborhoods and enhance the natural environment.

Finding: The applicant indicates that the proposed zone change to MUC-1 mixed uses will encourage environmentally responsible developments that enhance livability of neighborhoods and protect and enhance the natural environment.

Goal 3 Green Jobs
Attract "green" jobs that pay a living wage.
Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially include businesses with "green jobs" that pay a living wage.

Objective 3.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the MUC-1 zone has a long list of uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide

variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 3.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

The undeveloped land that surrounds the subject property was brought into the UGB in *2002/2004* and annexed into the City of Oregon City in 2008 and buffers the subject property from the rural areas. This area is part of the Beavercreek Concept Plan whose master vision is a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 3.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 zone allows for a variety of uses that could potentially provide goods, services and housing for local workers and residents of all ages and incomes.

Objective 3.4
Allow the integration of housing and employment uses where practicable.

Finding: The applicant indicates that the MUC-1 zone has a long list of uses that include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 3.5
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 5 - Natural Beauty
Incorporate the area's natural beauty into an ecologically compatible built environment.

Finding: The applicant indicates that future development will incorporate sustainable stormwater plans using best management practices will enhance the natural beauty and provide ecologically compatibility. The MUC-1 zone allows for a variety of uses that can be built in an ecologically compatible manner and incorporate the area's natural beauty. Currently the Beavercreek Concept Plan indicates a portion of a trail to cross the subject property which could be incorporated nicely into a development project.

Objective 5.1
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.
Finding: The applicant indicates that the future development plan for this property will ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation. Pedestrian design considerations would be examined in detail at time of submittal of any development application.

Objective 5.2
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 5.3
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands..

Objective 5.4
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal.

Goal 6 - Multi-modal Transportation
Provide multi-modal transportation links (such as bus routes, trails, bikeways, etc.) that are connected within the site as well as to the surrounding areas.

Finding: The applicant indicates that Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal.

Objective 6.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Finding: The applicant indicates that MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal. This property will provide public connectivity routes for bicycles and

pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the area and to the communities beyond.

Objective 6.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural storm water systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Finding: The applicant indicates that future development plans will include a sustainable stormwater management plan that will provide for water quality and quantity in the conveyance systems either open or closed to existing downstream areas. Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Goal 7 - Safety Along Beavercreek Road
Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand.

Finding: The applicant indicates that Beavercreek Road has been identified as a transportation corridor. The existing intersection of Meyers and Beavercreek is a signalized crossing that will control speeds and access. The desired cross section of Beavercreek Road has already been installed on the High School side of the street and incorporates pedestrian and bicycle modes. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. This would be examined in detail at time of development application submittal.

Objective 7.1
Develop and maintain a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel, especially across Beavercreek Road to the existing neighborhoods, Clackamas Community College, Oregon City High School and the Berry Hill Shopping Center.

Finding: the applicant has submitted a TIA that evaluates transportation impacts and mitigation approaches for the proposed zone change, assuming a reasonable development scenario under MUC-1 zoning. The applicant indicates that development plans will extend a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel. The intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development.

Objective 7.2
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development offences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Finding: The applicant indicates that uses proposed for the property will be designed in a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation. This will be reviewed at the time a specific development application is proposed for the property.

Goal 8 - Oregon City High School and Clackamas Community College
Promote connections and relationships with Oregon City High School and Clackamas Community College.

Finding: The applicant indicates that the intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development. A key component of the long-term transportation improvements needed to support the future development of the site and adjacent area is the connection of Meyers Road through the site to the east. To the west, continued development of the CCC campus and adjacent lands will trigger completion of the Meyers Road connection from High School Avenue to Highway 213 across the CCC campus. The MUC-1 zone and allowed uses and future development of the property will promote connections with Oregon City High School and Clackamas Community College. The Traffic Impact Analysis submitted for the proposed rezoning takes into account the transportation impacts associated with expansion of the Clackamas Community College and identifies the needed transportation facility improvements needed for mitigation for those impacts.

Objective 8.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the permitted uses of the MUC-1 zone include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city
and rural economy.

Objective 8.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Goal 9 - Unique Sense of Place
Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability.
Finding: The applicant indicates that the MUC-1 zone with the many permitted uses will create a sense of place of mixed uses, scale of design and commitment to sustainability and allow compliance with the Goal unlike other zones.

Objective 9.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Finding: The applicant indicates that Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. The applicant will provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational

areas with the Beavercreek Road Concept area and to the communities beyond. This would be examined in detail at time of development application submittal.

Objective 9.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Finding: The applicant indicates that development of the property will provide an integrated street system that is designed as practicable to minimize the impacts to the environment sustainable design that provide
storm water quality and quantity control using best management practices. Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Objective 9.3
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Finding: The applicant indicates that the MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.4
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Finding: The applicant indicates that the undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 9.5
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housingfor local workers and residents of all ages and incomes.

Finding: The applicant indicates that the MUC-1 permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.6
Allow the integration of housing and employment uses where practicable.

Finding: The applicant indicates that the MUC-1 zone allows for a variety to uses that could potentially provide goods, services and/or housing. This zone provides for an integration of housing and employment uses which will likely to occur on the subject property.

Objective 9.7

Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Finding: The applicant indicates that Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

TITLE 1: REQUIREMENTS FOR HOUSING AND EMPLOYMENT ACCOMMODATION

3.07.110 Purpose and Intent
3.07.120 Housing and Employment Capacity
3.07.130 Design Type Boundaries Requirement
3.07.140 Measures to Increase Development Capacity
3.07.150 Transfer of Capacity
3.07.160 Local Plan Accommodation of Expected Growth Capacity for Housing and Employment—Performance Standard
3.07.170 Design Type Density Recommendations

TITLE 1: REQUIREMENTS FOR HOUSING AND EMPLOYMENT ACCOMMODATION

3.07.110 Purpose and Intent

One goal of the Framework Plan is the efficient use of land. Title 1 intends to use land within the UGB efficiently by increasing its capacity to accommodate housing and employment. Title 1 directs each city and county in the region to consider actions to increase its capacity and to take action if necessary to accommodate its share of regional growth as specified in this title.

Finding: Complies. The requested zoning is Mixed-Use Corridor (MUC-1) District. This district is designed to apply along selected sections of transportation corridors such as Molalla Avenue, 7th Street and Beavercreek Road, and along Warner-Milne Road. Land uses are characterized by high-volume establishments such as retail, service, office, multi-family residential, lodging, recreation and meeting facilities, or a similar use as defined by the community development director. A mix of high-density residential, office, and small-scale retail uses are encouraged in this District. The application is consistent with an orderly and efficient transition from rural to urban land use. **The intent of this section is met.**

3.07.120 Housing and Employment Capacity

A. Each city and county shall determine its capacity for housing and employment in order to ensure that it provides and continues to provide at least the capacity for the city or county specified in Table 3.07-1, supplemented by capacity resulting from addition of territory to the UGB. Local governments shall use data provided by Metro unless the Metro Council or the Chief Operating Officer determines that data preferred by a city or county is more accurate.

B. A city or county shall determine its capacity for dwelling units by cumulating the minimum number of dwelling units authorized in each zoning district in which dwelling units are authorized. A city or county may use a higher number of dwellings than the minimum density for a zoning district if development in the five years prior to the determination has actually occurred at the higher number.

C. If a city annexes county territory, the city shall ensure that there is no net loss in regional housing or employment capacity, as shown on Table 3.07-1, as a result of amendments of comprehensive plan or land use regulations that apply to the annexed territory.

D. After completion of its initial determination of capacity, each city or county shall report changes in its capacity by April 15 of the first calendar year following completion of its initial determination and by April 15 of every following year.

Finding: Complies. This standard is directed at the City and has no application to this zone change request. However, in the event it applies, the standard is satisfied. The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. The property was designated by Metro as "Outer Neighborhood". With the requirement to complete a Concept Plan for adjacent employment lands to the east of the parcel, the parcel was included in the planning process for the Beavercreek Road Concept Plan, which was subsequently remanded. Oregon City was found to be in compliance Metro with the Housing and Employment Capacity standard in Metro's 2004 "Urban Growth Management Functional Plan Annual Compliance Report" which looks at whether the city has implemented changes in capacity reporting, design type mapping, minimum density standards, partitioning standards, accessory dwelling units, accessory dwelling units in centers, and complied with reporting requirements. Oregon City has provided yearly updates to Metro since the initial determination of capacity.

3.07.130 Design Type Boundaries Requirement

For each of the following 2040 Growth Concept design types, city and county comprehensive plans shall be amended to include the boundaries of each area, determined by the city or county consistent with the general locations shown on the 2040 Growth Concept Map or on maps adopted by ordinances adding territory to the UGB:

Central City--Downtown Portland is the Central City which serves as the major regional center, an employment and cultural center for the metropolitan area.

Regional Centers--Seven regional centers will become the focus of compact development, redevelopment and high-quality transit service and multimodal street networks.

Station Communities--Nodes of development centered approximately one-half mile around a light rail or high capacity transit station that feature a high-quality pedestrian environment.

Town Centers--Local retail and services will be provided in town centers with compact development and transit service.

Main Streets--Neighborhoods will be served by main streets with retail and service developments served by transit.

Corridors--Along good quality transit lines, corridors feature a high-quality pedestrian environment, convenient access to transit, and somewhat higher than current densities.

Employment Areas--Various types of employment and some residential development are encouraged in employment areas with limited commercial uses.

Industrial Areas--Industrial areas are set aside primarily for industrial activities with limited supporting uses.

Regionally Significant Industrial Areas--Industrial areas with site characteristics that are relatively rare in the region that render them especially suitable for industrial use.

Inner Neighborhoods--Residential areas accessible to jobs and neighborhood businesses with smaller lot sizes are inner neighborhoods.

Outer Neighborhoods--Residential neighborhoods farther away from large employment centers with larger lot sizes and lower densities are outer neighborhoods.

Finding: The property was designated by Metro as "Outer Neighborhood" on the 2040 Growth Concept design type map (Exhibit). When the city updated it's Comprehensive plan in 2004, the parcel was given the land use designation "Future Urban" so as to allow consistent planning for the vacant parcels east of Beavercreek Road. With the Metro requirement to complete a Concept Plan for the adjacent employment lands to the east of the parcel, the parcel was included in the planning process for the Beavercreek Road Concept Plan.

3.07.140 Measures to Increase Development Capacity

A. Each city and county shall adopt a minimum dwelling unit density, as prescribed in this subsection, for each zoning district in which dwelling units are authorized inside the UGB:

1. Any city or county minimum density standard deemed to comply with the Urban Growth Management Functional Plan pursuant to Section 3.07.810 prior to January 1, 2003, shall be deemed to comply with this subsection.

2. A city or county shall not approve a subdivision or development application that will result in a density below the minimum density for the zoning district.

3. A city or county may change the dwelling unit density of any zoning district so long as the zoning district continues to comply with this subsection and so long as the city or county continues to provide at least the overall capacity for housing for the city or county specified in Table 3.07-1

Finding: Complies. The city has already adopted zoning provisions in accordance with this policy. The MUC-1 zone allows for multi-family dwelling units in addition to commercial, office and retail use, and the city's most recent code revisions includes a requirement that residential developments undergoing Site Plan and Design Review shall achieve at least eighty percent of the maximum density of the base zone for the net developable area. The proposed re-zoning to MUC-1 is consistent with this policy.

B. A city or county shall not prohibit the partition or subdivision of a lot or parcel that is at least twice the size of the minimum size for new lots or parcels in any zoning district in which dwelling units are authorized.

Finding: Not applicable. The applicant has not proposed a partition or subdivision.

C. A city or county shall authorize the establishment of at least one accessory dwelling unit for each detached single-family dwelling unit in a zoning district and for each detached or attached single-family dwelling unit in a Regional Center or Station Community. The authorization may be subject to reasonable regulation for siting and design purposes.

Finding: Not applicable. The requested zoning does not permit single-family residential use.

D. In order to assist Metro to evaluate the effectiveness of Title 1 in aid of accomplishment of the 2040 Growth Concept, and to comply with state progress reporting requirements in ORS 197.301, by April 15 of each even-numbered year beginning 2004, each city and county shall report to Metro the actual density of new residential development per net developed acre authorized in those zoning districts that allow residential development in the preceding 24 months.

Finding: Complies. The city is in compliance with all reporting requirements to Metro.

3.07.150 Transfer of Capacity

A. A city or county may amend its comprehensive plan and land use regulations to transfer capacity for housing or employment shown on Table 3.07-1 to another city or county inside the UGB...

Finding: Not applicable. The city is not requesting to transfer capacity for housing or employment to another city or county inside the UGB.

3.07.160 Local Plan Accommodation of Expected Growth Capacity for Housing and Employment—Performance Standard

All cities and counties within Metro shall demonstrate that:

A. The provisions required in Section 3.07.140 of this title have been included in comprehensive plans and implementing ordinances; and

B. Using the computation method in Section 3.07.120, calculated capacities will achieve the target capacities for dwelling units and full-time and part-time jobs contained in Table 3.07-1; and

C. Effective measures have been taken to reasonably assure that the calculated capacities will be built for dwelling units and jobs; and

D. Expected development has been permitted at locations and densities likely to be achieved during the 20-year planning period by the

private market or assisted housing programs, once all new regulations are in effect.

Finding: Complies. Performance standards have been implemented as required by this section in order to meet the zoned capacity for housing (9,750 units) and employment units (8,298) required in Oregon City for the period 1994 to 2017. The proposed rezoning to MUC-1 on the subject property would augment theses measures.

3.07.170 Design Type Density Recommendations

A. For the area of each of the 2040 Growth Concept design types, the following average densities for housing and employment are recommended to cities and counties:

Central City - 250 persons per acre
Regional Centers - 60 persons per acre
Station Communities - 45 persons per acre
Town Centers - 40 persons per acre
Main Streets - 39 persons per acre
Corridor - 25 persons per acre
Employment Areas - 20 persons per acre
Industrial Areas - 9 employees per acre
Regionally Significant Industrial Area - 9 employees per acre
Inner Neighborhoods - 14 persons per acre
Outer Neighborhoods - 13 persons per acre

Finding: The subject property was annexed to Oregon City in 1979, prior to the Concept Planning requirement, and is designated "Outer Neighborhood", which has a density of 13 persons per acre, the lowest density recommended. At this time, Metro has not stated it's position with respect to whether the "Outer Neighborhood" designation should be maintained, however, Metro has indicated that the property was brought into the UGB prior to any Concept Planning requirements of Title 11, which would typically be when the design type recommendations would be applied. Should a development application be submitted for the property, further review of this recommendation will be required.

Table 3.07-1

Table 3.07-1 Zoned Capacity for Housing and Employment Units - Year 1994 to 2017 Section 3.07.120(A)(1)(b)

City or County	Dwelling Unit Capacity	Job Capacity
Beaverton	13, 635	21,368
Cornelius	1,285	3,054
Durham	243	522
Fairview	2,929	7,063
Forest Grove	3,054	5,943
Gladstone	880	1,569
Gresham[3]	20,020	27,679
Happy Valley[4]	5,705	1,418
Hillsboro[5]	16,106	59,566
Johnson City	38	82
King City[6]	461	470
Lake Oswego	4,049	13,268
Maywood Park	12	5
Milwaukie	3,188	3,650
Oregon City	**9,750**	**8,298**
Portland[3]	72,136	209,215
Rivergrove	20	0
Sherwood	5,216	9,518
Tigard	6,308	17,801
Troutdale	3,260	7,222
Tualatin[7]	4,054	12,301
West Linn	3,732	1,935
Wilsonville[2]	4,425	15,030
Wood Village	458	1,074
Clackamas County[1,3]	13,340	31,901
Multnomah County[8]	0	0
Washington County[1]	51,649	55,921
Regional Total	**246,053**	**516,873**

TITLE 7: HOUSING CHOICE

3.07.710 Intent

The Regional Framework Plan calls for establishment of voluntary affordable housing production goals to be adopted by local governments and assistance from local governments on reports on progress towards increasing the supply of affordable housing. It is the intent of Title 7 to implement these policies of the Regional Framework Plan.

3.07.720 Voluntary Affordable Housing Production Goals

Each city and county within the Metro region should adopt the Affordable Housing Production Goal indicated in Table 3.07-7, as amended over time, as a guide to measure progress toward increasing housing choices and meeting the affordable housing needs of households with incomes between 0% and 50% of the regional median family income

Finding: Inapplicable. This policy is directed to City action and does not apply to this quasi-judicial plan amendment request. The City uses the goals as guidelines for supporting the production of affordable housing. The proposed MUC-1 zone in this location would support the development of multi-family housing and condominiums, which would allow for the development of residential units that provide greater housing choices closer to needed amenities such as transit, retail and services.

3.07.730 Requirements for Comprehensive Plan and Implementing Ordinance Changes

Cities and counties within the Metro region shall ensure that their comprehensive plans and implementing ordinances:

A. Include strategies to ensure a diverse range of housing types within their jurisdictional boundaries.

B. Include in their plans actions and implementation measures designed to maintain the existing supply of affordable housing as well as increase the opportunities for new dispersed affordable housing within their boundaries.

C. Include plan policies, actions, and implementation measures aimed at increasing opportunities for households of all income levels to live within their individual jurisdictions in affordable housing.

Finding: Inapplicable. This standard is directed to the City. The City has adopted the above strategies, actions and implementation measures in its Comprehensive Plan. Additionally, recent code updates that have been adopted starting in 2008-through 2010 have added provisions to ensure a diverse range of housing types within Oregon City. These amendments include the removal of single-family housing as a permitted use in the R-2 zone, the addition of a new R-5 zone, cottage housing. The proposed MUC-1 zoning in this location would augment the development of a more diverse range of housing types than single-family residential zoning.

3.07.740 Inventory and Progress Reports on Housing Supply

A. Local governments shall assist Metro in the preparation of a biennial affordable housing inventory by fulfilling the reporting requirements in subsection 3.07.120D of Title 1 (Requirements for Housing and Employment Accommodation) and subsection B of this section.

B. Local governments shall report their progress on increasing the supply of affordable housing to Metro on a form provided by Metro, to be included as part of the biennial housing inventory described in subsection A. Local governments shall submit their first progress reports on July 31, 2007, and by April 15 every two years following that date. Local governments may report their progress as part of the capacity reports required by subsection 3.07.120D of Title 1 (Requirements for Housing and Employment Accommodation). Progress reports shall include, at least, the following information:

1. The number and types of units of affordable housing preserved and income groups served during the reporting period, as defined in Metro's form;
2. The number and types of units of affordable housing built and income groups served during the reporting period;
3. Affordable housing built and preserved in Centers and Corridors; and
4. City or county resources committed to the development of affordable housing, such as fee waivers and property tax exemptions.

3.07.750 Technical Assistance
Cities and counties are encouraged to take advantage of the programs of technical and financial assistance provided by Metro to help achieve the goal of increased production and preservation of housing choices and affordable housing and to help fulfill the monitoring and reporting requirements of this title.

Finding: Inapplicable. This is directed to the City. According to Metro's 2004 compliance report, the City has outstanding elements to be addressed regarding Metro's recommendations for affordable housing, these include the following items which should addressed at a city-wide, policy level:

1. Consideration of the voluntary affordable housing production goal. (Metro Code 3.07.720)
2. Consideration of the amendment of comprehensive plan and implementing ordinance with the following five land use strategies in Metro Code 3.07.730.B. (density bonus, replacement housing and local regulatory constraints).
3. Encouraged consideration of the implementation of four of the other affordable housing strategies in Metro Code Section 3.07.760 (replacement housing resulting from urban renewal areas, inclusionary housing in urban renewal areas, promotion of affordable housing for incomes 50% to 120% of the regional median household income, and joint coordination or action).
4. Specific third-year reporting requirements (Metro Code 3.07.740.C).

Approval of the proposed rezoning to MUC-1 for the subject property would not preclude attainment of these outstanding elements.

2001-2006 Affordable Housing Production Goals

Jurisdiction	*Needed new housing units for households earning less than 30% of median household income*	*Needed new housing units for households earning 30-50% of median household income*	*Total*
Beaverton	427	229	656
Cornelius	40	10	50
Durham	6	4	10
Fairview	42	31	73
Forest Grove	55	10	65
Gladstone	43	10	53
Gresham	454	102	556
Happy Valley	29	28	57
Hillsboro	302	211	513
Johnson City	0	0	0
King City	5	0	5
Lake Oswego	185	154	339
Maywood Park	0	0	0
Milwaukie	102	0	102
Oregon City	123	35	158
Portland	1,791	0	1,791
Rivergrove	1	1	2
Sherwood	67	56	123
Tigard	216	103	319
Troutdale	75	56	131
Tualatin	120	69	189
West Linn	98	71	169
Wilsonville	100	80	180
Wood Village	16	1	17
Clackamas County, Urban, Unincorporated	729	374	1,103
Multnomah County, Urban, Unincorporated*	81	53	134
Washington County, Urban Unincorporated	1,312	940	2,252
Total	6,419	2,628	9,047

#	Project Source (1)	Yr of Cost Estimate	Project Title (1)	Eligible Capacity Increasing % (2)	Serving Existing Deficiency	City Funding Responsibility (3)	Project Cost (1)	SDC Eligible Cost
R-73	2008 List	2008	South End Rd/High Street/S 2nd St	65.0%	35.0%	100.0%	1,367,604	888,943
R-75	2008 List	2008	Linn Ave/Davis Rd/Ethel St	86.0%	14.0%	100.0%	510,300	438,858
R-76	2008 List	2008	Leland Rd/Clairmont Way/Meyers Rd	67.9%	32.1%	100.0%	510,300	346,493
R-79	2008 List	2008	Spring Valley Dr: Partlow Rd to Salmonberry Dr	0.0%	100.0%	100.0%	N/A	-
R-80	2008 List	2008	Shenandoah Dr: Central Point to Pease Rd & Pease to Leland Rd	28.6%	71.4%	100.0%	N/A	-
R-83	2008 List	2008	South Douglas Loop (CCC) to Glen Oak Road	23.7%	76.3%	100.0%	3,120,000	739,518
R-84	2008 List	2008	Coquille Drive Extension	49.7%	50.3%	100.0%	5,200,000	2,586,347
R-86	2008 List	2008	Meyers Road to Caufield Road	65.8%	34.2%	100.0%	N/A	-
R-91	2008 List	2008	SE 82nd Drive crossing of Clackamas River	24.9%	75.1%	100.0%	N/A	-
R-92	2008 List	2008	Fir Street Extension: Highway 213 to Beavercreek Road	51.5%	48.5%	100.0%	18,750,000	9,660,883
R-93	2008 List	2008	Ethel St to May St (south of Holmes Lane)	44.5%	55.5%	100.0%	N/A	-
R-94	2008 List	2008	Laurel Lane Extension: May St to Warner Milne Rd	42.7%	57.3%	100.0%	N/A	-
R-95	2008 List	2008	Roosevelt St Extension: Molalla Ave to Linn Ave	45.6%	54.4%	100.0%	N/A	-
R-96	2008 List	2008	12th Street Extension: Taylor St to Grant St	40.3%	59.7%	100.0%	N/A	-
R-97	2008 List	2008	Skellenger Way to Meyers Road/Clairmont Way	40.4%	59.6%	100.0%	N/A	-
R-98	2008 List	2008	Meyers Road Extension: Highway 213 to High School Lane	54.2%	45.8%	100.0%	10,000,000	5,415,282
R-102	2008 List	2008	Parrish Road Extension	100.0%	0.0%	100.0%	4,000,000	4,000,000
R-104	2008 List	2008	Molalla Avenue/Taylor/Division	34.2%	65.8%	100.0%	1,000,000	341,998
R-106	2008 List	2008	Agnes Street: Main Street to Highway 213	61.4%	38.6%	100.0%	13,575,000	8,332,559
Total				**58.1%**	**41.9%**	**78.3%**	**$ 312,918,784**	**$ 158,455,615**
less: Beginning FY2007 Transportation SDC Fund Balance (4)								$ 1,614,627
Total Future Capital Projects for SDC Calculation								$ 156,840,988

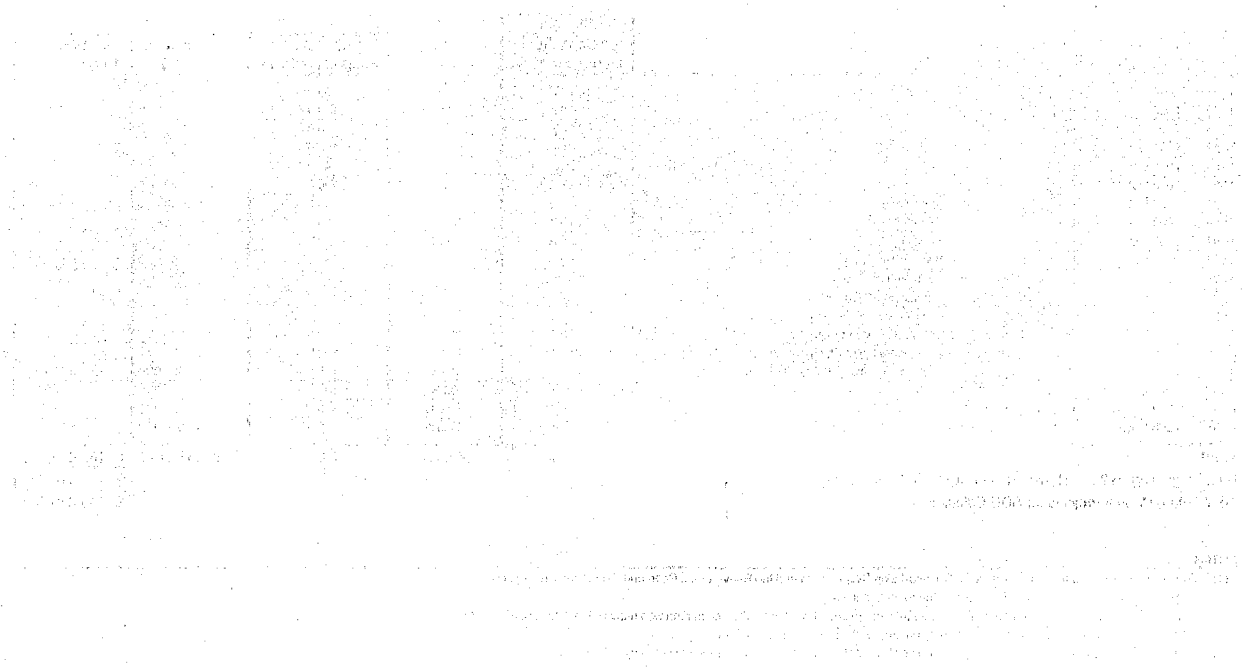
NOTES

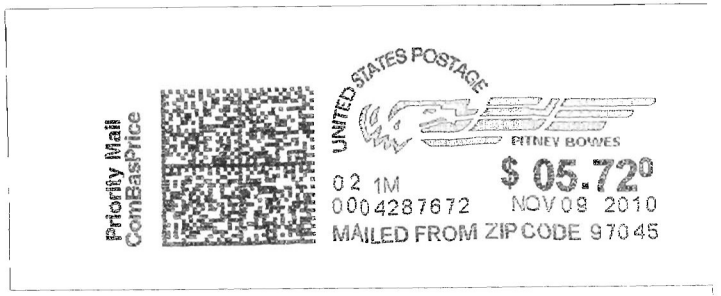
(1) 2008 List = Primary sources were the 2001 Transportation System Plan and the Beavercreek Road and Park Place Concept Plans. Original cost estimates in 2001 TSP were updated to 2008 dollars.

(2) Projects were allocated based on growth's share of total future peak-hour trips. When such data was unavailable, baseline projections of vehicle/capacity (V/C) ratios were utilized to determine existing system deficiencies.

(3) Minimum 10% City match for State project costs. The City anticipates potential City contribution of at least 30% and up to 40%.

(4) Source: FY2007 City budget.





OREGON CITY
P.O. Box 3040
Oregon City, OR 97045-0304
Address Correction Requested

PLAN AMENDMENT SPECIALIST
DEPT. OF LAND CONSERVATION
& DEVELOPMENT
635 CAPITOL ST NE
SUITE 150
SALEM, OR 97301-2540

PRESERVING OUR PAST, BUILDING OUR FUTURE

Given a significant affect was identified under the TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2). The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from County FU-10 Future Urban to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 2.5.2
Allow and encourage the development of small retail centers in residential neighborhoods that provide goods and services for local residents and workers. Generally, these centers should be located at the intersections of two or more streets that are classified as neighborhood collectors or higher.

Finding: The applicant indicates that the subject property is located at the intersection Beavercreek and Meyers Roads which are classified as neighborhood collectors or higher. The Mixed Use Corridor District has the range of permitted uses that could provide the local residents with vital goods, services and employment. Beavercreek Road has been identified as a transportation corridor. The subject property is at the signalized intersection of Beavercreek and Meyers Road. The MUC-1 zone would allow for a variety of retail and medical uses that could potentially serve the community. While the development plans for the site will be determined at a future date, the proposed plan amendment and zone change are consistent with this policy. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.5.4
Encourage the development of successful commercial areas organized as centers surrounded by higher density housing and office uses, rather than as commercial strips adjacent to low-density housing.

Finding: The applicant indicates that the subject property is on the easterly side of Beavercreek Road and separated from low density housing. The MUC-1 zone allows for mixed use development along corridors which includes multi-family housing. Thus, any future development of the site that may include commercial areas would be consistent with this policy. The currently existing housing near the site across Beavercreek

Road is a combination of residential zones including R-6, R-3.5 and R-10. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.6 Industrial Land Development
Ensure an adequate supply of land for major industrial employers with family-wage jobs.

Policy 2.6.8
Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which if approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals.

Finding: The subject property is not identified as employment land on Metro's 2040 Map and was not brought into the Urban Growth boundary to meet regional employment needs. The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current holding zone is County FU-10 Future Urban, which has a 10-acre minimum lot size. The property was included as a part of the Beavercreek Road Concept Plan, however it was brought into the UGB prior to the Title 11 concept planning requirement and therefore may be considered for rezoning irrespective of the status of the Beavercreek Road Concept PlanThe requested zone of MUC-1 would allow for a variety of uses that will add employment opportunities to the area and meet the goals of the Beavercreek Road Concept Plan. Many of the permitted uses in the MUC zone, such as professional services, dental services, and veterinary clinics are family-wage jobs. **The applicant has adequately demonstrated compliance with this policy.**

Goal 2.7 Oregon City Comprehensive Plan Land-Use Map
Maintain the Oregon City Comprehensive Plan Land-Use Map as the official long-range planning guide for land-use development of the city by type, density and location.

Policy 2.7.1
Maintain a sufficient land supply within the city limits and the Urban Growth Boundary to meet local, regional, and state requirements for accommodating growth.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current Oregon City Comprehensive Plan map (Ordinance No. 08-1014) identifies this area as FU - future urban. Permitted uses in the MUC-1 zone offer an array of uses including multi-family and commercial uses. These allowed uses are consistent with the goals and policies to accommodate growth. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.7.2
Use the following 11 land-use classifications on the Oregon City Comprehensive Plan Land-Use Map to determine the zoning classifications that may be applied to parcels:

- *Low Density Residential (LR)*
- *Medium Density Residential (MR)*
- *High Density Residential (HR)*
- *Commercial (C)*
- *Mixed Use Corridor (MUC)*
- *Mixed Use Employment (MUE)*

- *Mixed Use Downtown (MUD)*
- *Industrial (I)*
- *Public and Quasi-Public (QP)*
- *Parks (P)*
- *Future Urban Holding (FUH)*

Finding: The applicant indicates that the requested comprehensive plan amendment would change the zoning designation of this site to MUC, which is an allowed classification under this policy and would help in meeting the goals of property use for the area. **The applicant has adequately demonstrated compliance with this policy.**

Policy 2.7.3
Recognize the design types of Metro's 2040 Growth Concept. Establish boundaries for the Regional Center in Downtown Oregon City; Corridors along 7th Street, Molalla Avenue, Beavercreek Road, and Highway 99; Industrial areas; and for Inner and Outer Neighborhoods.

Finding: The applicant indicates that the Metro 2040 Growth Concept map designated this property as an "outer neighborhood", which is a very low density residential designation. The property was designated FU-10 in 2004, and included in the concept planning process for the Beavercreek Road Concept Plan due to it's being contiguous with lands along Beavercreek Road that were undergoing Concept Planning pursuant to Metro Title 11. As a part of the Beavercreek Concept Plan this property was envisioned to be a sustainable community with high-density mixed-use employment and housing. Beavercreek Road has been identified as a transportation corridor, and the subject property is at the intersection of Beavercreek Road and Meyers Road. The MUC-1 zone and the corresponding uses together with an MUC Comprehensive plan designation fit in with these goals. The applicant indicates that Metro has provided support of the proposal. **The applicant has adequately demonstrated compliance with this policy.**

Goal 6.1 Air Quality
Promote the conservation, protection and improvement of the quality of the air in Oregon City.

Policy 6.1.1
Promote land-use patterns that reduce the need for distance travel by single-occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

Finding: The applicant indicates that one of the major concepts of a sustainable community is that services in the neighborhood are "walkable." The future development plans for this site will include provisions for pedestrian and bicycle modes of transportation. In addition, as a part of this plan, Beavercreek Road has been identified as a transportation corridor, where multiple forms of transportation will be available. The MUC-1 zone allows and encourages mixed use development. Permitted uses in the MUC-1 zone include both residential and commercial uses which promote and encourage alternate forms of transportation. These concepts together with design review will encourage a development that meets this policy. **The applicant has adequately demonstrated compliance with this policy.**

Goal 8.1 Developing Oregon City's Park and Recreation System

Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Policy 8.1.5
Identify and construct a network of off-street trails throughout the city for walking and jogging.

Finding: The applicant indicates that an MUC-1 zone would not interfere with any adopted trail being developed in the future. Further, there is a 50-foot wide gas corridor easement that runs across the northerly corner of the property, which creates a strip of unbuildable area that may be suitable for a walking trail per the easement guidelines. Specific plans for a trail network on the parcel would be required at the time a development is proposed. **The applicant has adequately demonstrated compliance with this policy.**

Goal 9.8 Transportation System
Recognize the importance of the land use-transportation link and encourage businesses to locate in areas already served by the type of transportation system they need.

Policy 9.8.1
Through coordination with TriMet and local employers, encourage and promote the use of mass transit to travel between residential areas and employment areas.

Finding: The applicant indicates that Beavercreek Road has been identified as a major arterial transportation corridor in the City's Transportation System Plan. An MUC-1 zone would encourage mixed-use development that would benefit from multi-modal transportation. Currently bus service is available at the intersection of Beavercreek Road and Hwy. 213, and to the Clackamas Junior College on Hwy. 213. Future service to the High School and this property is expected when justified. This would be examined and reviewed more closely at time of development application (site plan and design review). **The applicant has adequately demonstrated compliance with this policy.**

Policy 9.8.5
Work with the Oregon Department of Transportation to preserve and improve the capacity of Highway 213 and its intersection with I-205.

Finding: Complies with Conditions. Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis and the required mitigation. The applicant indicates that a traffic report has been prepared that studies the effects of various uses allowed by the MUC-1 zone to the area. The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change. Mitigation has been identified. A more detailed review would be required at time of development application (site plan and design review). **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 9.8.7
Assess methods to integrate the pedestrian, bicycle and elevator transportation modes into the mass transit system.

Finding: Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the Beavercreek Road has been identified as a major arterial transportation corridor in the City's Transportation System Plan as well as a Transit Corridor from the entrance to Clackamas Community College campus north.. Major Arterial roads are required to be built to provide a full range of transportation modes. Compliance with this standard is feasible and will be reviewed at the time a development application is proposed for the property. An MUC-1 zone would encourage mixed use development that would benefit from multi-modal transportation. This will be examined and reviewed more closely at time of development application (site plan and design review). **The applicant has adequately demonstrated compliance with this policy.**

Goal 10.1 Diverse Housing Opportunities
Provide for the planning, development and preservation of a variety of housing types and lot sizes.

Policy 10.1.3
Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Finding: the applicant indicates that currently the subject property has a holding zone of FU-10. The proposed rezoning to MUC-1 is reasonable given the zones goals of mixed use and high density residential. The multi-family use allowed under MUC-1 would allow for a potential alternative to single family homes already in the area. **The applicant has adequately demonstrated compliance with this policy.**

Goal 11.1 Provision of Public Facilities
Serve the health, safety, education, welfare, and recreational needs of all Oregon City residents through the planning and provision of adequate public facilities.

Policy 11.1.4: Support development of underdeveloped or vacant buildable land within the city where public facilities and services are available or can be provided and where land use compatibility can be found relative to the environment, zoning and comprehensive plan goals.
Policy 11.1.6

Enhance efficient use of existing public facilities and services by encouraging development at maximum levels permitted in the Comprehensive Plan, implementing minimum residential densities, and adopting an Accessory Dwelling Unit Ordinance to infill vacant land.

Findings: The adequacy of respective Public Facilities is addressed below.

Water, Sewer, and Stormwater Facilities

According to the Oregon City Development Services Manager, the sanitary line at the end of Emerson Court does not extend to Beavercreek Road. But if an easement was obtainable, the sewer line could be extended and would work to serve the subject property for development or if an easement cannot be obtained, the applicant can connect into the public system by going south to Glen Oak and replacing a section of sanitary line to a manhole about 330 feet to the west. Public sewer services are available and sized to accommodate additional flows from this property. The property is appropriately sized so that stormwater be handled on-site and eventually directed to the nearest natural drainageway and compliance is feasible. The water line in Beavercreek Road is a 16-inch line.

Transportation
Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis.

Schools
Oregon City School District did not comment on this application.

Police
The impact of approximately nine acres of mixed-use development on the capacity of the police is minimal and would be addressed when the actual development application is submitted. When the property was annexed, a Development Agreement (Exhibit G) was approved to assure adequate police services would be provided to new development on the property. At this time the applicant feels confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire Protection
Fire protection for property would be provided by Clackamas Fire District #1. Applicant indicates that the much larger Oregon City High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

Staff has reviewed the applicant's proposal and finds that the public facilities and services are presently capable of supporting the requested comprehensive plan amendment and zone change. With the exception of transportation system impacts, as described under Section 17.68.020(B) and (C), **the applicant has adequately demonstrated compliance with this policy.**

Goal 12.1 Land Use-Transportation Connection
Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.

Policy 12.1.3
Support mixed uses with higher residential densities in transportation corridors and include a consideration of financial and regulatory incentives to upgrade existing buildings and transportation systems.

Finding: Conditionally Complies. Please refer to the findings under Section 17.68.020(C) for a more detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the proposed MUC-1 zone would encourage mixed uses that would benefit from being on Beavercreek Road which has been designated a transportation corridor. **The applicant can assure this standard is met through Condition of Approval 4.**

Goal 12.5 Safety
Develop and maintain a transportation system that is safe.

Policy 12.5.1
Identify improvements that are needed to increase the safety of the transportation system for all users.

Finding: Conditionally Complies. Please refer to the findings under Section 17.68.020 (C) for a detailed analysis of the applicant's Traffic Impact Analysis. The applicant indicates that the traffic analysis has identified improvements that will be needed to increase the safety of the local transportation system. Beavercreek Road has been identified as a major arterial transportation corridor in the city's Transportation System Plan. Major Arterial roads are required to be built to provide a full range of transportation modes. Compliance with this standard is feasible and will be reviewed at the time a development application is proposed for the property. The applicant states that the proposed MUC-1 would encourage mixed-use development that would be benefited by multi-modal forms of transportation. **The applicant can assure this standard is met through Condition of Approval 4.**

Goal 12.6 Capacity
Develop and maintain a transportation system that has enough capacity to meet users' needs.

Policy 12.6.1
Provide a transportation system that serves existing and projected travel demand.

Finding: Please refer to the findings under Section 17.68.020(C) for a detailed analysis of the applicant's Traffic Impact Analysis and proposed mitigation. The applicant indicates that Beavercreek Road has been identified as a transportation corridor. Capacity of the transportation system would be reviewed in more detail at time of development application.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from FU-10 to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2). The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period of 2027.

With the mitigation measures identified by the applicant in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The applicant can assure this standard is met through Condition of Approval 4.**

Policy 12.6.2
Identify transportation system improvements that mitigate existing and projected areas of congestion.

Finding: Please see findings for Policy 12.6.1 above.

Goal 13.2 Energy Conservation
Plan public and private development to conserve energy.

Policy 13.2.1
Promote mixed-use development, increased densities near activity centers, and home-based occupations (where appropriate).

Finding: The applicant indicates that at this time the property owner is proposing a zone change from FU-10 to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. The MUC-1 Zone would appear to meet the intent of this policy for mixed-use development and increased density near activity centers and along corridors. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed MUC zoning and comprehensive plan designation will be in concert with the goals of the City, and the above policy. **The applicant has adequately demonstrated compliance with this policy.**

Goal 14.1 Urban Growth Boundary
Establish, and amend when appropriate, the Urban Growth Boundary in the unincorporated area around the city that contains sufficient land to accommodate growth during the planning period for a full range of city land uses, including residential, commercial, industrial, and institutional.

Policy 14.1.2
Concept plans that provide more detail than the city's Comprehensive Plan will be required prior to development of lands within the Urban Growth Boundary.

Finding: This property was brought into the UGB prior to the concept planning requirement. (Exhibit I). The applicant indicates that the property was added to the UGB in 1979 and was not subject to the concept

planning requirements of Title 11. Surrounding farmland property was brought into the UGB in 2002 and 2004. No changes to the UGB are proposed as a part of this application.

The Beavercreek Road Concept Plan was adopted by the City in 2008. While the concept plan is the subject of a LUBA remand to the city and Metro in order to reconcile certain findings regarding adopted Design Type consistency with the Metro 2040 plan, the adopted concept plan does provide a publicly shared vision for development of lands, including the subject property, within the Urban Growth Boundary. **The applicant has adequately demonstrated compliance with this policy.**

Goal 14.3 Orderly Provision of Services to Growth Areas
Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

Policy 14.3.1
Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.

Policy 14.3.2
Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.

Policy 14.3.4
Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

Finding: Amendments to the Capital Improvement Program have been adopted to assure orderly provision of services to growth areas in accordance with this policy. The most recent updates include an updated Transportation System Development Charge (TSDC) that does include urban level development assumptions within the Beavercreek Concept Plan area. The new TSDC's were adopted by Resolution 09-02 (Exhibit H). Additionally, the City TSDC includes 30% of the estimated costs of State Facility Projects that are located within the City limits, which includes impacted intersections on Highway 213. **The applicant has adequately demonstrated compliance with this policy.**

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed in the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.

Sewer, Water, Storm Drainage, Recreation, Good and Services, Fire, Police

Finding: The adequacy of these public facilities and services was address above under Goal 11.1.1. Adequacy of Transportation Facilities is addressed below.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

Trip Generation

The applicant has submitted a TPRA which provides an explanation of the rationale for a mixed use development scenario based on the proposed zoning, overall parcel size, and limitations imposed on the parcel by the required street network necessary to develop adjacent lands east of the parcel within the Urban Growth Boundary. It further provides a detailed analysis of trip generation using a combination of land uses consistent with MUC-1 zoning consisting of the following:

- Shopping center (20,000 square feet)
- Office (80,000 square feet)
- Townhouse/condominium (30 units)

The TPRA indicates that the net increase was calculated to be 173 new primary trips due to the rezoning.

Transportation Planning Rule

For zone changes and comprehensive plan amendments, the City must make findings that the proposed amendment complies with the TPR OAR 660-012-0060. There must be substantial evidence in the record to either make the finding of "no significant effect" on the transportation system, or, if there is a significant effect, assurance that the allowed land uses are consistent with the identified function, capacity, and performance standard of the transportation facility within the planning horizon (year 2027).

The City's Transportation Consultant, Replinger and Associates, reviewed the applicant's Transportation Planning Rule Analysis (TPRA) Exhibit C.

Analysis Period

The TPRA uses year 2027 as the horizon year. Traffic volumes for this year were developed based on previous analyses and on the values from the regional transportation model and consultation with ODOT and the City.

Operations / Intersection Analysis

Traffic operations analysis was conducted for the PM peak hour for 2027 with and without the proposed rezoning. In addition, at ODOT's request, the analysis was conducted using two versions of the street network:

1) With the planned extension of Meyers Road between Highway 213 and Beavercreek Road; and
2) Without the extension of this section of Meyers Road.

The analysis indicates that the intersections along Highway 213 from Beavercreek Road to Meyers Road are expected to exceed ODOT's mobility standards by 2027 without the development, but that other intersections are calculated to meet operational standards. The engineer notes that this is consistent with the analysis conducted for the Beavercreek Road Concept Plan, although that plan is the subject of a remand from the Land Use Board of Appeals (LUBA).

The "with rezoning" analysis adds the predicted 173 additional trips to the original year 2027 volumes. ODOT determined that if the rezoning caused the volume-to-capacity ratio (v/c) to increase by more than 0.01, they considered it to be a significant impact and thus requires mitigation. For the street network scenario that assumes Meyers Road is not extended, the two locations at which this criterion is met are: Highway 213/Molalla Avenue and Highway 213/Meyers Road. This is shown in the Applicant's TPRA on Table 5, which is provided here:

Table 5 Forecast Year 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.12	**+0.03**
OR 213/ Meyers Road	0.99	0.98	1.00	**+0.02**
OR 213/ Glen Oak Road	0.99	1.31	1.32	+0.01

For the scenario that assumes Meyers Road is extended, the only intersection potentially exceeding the >0.01 v/c criterion is Highway 213/Meyers Road. This is shown in the Applicant's TPRA on Table 6, which is provided here:

Table 6 Forecast 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.09	–
OR 213/ Meyers Road	0.99	1.13	1.17	**+0.04**
OR 213/ Glen Oak Road	0.99	1.29	1.29	–

Reasonably Likely Improvements

ODOT provided comments (Exhibits D. and E.) regarding the proposed project. For evaluation of local plan amendments and zone changes, Section 660-12-0060 of the TPR requires that needed improvements either have committed funding, are in a financially constrained Metropolitan Planning Organization (MPO) transportation plan, or are "reasonably likely" to be provided by the end of the planning period in order for the capacity provided by the needed improvement to be considered "available" to the proposed amendment.

The key location is Highway 213/Meyers Road. Meyers Road between Highway 213 and Beavercreek Road is included in the City's TSP. As a new road in a new corridor, its implementation is more dependent on development than an already-existing facility that needs to be upgraded.

Since adoption of the TSP, the easterly segment of Meyers Road has been constructed and a condition of approval placed on the Clackamas Community College which makes it highly likely that the westerly portion will be constructed within the 16-year planning horizon assessed for the proposed rezoning (Exhibit K). The central segment is somewhat more dependent on development. Since the traffic forecasts for 2027 are predicated on considerable regional development, it seems highly likely that both the development assumed in the College's Master Plan and the development of the privately held parcels in the central segment will occur by 2027.

Furthermore, the cost of the Meyers Road Extension from Highway 213 to High School Lane was included in the City's 2009 Transportation System Development Charge Study, with a city funding responsibility of 100%, with a total estimated cost of $10,000,000 and an SDC eligible cost of $5,415,282 (Exhibit N). The city is already collecting SDC's for this needed improvement.

Subsequently, it is reasonable to assume that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027).

Proposed Mitigation

The applicant's engineer indicates that the addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 improves the operations of the intersection such that it's performance in the "with rezoning" scenario is better than the 2017 scenario without the rezoning. The engineer also calculates that the addition of a northbound through lane on Highway 213 allows either 2017 scenario to meet ODOT's mobility standards.

ODOT supports the findings and recommended mitigation identified in the TIA with the following provisions to ensure no significant effect on OR 213: 1)The City of Oregon City documents through the land use decision that the Meyers Road extension improvement is "reasonably likely" to be provided by the planning horizon (year 2027), and 2) The land use decision includes a condition requiring the applicant to contribute funding

to City of Oregon City for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection (Exhibit K).

The applicant has demonstrated that mitigation is readily available to offset the impact. The addition of an exclusive right-turn lane on westbound Meyers Road at Highway 213 is shown to substantially improve the performance of the intersection. Though a right-turn lane is not specifically identified in the TSP at this location, the addition of a right-turn lane where a collector or minor arterial intersects a major highway is a fairly common feature.

Mr. Replinger states that the needed mitigation may be considered a Transportation System Management measure that is supported by policies in the TSP, Oregon Highway Plan and Metro's RTP. At this particular location, the College's plans for development place no significant constraints on a modest expansion of right-of-way for Meyers Road in this quadrant.

Mr. Replinger concludes that the applicant has demonstrated that the improvements identified the system can, with modest mitigation, accommodate the proposed rezoning.

Therefore, Staff recommends that the Planning Commission apply the following Condition of Approval:

Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

The applicant can assure this standard is met through Compliance with Condition of Approval 4.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment.

The applicant has addressed statewide planning goals in addition to the Goals and Policies of the Comprehensive Plan as outlined below.

Statewide Planning Goal 1: Citizen Involvement - OAR 660-015-0000(1)

To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases ofthe planning process.

The governing body charged with preparing and adopting a comprehensive plan shall adopt and publicize a program for citizen involvement that clearly defines the procedures by which the general public will be involved in the on-going land-use

Planning process. The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and of information that enables citizens to identify and comprehend the issues. Federal, state and regional agencies, and special- purpose districts shall coordinate their planning efforts with the affected governing bodies and make use of existing local citizen involvement programs established by counties and cities.

Finding: The applicant indicates that this application procedure allows for citizen involvement and communication throughout the entire process. Before this land use application was submitted an informational meeting was held with the Caufield Neighborhood Association and surrounding neighbors within 300 feet of the subject property. The submittal included a mailing list of these neighbors within 300 feet of the subject property and the Caufield Neighborhood Association Chairs so that the City could send notices of application and invitation to attend and/or participate in the public hearing held by the planning commission and the city commission. Finally, should this application be approved, a notice will be sent to all people of standing who participated in these public hearings giving them a final opportunity to appeal the decision if desired. **The statewide planning goal is met.**

Statewide Planning Goal 2: Land Use Planning - OAR 660-015-0000(2)

PART I -- PLANNING

To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and action.

Finding: The applicant indicates that this zone change and comprehensive plan amendment request is being reviewed for consistency with all applicable City Code sections, the City Comprehensive Plan, Statewide Goals, Metro designations, etc. by the process of this Type IV decision which entails a quasi-judicial process with at least one public hearing by the planning commission and one public hearing by the city commission. The applicant has been prepared pursuant to the applicable Administration and Procedures codified in OCMC Chapter 17.50 and the process for Zone Changes and Plan Amendments in OCMC 17.68. **The statewide planning goal is met.**

Statewide Planning Goal 6: Air, Water And Land Resources Quality - OAR 660-015-0000(6)

To maintain and improve the quality of the air, water and land resources of the state. All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources.

Finding: The applicant indicates that this zone change and comprehensive plan amendment request will allow for the subject property to be designated with a City zone so that it may be developed in the future to the highest and best use. Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone. All waste discharges from future development will be accommodated with a utility system

designed to City standards so as not to threaten or violate applicable state or federal environmental quality statutes, rules or standards. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. Water quality measures for storm water will be incorporated into final plans to meet or exceed the requirements of the City. **The statewide planning goal is met.**

Statewide Planning Goal 9: Economic Development - OAR 660-015-0000(9)

To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens. Comprehensive plans and policies shall contribute to a stable and healthy economy in all regions of the state. Such plans shall be based on inventories of areas suitable for increased economic growth and activity after taking into consideration the health of the current economic base; materials and energy availability and cost; labor market factors; educational and technical training programs; availability of key public facilities; necessary support facilities; current market forces; location relative to markets; availability of renewable and non-renewable resources; availability of land; and pollution control requirements.

Finding: The applicant indicates that the Mixed Use Corridor District has been identified by the city to be designed along selected sections of specified transportation corridors including Beavercreek Road. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. The permitted uses offer a wide variety of potential to increase the economic growth and provide facilities to support current markets. The allowed uses in an MUC-1 zone will help contribute to the goals of providing a stable and healthy economy with potential employment opportunities and/or alternative housing options to the typical single family home. **The statewide planning goal is met.**

Statewide Goal 10: Housing - OAR 660-015-0000(10)

To provide for the housing needs of citizens of the state.
Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.

Finding: The applicant indicates that MUC-1 zone allows for multi-family housing and assisted living facilities which would contribute a more varied housing option to the overall housing inventory of the City. **The statewide goal is met.**

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

To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a frameworkfor urban and rural development.

Finding: The applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Public facilities are presently capable of supporting any of the uses

allowed within an MUC-1 zone. All services are available at the site and have capacity and framework to serve the urbanization of this property and the adjacent rural areas. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. The future development of this site, once the City zone and comprehensive plan designation are set, will allow for timely, orderly and efficient use of public services. **The statewide goal is met.**

Statewide Goal 12: Transportation - OAR 660-015-0000(12)

To provide and encourage a safe, convenient and economic transportation system.
A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

Finding: The applicant indicates that Beavercreek Road has been identified as a major arterial transportation corridor. The applicant's traffic analysis supported mixed use including commercial, industrial, and multi-family uses with Beavercreek Road being the primary transportation corridor. Tri-met currently serves Clackamas Community College with bus service via Molalla Ave, Highway 213, and Beavercreek Road. No service is currently provided to this site, but with development and the adjacent Oregon City High School extension of service is planned. Bus service has direct connections to light rail at Clackamas Town Center with connections to the City of Portland, Gresham, Hillsboro and the Airport. The Beavercreek Road cross section includes bicycle lanes together adjacent to the vehicle lanes. There was sufficient right-of-way dedicated with the High School when coupled with future dedications along the subject property to install the master plan cross section.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from FU-10 to the Mixed Use zone. Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).

The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements,

and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures identified by the applicant in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from FU-10 to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities. **The statewide goal is met.**

Statewide Goal 14: Urbanization - OAR 660-015-0000(14)

To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

Finding: the applicant indicates that the subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. As development occurs on the easterly side of Beavercreek Road, the applicant believes the proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. All necessary public utilities are available to the site at this time in order to allow for its development to urban densities. For this reason, this application is consistent with an orderly and efficient transition from rural to urban land use. **The statewide goal is met.**

COMPLIANCE WITH METRO URBAN GROWTH FUNCTIONAL PLAN (TITLES 1 AND 7)

Findings regarding compliance with Title 1 of the UGFMP - *Requirements for Housing and Employment Accommodation*, and Title 7 – *Housing Choice*, are provided in Exhibit M.

CONCURRENCE WITH THE BEAVERCREEK ROAD CONCEPT PLAN

The subject property was included as part of the Beavercreek Road Concept Plan, which was appealed to LUBA and which was remanded to Metro and the City of Oregon City. Therefore, findings regarding concurrence with the Beavercreek Road Concept Plan are informational only and have been provided in Exhibit L. They should not be considered approval criteria that must be satisfied in order to approve this the Zone Change and Comprehensive Plan Amendment.

According to the Beavercreek Road Concept Plan, the area proposed for plan amendment and re-zoning falls within the "Mixed Employment Village" – MEV plan designation:

"The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian friendly, and mixed use setting. The MEV is intended to be transit supportive in its use mix, density, and design so that transit remains an attractive and feasible option. The MEV allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and

Beavercreek Road sub-districts. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College and Oregon City High School are encouraged. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area."

IV. CONCLUSION AND RECOMMENDATION:

Based on the findings in this Staff Report, the Community Development Director has determined that the applicant has met, or can meet with the recommended Conditions of Approval, the applicable requirements in the Oregon City Municipal Code for approval of the proposed application.

Therefore, the Community Development Director recommends that the Planning Commission recommend to the City Commission an Approval as Proposed by the Applicant with Conditions for their consideration at the September 15, 2010 hearing, for the Application identified as Planning Files PZ 10-1 and ZC 10-01, for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor designation, and a Zone Change from "County – FU-10" to "MUC-1" Mixed Use Corridor district, for the property located at 19896 Beavercreek Road and identified as Clackamas County Map 3-2E-10C, Tax Lot 800.

V. EXHIBITS

The following exhibits are attached to this staff report.

A. Applicant's Land Use Application Packet
   1. City of Oregon City Land Use Application form & list of permit approvals sought
   2. Preliminary title report with legal description
   3. Land Use Narrative
   4. Pre-application Conference Summary
   5. Neighborhood Contact information
   6. Tax Map, Site Map, Comprehensive Plan Map, Beavercreek Road Concept Plan Map
   7. APPENDIX
   8. Traffic Report – *(See B – Exhibit Below)*
   9. Beavercreek Road Concept Plan
   10. Supporting emails, correspondence, annexation agreement
   11. Exhibit Drawings (full sized) – **On File**

B. Transportation Planning Rule Analysis, dated June 21, 2010, prepared by Joe Bessman, PE, PTOE, Senior Engineer, and Chris Bremer, PE, Principal Engineer, Kittelson and Associates, Inc.

C. City Transportation Engineers Review of the Applicant's Transportation Planning Rule Analysis, dated August 9, 2010, prepared by John Replinger, PE, Replinger and Associates.

D. ODOT Comments on Rezoning, dated August 17, 2010, prepared by Gail Curtis, AICP, Senior Planner

E. ODOT Comments on TPR Analysis, dated August 12, 2010, prepared by Avi Tayar, PE, Development Review Team Leader, Region 1 Traffic.

F. Comments of Caufield Neighborhood Association, prepared by Mike Mermelstein (received August 13, 2010).

G. Police Services Development Agreement, Planning File AN 07-01.

H. Resolution 09-02, A Resolution Repealing Resolution 97-56, Adopting A Methodology, Project Lists, And Amounts For The City's Transportation System Development Charge And Establishing Effective Dates, adopted April 1, 2009.

I. Metro Comments, Email, May 1, 2007, regarding waiver of Title 11 compliance.

J. Metro Comments, Regarding the re-zoning proposal.

K. Notice of Decision and Conditions of Approval for Clackamas Community College Master Plan, Planning File CP 07-01, issued June 24, 2008.

L. Concurrence with the Beavercreek Road Concept Plan (For Information purposes only, not approval criteria)

M. Findings for Compliance with the Metro Urban Growth Functional Management Plan *Title 1 - Requirements for Housing and Employment Accommodation,* and *Title 7 – Housing Choice.*

N. Excerpt – 2009 Transportation System Development Charge Study with Cost Estimates for Project R-98 – Meyers Road Extension: Highway 213 to High School Lane.

RECOMMENDED CONDITIONS OF APPROVAL
Planning Files: PZ 10-01 / ZC 10-01
Planning Commission Hearing Date: August 30, 2010

1. The Applicant is responsible for this project's compliance with Engineering Policy 00-01. The policy pertains to any land use decision requiring the Applicant to provide any public improvements.

2. Public facilities/infrastructure locations shall be provided as determined by the future development's conditions of approval.

3. Future developments shall obtain the appropriate Erosion Prevention and Sedimentation Control permit(s) at the time of construction plan submittal.

4. Based on the demonstrated significant effect to the intersection at Highway 213/Meyers Road, before receiving building permits the applicant shall contribute a proportional share of funding for the construction of the westbound right turn lane at the OR 213/Meyers Rd intersection. The amount of the proportional share shall be determined based on a revised traffic impact analysis that will be submitted at the time a development application is submitted when the proposed uses are known.

Theta, llc

ENGINEERING - SURVEYING - PLANNING

503/481-8822

PO Box 1345
Lake Oswego, Oregon 97035

e-mail: thetaeng@comcast.net

PREFACE

The enclosed materials represent a complete application for a zone change and comprehensive plan amendment for the property located at 19896 Beavercreek Road, Oregon City (3 2E 10C 00800)

The purpose of this application is to change the zone of the subject property which was annexed into the City of Oregon City in 2007, from future urban (FU) to Mixed Use Corridor District (MUC-1)

No development is proposed at this time.

The property is 9.59 acres, triangular in shape with slopes not exceeding 5%, and opposite the signalized intersection of Beavercreek Road and Meyers Road. All the necessary utilities are available at the site. The property is not in a Historic District, not in the Willamette Greenway, does not have any Geologic Hazards, and is not in Natural Reserve Overlay District or in a floodplain.

Table of Contents

1. City of Oregon City Land Use Application form & list of permit approvals sought
2. Preliminary title report with legal description
3. Land Use Narrative
4. Pre-application Conference Summary
5. Neighborhood Contact information
6. Tax Map, Site Map, Comprehensive Plan Map, Beavercreek Road Concept Plan Map

APENDIX

7. Traffic Report
8. Beavercreek Rod Concept Plan (attachment A, Exhibit 2)
9. Supporting emails, correspondence, annexation agreement
10. Exhibit Drawing (full sized)

CITY OF OREGON CITY
LAND USE APPLICATION

City of Oregon City, Community Development Department, 221 Molalla Ave., Ste. 200, P.O. Box 3040, Oregon City, OR 97045, (503) 722-3789

Type I (OCMC 17.50.030.A)	Type II (OCMC 17.50.030.B)	Type III / IV (OCMC 17.50.030.C)
☐ Compatibility Review	☐ Extension	☐ Annexation
☐ Nonconforming Use review	☐ Detailed Development Review	☐ Code Interpretation / Similar Use
☐ Water Resources Exemption	☐ Geotechnical Hazards	☐ Concept Development Plan
	☐ Minor Partition	☐ Conditional Use
	☐ Minor Site Plan & Design Review	☒ Comprehensive Plan Amendment (Text/Map)
	☐ Nonconforming Use Review	☐ Detailed Development Plan
	☐ Site Plan and Design Review	☐ Historic Review
	☐ Subdivision	☐ Oregon City Municipal Code Amendment
	☐ Minor Variance	☐ Variance
	☐ Water Resource Review	☒ Zone Change

Application Number: _____

Proposed Land Use or Activity: Zone change from FU to MUC-1 and Comp. Plan Amendment to MUC.

Project Name: — Number of Lots Proposed (If Applicable): N/A

Physical Address of Site: 19896 Beavercreek Road, Oregon City, OR 97045

Clackamas County Map and Tax Lot Number(s): 3-2E-10C TL 800

Applicant(s):
Applicant(s) Signature: _____
Applicant(s) Name Printed: Bruce Goldson, PE - Theta, LLC Date: 11/11/09'
Mailing Address: P.O. Box 1345 Lake Oswego, OR 97035
Phone: (503) 481-8822 Fax: — Email: thetaeng@comcast.net

Property Owner(s):
Property Owner(s) Signature: _____
Property Owner(s) Name Printed: Maywood, LLC Date: JANUARY 5, 2010
Mailing Address: 7128 SW Gonzaga Street, #300 Portland, OR 97223
Phone: (503) 620-2047 Fax: (503) 620-2287 Email: _____

Representative(s):
Representative(s) Signature: _____
Representative (s) Name Printed: Bruce Goldson, PE - Theta, LLC Date: 11/11/09'
Mailing Address: P.O. Box 1345 Lake Oswego, OR 97035
Phone: (503) 481-8822 Fax: — Email: thetaeng@comcast.net

All signatures represented must have the full legal capacity and hereby authorize the filing of this application and certify that the information and exhibits herewith are correct and indicate the parties willingness to comply with all code requirements.

www.orcity.org

Chicago Title Insurance Company of Oregon
PRELIMINARY REPORT

In response to the application for a policy of title insurance referenced herein Chicago Title Insurance Company of Oregon hereby reports that it is prepared to issue, or cause to be issued, as of the specified date, a policy or policies of title insurance describing the land and the estate or interest hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an exception herein or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations or Conditions of said policy forms.

The printed Exceptions and Exclusions from the coverage of said policy or policies are set forth in Exhibit A. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Copies of the policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby.

The policy(s) of title insurance to be issued hereunder will be policy(s) of Chicago Title Insurance Company of Oregon, a/an Oregon corporation.

Please read the exceptions shown or referred to herein and the Exceptions and Exclusions set forth in Exhibit A of this report carefully. The Exceptions and Exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered.

It is important to note that this preliminary report is not a written representation as to the condition of title and may not list all liens, defects and encumbrances affecting title to the land.

This preliminary report is for the exclusive use of the parties to the contemplated transaction, and the Company does not have any liability to any third parties nor any liability until the full premium is paid and a policy is issued. Until all necessary documents are placed of record, the Company reserves the right to amend or supplement this preliminary report.

Countersigned

Marie Kincade

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Chicago Title Insurance Company of Oregon
8585 SW Cascade Avenue, Suite 200, Beaverton, OR 97008
FAX

PRELIMINARY REPORT

TITLE OFFICER: Mihyun Steinberg

ORDER NO.: 472509475706TO-CTOR
CUSTOMER NO.:

TO: Chicago Title Insurance Company of Oregon
Attn: Bill McCorkle/Builder Services
10135 SE Sunnyside Rd., Ste 200
Clackamas, OR 97015

OWNER/SELLER: Marylwood LLC

BUYER/BORROWER:

PROPERTY ADDRESS: 19896 Beavercreek Road
Oregon City, Oregon 97045

EFFECTIVE DATE: November 18, 2009, 08:00 AM

1. THE POLICY AND ENDORSEMENTS TO BE ISSUED AND THE RELATED CHARGES ARE:

	AMOUNT	PREMIUM
Governmental Service Fee		$ 25.00

2. THE ESTATE OR INTEREST IN THE LAND HEREINAFTER DESCRIBED OR REFERRED TO COVERED BY THIS REPORT IS:
   A Fee
3. TITLE TO SAID ESTATE OR INTEREST AT THE DATE HEREOF IS VESTED IN:
   Marylwood LLC, an Oregon limited liability company
4. THE LAND REFERRED TO IN THIS REPORT IS SITUATED IN THE CITY OF OREGON CITY IN THE COUNTY OF CLACKAMAS, STATE OF OREGON, AND IS DESCRIBED AS FOLLOWS:
   SEE EXHIBIT "ONE" ATTACHED HERETO AND MADE A PART HEREOF

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PRELIMINARY REPORT
(Continued)

Order No.: 472509475706TO-CTOR

EXHIBIT "ONE"

A tract located in the Andrew Hood Donation Land Claim No. 44 in Township 3 South, Range 2 East, of the Willamette Meridian and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said Claim No. 44 that is South 0° 30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177 on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89° 35' West 1700.16 feet following the South boundary of the said Moehnke Tract to a stone located in the Northeasterly right of way boundary of Clackamas County Market Road No. 11; thence continuing North 89° 36' West 36.96 feet to the center line of said Market Road No. 11; thence South 40° 37' East 1146.29 feet along the center line of said Market Road No. 11 to a point; thence South 89° 35' East 983.34 feet to a point in the East boundary of said Claim No. 44; thence North 0° 30' East 864.67 feet along the East boundary of said Claim No. 44 to the place of beginning, and being a part of the tract described in that certain conveyance from J. U. and Anna C. Campbell to Oregon City Golf Club and recorded October 30, 1926 in Book 186 on Pages 232 and 233 Record of Deeds for Clackamas County, Oregon.

EXCEPTING THEREFROM a tract in the Andrew Hood Donation Land Claim No. 44, in Section 10, Township 3 South, Range 2 East, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the point of intersection of the North line of that tract conveyed to Edward G. Roberts and Lois N. Roberts by Deed recorded July 6, 1945 in Deed Book 347, Page 111, with the Easterly right of way line of Beavercreek Road, from which point a stone marked + bears North 89° 35' West 3.76 feet; thence South 89° 35' East along the North line of said Roberts Tract 305 feet to a 5/8-inch by 30-inch iron rod; thence Southerly at right angles to said North line, 75 feet to a 5/8-inch by 30-inch iron rod; thence South 83° 52' 30" West 219.49 feet to a 5/8-inch by 30-inch iron rod in the Easterly right of way line of Beavercreek Road; thence tracing said Easterly line North 40° 35' West 132.50 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM a tract located in the Andrew Hood Donation Land Claim No. 44, in Township 3 South, Range 2 East, of the Willamette Meridian, and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said claim No. 44 that is South 0° 30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177, on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89° 35' West 806.04 feet following the South boundary of said Moehnke Tract to a point; thence South 0° 0' West 864.67 feet parallel with the East boundary of said claim No. 44 to a point on the South boundary of a tract of land described in that certain conveyance from Oregon City Golf Course to Edward G. Roberts, et ux, recorded July 2, 1945 in Book 347, Page 111, record of Deeds for Clackamas County, Oregon; thence South 89° 35' East 806.04 feet along the South boundary of said Roberts Tract to a point in the East boundary of said claim No. 44; thence North 0° 30' East 864.67 feet along the East boundary of said claim No. 44 to the place of beginning.

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AS OF THE DATE OF THIS REPORT, ITEMS TO BE CONSIDERED AND EXCEPTIONS TO COVERAGE IN ADDITION TO THE PRINTED EXCEPTIONS AND EXCLUSIONS IN THE POLICY FORM WOULD BE AS FOLLOWS:

GENERAL EXCEPTIONS:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.

2. Facts, rights, interests or claims which are not shown by the Public Records but which could be ascertained by an inspection of the Land or by making inquiry of persons in possession thereof.

3. Easements, or claims of easement, not shown by the Public Records; reservations or exceptions in patents or in Acts authorizing the issuance thereof; water rights, claims or title to water.

4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land. The term "encroachment" includes encroachments of existing improvements located on the Land onto adjoining land, and encroachments onto the Land of existing improvements located on adjoining land.

5. Any lien for services, labor or material heretofore or hereafter furnished, or for contributions due to the State of Oregon for unemployment compensation or worker's compensation, imposed by law and not shown by the Public Records.

SPECIFIC ITEMS AND EXCEPTIONS:

6. City Liens, if any, in favor of the City of Oregon City.

7. The premises herein described are within and subject to the statutory power including the power of assessment of the Clackamas River Water District .

8. The rights of the public in and to that portion of the premises herein described lying within the limits of S. Beavercreek Road.

9. An easement created by instrument, including terms and provisions thereof;

   In favor of: Pacific Northwest Pipeline Corporation
   Dated:October 10, 1959
   Recorded: October 16, 1959
   Book:562 Page:506
   For: Right to construct and maintain pipeline
   Affects: undefined location (shown on tax map)

10. Trust Deed, including the terms and provisions thereof, given to secure an indebtedness with interest thereon and such future advances as may be provided therein;

    Amount:$1,476,860.00
    Dated:March 13, 2006
    Grantor:Marylwood LLC, an Oregon limited liability company
    Trustee:Chicago Title Insurance Company of Oregon
    Beneficiary:Sterling Savings Bank

Recorded:March 23, 2006
Recorder's Fee No.: 2006-025533
Loan No.: 151113463

11. Annexation Agreement, including the terms and provisions thereof

Recording Date: March 28, 2008
Recording No.: 2008-022108

12. Covenants, conditions and restrictions but omitting any covenants or restrictions, if any, including but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income, as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law, as set forth in the document

Recording Date: March 28, 2008
Recording No: 2008-022111

13. A copy of the terms and provisions of the operating agreement for the limited liability company set forth below should be furnished for our examination prior to closing. Any conveyance or encumbrance of said company's property must be executed by all of the members unless otherwise provided for in the operating agreement. In addition, if there have been any changes in membership from the date of original creation of the limited liability company to the present date, copies of approval of withdrawal and/or acceptance of such member should be furnished for our examination.

Limited Liability Company: Marylwood LLC

ADDITIONAL REQUIREMENTS/NOTES:

A. Note: Property taxes for the fiscal year shown below are paid in full.

Fiscal Year: 2009-10
Amount: $3,730.10
Account No.: 00870711, 32E10C -00800, CODE 062-092

B. In addition to the standard policy exceptions, the exceptions enumerated above shall appear on the final 2006 ALTA policy unless removed prior to issuance.

C. NOTE: No search has been made or will be made for water, sewer, or storm drainage charges unless the city/service district claims them as liens (i.e., foreclosable) and reflects them on its lien docket at the date of closing. Buyers should check with the appropriate city bureau or water/service district and obtain a billing cutoff. Such charges must be adjusted outside of escrow.

D. Note: There are NO conveyances affecting said Land recorded within 24 months of the date of this report.

E. Note: There are no matters against the party(ies) shown below which would appear as exceptions to coverage in a title insurance product:

Parties: Marylwood LLC

F. Recording charge for a RESPA transaction (all transfer and loan documents):
RESPA Residential Sale and Purchase $151.00 .

RESPA Residential Loan/Refinance $125.00
RECORDING CHARGES ARE SUBJECT TO CHANGE WITHOUT NOTICE.

G. Note: Effective January 1, 2008, Chapter 864, Oregon Laws 2007 mandates withholding of Oregon income taxes from sellers who do not continue to be Oregon residents or qualify for an exemption. Please contact your Escrow Closer for further information.

H. THE FOLLOWING NOTICE IS REQUIRED BY STATE LAW; YOU WILL BE REVIEWING, APPROVING AND SIGNING IMPORTANT DOCUMENTS AT CLOSING. LEGAL CONSEQUENCES FOLLOW FROM THE SELECTION AND USE OF THESE DOCUMENTS. YOU MAY CONSULT AN ATTORNEY ABOUT THESE DOCUMENTS. YOU SHOULD CONSULT AN ATTORNEY IF YOU HAVE QUESTIONS OR CONCERNS ABOUT THE TRANSACTION OR ABOUT THE DOCUMENTS. IF YOU WISH TO REVIEW TRANSACTION DOCUMENTS THAT YOU HAVE NOT SEEN, PLEASE CONTACT THE ESCROW AGENT.

Effective Date: 5/1/2008

Fidelity National Financial, Inc.

Privacy Statement

Fidelity National Financial, Inc. and its subsidiaries ("FNF") respect the privacy and security of your non-public personal information ("Personal Information") and protecting your Personal Information is one of our top priorities. This Privacy Statement explains FNF's privacy practices, including how we use the Personal Information we receive from you and from other specified sources, and to whom it may be disclosed. FNF follows the privacy practices described in this Privacy Statement and, depending on the business performed, FNF companies may share information as described herein.

Personal Information Collected

We may collect Personal Information about you from the following sources:

- Information we receive from you on applications or other forms, such as your name, address, social security number, tax identification number, asset information, and income information;
- Information we receive from you through our Internet websites, such as your name, address, email address, Internet Protocol address, the website links you used to get to our websites, and your activity while using or reviewing our websites;
- Information about your transactions with or services performed by us, our affiliates, or others, such as information concerning your policy, premiums, payment history, information about your home or other real property, information from lenders and other third parties involved in such transaction, account balances, and credit card information; and
- Information we receive from consumer or other reporting agencies and publicly recorded documents.

Disclosure of Personal Information

We may provide your Personal Information (excluding information we receive from consumer or other credit reporting agencies) to various individuals and companies, as permitted by law, without obtaining your prior authorization. Such laws do not allow consumers to restrict these disclosures. Disclosures may include, without limitation, the following:

- To insurance agents, brokers, representatives, support organizations, or others to provide you with services you have requested, and to enable us to detect or prevent criminal activity, fraud, material misrepresentation, or nondisclosure in connection with an insurance transaction;
- To third-party contractors or service providers for the purpose of determining your eligibility for an insurance benefit or payment and/or providing you with services you have requested;
- To an insurance regulatory authority, or a law enforcement or other governmental authority, in a civil action, in connection with a subpoena or a governmental investigation;
- To companies that perform marketing services on our behalf or to other financial institutions with which we have joint marketing agreements and/or
- To lenders, lien holders, judgment credits, or other parties claiming an encumbrance or an interest in title whose claim or interest must be determined, settled, paid or released prior to a title or escrow closing.

We may also disclose your Personal Information to others when we believe, in good faith, that such disclosure is reasonably necessary to comply with the law or to protect the safety of our customers, employees, or property and/or to comply with the judicial proceeding, court order or legal process.

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Effective Date: 5/1/2008

Disclosure to Affiliated Companies

We are permitted by law to share your name, address and facts about your transaction with other FNF companies, such as insurance companies, agents, and other real estate service providers to provide you with services you have requested, for marketing or product development research, or to market products or services to you. We do not, however, disclose information we collect from consumer or credit reporting agencies with our affiliates or others without your consent, in conformity with applicable law, unless such disclosure is otherwise permitted by law.

Disclosure to Nonaffiliated Third Parties

We do not disclosure Personal Information about our customers or former customers to nonaffiliated third parties, except as outlined herein or as otherwise permitted by law.

Confidentiality and Security of Personal Information

We restrict access to Personal Information about you to those employees who need to know that information to provide products or services to you. We maintain physical, electronic, and procedural safeguards that comply with federal regulations to guard Personal Information.

Access to Personal Information/
Requests for Correction, Amendment, or Deletion of Personal Information

As required by applicable law, we will afford you the right to access your Personal Information, under certain circumstances to find out to whom your Personal Information has been disclosed, and request correction or deletion of your Personal Information.

However, FNF's current policy is to maintain customers' Personal Information for no less than your state's required record retention requirements for the purpose of handling future coverage claims.

For your protection, all requests made under this section must be in writing and must include your notarized signature to establish your identity.

Where permitted by law, we may charge a reasonable fee to cover the costs incurred in respond to such requests. Please send requests to:

Chief Privacy Officer
Fidelity National Financial, Inc.
601 Riverside Avenue
Jacksonville, FL 32204

Changes to this Privacy Statement

This Privacy Statement may be amended from time to time consistent with applicable privacy laws. When we amend this Privacy Statement, we will post a notice of such changes on our website. The effective date of this Privacy Statement, as stated above, indicates the last time this Privacy Statement was revised or materially changed.

9014710050.rdw

19896 Beavercreek Road, Oregon City (T3S-R2E-10C tax lot 800)
Proposed Zone Change and Comprehensive Plan Amendment Application
December 2009

Project Summary

The subject property is located at 19896 Beavercreek Road in Oregon City, also known as T3S-R2E-10C tax lot 800. The property is 9.59 acres in size, triangular in shape and is relatively flat with slopes not exceeding 5% (running SE to NW).

The subject property is surrounded by undeveloped land to the north, northeast and southeast, which is part of the Beavercreek Road Concept Plan and was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. Carrington Place, an existing residential subdivision zoned R-6, and existing single family residential lots zoned R3.5 and R-10 are all to the southwest. Oregon City High School is to the northwest. A 50 foot wide Williams Natural gas pipeline corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area except for parking/maneuvering, open space and/or setbacks. The signalized intersection of Meyers and Beavercreek Road is located along the subject property frontage.

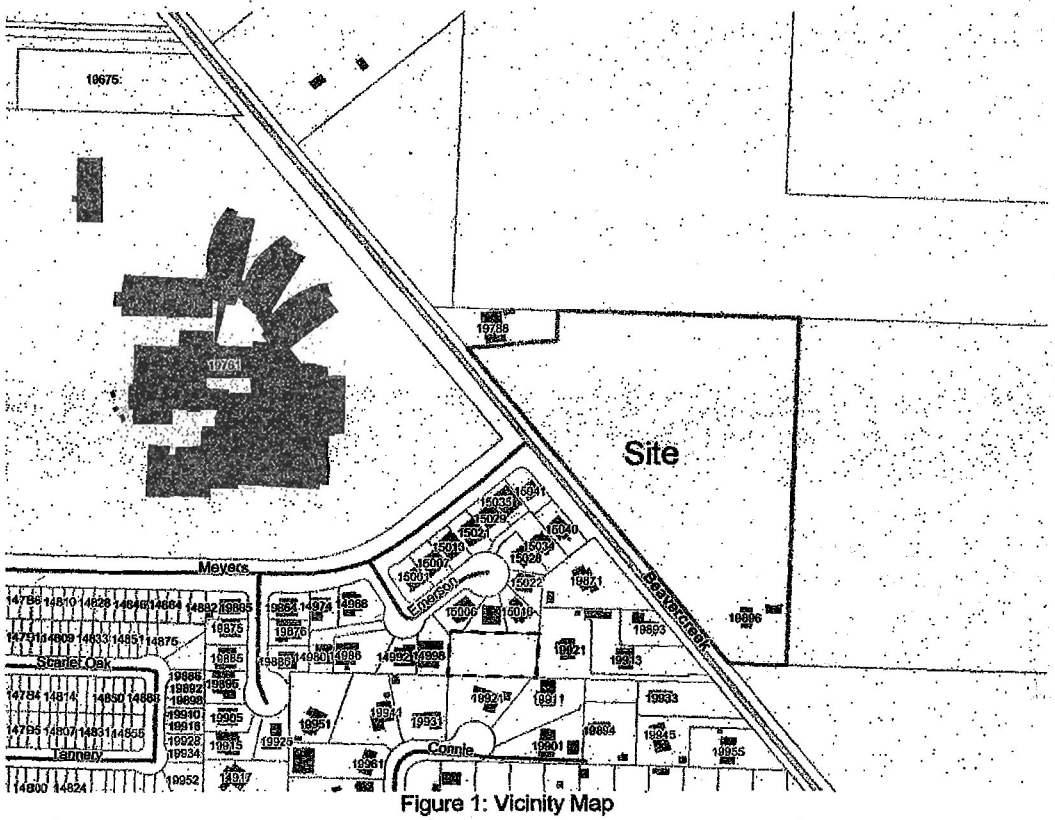


Figure 1: Vicinity Map

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

The property is predominately undeveloped land with one (1) residential home and one (1) barn on site. There is public water available to the site from a currently existing 12-inch line in Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court can be extended to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.

The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Upon annexation into the City it was assigned a holding zone under Clackamas County designation of Future Urban (FU). The current Comprehensive Plan designation is also Future Urban (FU). There are no historic sites or overlay districts on the property.

At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City and the Beavercreek Road Concept Plan.

The pre-application meeting was held on November 10, 2009. The Caufield Neighborhood Association was contacted via letter (certified mail and return receipt requested) and email to request a meeting to discuss the project.

Oregon City Code 17.50 – Administrative Processes

17.50.030 Permit approval process

17.50.030 Summary of the city's decision-making processes.
The following decision-making processes chart shall control the City's review of the indicated permits:

Table 17.50.030
PERMIT APPROVAL PROCESS

TABLE INSET:

PERMIT TYPE	*I*	*II*	*III*	*IV*	*Expedited Land Division*
Compatibility Review	*X*				
Code Interpretation			*X*		
General Development Plan			*X*		
Conditional Use			*X*		

Detailed Development Plan 1		X	X		
Extension		X			
Final Plat	X				
Geologic Hazards		X			
Historic Review			X		
Lot Line Adjustment and Abandonment	X				
Major Modification to a Prior Approval 2	X	X	X	X	X
Minor Modification to a prior Approval	X				
Minor Partition		X			
Nonconforming Use, Structure and Lots Review	X	X			
Reconsideration	X				
Revocation				X	
Site Plan and Design Review		X			
Subdivision		X			X
Variance		X	X		
Zone Change & Plan Amendment				X	
Zone Change Upon Annexation with No Discretion	X			X	
Zone Change Upon Annexation with Discretion				X	
Natural Resource Exemption	X				
Natural Resource Review		X			

Notes:

1 If any provision or element of the master plan requires a deferred Type III procedure, the detailed development plan shall be processed through a Type III procedure.

2 A major modification to a prior approval shall be considered using the same process as would be applicable to the initial approval.

A. Type I decisions do not require interpretation or the exercise of policy or legal judgment in evaluating approval criteria. Because no discretion is involved, Type I decisions do not qualify as a land use, or limited land use, decision. The decision-making process requires no notice to any party other than the applicant. The community development director's decision is final and not appealable by any party through the normal city land use process.

B. Type II decisions involve the exercise of limited interpretation and discretion in evaluating approval criteria, similar to the limited land use decision-making process under state law. Applications evaluated through this process are assumed to be allowable in the underlying zone, and the inquiry typically focuses on what form the use will take or how it will look. Notice of application and an invitation to comment is mailed to the applicant, recognized active neighborhood association(s) and property owners within three hundred feet. The community development director accepts comments for a minimum of fourteen days and renders a decision. The community development director's decision is appealable to the city commission with notice to the planning commission, by any party with standing (i.e., applicant and any party who submitted comments during the comment period). The city commission decision is the city's final decision and is appealable to the Land Use Board of Appeals (LUBA) within twenty-one days of when it becomes final.

C. Type III decisions involve the greatest amount of discretion and evaluation of subjective approval standards, yet are not required to be heard by the city commission, except upon appeal. In the event that any decision is not classified, it shall be treated as a Type III decision. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and the planning commission or the historic review board hearing is published and mailed to the applicant, recognized neighborhood association(s) and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission or the historic review board, all issues are addressed. The decision of the planning commission or historic review board is appealable to the city commission, on the record. The city commission decision on appeal from the historic review board or the planning commission is the city's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

D. Type IV decisions include only quasi-judicial plan amendments and zone changes. These applications involve the greatest amount of discretion and evaluation of subjective approval standards and must be heard by the city commission for final action. The process for these land use decisions is controlled by ORS 197.763. Notice of the application and planning commission hearing is published and mailed to the applicant, recognized neighborhood association(s) and property owners within three hundred feet. Notice must be issued at least twenty days pre-hearing, and the staff report must be available at least seven days pre-hearing. At the evidentiary hearing held before the planning commission, all issues are addressed. If the planning commission denies the application, any party with standing (i.e., anyone who appeared before the planning commission either in person or in writing within the comment period) may appeal

the planning commission denial to the city commission. If the planning commission denies the application and no appeal has been received within ten days of the issuance of the final decision then the action of the planning commission becomes the final decision of the city. If the planning commission votes to approve the application, that decision is forwarded as a recommendation to the city commission for final consideration. In either case, any review by the city commission is on the record and only issues raised before the planning commission may be raised before the city commission. the city commission decision is the city's final decision and is appealable to the Land Use Board of Appeals (LUBA) within twenty-one days of when it becomes final.
E. The expedited land division (ELD) process is set forth in ORS 197.360 to 197.380. To qualify for this type of process, the development must meet the basic criteria in ORS 197.360(1)(a) or (b). While the decision-making process is controlled by state law, the approval criteria are found in this Code. The community development director has twenty-one days within which to determine whether an application is complete. Once deemed complete, the community development director has sixty-three days within which to issue a decision. Notice of application and opportunity to comment is mailed to the applicant, recognized neighborhood association and property owners within one hundred feet of the subject site. The community development director will accept written comments on the application for fourteen days and then issues a decision. State law prohibits a hearing. Any party who submitted comments may call for an appeal of the community development director's decision before a hearings referee. The referee need not hold a hearing; the only requirement is that the determination be based on the evidentiary record established by the community development director and that the process be "fair." The referee applies the city's approval standards, and has forty-two days within which to issue a decision on the appeal. The referee is charged with the general objective to identify means by which the application can satisfy the applicable requirements without reducing density. The referee's decision is appealable only to the court of appeals pursuant to ORS 197.375(8) and 36.355(1).

Response: The property owner proposes to combine the proposed zone change and comprehensive plan amendment under one submittal. This will be a Type IV decision.

17.50.040 Development Review in Overlay Districts and for Erosion Control
17.50.040 Development review in overlay districts and for erosion control.
For any development subject to regulation of geologic hazards under city Code Chapter 17.44; Natural Resource under Chapter 17.49; Willamette River Greenway under Chapter 17.48; and erosion control under Chapter 17.47, compliance with the requirements of these chapters shall be reviewed as part of the review process required for the underlying development for the site.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The subject property is not in any overlay districts and is not within a geologic hazard area. The property is relatively flat with no slopes over 5%. Therefore, this section is not applicable.

17.50.050 Pre-Application Conference and Neighborhood Meeting
17.50.050 Preapplication conference and neighborhood meeting.

A. Neighborhood Association Meeting. The purpose of the meeting with the recognized neighborhood association is to inform the affected neighborhood association about the proposed development and to receive the preliminary responses and suggestions from the neighborhood association and the member residents. Conditional use, subdivision, or site plan and design review (excluding minor site plan and design review) applications shall schedule and attend a meeting with the city-recognized neighborhood association in whose territory the application is proposed. Although not required for other projects than those identified above, a meeting with the neighborhood association is highly recommended. The applicant shall send, by certified mail, return receipt requested, a letter to the chairperson of the neighborhood association and the citizen involvement committee describing the proposed project. A meeting shall be scheduled within thirty days of the notice. If the neighborhood association does not want to, or cannot meet within thirty days, the applicant shall hold their own meeting after six p.m. or on the weekend, with notice to the neighborhood association, citizen involvement committee, and all property owners within three hundred feet. If the applicant holds their own meeting, a copy of the certified letter shall be required for a complete application. The meeting shall be held within the boundaries of the neighborhood association or in a city facility.

Response: The Caufield Neighborhood Association was contacted on November 10, 2009 via letter (certified mail and return receipt requested) and email to request a meeting to discuss the project. The project engineer attended the Neighborhood Association Board Meeting on _____. At that time he was informed that we would not be able to get on their schedule until January 2010.

B. Preapplication Conference. Prior to submitting an application for any form of permit, the applicant shall schedule and attend a preapplication conference with city staff to discuss the proposal. To schedule a preapplication conference, the applicant shall contact the Planning Division, submit the required materials, and pay the appropriate conference fee. At a minimum, an applicant should submit a short narrative describing the proposal and a proposed site plan, drawn to a scale acceptable to the city, which identifies the proposed land uses, traffic circulation, and public rights-of-way and all other required plans. The purpose of the preapplication conference is to provide an opportunity for staff to provide the applicant with information on the likely impacts, limitations, requirements, approval standards, fees and other information that may affect the proposal. The planning division shall provide the applicant(s) with the identity and contact persons for all affected neighborhood associations as well as a written summary of the preapplication conference. Notwithstanding any representations by city staff at a preapplication conference, staff is not authorized to waive any requirements of this Code, and any omission or failure by staff to recite to an applicant all relevant applicable land use requirements shall not constitute a waiver by the city of any standard or requirement.

Response: The pre-application meeting was held on November 10, 2009 at the City of Oregon City. Notes from this meeting are included in the application submittal.

C. A preapplication conference shall be valid for a period of six months from the date it is held. If no application is filed within six months of the conference or meeting, the

applicant must schedule and attend another conference before the city will accept a permit application. The community development director may waive the preapplication requirement if, in the director's opinion, the development does not warrant this step.

Response: The pre-application meeting was held on November 10, 2009 at the City of Oregon City. Notes from this meeting are included in the application submittal. The owner/applicant understands that the meeting is valid for six months.

17.50.060 Application Requirements

17.50.060 Application requirements.

A permit application may only be initiated by the record property owner or contract purchaser, the city commission or planning commission. If there is more than one record owner, then the city will not accept an application without signed authorization from all record owners. All permit applications must be submitted on the form provided by the city, along with the appropriate fee and all necessary supporting documentation and information, sufficient to demonstrate compliance with all applicable approval criteria. The applicant has the burden of demonstrating, with evidence, that all applicable approval criteria are, or can be, met.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This submittal includes the application form signed by the property owner, and the appropriate fee and supporting documentation as outlined at the pre-application meeting.

17.50.070 Completeness Review and 120-day Rule

17.50.070 Completeness review and one hundred twenty-day rule.

A. Upon submission, the community development director shall date stamp the application form and verify that the appropriate application fee has been submitted. The community development director will then review the application and all information submitted with it and evaluate whether the application is complete enough to process. Within thirty days of receipt of the application, the community development director shall complete this initial review and issue to the applicant a written statement indicating whether the application is complete enough to process, and if not, what information must be submitted to make the application complete.

Response: The property owner/applicant understands that there will be a 30 day completeness review period upon submittal of the application.

B. The applicant has one hundred eighty days from the date the application was made to submit the missing information or, on the one hundred eighty-first-day, the application shall be rejected and all materials (except one copy of the application) and the unused portion of the application fee returned to the applicant. If the applicant submits the requested information within the one hundred eighty-day period, the community development director shall again verify whether the application, as augmented, is complete. Each such review and verification shall follow the procedure in subsection A. of this section.

The application will be deemed complete for the purpose of this section upon receipt by the community development division of:

1. All the missing information;
2. Some of the missing information and written notice from the applicant that no other information will be provided; or
3. Written notice from the applicant that none of the missing information will be provided.

Response. The owner/applicant understands that they will be given 180 days to submit required materials should the application be deemed incomplete.

C. Once the community development director determines the application is complete enough to process, or the applicant refuses to submit any more information, the city shall declare the application complete. Pursuant to ORS 227.178, the city will reach a final decision on an application within one hundred twenty calendar days from the date that the application is determined to be or deemed complete unless the applicant agrees to suspend the one hundred twenty calendar day time line or unless State law provides otherwise. The one hundred twenty-day period, however, does not apply in the following situations:

1. Any hearing continuance or other process delay requested by the applicant shall be deemed an extension or waiver, as appropriate, of the one hundred twenty-day period.
2. Any delay in the decision-making process necessitated because the applicant provided an incomplete set of mailing labels for the record property owners within three hundred feet of the subject property shall extend the one hundred twenty-day period for the amount of time required to correct the notice defect.
3. The one hundred twenty-day period does not apply to any application for a permit that is not wholly within the city's authority and control.
4. The one hundred twenty-day period does not apply to any application for an amendment to the city's comprehensive plan or land use regulations nor to any application for a permit, the approval of which depends upon a plan amendment.

Response: Since this application includes a request for a comprehensive plan amendment, the owner/applicant understands that the 120 day final decision period does not apply.

D. The one hundred twenty-day period specified in Section 17.50.070C. may be extended for a specified period of time at the written request of the applicant. The total of all extensions may not exceed two hundred forty-five calendar days.

Response: Since this application includes a request for a comprehensive plan amendment, the owner/applicant understands that the 120 day final decision period does not apply and will be extended as outlined above.

E. The approval standards that control the city's review and decision on a complete application are those which were in effect on the date the application was first submitted. (Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the Code that applies is the one that is in effect when this application is submitted.

17.50.080 Complete Application – Required Information

17.50.080 Complete application--Required information.

Unless stated elsewhere in City Code Titles 16 or 17, a complete application includes all the materials listed in this subsection. The community development director may waive the submission of any of these materials if not deemed to be applicable to the specific review sought. Likewise, within thirty days of when the application is first submitted, the community development director may require additional information, beyond that listed in this subsection or elsewhere in Titles 16 or 17, such as a traffic study or other report prepared by an appropriate expert. In any event, the applicant is responsible for the completeness and accuracy of the application and all of the supporting documentation, and the city will not deem the application complete until all information required by the community development director is submitted. At a minimum, the applicant must submit the following:

A. One copy of a completed city application form that includes the following information:

1. An accurate legal description, tax account number(s), map and location of all properties that are the subject of the application,

2. Name, address, telephone number and authorization signature of all record property owners or contract owners, and the name, address and telephone number of the applicant, if different from the property owner(s);

Response. A complete City application form has been filled out and included with this application submittal.

B. A complete list of the permit approvals sought by the applicant;

Response: The owner/applicant proposes a zone change from FU to MUC-1 and a Comprehensive Plan Amendment from FU to MUC.

C. A current preliminary title report for the subject property(ies);

Response: A preliminary title report has been included in the application submittal.

D. A complete and detailed narrative description of the proposed development that describes existing site conditions, existing buildings, public facilities and services, presence of wetlands, steep slopes and other natural features, a discussion of the approval criteria for all permits required for approval of the development proposal that explains how the criteria are or can be met, and any other information indicated by staff at the preapplication conference as being required;

Response: At this time there is no proposed development.This narrative has been prepared to address the applicable Code sections

E. Up to twenty-one legible copies of all reports, plans, site plans and other documents required by the section of this Code corresponding to the specific approval(s) sought;

Response: As requested at the pre-application meeting, twenty-one (21) copies of the application packet are being submitted.

F. At least one copy of the site plan and all related drawings shall be in a readable/legible eight and one-half by eleven inch format for inclusion into the city's bound record of the application;

Response: One (1) 8 ½ x11 plan set has been included in the application submittal.

G. Mailing labels for notice to all parties entitled under Section 17.50.090 to receive mailed notice of the application. The applicant shall use the names and addresses of property owners within the notice area indicated on the most recent property tax rolls;

Response: Mailing address labels have been included with the application submittal.

H. All required application fees;

Response: All indicated fees have been included with the application submittal.

I. Annexation agreements (if applicable);

Response: A copy of the 2008 annexation agreement has been included in the application submittal.

J. Additional documentation as needed by the community development director. (Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: A traffic report has been prepared by Kittelson & Associates, Inc. and reviewed by John Replinger & Associates LLC and is included in the application submittal. A copy of the report is attached as exhibit A.

17.50.090 Public Notices

17.50.090 Public notices.

All public notices issued by the city with regard to a land use matter, announcing applications or public hearings of quasi-judicial or legislative actions, shall comply with the requirements of this section.

A. Notice of Type II Applications. Once the planning manager has deemed a Type II application complete, the city shall prepare and send notice of the application, by first class mail, to all record owners of property within three hundred feet of the subject property and to any city-recognized neighborhood association whose territory includes the subject property. Pursuant to Section 17.50.080H., the applicant is responsible for providing an accurate and complete set of mailing labels for these property owners and for posting the subject property with the city-prepared notice in accordance with Section 17.50.100. The city's Type II notice shall include the following information:

1. Street address or other easily understood location of the subject property and city-assigned planning file number;
2. A description of the applicant's proposal, along with citations of the approval criteria that the city will use to evaluate the proposal;
3. A statement that any interested party may submit to the city written comments on the application during a fourteen-day comment period prior to the city's deciding the application, along with instructions on where to send the comments and the deadline of, the fourteen-day comment period;
4. A statement that any issue which is intended to provide a basis for an appeal must be raised in writing during the fourteen-day comment period with sufficient specificity to enable the city to respond to the issue;
5. A statement that the application and all supporting materials may be inspected, and copied at cost, at city hall during normal business hours;
6. The name and telephone number of the planning staff person assigned to the application or is otherwise available to answer questions about the application.
7. The notice shall state that a city-recognized neighborhood association requesting an appeal fee waiver pursuant to Section 17.50.290C. must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal.

Response: This is a Type IV application decision.

B. Notice of Public Hearing on a Type III or IV Quasi-Judicial Application. Notice for all public hearings concerning a quasi-judicial application shall conform to the requirements of this subsection. At least twenty days prior to the hearing, the city shall prepare and send, by first class mail, notice of the hearing to all record owners of property within three hundred feet of the subject property and to any city-recognized neighborhood association whose territory includes the subject property. The city shall also publish the notice in a newspaper of general circulation within the city at least twenty days prior to the hearing. Pursuant to Section 17.50.080H., the applicant is responsible for providing an accurate and complete set of mailing labels for these property owners and for posting the subject property with the city-prepared notice in accordance with Section 17.50.100. Notice of the application hearing shall include the following information:
1. The time, date and location of the public hearing;
2. Street address or other easily understood location of the subject property and city-assigned planning file number;
3. A description of the applicant's proposal, along with a list of citations of the approval criteria that the city will use to evaluate the proposal;
4. A statement that any interested party may testify at the hearing or submit written comments on the proposal at or prior to the hearing and that a staff report will be prepared and made available to the public at least seven days prior to the hearing;
5. A statement that any issue which is intended to provide a basis for an appeal to the city commission must be raised before the close of the public record. Issues

must be raised and accompanied by statements or evidence sufficient to afford the city and all parties to respond to the issue;

6. The notice shall state that a city-recognized neighborhood association requesting an appeal fee waiver pursuant to 17.50.290C. must officially approve the request through a vote of its general membership or board at a duly announced meeting prior to the filing of an appeal.

7. A statement that the application and all supporting materials and evidence submitted in support of the application may be inspected at no charge and that copies may be obtained at reasonable cost at city hall during normal business hours; and

8. The name and telephone number of the planning staff person responsible for the application or is otherwise available to answer questions about the application.

Response: Mailing labels for property owners within 300 feet of the subject property and the Caufield Neighborhood Association Chairs have been included in the application submittal.

C. Notice of Public Hearing on a Legislative Proposal. At least twenty days prior to a public hearing at which a legislative proposal to amend or adopt the city's land use regulations or comprehensive plan is to be considered, the planning manager shall issue a public notice that conforms to the requirements of this subsection. Notice shall be sent to affected governmental entities, special districts, providers of urban services, including Tri-Met, Oregon Department of Transportation and Metro, any affected recognized neighborhood associations and any party who has requested in writing such notice. Notice shall also be published in a newspaper of general circulation within the city. Notice issued under this subsection shall include the following information:

1. The time, date and location of the public hearing;

2. The city-assigned planning file number and title of the proposal;

3. A description of the proposal in sufficient detail for people to determine the nature of the change being proposed;

4. A statement that any interested party may testify at the hearing or submit written comments on the proposal at or prior to the hearing; and

5. The name and telephone number of the planning staff person responsible for the proposal and who interested people may contact for further information.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV application decision.

17.50.100 Notice Posting Requirements

17.50.100 Notice posting requirements.

Where this chapter requires notice of a pending or proposed permit application or hearing to be posted on the subject property, the requirements of this section shall apply.

A. City Guidance and the Applicant's Responsibility. The city shall supply all of the notices which the applicant is required to post on the subject property and shall specify the dates the notices are to be posted and the earliest date on which they may be removed. The city shall also provide a statement to be signed and returned by the applicant certifying that the notice(s) were posted at the correct

time and that if there is any delay in the city's land use process caused by the applicant's failure to correctly post the subject property for the required period of time and in the correct location, the applicant agrees to extend the one-hundred-twenty-day period in a timely manner.

Response: The owner/applicant understands that the City will provide all notices that need to be posted, and it will be the owner's/applicant's responsibility to post/remove in a timely manner.

B. Number and Location. The applicant must place the notices on each frontage of the subject property. If the property's frontage exceeds six hundred feet, the applicant shall post one copy of the notice for each six hundred feet or fraction thereof. Notices do not have to be posted adjacent to alleys or unconstructed right-of-way. Notices shall be posted within ten feet of the street and shall be visible to pedestrians and motorists. Notices shall not be posted within the public right-of-way or on trees. The applicant shall remove all signs within ten days following the event announced in the notice.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that one notice must be posted along the property frontage every 600 feet.

17.50.110 Assignment of Decision-Makers

17.50.110 Assignment of decision-makers.

The following city entity or official shall decide the following types of applications:

A. Type I Decisions. The community development director shall render all Type I decisions. The community development director's decision is the city's final decision on a Type I application.

B. Type II Decisions. The community development director shall render the city's decision on all Type II permit applications which are appealable to the city commission with notice to the planning commission. The city commission decision is appealable to LUBA.

C. Type III Decisions. The planning commission or historic review board, as applicable, shall render all Type III decisions. Such decision is appealable to the city commission, on the record. The city commission's decision is the City's final decision and is appealable to LUBA within twenty-one days of when it becomes final.

D. Type IV Decisions. The planning commission shall render the initial decision on all Type IV permit applications. If the planning commission denies the Type IV application, that decision is final unless appealed to the city commission in accordance with Section 17.50.190. If the planning commission recommends approval of the application, that recommendation is forwarded to the city commission. The city commission decision is the city's final decision on a Type IV application and is appealable to LUBA.

E. ELD. The community development director shall render the initial decision on all ELD applications. The community development director's decision is the city's final decision unless appealed in accordance to ORS 197.375 to a city-appointed

hearings referee. The hearings referee decision is the city's final decision which is appealable to the Oregon Court of Appeals.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV decision, which means that the Planning Commission will render the recommendation decision and the City Commission will render the City's final decision.

17.50.120 Quasi-Judicial Hearing Process

17.50.120 Quasi-judicial hearing process.

All public hearings pertaining to quasi-judicial permits, whether before the planning commission, historic review board, or city commission, shall comply with the procedures of this section. In addition, all public hearings held pursuant to this chapter shall comply with the Oregon Public Meetings Law, the applicable provisions of ORS 197.763 and any other applicable law.

A. Once the community development director determines that an application for a Type III or IV decision is complete, the planning division shall schedule a hearing before the planning commission or historic review board, as applicable. Once the community development director determines that an appeal of a Type II, Type III or Type IV decision has been properly filed under Section 17.50.190, the planning division shall schedule a hearing before the city commission.

Response: The owner/applicant understands that this type IV decision will be heard by the planning commission at a hearing scheduled by the planning division.

B. Notice of the Type III or IV hearing shall be issued at least twenty days prior to the hearing in accordance with Section 17.50.090B.

Response: The owner/applicant understands that notice of a type IV hearing will be issued at least 21 days prior to the hearing date.

C. Written notice of an appeal hearing before the city commission shall be sent by regular mail no later than fourteen days prior to the date of the hearing to the appellant, the applicant if different from the appellant, the property owner(s) of the subject site, all persons who testified either orally or in writing before the hearing body and all persons that requested in writing to be notified.

Response: The owner/applicant understands that written notice of an appeal hearing before the City Commission will be sent by regular mail no later than 14 days prior to the date of the hearing.

D. The community development director shall prepare a staff report on the application which lists the applicable approval criteria, describes the application and the applicant's development proposal, summarizes all relevant city department, agency and public comments, describes all other pertinent facts as they relate to the application and the approval criteria and makes a recommendation as to whether each of the approval criteria are met.

Response: The owner/applicant understands that the Community Development Director will prepare a staff report on the application and make a recommendation as to whether each of the approval criteria has been met or not.

E. At the beginning of the initial public hearing at which any quasi-judicial application or appeal is reviewed, a statement describing the following shall be announced to those in attendance:

1. That the hearing will proceed in the following general order: staff report, applicant's presentation, testimony in favor of the application, testimony in opposition to the application, rebuttal, record closes, commission deliberation and decision;

2. That all testimony and evidence submitted, orally or in writing, must be directed toward the applicable approval criteria. If any person believes that other criteria apply in addition to those addressed in the staff report, those criteria must be listed and discussed on the record. The meeting chairperson may reasonably limit oral presentations in length or content depending upon time constraints. Any party may submit written materials of any length while the public record is open;

3. Failure to raise an issue on the record with sufficient specificity and accompanied by statements or evidence sufficient to afford the city and all parties to respond to the issue, will preclude appeal on that issue to the state land use board of appeals;

4. Any party wishing a continuance or to keep open the record must make that request while the record is still open; and

5. That the commission chair shall call for any ex-parte contacts, conflicts of interest or bias before the beginning of each hearing item.

6. For appeal hearings, only those persons who participated either orally or in writing in the decision or review will be allowed to participate either orally or in writing on the appeal.

Response: The owner/applicant understands that the hearing process will be announced at the beginning of the initial public hearing.

F. Requests for continuance and to keep open the record: The hearing may be continued to allow the submission of additional information or for deliberation without additional information. New notice of a continued hearing need not be given so long as a time-certain and location is established for the continued hearing. Similarly, hearing may be closed but the record kept open for the submission of additional written material or other documents and exhibits. The chairperson may limit the factual and legal issues that may be addressed in any continued hearing or open-record period.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that a request for a continuance can be made at the initial public hearing, or that the record may be kept open.

17.50.130 Conditions of Approval and Notice of Decision

17.50.130 Conditions of approval and notice of decision.

A. All city decision-makers have the authority to impose reasonable conditions of approval designed to ensure that all applicable approval standards are, or can be, met.

Response: The owner/applicant understands that reasonable conditions of approval can be imposed upon an application in order to ensure that all applicable standards are met.

B. Failure to comply with any condition of approval shall be grounds for revocation of the permit(s) and grounds for instituting code enforcement proceedings pursuant to Chapter 1.20 of this Code and ORS 30.315.

Response: The owner/applicant understands that failure to comply with any conditions of approval shall be grounds for revocation of the permit(s) and grounds for instituting code enforcement proceedings.

C. Notice of Decision. The city shall send, by first class mail, a notice of all decisions rendered under this chapter to all persons with standing, i.e., the applicant, all others who participated either orally or in writing before the close of the public record and those who specifically requested notice of the decision. The notice of decision shall include the following information:

1. *The file number and date of decision;*
2. *The name of the applicant, owner and appellant (if different);*
3. *The street address or other easily understood location of the subject property;*
4. *A brief summary of the decision, and if an approval, a description of the permit approved;*
5. *A statement that the decision is final unless appealed and description of the requirements for perfecting an appeal;*
6. *The contact person, address and a telephone number whereby a copy of the final decision may be inspected or copies obtained.*

Response: The owner/applicant understands that they will receive the notice of decision by first class mail.

D. Modification of Conditions. Any request to modify a condition of permit approval is to be considered either minor modification or a major modification. A minor modification shall be processed as a Type I. A major modification shall be processed in the same manner and shall be subject to the same standards as was the original application. However, the decision-maker may at their sole discretion, consider a modification request and limit its review of the approval criteria to those issues or aspects of the application that are proposed to be changed from what was originally approved.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that a modification of conditions can be requested and will be processed as a major or minor modification application.

17.50.140 Performance Guarantee

17.50.140 Performance guarantees.

When conditions of permit approval require a permittee to construct certain improvements, the city may, in its discretion, allow the permitee to submit a performance guarantee in lieu of actual construction of the improvement. Performance guarantees shall be governed by this section.

A. Form of Guarantee. Performance guarantees shall be in a form approved by the city attorney Approvable methods of performance guarantee include irrevocable standby letters of credit to the benefit of the city issued by a recognized lending institution, certified checks, dedicated bank accounts or allocations of construction loans held in reserve by the lending institution for the benefit of the city. The form of guarantee shall be specified by the city engineer and, prior to execution and acceptance by the city shall be reviewed and approved by the city attorney. The guarantee shall be filed with the city engineer.

Response: The owner/applicant understands that a performance guarantee may be allowed in lieu of actual construction of specific improvements as approved by the City Attorney.

B. Timing of Guarantee. A permittee shall be required to provide a performance guarantee as follows.

1. After Final Approved Design by the City: A permittee may request the option of submitting a performance guarantee when prepared for temporary/final occupancy. The guarantee shall be one hundred twenty percent of the estimated cost of constructing the remaining public improvements as submitted by the permittee's engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the city engineer.

2. Before Complete Design Approval and Established Engineered Cost Estimate: A permitee may request the option of submitting a performance guarantee before public improvements are designed and completed. The guarantee shall be one hundred fifty percent of the estimated cost of constructing the public improvements as submitted by the permittee's engineer and approved by the city engineer. The engineer's estimated costs shall be supported by a verified engineering estimate and approved by the city engineer. This scenario applies for a fee-in-lieu situation to ensure adequate funds for the future work involved in design, bid, contracting, and construction management and contract closeout. In this case, the fee-in-lieu must be submitted as cash, certified check, or other negotiable instrument as approved to form by the city attorney.

Response: The owner/applicant understands that performance guarantees must be provided as per the timing schedule in this code section.

C. Duration of the Guarantee. The guarantee shall remain in effect until the improvement is actually constructed and accepted by the city. Once the city has inspected and accepted the improvement, the city shall release the guarantee to the permittee. If the improvement is not completed to the city's satisfaction within the time limits specified in the permit approval, the city engineer may, at their discretion, draw upon the guarantee and use the proceeds to construct or complete construction of the improvement and for any related administrative and legal costs incurred by the city in completing the construction, including any costs

incurred in attempting to have the permittee complete the improvement. Once constructed and approved by the city, any remaining funds shall be refunded to the permittee. The city shall not allow a permittee to defer construction of improvements by using a performance guarantee, unless the permittee agrees to construct those improvements upon written notification by the city, or at some other mutually agreed-to time. If the permittee fails to commence construction of the required improvements within six months of being instructed to do so, the city may, without further notice, undertake the construction of the improvements and draw upon the permittee's performance guarantee to pay those costs.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that a performance guarantee remains in effect until the improvement is actually constructed and accepted by the City.

17.50.150 Covenant with the City

17.50.150 Covenant with the city.

A. The city may impose as a condition of final approval of a quasi-judicial permit, the requirement that the applicant execute a covenant with the city agreeing to comply with all conditions of approval. Any such covenant shall include the following elements:

1. An agreement that the applicant will comply with all applicable code requirements, conditions of approval and any representations made to the city by the applicant or the applicant's agents during the application review process, in writing. This commitment shall be binding on the applicant and all of the applicant's successors, heirs and assigns;

2. If the owner fails to perform under the covenant, the city may immediately institute revocation of the approval or any other enforcement action available under state law or this Code. The covenant may also provide for payment of attorney fees and other costs associated with any such enforcement action; and

3. Where the development rights of one site are dependent on the performance of conditions by the owner of another property (such as joint access), the covenants are judicially enforceable by the owner of one site against the owner of another.

Response: The owner/applicant understands that the City may impose as a condition of final approval that the applicant execute a covenant with the City agreeing to comply with all conditions of approval.

B. Adopting the Covenant: The form of all covenants shall be approved by the city attorney. The covenant shall run with the land and shall be placed in the county deed records prior to the issuance of any permits or development activity pursuant to the approval. Proof of recording shall be made prior to the issuance of any permits and filed with the planning division. Recording shall be at the applicant's expense. Any covenant required under this section shall be properly signed and executed within thirty days after permit approval with conditions; provided, however, that the community development director may grant reasonable extensions, not to exceed an additional thirty days, in cases of practical difficulty. Failure to sign and record the covenant within the prescribed period shall require a new application for any use of the subject property.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the form of all covenants are to be approved by the city attorney.

17.50.160 Ex Parte Contact, Conflict of Interest and Bias

17.50.160 Ex parte contact, conflict of interest and bias.

The following rules shall govern any challenges to a decision-maker's participation in a quasi-judicial or legislative action:

A. Ex Parte Contacts. Any factual information obtained by a decision-maker outside the context of a quasi-judicial hearing shall be deemed an ex parte contact. Prior to the close of the record in any particular matter, any decision-maker that has obtained any materially factual information through an ex parte contact shall declare the content of that contact and allow any interested party to rebut the substance of that contact. This rule does not apply to legislative proceedings.

Response: The owner/applicant understands that any decision maker that receives materially factual information through an ex parte contact shall declare the content of that contact.

B. Conflict of Interest. Whenever a decision-maker, or any member of a decision-makers's immediate family or household, has a financial interest in the outcome of a particular quasi-judicial or legislative matter, that decision-maker shall not participate in the deliberation or decision on that matter.

Response: The owner/applicant understands that if a decision maker has a conflict of interest regarding the results of the application decision, that they will not participate in the deliberation or decision.

C. Bias. All decisions in quasi-judicial matters shall be fair, impartial and based on the applicable approval standards and the evidence in the record. Any decision-maker who is unable to render a decision on this basis in any particular matter shall refrain from participating in the deliberation or decision on that matter. This rule does not apply to legislative proceedings.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that all decisions in quasi-judicial matters shall be fair, impartial and based on the application approval standards and the evidence in the record.

17.50.170 Legislative Hearing Process

17.50.170 Legislative hearing process.

A. Purpose. Legislative actions involve the adoption or amendment of the city's land use regulations, comprehensive plan, maps, inventories and other policy documents that affect the entire city or large portions of it. Legislative actions which affect land use must begin with a public hearing before the planning commission.

Response: The request for a comprehensive plan amendment from FU to MUC and the zone change request from FU to MUC-1, requires legislative actions that must begin with a public hearing before the planning commission.

B. Planning Commission Review.

1. Hearing Required. The planning commission shall hold at least one public hearing before recommending action on a legislative proposal. Any interested person may appear and provide written or oral testimony on the proposal at or prior to the hearing. The community development director shall notify the Oregon Department of Land Conservation and Development (DLCD) as required by the post-acknowledgment procedures of ORS 197.610 to 197.625, as applicable.

2. The Community Development Director's Report. Once the planning commission hearing has been scheduled and noticed in accordance with Section 17.50.090C. and any other applicable laws, the community development director shall prepare and make available a report on the legislative proposal at least seven days prior to the hearing.

3. Planning Commission Recommendation. At the conclusion of the hearing, the planning commission shall adopt a recommendation on the proposal to the city commission. The planning commission shall make a report and recommendation to the city commission on all legislative proposals. If the planning commission recommends adoption of some form of the proposal, the planning commission shall prepare and forward to the city commission a report and recommendation to that effect.

Response: The owner/applicant understands that at least one public hearing with the planning commission will be held where all interested parties may comment and attend. Further it is understood that the community development director's report will be available for review at least 7 days prior to the hearing and that a planning commission recommendation will be made at the conclusion of the hearing.

C. City Commission Review.

1. City Commission Action. Upon a recommendation from the planning commission on a legislative action, the city commission shall hold at least one public hearing on the proposal. Any interested person may provide written or oral testimony on the proposal at or prior to the hearing. At the conclusion of the hearing, the city commission may adopt, modify or reject the legislative proposal, or it may remand the matter to the planning commission for further consideration. If the decision is to adopt at least some form of the proposal, and thereby amend the city's land use regulations, comprehensive plan, official zoning maps or some component of any of these documents, the city commission decision shall be enacted as an ordinance.

2. Notice of Final Decision. Not later than five days following the city commission final decision, the community development director shall mail notice of the decision to DLCD in accordance with ORS 197.615(2).

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the City Commission will hold at least one public hearing upon recommendation from the planning commission, and that interested

parties may attend and comment orally and/or in writing. Further it is understood that the decision of the City Commission will be the final decision, and the notice will be available no later than five days following that decision.

17.50.180 Objections to Procedure

17.50.180 Objections to procedure.

Any party who objects to the procedure followed in any particular matter, including bias, conflict of interest and undisclosed ex parte contacts, must make a procedural objection prior to the city rendering a final decision. Procedural objections may be raised at any time prior to a final decision, after which they are deemed waived. In making a procedural objection, the objecting party must identify the procedural requirement that was not properly followed and identify how the alleged procedural error harmed that person's substantial rights.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that any procedural objections must be made prior to the issuance of the final decision.

17.50.190 Appeals

17.50.190 Appeals.

Appeals of any non-final decisions by the city must comply with the requirements of this section.

A. Type I decisions by the planning manager are not appealable to any other decision-maker within the city.

Response: This is a Type IV decision.

B. A notice of appeal of any Type II, III or IV decision must be received in writing by the planning division within ten calendar days from the date notice of the challenged decision is provided to those entitled to notice. Late filing of any appeal shall be deemed a jurisdictional defect and will result in the automatic rejection of any appeal so filed.

Response: The owner/applicant understands that any appeals must be received in writing at within 10 days from the notice of final decision date.

C. The following must be included as part of the notice of appeal:

1. The city planning file number and date the decision to be appealed was rendered;

2. The name, mailing address and daytime telephone number for each appellant;

3. A statement of how each appellant has an interest in the matter and standing to appeal;

4. A statement of the specific grounds for the appeal;

5. The appropriate appeal fee. Failure to include the appeal fee within appeal period is deemed to be a jurisdictional defect and will result in the automatic rejection of any appeal so filed. If a city-recognized neighborhood association with standing to appeal has voted to request a fee waiver pursuant to 17.50.290C., no appeal fee shall be required for an

appeal filed by that association. In lieu of the appeal fee, the neighborhood association shall provide a duly adopted resolution of the general membership or board approving the request for fee waiver.

Response: The owner/applicant understands that any appeal submitted must include supportive materials including an appropriate appeal fee.

D. Standing to Appeal. The following rules prescribe who has standing to appeal:

1. For Type II decisions, only those persons or recognized Neighborhood Associations who have submitted written comments within the fourteen-day comment period have standing to appeal a planning manager decision. Grounds for appeal are limited to those issues raised in writing during the fourteen-day comment period in filing an appeal to the city commission.

2. For Type III and IV decisions, only those persons or recognized neighborhood associations who have participated either orally or in writing have standing to appeal the decision of the planning commission or historic review board, as applicable. Grounds for appeal are limited to those issues raised either orally or in writing before the close of the public record.

Response: The owner/applicant understands that only those persons or recognized neighborhood associations who have participated either orally or in writing have standing to appeal the decision of the planning commission.

E. Notice of the Appeal Hearing. The planning division shall issue notice of the appeal hearing to all parties who participated either orally or in writing before the close of the public record in accordance with Section 17.50.090B. Notice of the appeal hearing shall contain the following information:

1. The file number and date of the decision being appealed;

2. The time, date and location of the public hearing;

3. The name of the applicant, owner and appellant (if different);

4. The street address or other easily understood location of the subject property;

5. A description of the permit requested and the applicant's development proposal;

6. A brief summary of the decision being appealed and the grounds for appeal listed in the notice of appeal;

7. A statement that the appeal hearing is confined to the issues raised in the notice of appeal;

8. A general explanation of the requirements for participation and the city's hearing procedures.

Response: The owner/applicant understands that an appeal hearing will be scheduled and noticed to all parties who participated either orally or in writing and have standing.

F. Appeal Hearing--Scope of Review. Appeal hearings shall comply with the procedural requirements of Section 17.50.120. Appeal hearings shall be conducted by the city commission or a planning commission or historic review board, as applicable, the decision shall be on the record and the issues under consideration shall be limited to those listed in the notice of appeal.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response:

17.50.200 Expiration of an Approval

17.50.200 Expiration of an approval.

A. When Approvals Become Void: All Type IV approvals, except for zoning map or comprehensive plan map amendments, automatically become void if any of the following events occur:

1. If, within two years of the date of the final decision, a building permit has not been issued for no land divisions; or

2. If, within two years of the date of the final decision for all land divisions, the activity approved in the permit has not commenced or, in situations involving only the creation of lots, the public improvements and conditions of approval have not been completed or financial guarantee (surety) provided.

B. New Application Required: Expiration of an approval shall require a new application for any use on the subject property that is not otherwise allowed outright.

C. Deferral of the Expiration Period Due to Appeals: If a permit decision is appealed beyond the jurisdiction of the city, the expiration period shall not begin until review before the land use board of appeals and the appellate courts has been completed, including any remand proceedings before the city. The expiration period provided for in this section will begin to run on the date of final disposition of the case (the date when an appeal may no longer be filed).

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This application is a request for a zone change and comprehensive plan amendment, and is therefore exempt from this section of the code.

17.50.210 Extension of an Approval

17.50.210 Extension of an approval.

A. The community development director may extend, prior to its expiration, any approved permit for a period of one year; provided, however, that there has been substantial implementation of the permit. Any request for an extension shall be reviewed and decided upon by the community development director as a Type II decision.

B. Substantial implementation of a permit shall require at a minimum, demonstrable evidence in a written application showing:

1. The permit holder has applied for all necessary additional approvals or permits required as a condition of the land use or limited land use permit;

2. Further commencement of the development authorized by the permit could not practicably have occurred for reasons beyond the reasonable control of the permit holder;

3. The request for an extension is not sought for purposes of avoiding any responsibility imposed by this Code or the permit or any condition thereunder; and

4. There have been no changes in circumstances or the law likely to necessitate significant modifications of the development approval or conditions of approval.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This application is a request for a zone change and comprehensive plan amendment, and is therefore exempt from this section of the code.

17.50.220 Reapplication Limited

17.50.220 Reapplication limited.

If the application is denied or withdrawn following the close of the public hearing, no reapplication for the same or substantially similar proposal may be made for one year following the date of final decision denying the permit.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that if this request is denied or withdrawn following the close of the public hearing, no reapplication for the same or substantially similar proposal may be made for one year following the date of the final decision denying permit.

17.50.230 Interpretation

17.50.230 Interpretation.

Where a provision of Title 16 or Title 17 conflicts with another city ordinance or requirement, the provision or requirement that is more restrictive or specific shall control.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that where a provision of Title 16 or Title 17 conflicts with another City ordinance or requirement, the provision or requirement that is more restrictive or specific shall control.

17.50.240 Conformity of Permits

17.50.240 Conformity of permits.

The city shall not accept any application for a permit, certificate or other approval, including building permit applications, for any property that is not in full compliance with all applicable provisions of Title 16 and Title 17 and any permit approvals previously issued by the city.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that the City will not accept any application for a permit, certificate or other approval, including building permit applications, for any property that is not in full compliance with all applicable provisions of Title 16 and 17 and any permit approvals previously issued by the City.

17.50.260 Reconsideration of a Final Decision

17.50.260 Reconsideration of a final decision.

Under this section, parties with standing may seek reconsideration of a final decision rendered pursuant to a Type II, Type III, or Type IV process. Reconsideration is warranted where the city's decision indicates the decision-maker failed to understand or consider certain relevant facts in the record or misinterpreted the application in some material way. Any request for reconsideration must be received by the planning division within ten days of when the decision in question was rendered and must specifically describe the alleged misunderstanding or misinterpretation. A request for reconsideration shall not stay the effectiveness of the city's final decision, nor shall it affect any applicable appeal deadlines to the land use board of appeals. If the request is granted, the community development director shall notify all affected parties that the decision will be reconsidered. Any request for reconsideration by the applicant shall be deemed a waiver of the one-hundred-twenty-day deadline under Section 17.50.070. (Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that they may request a reconsideration of a decision if it is indicated that the City's decision failed to consider certain relevant facts in the record or misinterpreted the application in some material way.

17.50.270 Revocation of a Previously Approved Permit

17.50.270 Revocation of a previously approved permit.

In the event an applicant, or the applicant's successor in interest, fails to fully comply with all conditions of permit approval or otherwise does not comply fully with the city's approval, the city may institute a revocation or modification proceeding under this section.

A. Situations When Permit Approvals May Be Revoked or Modified. All quasi-judicial permits may be revoked or modified if the planning commission determines a substantial likelihood that any of the following situations exists:

1. One or more conditions of the approval have not been implemented or have been violated;

2. The activities of the use, or the use itself, are substantially different from what was approved; or

3. The use is subject to the nonconforming use regulations, the applicant has not obtained approval, and has substantially changed its activities or substantially increased the intensity of its operations since the use became nonconforming.

B. Process for Revocation and Modification. Revocation or modification shall be processed as a Type IV decision. The planning division or any private complaining party shall have the burden of proving, based on substantial evidence in the whole record, that the applicant or the applicant's successor has in some way violated the city's approval.

C. Possible Actions at the Revocation hearing. Depending on the situation, the planning commission may take any of the actions described below. The planning commission may not approve the new use or a use that is more intense than originally approved unless the possibility of this change has been stated in the public notice. Uses or development which are alleged to have not fulfilled conditions, violate conditions or the use is not consistent with the city's approval may be subject to the following actions:

1. The planning commission may find that the use or development is complying with the conditions of the approval. In this case, the use or development shall be allowed to continue.

2. The planning commission may modify the approval if it finds that the use or development does not meet the standards for revocation and that the use can comply with the original approval criteria if-certain conditions are met. In this case, the planning commission may modify the existing conditions, add new conditions to ensure compliance with the approval criteria, or refer the case to the code compliance officer for enforcement of the existing conditions.

3. The planning commission may revoke the approval if it finds there are substantial violations of conditions or failure to implement conditions of prior land use decisions, such that the original approval criteria for the use or development are not being met.

D. Effect of Revocation. In the event permit approval is revoked, the use or development becomes illegal. The use or development shall be terminated within thirty days of the date the revocation final order is approved by the planning commission, unless the decision provides otherwise. In the event the decision-maker's decision on a revocation request is appealed, the revocation action shall be stayed pending a final, unappealed decision.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that in the event an applicant, or the applicant's successor in interest fails to fully comply with all conditions of permit approval or otherwise does not fully comply with the City's approval, the City may institute a revocation or modification proceeding as detailed in this code section.

17.50.280 Transfer of Approval Rights

17.50.280 Transfer of approval rights.

Unless otherwise stated in the city's permit decision, any approval granted under Title 16 or Title 17 of this Code runs with the land and is transferred with ownership of the land. Any conditions, time limits or other restrictions imposed with a permit approval shall bind all subsequent owners of the property for which the permit was granted.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands that this potential approval will run with the land and is transferred with ownership of the land.

17.50.290 Fees

17.50.290 Fees.

The city may adopt by resolution, and revise from time to time, a schedule of fees for applications and appeals. Fees shall be based upon the city's actual or average cost of processing the application or conducting the appeal process. The only exception shall be the appeal fee for a Type II decision, which shall be limited by ORS 227.175(10)(b). The requirements of this section shall govern the payment, refund and reimbursement of fees.

A. Payment. All fees shall be due and payable at the time the application or appeal is submitted. No application or appeal shall be accepted without the proper fee being paid.

B. Refunds. Fees will only be refunded as provided in this subsection:

1. When a fee is paid for an application which is later found to not be required, the city shall refund the fee.

2. Errors. When an error is made in calculating a fee, overpayment will be refunded.

3. Refund upon withdrawal of an application. In the event an applicant withdraws an application, the planning department shall refund the unused portion of the fee. In this case, the planning department will deduct from the fee the city's actual costs incurred in processing the application prior to withdrawal.

C. Fee Waivers. The planning division may waive all or any portion of an application fee if, in the opinion of the director, a particular application must be resubmitted because of an error made by the city. Appeal fees may be waived, wholly or in part, by the city commission, if the city commission finds that, considering fairness to the applicant and to opposing parties, a full or partial waiver of the appeal fee is warranted. Appeal fees shall not be charged for an appeal filed by a city-recognized neighborhood association, so long as the appeal has been officially approved by the general membership or board of the neighborhood association at a duly announced meeting.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant understands the application fees that will be due upon submittal of the application packet and has reviewed these fees with Planning Staff at the pre-application meeting held on November 10, 2009.

17.68 Zoning Changes and Amendments

17.68.010 Initiation of the Amendment

17.68.010 Initiation of the amendment.

A text amendment to this title or the comprehensive plan, or an amendment to the zoning map or the comprehensive plan map, may be initiated by:

A. A resolution request by the city commission;

B. An official proposal by the planning commission;

C. An application to the planning division presented on forms and accompanied by information prescribed by the planning commission.

D. A Legislative request by the Planning Division.

All requests for amendment or change in this title shall be referred to the planning commission.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant of the subject property is requesting a zone change from FU to MUC-1, and a comprehensive plan amendment from FU to MUC. This request is being made through the submission of an application form and accompanied by information prescribed by the planning commission.

17.68.020 Criteria

17.68.020 Criteria.

The criteria for a zone change are set forth as follows:

A. The proposal shall be consistent with the goals and policies of the comprehensive plan.

Response: As outlined within this narrative below, the requested zone change and comprehensive plan amendment are consistent with the applicable goals and policies of the comprehensive plan.

The goal is to establish a City zone so that the property may be developed in the future to the highest and best use. The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City. The Mixed Use Corridor (MUC) District is designed to apply along selected sections of the transportation corridors. In 17.29.010 of the Oregon City Municipal Code Beavercreek Road has been identified as one of the selected roads for this type of development.

B. That public facilities and services (water, sewer, storm drainage, transportation, schools, police and fire protection) are presently capable of supporting the uses allowed by the zone, or can be made available prior to issuing a certificate of occupancy. Service shall be sufficient to support the range of uses and development allowed by the zone.

Response: At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There is no development plans proposed and no uses proposed at this time; however, public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.

All services are available at the site and have capacity to serve the property. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and can be extended across Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate

with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

The impacts to the schools are expected to be minimal because the permitted uses and likely actual development are favoring a mix of commercial uses.

The impact of approximately 9 acres of mixed use development on the capacity of the police is minimal Exhibit A of the Annexation Agreement (December 19, 2007) establishes the Police Funding Fee Schedule for this property. The appropriate fees will be assessed when the actual development application is submitted. At this time we feel confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire protection for the much larger High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

C. The land uses authorized by the proposal are consistent with the existing or planned function, capacity and level of service of the transportation system serving the proposed zoning district.

Response: Beavercreek Road has been identified as a transportation corridor. The Beavercreek Road Concept Plan and traffic analysis supported mixed use including commercial, industrial, and multi-family uses with Beavercreek Road being the primary transportation corridor. There was sufficient right-of-way dedicated with the High School when coupled with future dedications along the subject property to install the master plan cross section.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate

with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

D. Statewide planning goals shall be addressed if the comprehensive plan does not contain specific policies or provisions which control the amendment.
(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: City of Oregon City Comprehensive Plan Goals are addressed in the following sections. The following Statewide planning goals are applicable to this application:

GOAL 1: CITIZEN INVOLVEMENT
OAR 660-015-0000(1)
To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.
The governing body charged with preparing and adopting a comprehensive plan shall adopt and publicize a program for citizen involvement that clearly defines the procedures by which the general public will be involved in the on-going land-use
planning process. The citizen involvement program shall be appropriate to the scale of the planning effort. The program shall provide for continuity of citizen participation and of information that enables citizens to identify and comprehend the issues.
Federal, state and regional agencies, and special- purpose districts shall coordinate their planning efforts with the affected governing bodies and make use of existing local citizen involvement programs established by counties and cities.

RESPONSE: Goal 1 Citizen Involvement – This application procedure allows for citizen involvement and communication throughout the entire process. Before this land use application was submitted an informational meeting was held with the Caufield Neighborhood Association and surrounding neighbors within 300 feet of the subject property. The submittal included a mailing list of these neighbors within 300 feet of the subject property and the Caufield Neighborhood Association Chairs so that the City could send notices of application and invitation to attend and/or participate in the public hearing held by the planning commission and the city commission. Finally, should this application be approved, a notice will be sent to all people of standing who participated in these public hearings giving them a final opportunity to appeal the decision if desired.

GOAL 2: LAND USE PLANNING
OAR 660-015-0000(2)
PART I -- PLANNING
To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.

Response: Goal 2 Land Use Planning – This zone change and comprehensive plan amendment request is being reviewed for consistency with all applicable City Code sections, the City Comprehensive Plan, Statewide Goals, Metro designations, etc. by the process of this Type IV decision which entails a quasi-judicial process with at least one public hearing by the planning commission and one public hearing by the city commission.

GOAL 6: AIR, WATER AND LAND RESOURCES QUALITY
OAR 660-015-0000(6)
To maintain and improve the quality of the air, water and land resources of the state.

All waste and process discharges from future development, when combined with such discharges from existing developments shall not threaten to violate, or violate applicable state or federal environmental quality statutes, rules and standards. With respect to the air, water and land resources of the applicable air sheds and river basins described or included in state environmental quality statutes, rules, standards and implementation plans, such discharges shall not (1) exceed the carrying capacity of such resources, considering long range needs; (2) degrade such resources; or (3) threaten the availability of such resources.

Response: Goal 6 Air, Water and Land Resources Quality – This zone change and comprehensive plan amendment request will allow for the subject property to be designated with a City zone so that it may be developed in the future to the highest and best use. Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.

All waste discharges from future development will be accommodated with a utility system designed to City standards so as not to threaten or violate applicable state or federal environmental quality statutes, rules or standards. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road.
Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system. Water quality measures for storm water will be incorporated into final plans to meet or exceed the requirements of the City.

GOAL 9: ECONOMIC DEVELOPMENT
OAR 660-015-0000(9)
To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.
Comprehensive plans and policies shall contribute to a stable and healthy economy in all regions of the state. Such plans shall be based on inventories of areas suitable for increased economic growth and activity after taking into consideration the health of the current economic base; materials and energy availability and cost; labor market factors; educational and technical training programs; availability of key public facilities; necessary support facilities; current market forces; location relative to markets; availability of renewable and non-renewable resources; availability of land; and pollution control requirements. Comprehensive plans for urban areas

Response: Goal 9 Economic DevelopmentThe Mixed Use Corridor District has been identified by the city to be designed along selected sections of specified transportation corridors including Beavercreek Road. TheBeavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. The permitted uses offer a wide variety of potential to increase the economic growth and provide facilities to support current markets.The allowed uses in an MUC-1 zone will help contribute to the goals of providing a stable and healthy economy with potential employment opportunities and/or alternative housing options to the typical single family home.

GOAL 10: HOUSING
OAR 660-015-0000(10)
To provide for the housing needs of citizens of the state.
Buildable lands for residential use shall be inventoried and plans shall encourage the availability of adequate numbers of needed housing units at price ranges and rent levels which are commensurate with the financial capabilities of Oregon households and allow for flexibility of housing location, type and density.

Response: Goal 10 Housing – The MUC-1 zone allows for multi-family housing and assisted living facilities which would contribute a more varied housing option to the overall housing inventory of the City.

GOAL 11: PUBLIC FACILITIES AND SERVICES
OAR 660-015-0000(11)
To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.

RESPONSE: Goal 11 Public Facilities and Services – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.
All services are available at the site and have capacity and framwork to serve the urbanization of this property and the adjacent rural areas. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and stubbed to Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
The future development of this site, once the City zone and comprehensive plan designation are set, will allow for timely, orderly and efficient use of public services.

GOAL 12: TRANSPORTATION
OAR 660-015-0000(12)
To provide and encourage a safe, convenient and economic transportationsystem.
A transportation plan shall (1) consider all modes of transportation including mass transit, air, water, pipeline, rail, highway, bicycle and pedestrian; (2) be based upon an inventory of local, regional and state transportation needs; (3) consider the differences in social consequences that would result from utilizing differing combinations of transportation modes; (4) avoid principal

reliance upon any one mode of transportation; (5) minimize adverse social, economic and environmental impacts and costs; (6) conserve energy; (7) meet the needs of the transportation disadvantaged by improving transportation services; (8) facilitate the flow of goods and services so as to strengthen the local and regional economy; and (9) conform with local and regional comprehensive land use plans. Each plan shall include a provision for transportation as a key facility.

RESPONSE: Goal 12 Transportation - Beavercreek Road has been identified as a transportation corridor. The Beavercreek Road Concept Plan and support traffic analysis supported mixed use including commercial, industrial, and multi-family uses with Beavercreek Road being the primary transportation corridor. Tri-met currently serves Clackamas Community College with bus service via Molalla Ave, Highway 213, and Beavercreek Road. No service is currently provided to this site, but with development and the adjacent Oregon City High School extension of service is planned. Bus service has direct connections to light rail at Clackamas Town Center with connections to the City of Portland, Gresham, Hillsboro and the Airport. The Beavercreek Road cross section inclues bicycle lanes together adjacent to the vehicle lanes. There was sufficient right-of-way dedicated with the High School when coupled with future dedications along the subject property to install the master plan cross section.

A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

GOAL 14: URBANIZATION
OAR 660-015-0000(14)
(Effective April 28, 2006)
To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.

Response: Goal 14 Urbanization – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City by a city vote November 7, 2007 with ratification in January 2008. The recent Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with the goals of the City. All necessary public utilities are available to the site at this time in order to allow for its development to urban densities. For this reason, this application is consistent with an orderly and efficient transition from rural to urban land use.

17.68.025 Zoning Changes for Land Annexed into the City

17.68.025 Zoning changes for land annexed into the city.

A. Notwithstanding any other section of this chapter, when property is annexed into the city from the city/county dual interest area with any of the following comprehensive plan designations, the property shall be rezoned upon annexation to the corresponding city zoning designation as follows:

TABLE INSET:

Plan Designation	*Zone*
Low-Density Residential	*R-10*
Medium-Density Residential	*R-5*
High-Density Residential	*R-2*
General Commercial	*C*
Industrial	*CI-Campus Industrial*
Mixed-Use Downtown	*MUD*
Mixed-Use Employment	*MUE*
Mixed-Use Commercial	*- NC*
Future Urban	*FU-10*

Response: The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The holding zone when annexed was the Clackamas County Future Urban (FU) designation, which is the current zone listed for this property. The property owner/applicant is seeking a Comprehensive Plan Amendment and zone change request now to MUC-1.

B. Applications for these rezonings shall be reviewed pursuant to the requirements in Chapter 17.50.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This narrative addresses above sections and shows how the requirements of 17.50 are applicable and being applied.

17.68.030 Public Hearing

17.68.030 Public hearing.

A public hearing shall be held pursuant to standards set forth in Chapter 17.50.

A. Quasi-judicial reviews shall be subject to the requirements in Chapter 17.50.

B. Legislative reviews shall be subject to the requirements in Chapter 17.50.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV quasi-judicial review and is subject to at least one public hearing by the planning commission and at least one public hearing by the City commission.

17.68.040 Approval by the Commission

17.68.040 Approval by the commission.

If the planning commission approves such request or application for an amendment, or change, it shall forward its findings and recommendation to the city commission for action thereon by that body.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This is a Type IV quasi-judicial review and is subject to at least one public hearing by the planning commission and at least one public hearing by the City commission.

17.68.050 Conditions

17.68.050 Conditions.

In granting a change in zoning classification to any property, the commission may attach such conditions and requirements to the zone change as the commission deems necessary in the public interest, in the nature of, but not limited to those listed in Section 17.56.010:

A. Such conditions and restrictions shall thereafter apply to the zone change;

Response: The owner/applicant understands that if the zone change classification is granted, there may be conditions and requirements attached by the commission as deemed necessary.

B. Where such conditions are attached, no zone change shall become effective until the written acceptance of the terms of the zone change ordinance as per Chapter 17.50.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: The owner/applicant further understands that the zone change does not become effective until the above-mentioned conditions and requirements are accepted in writing.

17.68.060 Filing of an Application

17.68.060 Filing of an Application.

Applications for amendment, or change in this title shall be filed with the planning division on forms available at the planning division office. At the time of filing an application, the applicant shall pay the sum listed in the community development department fee schedule.

(Ord. No. 08-1014, §§ 1--3(Exhs. 1--3), 7-1-2009)

Response: This narrative together with the applicable forms, fees and supportive information are being submitted to the Planning Division as required.

City of Oregon City Comprehensive Plan
The following City Comprehensive Plan Policies are applicable to this zone change and comprehensive plan amendment request:

Goal 2.3 Corridors
Goal 2.3 Corridors
Focus transit-oriented, higher intensity, mixed-use development along selected transit corridors.

Policy 2.3.1
Ensure planning for transit corridors includes facilities and access management, aesthetics (including signage and building facade improvements), infill and redevelopment opportunities, high-density residential development, and business assistance to existing businesses.

Response: Policy 2.3.1 – The subject property is at the existing signalized intersection of Beavercreek and Meyers Roads and will serve as the only access from the transit corridor. This connection will provide for connectivity and circulation opportunities to a future connected local street network. Beavercreek Road has been identified in the Beavercreek Road Concept Plan as a transportation corridor. The MUC-1 zone will allow for mixed use development that could include high density residential and a variety of medical, office and retail uses. Since development and use is not proposed as a part of this application, specific building requirements (aesthetics, facades, etc.) will be reviewed at the time the design review application is submitted.

Goal 2.4 Neighborhood Livability
Goal 2.4 Neighborhood Livability
Provide a sense of place and identity for residents and visitors by protecting and maintaining neighborhoods as the basic unit of community life in Oregon City while implementing the goals and policies of the other sections of the Comprehensive Plan.

Policy 2.4.2
Strive to establish facilities and land uses in every neighborhood that help give vibrancy, a sense of place, and a feeling of uniqueness; such as activity centers and points of interest.

Response: Policy 2.4.2 - The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The recent Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation (MUC-1 and MUC) will be in concert with these goals. A MUC-1 designation allows for a variety of uses which all relate to potential services and housing options that could help create the vibrant core area that is the goal of the City. Since development and use are not specifically proposed as a part of this application, specific requirements would be reviewed under the future design review application. The permitted uses offer opportunities when development occurs to project a vibrancy and uniqueness through architecture, landscaping and mixed uses.

Policy 2.4.3
Promote connectivity between neighborhoods and neighborhood commercial centers through a variety of transportation modes.

Response: Policy 2.4.3 – Beavercreek Road has been identified as a transportation corridor. Bus service is already available at hightway 213, Beavercreek Road and Molalla Road with service to Clackamas Community College. In time,Tri-met bus service will be extended to the site and already provides conductivity to the light rail at Clackamas Town Center. The Beavercreek road cross section provides for bike lanes. Access to the site will be at the signalized intersection of Beavercreek and Meyers Roads which provides connectivity from the existing residential neighborhoods, school and this future mixed use. With the potential adoption of the Beavercreek Road Concept Plan and potential future design review application for the subject property, transportation requirements will be addressed to meet this policy.

Policy 2.4.4
Where environmental constraints reduce the amount of buildable land, and/or where adjacent land differs in uses or density, implement Comprehensive Plan and zoning designations that encourage compatible transitional uses.

Response: Policy 2.4.4 – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. When annexed, the property was assigned the Clackamas County designated FU zone as the "holding" zone. The surrounding farmland property to the north, northeast and southeast was brought into the UGB in 2002/2004 and is zoned FU. As a part of the Beavercreek Concept Plan this property is envisioned to be a sustainable community with high density mixed use employment and housing. The requested MUC-1 zone allowed uses fall into this category and would be consistent with these goals. There are no environmental constraints on the subject property. However, there is a 50 foot wide gas corridor easement runs across the northerly corner of the property, which creates a strip of unbuildable area. This strip would be suitable for parking/maneuvering, open space and/or setbacks.

Policy 2.4.5
Ensure a process is developed to prevent barriers in the development of neighborhood schools, senior and childcare facilities, parks, and other uses that serve the needs of the immediate area and the residents of Oregon City.

Response: Policy 2.4.5 – There are no plans for a neighborhood school on this property. Oregon City High School is located to the northwest of the subject site. The MUC-1 zone includes assisted living facilities and childcare centers as allowed uses. Therefore, no barriers would be created by allowing this requested zone change and comprehensive plan amendment.

Goal 2.5 Retail and Neighborhood Commercial
Goal 2.5 Retail and Neighborhood Commercial
Encourage the provision of appropriately scaled services to neighborhoods.

Policy 2.5.1
Encourage the redevelopment of linear commercial corridors in ways that encourage expansion of existing businesses and infill development, and at the same time reduces conflicting traffic movements, improves the aesthetic character of these commercial areas, and encourages trips by transit, bicycling and walking.

Response: Policy 2.5.1 – Beavercreek Road has been identified as a transportation corridor. With the final adoption of the Beavercreek Road Concept Plan and potential future design review application for the subject property, these goals will be addressed to meet this policy. Limited access from Beavercreek Road will reduce conflicting traffic movements and provide an avenue for conductivity and circulation with a future local street network. Bike lanes are included in the Beavercreek Road design and will encourage ridership from this site to residential areas. The proposed mixed use corridor district encourages improved aesthetic character by requiring substantial landscaping minimums. A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

Policy 2.5.2
Allow and encourage the development of small retail centers in residential neighborhoods that provide goods and services for local residents and workers. Generally, these centers should be located at the intersections of two or more streets that are classified as neighborhood collectors or higher.

Response: Policy 2.5.2 – The subject property is located at the intersection Beavercreek and Meyers Roads which are classified as neighborhood collectors or higher. The Mixed Use Corridor District has the range of permitted uses that will provide the local residents with vital goods, services and employment. Beavercreek Road has been identified as a transportation corridor. The subject property is at the signalized intersection of Beavercreek and Meyers Road. The MUC-1 zone would allow for a variety of retail and medical uses that could potentially serve the community. While the development plans for the site will be determined at a future date, the proposed plan amendment and zone change are consistent with this policy.

Policy 2.5.4

Encourage the development of successful commercial areas organized as centers surrounded by higher density housing and office uses, rather than as commercial strips adjacent to low-density housing.

Response: Policy 2.5.4 – The subject property is on the easterly side of Beavercreek Road and separated from low density housing. When adopted the Beavercreek Road Concept Plan this property will be surrounded by similar commercial and high density housing and offices. The MUC-1 zone allows for mixed use development which includes multi-family housing. Thus, any future development of the site that may include commercial areas would be consistent with this policy. The currently existing housing near the site across Beavercreek Road is a combination of residential zones including R-6, R-3.5 and R-10.

Goal 2.6 Industrial Land Development
Goal 2.6 Industrial Land Development
Ensure an adequate supply of land for major industrial employers with family wage jobs.

Policy 2.6.8
Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which if approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the city's employment goals.

Response: Policy 2.6.8 – The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. The current holding zone is FU. The property is a part of the Beavercreek Road Concept Plan. Code Section 17.65.030 defines the applicability of a required master plan as properties greater than ten (10) acres. The subject property is 9.59 acres and therefore is exempt from the master plan requirements. The requested zone of MUC-1 would allow for a variety of uses that will add employment opportunities to the area and meet the goals of the Concept Plan. Many of the permitted uses in the MUC zone, such as professional services, dental services, and veterinary clinics are family-wage jobs.

Goal 2.7 Oregon City Comprehensive Plan Land-Use Map
Goal 2.7 Oregon City Comprehensive Plan Land-Use Map
Maintain the Oregon City Comprehensive Plan Land-Use Map as the official long-range planning guide for land-use development of the city by type, density and location.
Policy 2.7.1
Maintain a sufficient land supply within the city limits and the Urban Growth Boundary to meet local, regional, and state requirements for accommodating growth.

Response: Policy 2.7.1 - The subject property was brought into the UGB in 1979 and annexed into the City of Oregon City in 2008. As a part of the Beavercreek Concept Plan this propertywas envisioned to be a sustainable community with high density mixed use employment and housing. The current Oregon City Comprehensive Plan map (Ordinance no. 08-1014) identifies this area as future urban. Permitted uses in the MUC-1 zone offer an array of uses includeing multi-family and commercial uses. These allowed uses are consistent with the goals and policies to accommodate growth.

Policy 2.7.2

Use the following 11 land-use classifications on the Oregon City Comprehensive Plan Land-Use Map to determine the zoning classifications that may be applied to parcels:
- *Low Density Residential (LR)*
- *Medium Density Residential (MR)*
- *High Density Residential (HR)*
- *Commercial (C)*
- *Mixed Use Corridor (MUC)*
- *Mixed Use Employment (MUE)*
- *Mixed Use Downtown (MUD)*
- *Industrial (I)*
- *Public and Quasi-Public (QP)*
- *Parks (P)*
- *Future Urban Holding (FUH)*

Response: Policy 2.7.2 – The requested comprehensive plan amendment would change the designation of this site to MUC, which is an allowed classification under this policy and would help in meeting the goals of property use for the area.

Policy 2.7.3
Recognize the design types of Metro's 2040 Growth Concept. Establish boundaries for the Regional Center in Downtown Oregon City; Corridors along 7th Street, Molalla Avenue, Beavercreek Road, and Highway 99; Industrial areas; and for Inner and Outer Neighborhoods.

Response: Policy 2.7.3 – The Metro 2040 Growth Concept map designated this property as an "outer neighborhood". Under the plan these new neighborhoods are to have emphasis on smaller single family, mixed housing types and uses. As a part of the Beavercreek Concept Plan this property is envisioned to be a sustainable community with high density mixed use employment and housing. Beavercreek Road has been identified as a transportation corridor, and the subject property is at the intersection of Beavercreek Road and Meyers Road.. The MUC-1 zone and the corresponding uses together with an MUC Comprehensive plan designation fit in with these goals. Metro has provided written support of a zone change to MUC-1.

Goal 6.1 Air Quality
Goal 6.1 Air Quality
Promote the conservation, protection and improvement of the quality of the air in Oregon City.

Policy 6.1.1
Promote land-use patterns that reduce the need for distance travel by single occupancy vehicles and increase opportunities for walking, biking and/or transit to destinations such as places of employment, shopping and education.

Response: Policy 6.1.1 – The subject property is within the Beavercreek Concept Plan, which envisions a sustainable community. One of the major concepts of a sustainable community is that services in the neighborhood are "walkable." The future development plans for this site will include provisions for pedestrian and bicycle modes of transportation. In addition, as a part of this plan, Beavercreek Road has been identified as a transportation

corridor, where multi forms of transportation will be available.The MUC-1 zone's list of uses encourage mixed use development. Permitted uses in the MUC-1 zone include both residential and commercial uses which promote and encourage alternate forms of transportation. These concepts together with design review will encourage a development that meets this policy.

Goal 8.1 Developing Oregon City's Park and Recreation System
Goal 8.1 Developing Oregon City's Park and Recreation System
Maintain and enhance the existing park and recreation system while planning for future expansion to meet residential growth.

Policy 8.1.5
Identify and construct a network of off-street trails throughout the city for walking and jogging.

Response: Policy 8.1.5 – The Beavercreek Road Concept Plan shows a potential trail planned that would partially fall on the subject property. An MUC-1 zone would not interfere with this trail being developed in the future. Further, there is a 50 foot wide gas corridor easement that runs across the northerly corner of the property, which creates a strip of unbuildable area that may be suitable for a walking trail per the easement guidelines.

Goal 9.8 Transportation System
Goal 9.8 Transportation System
Recognize the importance of the land use-transportation link and encourage businesses to locate in areas already served by the type of transportation system they need.

Policy 9.8.1
Through coordination with TriMet and local employers, encourage and promote the use of mass transit to travel between residential areas and employment areas.

Response: Policy 9.8.1 – Beavercreek Road has been identified as a transportation corridor in the Beavercreek Road Concept Plan. An MUC-1 zone would encourage mixed use development that would benefit from multi-modal transportation. Currenty bus service is available at the intersection of Beavercreek Road and Hwy. 213, and to the Clackamas Junior College on Hwy. 213. Future service to the High School and this property is expected when justified.This would be examined and reviewed more closely at time of development application (design review).

Policy 9.8.5
Work with the Oregon Department of Transportation to preserve and improve the capacity of Highway 213 and its intersection with I-205.

Response: Policy 9.8.5 – A traffic report has been prepared that studies the effects of various uses allowed by the MUC-1 zone to the area.
The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible

impact of the proposed zone change. A more detailed review would be required at time of development application (design review)

Policy 9.8.7
Assess methods to integrate the pedestrian, bicycle and elevator transportation modes into the mass transit system.

Response: 9.8.7 - Beavercreek Road has been identified as a transportation corridor in the Beavercreek Road Concept Plan. An MUC-1 zone would encourage mixed use development that would benefit from multi-modal transportation. This will be examined and reviewed more closely at time of development application (design review).

Goal 10.1Diverse Housing Opportunities
Goal 10.1 Diverse Housing Opportunities
Provide for the planning, development and preservation of a variety of housing types and lot sizes.

Policy 10.1.3
Designate residential land for a balanced variety of densities and types of housing, such as single-family attached and detached, and a range of multi-family densities and types, including mixed-use development.

Response: Policy 10.1.3 – Currently the subject property has a holding zone of FU. The adoption of the Beavercreek Road Concept Plan would make the MUC-1 a reasonable zone given the goals of mixed use and high density residential. The multi-family use allowed under MUC-1 would allow for a potential alternative to single family homes already in the area.

Goal 11.1 Provision of Public Facilities
Goal 11.1 Provision of Public Facilities
Serve the health, safety, education, welfare, and recreational needs of all Oregon City residents through the planning and provision of adequate public facilities.

Policy 11.1.6
Enhance efficient use of existing public facilities and services by encouraging development at maximum levels permitted in the Comprehensive Plan, implementing minimum residential densities, and adopting an Accessory Dwelling Unit Ordinance to infill vacant land.

Response: Policy 11.1.6 - At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. This area has been studied under The Beavercreek Road Concept Plan which envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the

easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City.

Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and can be extended across Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

The impacts to the schools are expected to be minimal because the permitted uses and likely actual development are favoring a mix of commercial uses.

The impact of approximately 9 acres of mixed use development on the capacity of the police is minimal and would be addressed when the actual development application is submitted. At this time we feel confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire protection for the much larger High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

Goal 12.1 Land Use Transportation Connection
Goal 12.1 Land Use-Transportation Connection
Ensure that the mutually supportive nature of land use and transportation is recognized in planning for the future of Oregon City.

Policy 12.1.3
Support mixed uses with higher residential densities in transportation corridors and include a consideration of financial and regulatory incentives to upgrade existing buildings and transportation systems.

Response: Policy 12.1.3 – The proposed MUC-1 zone would encourage mixed uses that would benefit from being on Beavercreek Road which has been designated a transportation corridor. This would be reviewed in more detail at time of development application.

Goal 12.5 Safety
Goal 12.5 Safety
Develop and maintain a transportation system that is safe.

Policy 12.5.1
Identify improvements that are needed to increase the safety of the transportation system for all users.

Response: Policy 12.5.1 – The traffic analysis has identified improvements that will be needed to increase the safety of the local transportation system. Beavercreek Road has been identified as a transportation corridor. Improvements along Beavercreek that would enhance transportation safety would be reviewed at time of development application. However it can be said that MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation.

Goal 12.6 Capacity
Goal 12.6 Capacity
Develop and maintain a transportation system that has enough capacity to meet users' needs.

Policy 12.6.1
Provide a transportation system that serves existing and projected travel demand.

Response: Policy 12.6.1 - Beavercreek Road has been identified as a transportation corridor. Capacity of the transportation system would be reviewed in more detail at time of development application.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency

plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

Policy 12.6.2
Identify transportation system improvements that mitigate existing and projected areas of congestion.

Response: Policy 12.6.2 – A traffic analysis is attached to this application which demonstrates that transportation capacity is sufficient and can be made adequate prior to actual development. This report has been prepared using a combination of the initial Beavercreek study an analysis models showing that the difference between the current EFU and the proposed Mixed Use zone will not create an unmitigated significant impact on the transportation system. The models prepared and approved by the City as part of the master plan efforts, which include growth assumptions, planned improvements, and an assessment of how the intersections will operate with existing zoning were used as the baseline condition. A mixed-use development scenario was overlaid on the models to analyze the incremental impact of the proposed zone change. Mitigation considerations are addressed in the attached traffic analysis and will be examined in more detail at time of development application submittal.

Goal 13.2 Energy Conservation
Goal 13.2 Energy Conservation
Plan public and private development to conserve energy.

Policy 13.2.1
Promote mixed-use development, increased densities near activity centers, and home-based occupations (where appropriate).
Response: Policy 13.2.1 - At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. When studied under The Beavercreek Road Concept Plan it was envisioned that a complete and sustainable community with high density mixed use employment and housing would be the result. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City, and the above policy.

Goal 14.1 Urban Growth Boundary

Establish, and amend when appropriate, the Urban Growth Boundary in the unincorporated area around the city that contains sufficient land to accommodate growth during the planning period for a full range of city land uses, including residential, commercial, industrial, and institutional.

Policy 14.1.2
Concept plans that provide more detail than the city's Comprehensive Plan will be required prior to development of lands within the Urban Growth Boundary.

Response: Policy 14.1.2 – The property was added to the UGB in 1979 and is not subject to Title 11. Surrounding farmland property was brought into the UGB in 2002 and 2004. No changes to the UGB are proposed as a part of this application. Site development plans will be prepared and reviewed for compliance to City standards as a part of a future Development Review application and no site development will occur until a concept plan is adopted for the areaand granted by the City of Oregon City.

Goal 14.3 Orderly Provision of Services to Growth Areas
Plan for public services to lands within the Urban Growth Boundary through adoption of a concept plan and related Capital Improvement Program, as amendments to the Comprehensive Plan.

Policy 14.3.1
Maximize new public facilities and services by encouraging new development within the Urban Growth Boundary at maximum densities allowed by the Comprehensive Plan.

Response: Policy 14.3.1 - At this time the property owner proposes a zone change from Future Urban (FU) to Mixed Use Corridor District-1 (MUC-1), and a comprehensive plan amendment from Future Urban (FU) to Mixed Use Corridor (MUC). There are no development plans proposed and no uses proposed at this time. The goal is to establish a City zone so that the property may be developed in the future to the highest and best use, commensurate with the city's desires for the area. The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Beavercreek Road, we believe this proposed zoning and comprehensive plan designation will be in concert with the goals of the City, and this policy.

Public facilities are presently capable of supporting any of the uses allowed within an MUC-1 zone.

All services are available at the site and have capacity to serve the property. There is public water available to the site from a currently existing 12-inch line is Beavercreek Road. An existing 8-inch sanitary line is at the end of Emerson Court and can be extended across Beavercreek Road. Storm water will be directed north to the existing natural drainage way and/or along the existing Beavercreek Road storm system.
A traffic analysis is attached to this application that analyzes the proposed zone change in compliance with the Transportation Planning Rule (TPR), OAR 660-012-0060. The analysis determined that there will be a significant affect on surrounding transportation facilities because of the increased site development potential associated with the proposed change from EFU to the Mixed Use zone.

Given a significant affect was identified under TPR, capacity analyses were prepared to identify appropriate mitigation measures under OAR 660-012-0060(2).
The analysis of impacts was conducted for the future long-term horizon corresponding to the end of the City's planning period.

The traffic capacity models used in the TPR analyses were developed in collaboration with City of Oregon City and Oregon Department of Transportation staff to reflect growth assumptions, planned improvements, and potential improvements consistent with agency plans. The No-build analyses reflect an assessment of how the intersections will operate with the existing zoning and were used as the baseline condition. A reasonable worst-case mixed-use development scenario was then overlaid on the models to analyze the possible impact of the proposed zone change.

With the recommended mitigation measures in place and requirements to ensure that the future approvals support the development of a mixed-use pedestrian friendly neighborhood, the proposed zone change from EFU to Mixed Use zoning is consistent with the planned function, capacity, and performance standards of the transportation facilities.

The impacts to the schools are expected to be minimal because the permitted uses and likely actual development are favoring a mix of commercial uses.

The impact of approximately 9 acres of mixed use development on the capacity of the police is minimal. Exhibit A of the Annexation Agreement (December 19, 2007) establishes the Police Funding Fee Schedule for this property. The appropriate fees will be assessed when the actual development application is submitted. At this time we feel confident that any deficiencies could be corrected prior to any development construction or occupancy.

Fire protection for the much larger High School facility directly across the street was found to be adequate and is largely a function of sufficient water. The public water system is a looped system with sufficient capacity and pressure to support the necessary fire protection. Additional fire hydrants and possible fires sprinkler systems will be included with an actual development application.

Future development of this site under the proposed MUC-1 zoning will be developed in accordance with the development standards applicable to this zone and the density of development will be consistent with maximizing the efficient utilization of public facilities.

Policy 14.3.2
Ensure that the extension of new services does not diminish the delivery of those same services to existing areas and residents in the city.

Response: Policy 14.3.2 – Any extension of services necessary to serve the site will not interfere with other surrounding properties receiving these same services, but rather potentially further their availability to future development. This will be examined in more detail at time of development application.

Policy 14.3.4

Ensure the cost of providing new public services and improvements to existing public services resulting from new development are borne by the entity responsible for the new development to the maximum extent allowed under state law for Systems Development Charges.

Response: Policy 14.3.4 – Any development activity on the site will trigger appropriate SDC fees and will be examined at time of development application.

Beavercreek Concept Plan

The applicant recognizes that the Beavercreek Concept Plan has been remanded by LUBA back to the City, but the applicant believes that the plan reflects the views of the city for this area. Therefore, as a precaution, this application will address the Beavercreek Concept Plan's components

Goal 1 Complete and Sustainable Community
Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center.

Response: The proposed MUC-1 zone and accompanying MUC comprehensive plan designation does allow for a variety of uses and/or combination of uses that would promote diversity of potential services and housing options for the community. Included in the permitted uses are residential, including multi-family, Medical and Dental facilities, professional services, retail and parks or neighborhood centers. Additional sustainability strategies include sustainable stormwater management plans, supporting LEED certifications, extending a trail framework, and street layout with logical and connecting street patterns. This designation is consistent with the provisions of the Beavercreek Concept Plan and its promotion of sustainable community design choices.

Objective 1.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 1.1 – The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will intergrage and utilize the surrounding city and rural economy.

Objective 1.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 1.2 – The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. The subject property is buffers the rural lands on the east, south and north by land within the current UBG. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 1.4
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services, and housing for local workers and residents of all ages and incomes.

Response: Objective 1.4 - The MUC-1 zone permitted uses encourage neighborhood-oriented and scaled mixed-use centers by providing employment and housing for local residents of all ages and incomes. Retail, professional and office uses, plus residential uses provide jobs and housing in a neighborhood-oriented environment.

Objective 1.6
Allow the integration of housing and employment uses where practicable.

Response: Objective 1.6 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 1.7
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Objective 1.7 – Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 2 Model of Sustainable Design Be a model of sustainable design, development practices, planning, and innovative thinking.

Response: The proposed zone change to MUC-1 does foster sustainability by the mixed and transit supportive land uses. Innovative sustainable stormwater management and building supporting LEED certifications can be used when development occurs.

Objective 2.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 2.1 - The MUC-1 zone allows for a variety to uses that could potentially utilize the surrounding City and rural economies.

Objective 2.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 2.2 - The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due

consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 2.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Response: Objective 2.3 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 2.4
Encourage environmentally responsible developments that are economically feasible, enhance livability of neighborhoods and enhance the natural environment.

Response: Objective 2.4 - The proposed zone change to MUC-1 mixed uses will encourage environmentally responsible developments that enhance livability of neighborhoods and protect and enhance the natural environment.

Goal 3 Green Jobs Attract "green" jobs that pay a living wage.

Response: The MUC-1 zone allows for a variety of uses that could potentially include businesses with "green jobs" that pay a living wage.

Objective 3.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 3.1 - The MUC-1 zone has a long list of uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 3.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 3.2 - The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008and buffers the subject property from the rural areas. This area is part of the Beavercreek Concept Plan whose master vision

in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision.

Objective 3.3
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Response: Objective 3.3 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 3.4
Allow the integration of housing and employment uses where practicable.

Response: Objective 3.4 - The MUC-1 zone allows for a variety of uses that could potentially include a mixed use center and/or multi-family housing.

Objective 3.5
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Objective 3.5 - Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 5 Natural Beauty Incorporate the area's natural beauty into an ecologically compatible built environment.

Response: Sustainable stormwater plans using best management practices will enhance the natural beauty and provide ecologically compatibility. The MUC-1 zone allows for a variety of uses that can be built in an ecologically compatible manner and incorporate the area's natural beauty. Currently the Beavercreek Concept Plan indicates a portion of a trail to cross the subject property which could be incorporated nicely into a development project.

Objective 5.1
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Response: Objective 5.1 – The development plan for this property will ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation. Pedestrian experience considerations would be examined in detail at time of submittal of any development application.

Objective 5.2
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: Objective 5.2 - The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 5.3
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: Objective 5.3 - The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 5.4
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Objective 5.4 - Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal.
Goal 6 – Provide Multi-Modal transportation links.
Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal. Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Goal 6 Multi-modal Transportation Provide multi-modal transportation links (such as bus routes, trails, bikeways, etc.) that are connected within the site as well as to the surrounding areas.

Objective 6.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Response: Objective 6.1 - MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation. This would be examined in detail at time of development application submittal. This property will provide public connectivity

routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the area and to the communities beyond.

Objective 6.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural storm water systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Response: Objective 6.2 -A sustainable stormwater management plan will provide for water quality and quantity in the conveyance systems either open or closed to existing downstream areas. Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Goal 7 Safety Along Beavercreek Road Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand.

Response: Beavercreek Road has been identified as a transportation corridor. The existing intersection of Meyers and Beavercreek is a signalized crossing that will control speeds and access. The desired cross section of Beavercreek Road has already been installed on the High School side of the street and incorporates pedestrian and bicycle modes. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. This would be examined in detail at time of development application submittal.

Objective 7.1
Develop and maintain a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel, especially across Beavercreek Road to the existing neighborhoods, Clackamas Community College, Oregon City High School and the Berry Hill Shopping Center.

Response: Objective 7.1 – Development will extend a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel. The intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development..

Objective 7.2
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Response: Objective 7.2 – Uses proposed for the property will be designed in a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Goal 8 Oregon City High School and Clackamas Community College Promote connections and relationships with Oregon City High School and Clackamas Community College.

Response: The intersection of Beavercreek and Meyers is signalized and will be the only access to the subject property, thus connection the existing modes of travel already established on the High School side with this development. This zone and allowed uses and future development of the property will promote connections with Oregon City High School and Clackamas Community College.

Objective 8.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 8.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Goal 9 Unique Sense of Place Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability.

Response: The MUC-1 zone with the many permitted uses will create a sense of place of mixed uses, scale of design and commitment to sustainability and allow compliance with the Goal unlike other zones.

Objective 9.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Response: Objective 9.1 - Beavercreek Road has been identified as a transportation corridor. MUC-1 uses would encourage mixed use development that would be benefited by multi-modal forms of transportation and pedestrian considerations. The applicant will provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas with the Beavercreek Road Concept area and to the communities beyond. This would be examined in detail at time of development application submittal.

Objective 9.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Response: The applicant will provide an integrated street system that is designed as practicable to minimize the impacts to the environment sustainable design that provide storm water quality and quantity control using best management practices.

Best management practices will enhance, clean and control the storm flows along Beavercreek Road or to the natural drainage way to the north of this property.

Objective 9.3
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Response: The MUC-1 zone allows for a variety to uses that will utilize the surrounding City and rural economies. The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.4
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Response: The undeveloped land that surrounds the subject property was brought into the UGB in 2002/2004 and annexed into the City of Oregon City in 2008. This area is part of the Beavercreek Concept Plan whose master vision in a sustainable community of mixed use and high density residential. The MUC-1 zone potential uses fit into this vision. The city policies with respect to annexation and growth have given due consideration to the existing rural lands and uses. The applicant's property is surrounded and buffered by land within the UGB to the adjacent rural lands.

Objective 9.5
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Response: The permitted uses include offices for medical, dental, veterinary, and professional uses; retail; and health and fitness facilities. These types of businesses offer a wide variety of employment opportunities that will integrate and utilize the surrounding city and rural economy.

Objective 9.6
Allow the integration of housing and employment uses where practicable.

Response: Objective 9.6 - The MUC-1 zone allows for a variety to uses that could potentially provide goods, services and/or housing. This zone provided for an integration of housing and employment uses which will likely to occur on the subject property.

Objective 9.7
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Response: Metro has been contacted regarding this proposed zone change, and has indicated support for the proposal, thus showing compliance with this objective.

Phil Gentemann

From: Dan Drentlaw [ddrentlaw@ci.oregon-city.or.us]
Sent: Thursday, October 22, 2009 12:32 PM
To: phil@centurionhomes.net
Cc: Bill Kabeiseman; Tony Konkol
Subject: RE: 19896 S Beavercreek Road.doc

Phil –

While the property in question is annexed to Oregon City, it is designated Future Urban on our Comprehensive Plan. In order to develop the property one of the major steps would be to apply for a change to the comprehensive plan designation and apply for city zoning. This is a type 4 process and would require public hearings before the Planning Commission and City Commission. One of the major review criteria would be consistency with the Compressive plan and the Beavercreek Rd. concept plan. While we cannot guarantee the outcome of this process, it appears that rezoning to MUE or MUC would be consistent with the Beavercreek Rd. concept plan. These hearings could be combined to save processing time and a decision would have to be issued with 120 days from the submittal of a complete application. If you would like details regarding the application requirements, please contact Tony Konkol.

From: Phil Gentemann [mailto:phil@centurionhomespdx.com]
Sent: Tuesday, October 20, 2009 1:50 PM
To: Dan Drentlaw
Cc: KleinmanJL@aol.com
Subject: 19896 S Beavercreek Road.doc

Dan attached is a summary outline reference zoning our property at 19896 S Beavercreek Road. I could also send you the information i
handed out at the council meeting last week if you need it or think it would be helpful

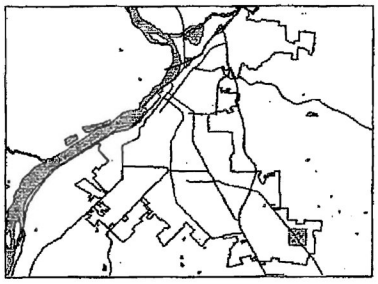
No virus found in this incoming message.
Checked by AVG - www.avg.com
Version: 8.5.423 / Virus Database: 270.14.24/2449 - Release Date: 10/20/09 18:42:00

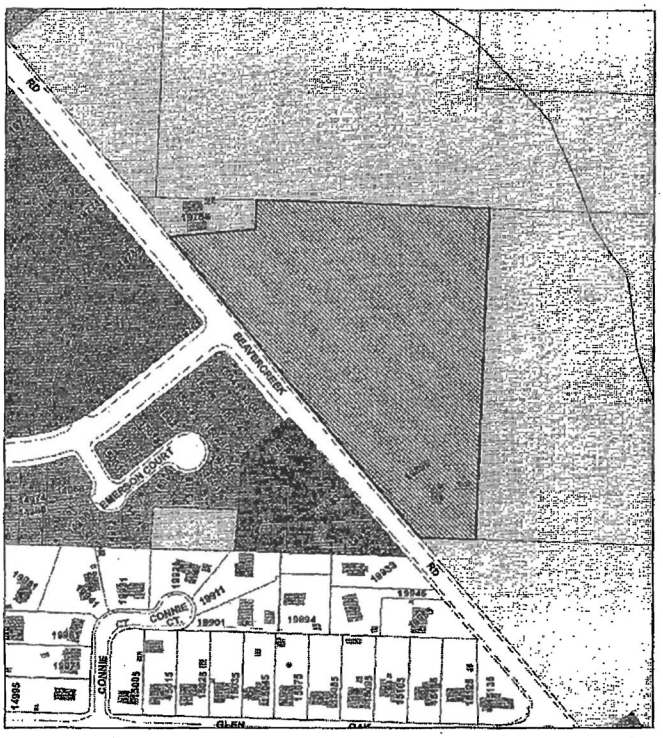
Oregon City Permit Submittal - Property Zoning Report

Printed October 23, 2009

Taxlot: 3-2E-10C -00800

Site Address: 19896 BEAVERCREEK RD





Taxlot Information

Taxlot Number: 3-2E-10C -00800
Alt ID: 870711

Site Address: 19896 BEAVERCREEK RD
OREGON CITY
OR 97045

Parcel Area (acres - approx): 9.73
Parcel Area (sq. ft. - approx): 423838

Twn/Rng/Sec: 03S 02E 10
Tax Map Reference: 32E10C

Overlay Information

In Historic District? N
In Willamette Greenway? N
Geologic Hazards (Steep slope)? N
In Nat. Res. Overlay District (NROD)? N
In 1996 Floodplain? N

Taxpayer Information

Last Name: MARYLWOOD LLC
First Name:
Address: 7128 SW GONZAGA ST STE 100
PORTLAND
OR 97223

Planning Designations

Zoning: County
- County
Comprehensive Plan: fu
- Future Urban

Subdivision: NONE
PUD (if known):
Neighborhood Assn: Caufield NA
Urban Renewal District:
Historic District:
Historic Designated Structure? N

This map is not suitable for survey, engineering, legal, or navigation purposes. Data errors and omissions may exist in map and report.

City of Oregon City - PO Box 3040 - 320 Warner Milne Road - Oregon City, OR 97045
Phone: (503) 657-0891 Fax: (503) 657-7892 Web: www.ci.oregon-city.or.us

CITY OF OREGON CITY
Pre-Application Form

File Number _____

Meeting Date ____/____/____ **Time:** 10 A.M. **Location:** 221 Molalla Ave., Ste. 200

Applicants and appropriate representatives are expected to present a detailed explanation of their proposal at the conference.

Applicant:

Name Theta, LLC

Contact Person Bruce Goldson

Address P.O. Box 1345

Lake Oswego, Oregon 97035

Phone 503-481-8822

Owner(s):

Name Marylwood LLC.

Address 7128 SW Gonzaga St.

Portland Oregon 97223

Phone 503-620-2047

Property Description:

Tax Assessor Map Number(s):

3-2E-10C-00800

Address: 19896 Beavercreek Rd.

Oregon City, Oregon 97045

Proposed Development Action:

Change the Comprehensive Plan & Zoning to Mixed use Corridor District (MUC-1)

No development is proposed at this time

Applicant Signature _____ Date 10/26/09

The pre-application conference is to provide the applicant the necessary information to make an informed decision regarding their land use proposal. Pre-Application Conferences expire six (6) months from the meeting date. Please submit 10 copies of the required information.

Pre-Application Checklist:

Failure to submit a complete application may require additional fees and pre-application meetings.

Minimum Pre-Application Requirements

- ☐ Pre-application Fee (Major or Minor)
- ☐ Narrative
  A detailed narrative description of your proposal and any specific questions you would like the Community Development Department to respond to at the Pre-Application Conference.
- ☐ Site/Plot Plan (8½" x 11" or 11" x 17")
  - ___ Parcel and building setback dimensions
  - ___ Existing and proposed structures
  - ___ Location and dimensions of easements and driveway
  - ___ Location of utilities – storm, sanitary sewers & water (including size of service and street location)
  - ___ Width of adjacent right of way
- ☐ Property Zoning Report (Obtained from City Hall)
- ☐ Additional Information / Requirements

Additional Subdivision / Minor Partition Requirements

- ☐ Slope map (if area is exceeds a 24% slope)
- ☐ Significant Tree Locations (all trees with a caliper over 6 inches)
- ☐ Utility layout
- ☐ Proposed detention system with topographic contours
- ☐ Location of on-site water resources
- ☐ Connectivity analysis that includes shadow plats of all adjacent properties demonstrating how they can be developed meeting existing code.

Additional Site Plan & Design Review Requirements

- ☐ Proposed elevations
- ☐ Parking lot layout
- ☐ Parking space calculations (based on use and square footage of building)

Please review this material and return comments prior to the above meeting date for consideration.

Routing: PW Dir. ☐; Bldg ☐; Eng ☐; Fire ☐; Finance ☐; Parks (DK) ☐; Clack Co (E) ☐; Clack Co (P) ☐; ODOT ☐; Schools ☐; Tri-Met ☐; Metro ☐; Police ☐; Other ____

Narrative

Subject Property:

19896 Beavercreek Rd., Oregon City 97045

Tax lot 800, T3S, R2E, Sec 10C, 9.59 Acres

Current Zone:

Future Urban

Proposed Change:

Amend the comprehensive plan and a Zone change to change the zone to Mixed Use Corridor District "MUC-1".

Description:

This parcel is a triangular shaped 9.59 acre property with one residential home in the southerly end of the site. The majority of the land has a very gentle slope and is currently farm land. A major gas line corridor runs through the property at the northerly end of the parcel. The property is opposite the Oregon City High School opposite the Meyers and Beavercreek intersection.

The subject property is in the City of Oregon City and was included with the Beavercreek Road concept plan. The Oregon City Municipal Code, Chapter 17.29 – Mixed Use Corridor District specifically identifies Beavercreek Road as a transportation corridor where this zone should be applied. Currently there isn't any MUC zoning along Beavercreek Road but there is MUC along Molalla Ave directly to the west.

The Beavercreek Road Concept Plan envisioned a complete and sustainable community with high density mixed use employment and housing. As development occurs on the easterly side of Bearvecreek Road this proposed zoning is in concert with the goals of the City. METRO has been contacted and has agreed to allow this property to be rezoned separately.

At this time no specific development is proposed. The goal is to establish the zone and then proceed with the planning and development of the site with the highest and best use. All the basic Utilities are found in Beavercreek Road or adjacent to the site. The Beavercreek Road right-of-way appears to be generally 60 feet wide with 30-feet along this property.

PortlandMaps

19896 S BEAVERCREEK RD - CLACKAMAS COUNTY

Aerial Photo

2008 / '07 / '06 / '05 / '04 / '03 / '02 / '01 6" / 2' / 4' / 10' / 20' Streets: Off Lots: On Dot: On

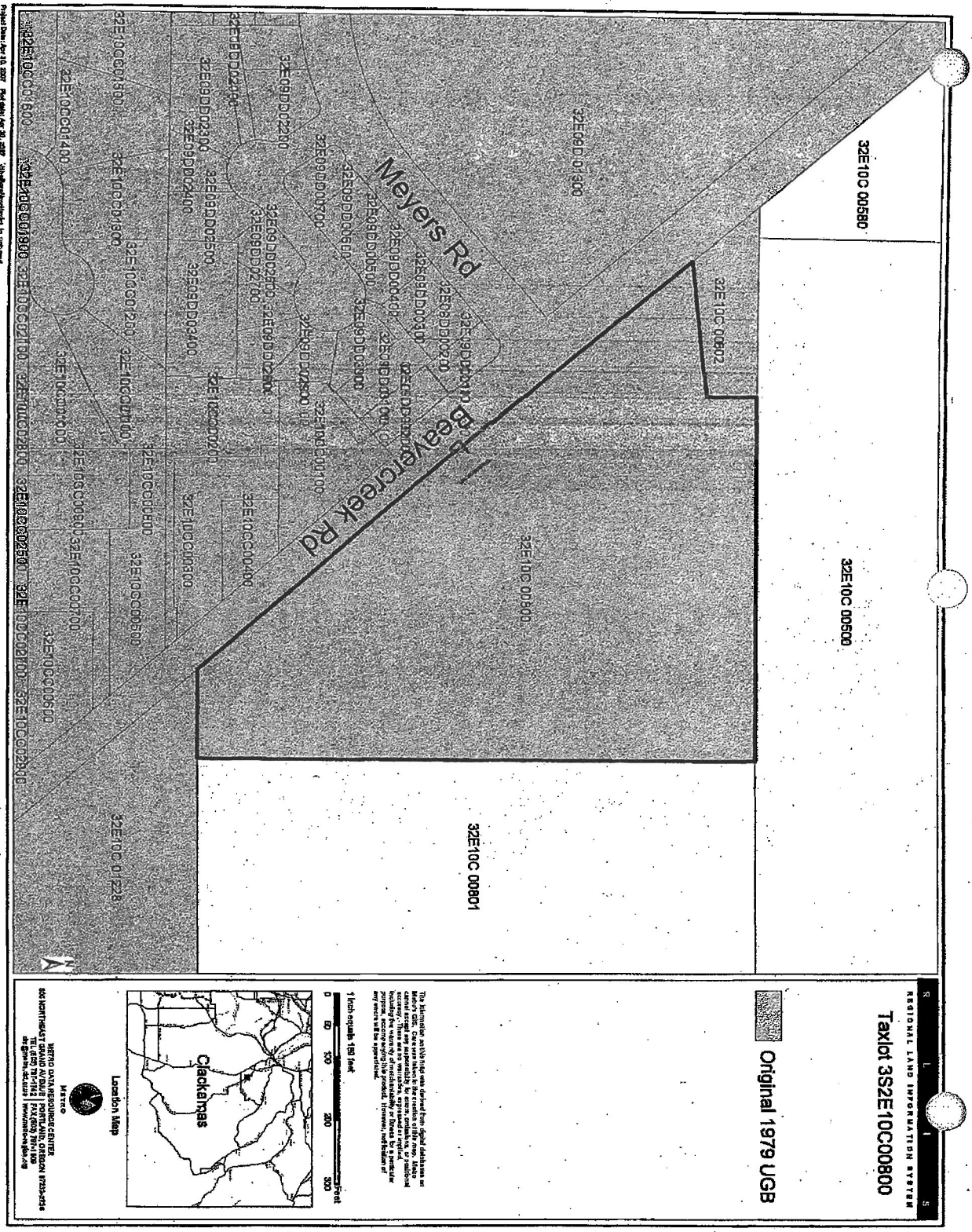


0 200 FT

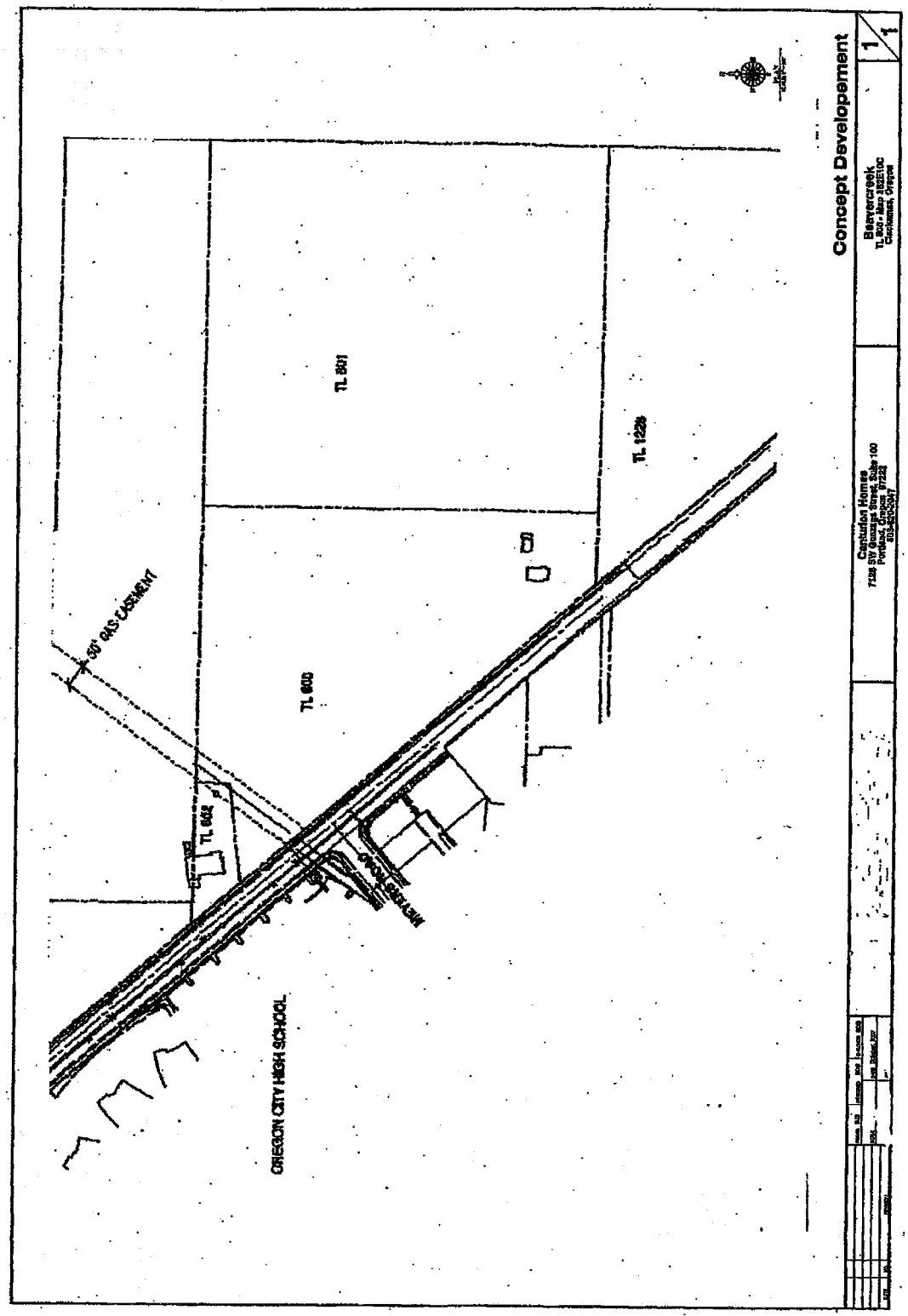
City of Portland, Corporate GIS 10/26/2009

THE GIS APPLICATIONS ACCESSED THROUGH THIS WEB SITE PROVIDE A VISUAL DISPLAY OF DATA FOR YOUR CONVENIENCE. EVERY REASONABLE EFFORT HAS BEEN MADE TO ASSURE THE ACCURACY OF THE MAPS AND ASSOCIATED DATA. THE CITY OF PORTLAND MAKES NO WARRANTY, REPRESENTATION OR GUARANTEE AS TO THE CONTENT, SEQUENCE, ACCURACY, TIMELINESS OR COMPLETENESS OF ANY OF THE DATA PROVIDED HEREIN. THE USER OF THESE APPLICATIONS SHOULD NOT RELY ON THE DATA PROVIDED HEREIN FOR ANY REASON. THE CITY OF PORTLAND EXPLICITLY DISCLAIMS ANY REPRESENTATIONS AND WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE CITY OF PORTLAND SHALL ASSUME NO LIABILITY FOR ANY ERRORS, OMISSIONS, OR INACCURACIES IN THE INFORMATION PROVIDED REGARDLESS OF HOW CAUSED. THE CITY OF PORTLAND SHALL ASSUME NO LIABILITY FOR ANY DECISIONS MADE OR ACTIONS TAKEN OR NOT TAKEN BY THE USER OF THE APPLICATIONS IN RELIANCE UPON ANY INFORMATION OR DATA FURNISHED HEREUNDER. FOR UPDATED INFORMATION ABOUT THE MAP DATA ON PORTLANDMAPS PLEASE REFER TO CITY'S METADATA. FOR QUESTIONS ABOUT ASSESSMENT INFORMATION PLEASE CONTACT THE COUNTY ASSESSORS OFFICE IN YOUR COUNTY.

PortlandMaps © 2009 City of Portland, Oregon



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

CITY OF OREGON CITY
PRE-APPLICATION CONFERENCE SUMMARY

Pre-application conferences are required by Section 17.50.030 of the City Code, as follows:
(A) PURPOSE: The pre-application conference is to provide the applicant the necessary information to make an informed decision regarding their land use proposal.
(B) A pre-application conference is required for all land use permits.
(C) Time Limit: A pre-application conference is valid for a period of six (6) months.
(D) An omission or failure by the Planning Division to provide an applicant with relevant information during a pre-application discussion shall not constitute a waiver of any standard, criterion, or requirement of the City of Oregon City. Information given in the conference is subject available information and may be subject to change without notice. *NOTE: The subsequent application may be submitted to any member of the Planning Staff.*

PRE-APP # 09-11 / DATE: 11/10/09
APPLICANT: Goldson
SITE ADDRESS: 19896 Beavercreek Rd
PROPERTY DESCRIPTION: 3-2E-10C +1 800
STAFF: Kom Kol ZONING: FU
PROPOSED USE/ACTIVITY: Comp Plan Amend. / Zone Change (MUC/MUC-1)
INFORMATION NECESSARY TO BEGIN DEVELOPMENT: This listing of information does not preclude the Community Development Department or hearings body from requesting additional data necessary to make a recommendation and/or decision regarding the proposed activity.

1. PLANNING

- ☐ Zoning/ Setbacks
- ☐ Is the Site in a Water Resource Overlay District? (Yes or No)
- ☐ Is the Site in a Historic Overlay District? (Yes or No)
- ☐ List of Minimum Required Planning Processes:

1. Zone Change
☑ OCMC 17.50 – *Administrative Processes*
☑ OCMC 17.68 – *Zone Change*

Other: See approval criteria 17.68.020. Each section must be addressed w/ findings - references to maps or plans will not be accepted. Contact John Replinger to discuss scope of needed transportation impact review for worst case land use allowed on site. Address existing + needed utilities to support MUC zone. Address incompatibility w/ existing Metro design type (Outer neighborhood). Address why sections of Comp Plan not applicable.
See MEC on Beavercreek Concept Code.
******Note: Existing addresses are subject to change with the creation of new parcels******
Must meet w/ Canfield N.A. prior to application being deemed complete. Contact Chris Taylor (503) 496-1681 for Canfield contact information
Address statewide planning goals.
Recommend policies to address: 2.3.1, 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.5.1, 2.5.2, 2.5.4, 2.6.8, 2.7.1, 2.7.2, 2.7.3, 6.1.1, 8.1.5, 9.8.1, 9.8.5, 9.8.7, 10.1.3, 11.1.6, 12.1.3, 12.5.1, 12.6.1, 12.6.2, 13.2.1, 14.1.2, 14.3.1, 14.3.2, 14.3.4.
Goals + objectives of Beavercreek Concept Plan.

2. ENGINEERING

A. Grading: _____
B. Drainage: _____
C. Sanitary Sewer: _____
D. Water: _____
E. Right-of-Way Dedication/Easements: _____
F. Street Improvements (including continuation of existing streets within subdivisions): _____
G. Special Analysis (traffic study, geotechnical study, EIS): _____
H. Development Impact Statement required with Subdivision applications.
I. TSP compliance (Connectivity, Street Widths, etc.): _____

Other: _____

3. BUILDING

A. Proposed Construction Type: _____
B. Number of Stories: _____
C. Square Footage: _____
D. Number of Buildings: _____
E. Type of Occupancy: _____
F. Fire Sprinklers: _____
G. Valuation (estimate): $ _____
H. Fire/Life Safety Required: Yes _____ No _____

4. FIRE

A. Fire Flow Requirements (gallons per minute): _____
B. Location/Number of Hydrants: _____
C. Access Requirements: _____
D. Other: _____

OTHER COMMENTS: _____

NOTICE TO APPLICANT: A property owner may apply for any permit they wish for their property. HOWEVER, THERE ARE NO GUARANTEES THAT ANY APPLICATION WILL BE APPROVED. No decisions are made until all reports and testimony have been submitted. This form will be kept by the Community Development Department. A copy will be given to the applicant. IF the applicant does not submit an application within six (6) months from the Pre-application Conference meeting date, a NEW Pre-Application Conference will be required.

CITY OF OREGON CITY

COMMUNITY DEVELOPMENT DEPARTMENT

2009 FEE SCHEDULE

(EFFECTIVE JANUARY 1, 2009)

All fees are subject to change by Resolution of the City Commission. The applicant is responsible for paying the application fee in effect at the time the **formal application** is submitted

APPLICATION TYPE	FILING FEE
Appeal --Administrative (includes SDC)	$250
Annexation Application // Election Deposit	$3,898 $3,000
Amendment to Comp Plan	$3,960
Compatibility Review/Non-conforming Use	$742
Expedited Land Division	$3,713 plus $372 per lot
Geologic Hazards Review	$780
Historic Review	
- New Construction	$50 plus 2.5% of construction cost, (max. $1,000)
Lot Line Adjustment	$1,040
Master Plan (Amendment)	$618 $1,857 $3,094
Minor Partition	$3,553
Residential Design Standards	$69
Sign Variance	$1,139
Site Plan & Design Review / Detailed Master Plan	
- $500,000 to $3,000,000	$3,094 plus 0.005 X project cost
Subdivision	$3,713 plus $309 per lot
Variance (Administrative)	$1,206
Water Resource Review	
- Exemption for Non-Single/Two Family Lot	$378
- Water Resource for Non-Single/Two Famil	$1,759
Zone Change / Text Amendment	$2,512

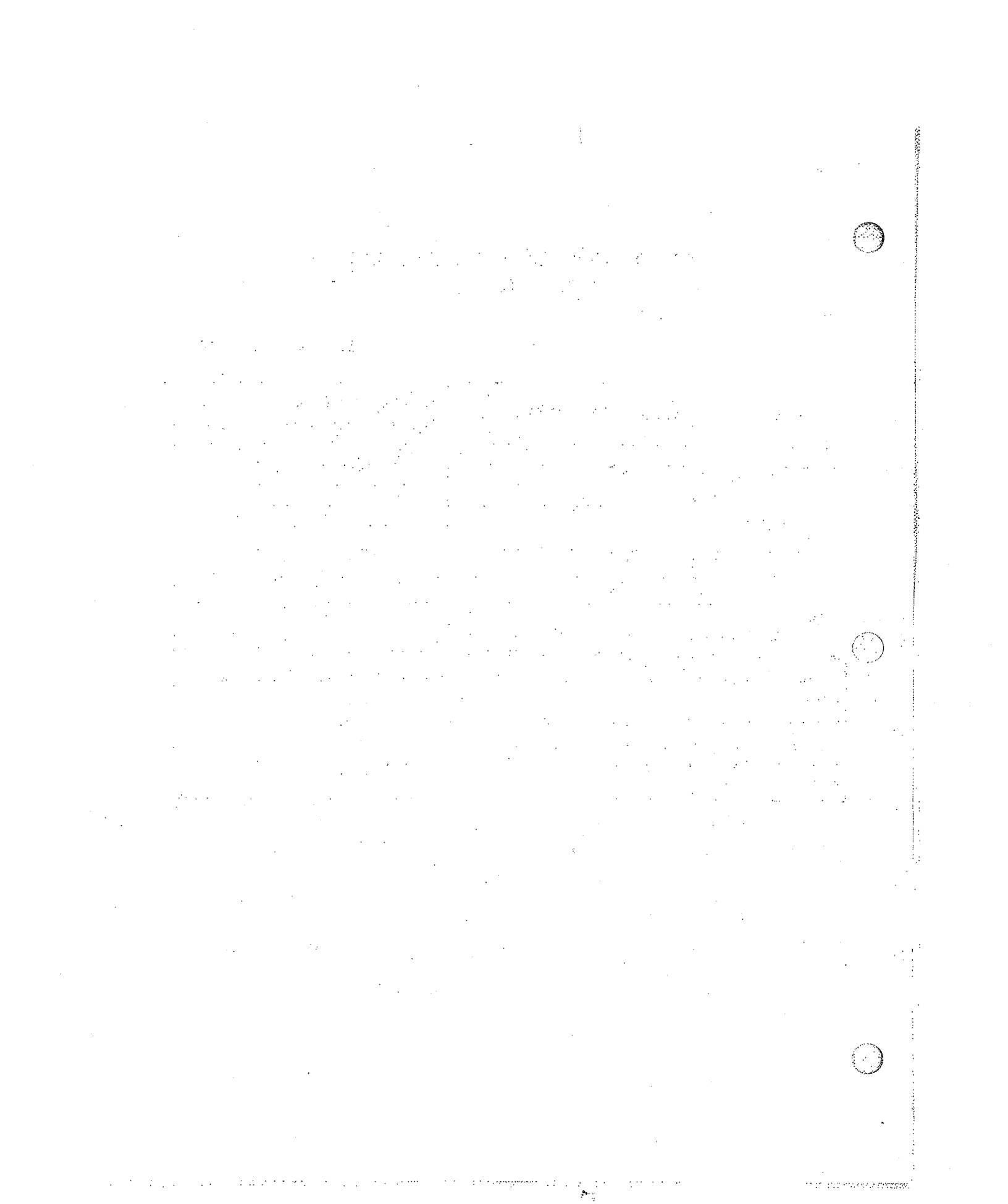
2009 TRAFFIC IMPACT ANALYSIS (TIA) FEE STRUCTURE

Effective January 1, 2009

Land Use	Base Fee[1]	Large Study Area or Location near or Along Key Corridor[2]	Conditional Use, Zone Change, or Master Plan[3]	Meetings[4] Charge
Residential		$612	$1,837	$122
0-50 units	$981			
50+ units	$1,225			
Non-residential		$612	$1,837	$122
<50K ft^2	$2,450			
50 to 100K ft^2	$3,062			
>100K ft^2	$3,674			

Notes:

1. Covers initial review. Each time supplemental information is submitted for review in association with a particular land use application, a supplemental review fee will be assessed at 50 percent of the base fee.
2. Applies to study areas including more than three intersections/accesses and/or development located near or along congested corridors.
3. Applies to developments involving a conditional use or zone change, or master plan.
4. Charged on a time and material basis including travel and attendance time for pre-application meetings, site visits, planning commission meetings, and other meetings called by applicant or City staff to review issues associated with the development.



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Theta, llc

ENGINEERING - SURVEYING - PLANNING

503/481-8822

PO Box 1345
Lake Oswego, Oregon 97035

e-mail: thetaeng@comcast.net

November 10, 2009

Mr. John Dingwall, Co-Chair
Caufield Neighborhood Association
19915 Sophia Court
Oregon City, Oregon 97045

Sent Via Certified Mail/Return Receipt Request

RE: Proposed Zone Change and Comprehensive Plan Amendment
19896 Beavercreek Road

Dear Mr. Dingwall:

I represent the owner of the property located at 19896 Beavercreek Road in Oregon City (tax map enclosed). We are planning to submit a land use application to the City of Oregon City for a potential zone change and comprehensive plan amendment to this property. As a part of this application (per City Code 17.50.050) we would like a few minutes at your next neighborhood meeting to present the project and gather any feedback the neighbors may have. Please note this is a preliminary proposal only and is subject to change before final submittal.

I look forward to hearing from you at your earliest convenience and meeting with your association. Thank you for your time and attention to this request.

Sincerely,

Deana Goldson

Deana Goldson
Theta Engineering, llc
Phone: (503) 579-6810

7008 3230 0003 3843 1140

U.S. Postal Service™
CERTIFIED MAIL™ RECEIPT
(Domestic Mail Only; No Insurance Coverage Provided)
For delivery information visit our website at www.usps.com®
OFFICIAL USE

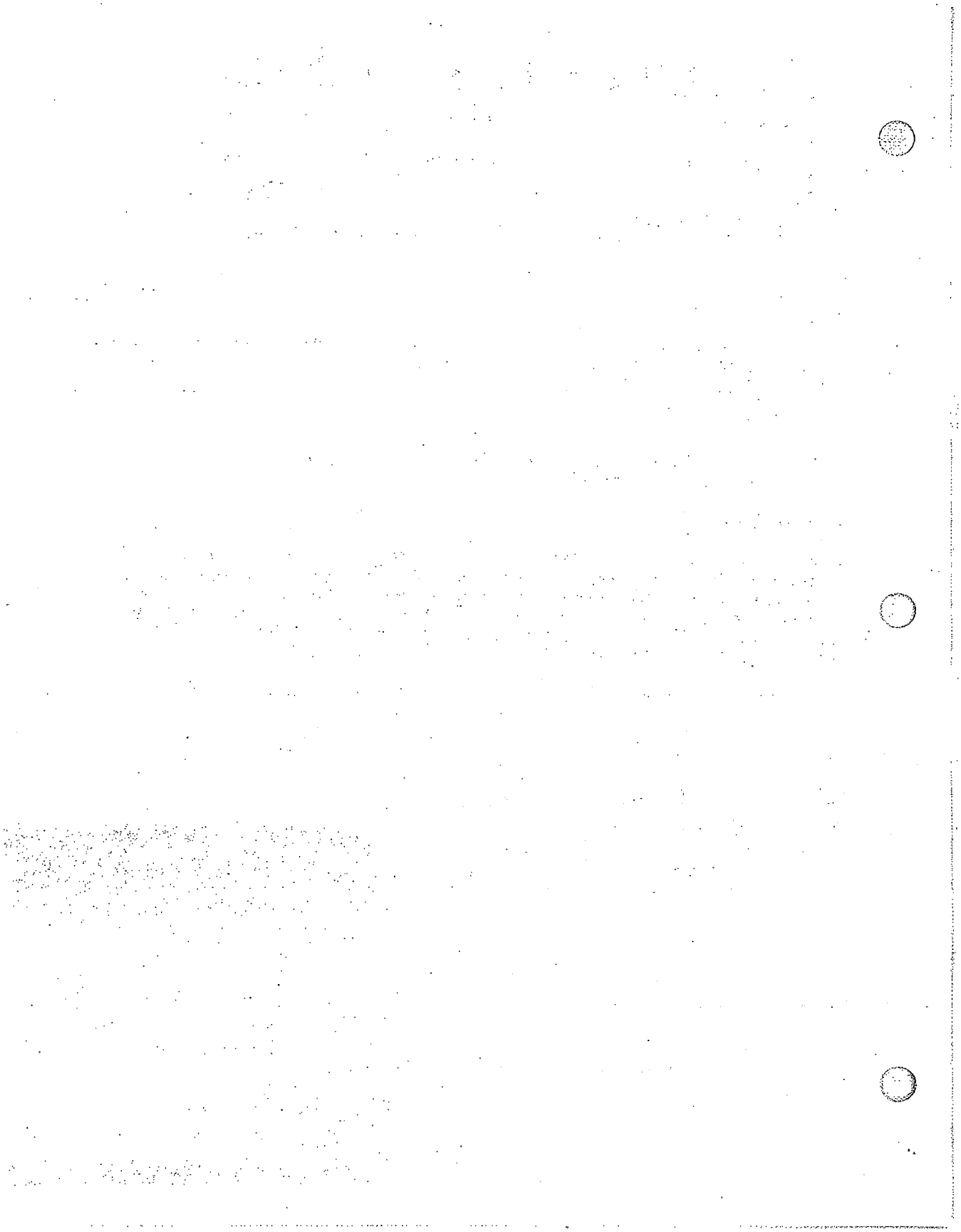
Postage	$ .44
Certified Fee	2.80
Return Receipt Fee (Endorsement Required)	2.30
Restricted Delivery Fee (Endorsement Required)	
Total Postage & Fees	$ 5.54

USPS PORTLAND, OR LAMBS ON SCHOLLS CPU
NOV 2009
Postmark Here

Sent To John Dingwall
Caufield neigh. Assoc.
Street, Apt. No.; or PO Box No. 19915 Sophia Ct.
City, State, ZIP+4 Oregon City, OR 97045

PS Form 3800, August 2006 See Reverse for Instructions

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor



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Theta, llc

ENGINEERING - SURVEYING - PLANNING

503/481-8822

PO Box 1345
Lake Oswego, Oregon 97035

e-mail: thetaeng@comcast.net

November 10, 2009

Mr. Larry Hanlon, Co-Chair
Caufield Neighborhood Association
19895 Sophia Court
Oregon City, Oregon 97045

Sent Via Certified Mail/Return Receipt Request

RE: Proposed Zone Change and Comprehensive Plan Amendment
19896 Beavercreek Road

Dear Mr. Hanlon:

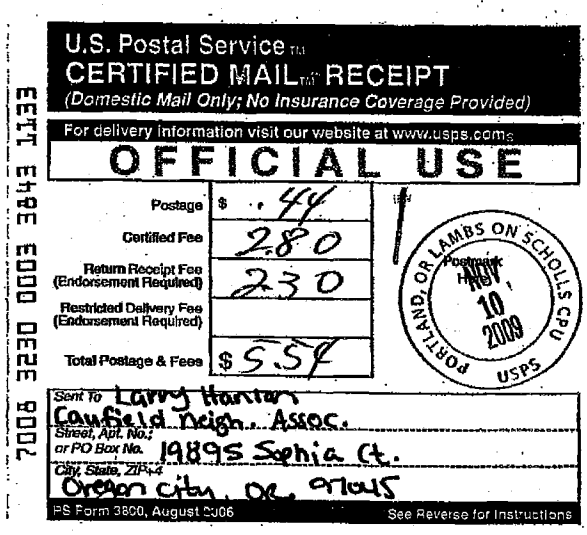
I represent the owner of the property located at 19896 Beavercreek Road in Oregon City (tax map enclosed). We are planning to submit a land use application to the City of Oregon City for a potential zone change and comprehensive plan amendment to this property. As a part of this application (per City Code 17.50.050) we would like a few minutes at your next neighborhood meeting to present the project and gather any feedback the neighbors may have. Please note this is a preliminary proposal only and is subject to change before final submittal.

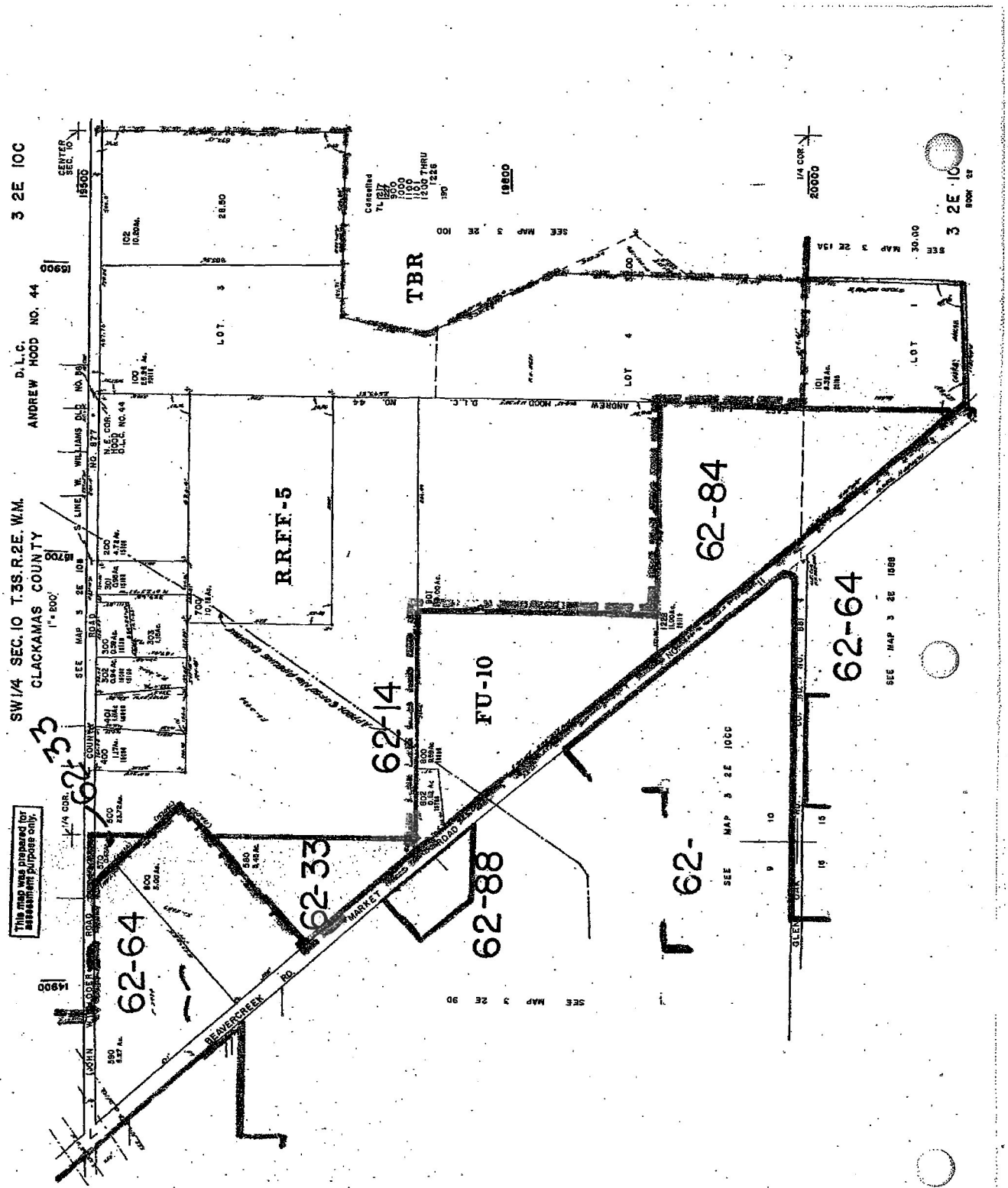
I look forward to hearing from you at your earliest convenience and meeting with your association. Thank you for your time and attention to this request.

Sincerely;

Deana Goldson

Deana Goldson
Theta Engineering, llc
Phone: (503) 579-6810





3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Deana

m:	Deana [deanag@astonishingstudios.com]
nt:	Tuesday, November 10, 2009 2:03 PM
To:	'jayeagle2@gmail.com'; 'kerryhanlon47@yahoo.com'
Cc:	'thetaeng@comcast.net'
Subject:	Proposed Zone Change/Comprehensive Plan Amendment Application

Hello Mr. Dingwall and Mr. Hanlon,
I represent the owner of the property located at 19896 Beavercreek Road in Oregon City. We are planning to submit a land use application to the City of Oregon City for a potential zone change and comprehensive plan amendment to this property. As a part of this application we would like a few minutes at your next neighborhood meeting to present the project and gather any feedback the neighbors may have. I am also sending this request via certified letter/return receipt requested as required by City Code 17.50.050, but please feel free to respond to this email directly since it is often a more convenient way to communicate. I look forward to hearing from you. Thank you.
-Deana Goldson
Theta Engineering, LLC
Phone: (503) 579-6810

Theta, llc
ENGINEERING - SURVEYING - PLANNING

503/481-8822

4260 Country Woods Ct.
Lake Oswego, Oregon 97035

e-mail: bdc4s@hotmail.com

Memorandum

To: File

From: Bruce Goldson

Date: November 17, 2009

Subject: **Neighborhood meeting**

Meeting Highlights:
4-members of the Caufield Neighborhood Association including the Co-chairs and the landuse committee.

- No room in the agenda to include a presentation in November meeting
- No meeting in December
- First regular meeting is January 26, 2010 where there is room in the addenda. Requested to be included in that meeting
- Provided members with proposal to change the zone to MUC-1
- Preliminary Concerns:
    - Transportation, use of Beavercreek Road
    - Impact to High School
    - Would like to narrow the uses allowed under the Zone

C:\Users\goldson\Documents\Thetaeng\theta 2009-12\neighborhood minutes 111709.docx

32E09D 01300
OREGON CITY SCH DIST #62
BOX 2110
GON CITY OR97045

32E09DD00100
CARRILLO SAUL
15041 EMERSON CT
OREGON CITY OR97045

32E09DD00200
CARTER RONALD & WENDY
15035 EMERSON CT
OREGON CITY OR97045

32E09DD00300
LEON PABLO E
15029 EMERSON CT
OREGON CITY OR97045

32E09DD03200
LARSON RALPH L
15040 EMERSON CT
OREGON CITY OR97045

32E09DD00400
PAYRAN-TENORIO ANGEL
15021 EMERSON CT
OREGON CITY OR97045

32E09DD03100
DENT CURTIS S
15034 EMERSON CT
OREGON CITY OR97045

32E09DD03000
FERNANDEZ MICHAEL W & JUDITH
PS2 BOX 5525
APO AE9012

32E09DD02900
ANDERSON SHANON M
15022 EMERSON CT
OREGON CITY OR97045

32E09DD02800
OPZEELAND JASON C & MARY C
7703 SE 104TH AVE
PORTLAND OR97266

32E10C 00500
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10C 00580
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10C 00802
ROBERTS ROCKFORD W & CORA J
19788 S BEAVERCREEK RD
OREGON CITY OR97045

32E10C 00800
MARYLWOOD LLC
7128 SW GONZAGA ST STE 100
PORTLAND OR97223

32E10C 00801
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00100
DROZ WESLEY M & MINNIE L
19871 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00200
MCCOLLUM DARRELL W & TAMMY L
19921 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00300
RAHBERGER QUINTIN E
19913 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00400
CARPENTER MARK A
19893 BEAVERCREEK RD
OREGON CITY OR97045

32E10C 01228
HALL WAYNE C SR
20110 S BEAVERCREEK RD
OREGON CITY OR97045

32E10CC01100
DUFFIELD DAVE A & KAREN M
19911 CONNIE CT
OREGON CITY OR97045

32E10CC00800
WEISSER DENNIS P
19894 CONNIE CT
OREGON CITY OR97045

32E10CC00500
LOFTS BRYCE H & KATIE S
19933 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00900
WEISSER DENNIS P
19894 CONNIE CT
OREGON CITY OR97045

32E10CC00700
BURTON S P & A F
19945 BEAVERCREEK RD
OREGON CITY OR97045

32E10CC00600
DANFORTH HENRY J & LIANDA L
19955 BEAVERCREEK RD
OREGON CITY OR97045

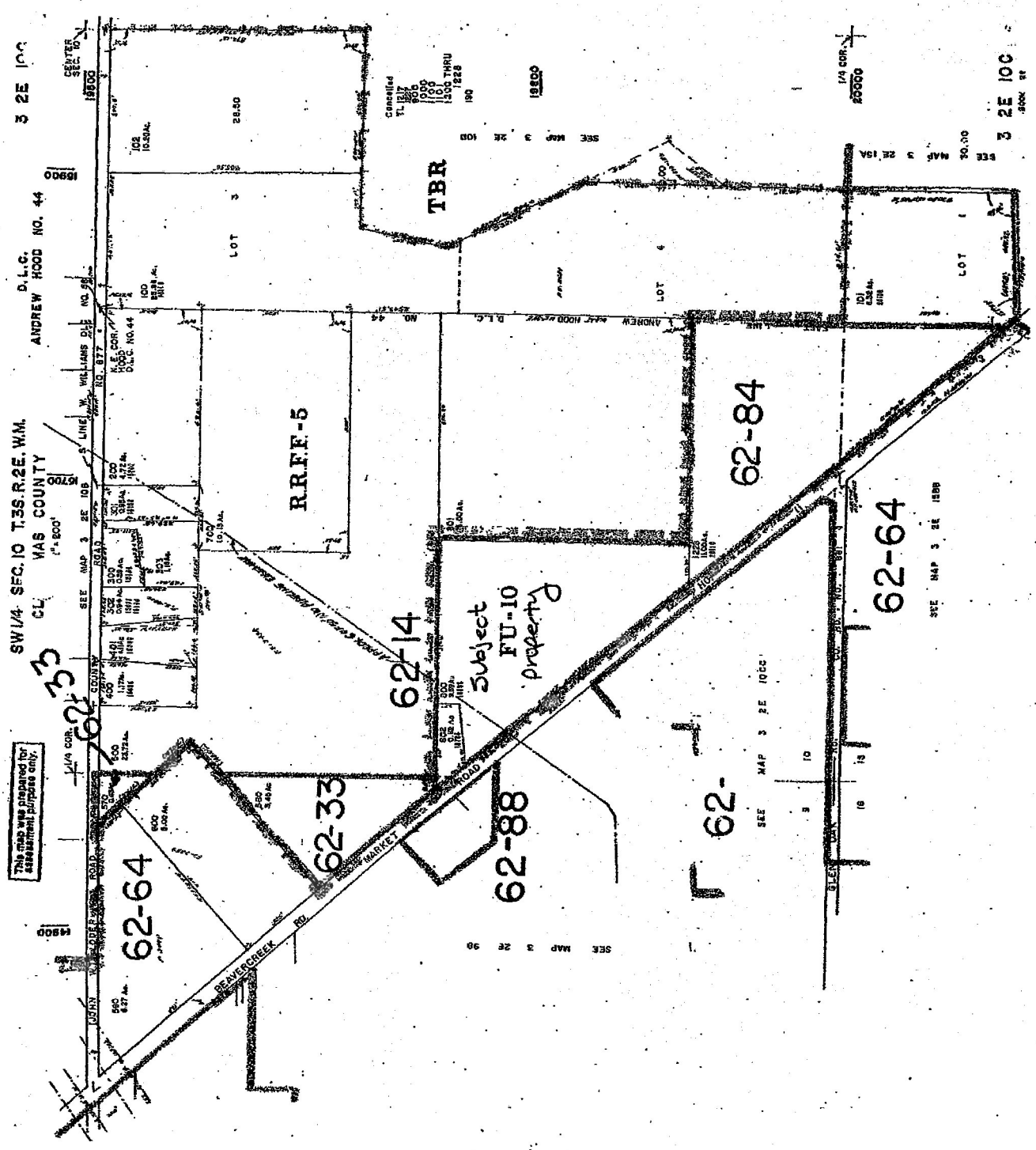
32E10CC02600
WEED RODNEY W & PAMELA A
15095 GLEN OAK RD
OREGON CITY OR97045

32E10CC02700
LZE MICHAEL ALLEN
GLEN OAK RD
OREGON CITY OR97045

32E10CC02800
SCHWAB KAY L
15115 GLEN OAK RD
OREGON CITY OR97045

32E10CC02900
BEADLE LEE C TRUSTEE
15125 GLEN OAK RD
OREGON CITY OR97045

32E10CC03000
MITCHELL CATHY D
15135 GLEN OAK RD
OREGON CITY OR97045



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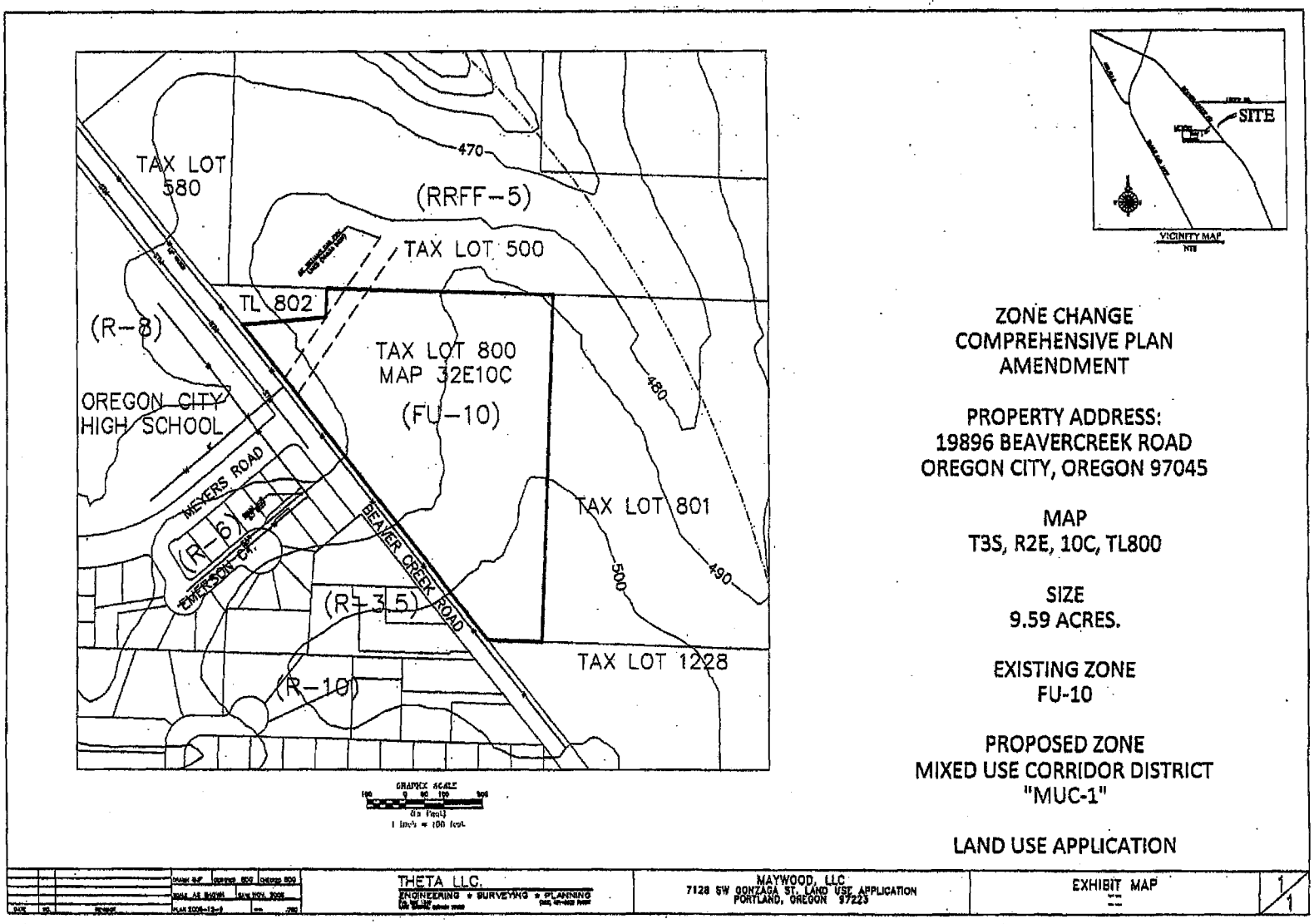
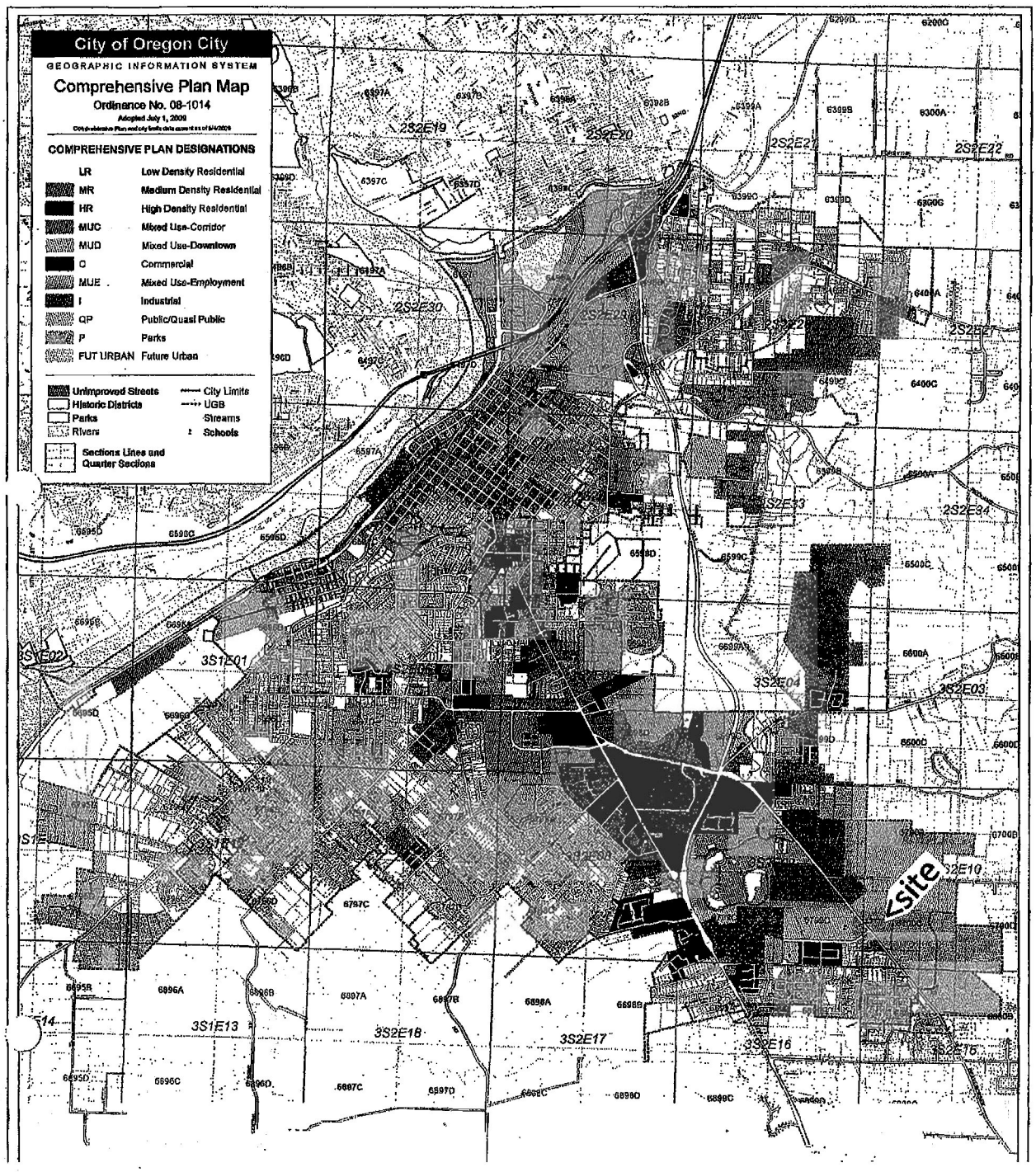

TAX LOT 580
(RRFF-5)
TAX LOT 500
TL 802
(R-8)
TAX LOT 800
MAP 32E10C
(FU-10)
OREGON CITY HIGH SCHOOL
MEYERS ROAD
(R-6)
JEFFERSON DR.
BEAVER CREEK ROAD
(R-3.5)
TAX LOT 801
TAX LOT 1228
(R-10)
470
480
490
500
SITE
VICINITY MAP
ZONE CHANGE
COMPREHENSIVE PLAN
AMENDMENT
PROPERTY ADDRESS:
19896 BEAVERCREEK ROAD
OREGON CITY, OREGON 97045
MAP
T3S, R2E, 10C, TL800
SIZE
9.59 ACRES.
EXISTING ZONE
FU-10
PROPOSED ZONE
MIXED USE CORRIDOR DISTRICT
"MUC-1"
LAND USE APPLICATION
THETA LLC.
ENGINEERING * SURVEYING * PLANNING
MAYWOOD, LLC
7128 SW GONZAGA ST. LAND USE APPLICATION
PORTLAND, OREGON 97223
EXHIBIT MAP
1/1



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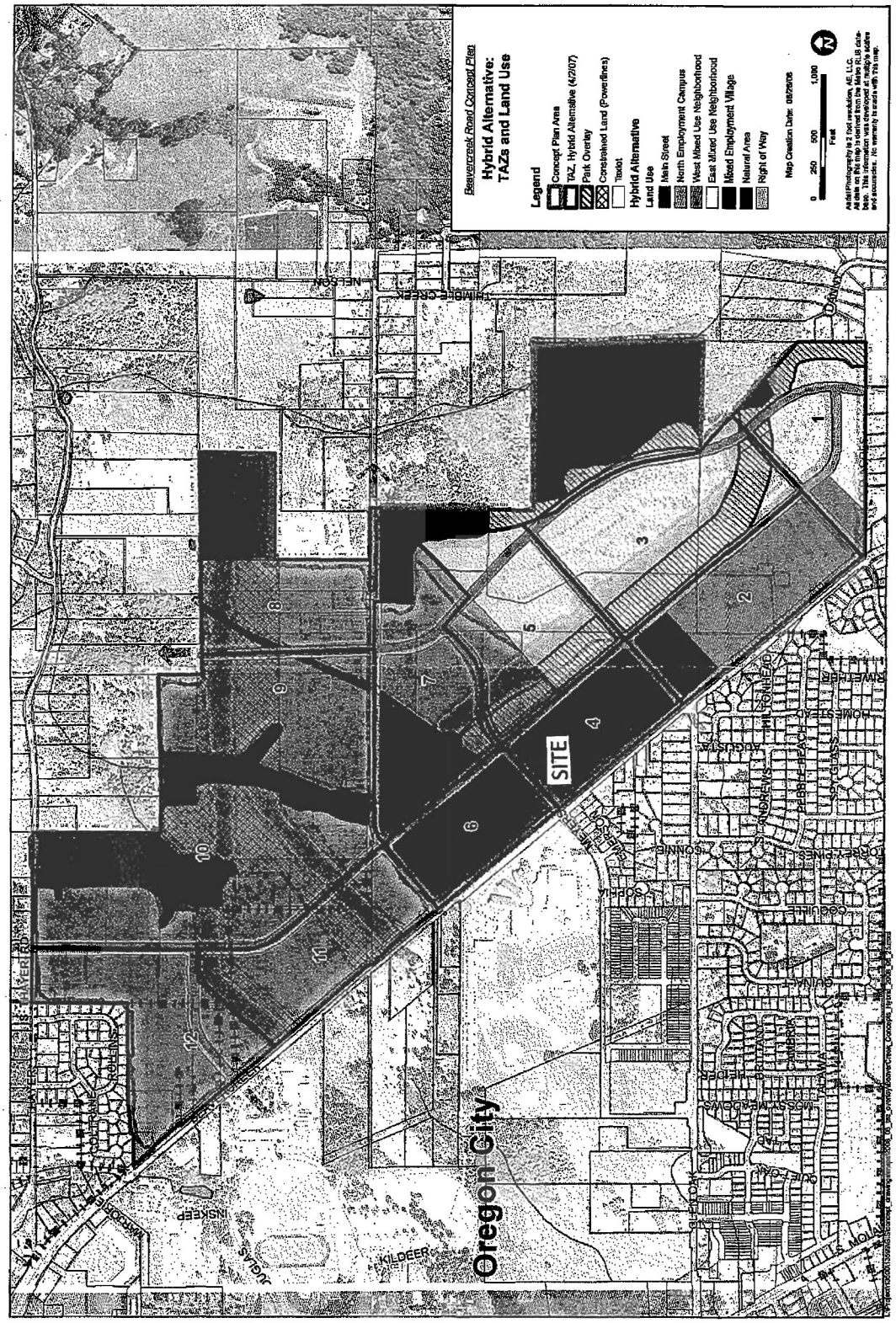


3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

The traffic report is being prepared by Kittelson & Associates and will be inserted into this application at a later date.

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
610 SW Alder Street, Suite 700, Portland, OR 97205 P 503.228.5230 F 503.273.8169

June 21, 2010 Project #: 10608.0

Pete Walter
City of Oregon City
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

RE: Beavercreek Road/Meyers Road Rezone Transportation Planning Rule Analysis – Oregon City, Oregon

Dear Pete,

This letter summarizes the findings of a professional transportation engineering analysis of a proposed property rezone located at 19896 Beavercreek Road in Oregon City, Oregon[1]. Based on the analysis presented herein, the proposed rezone of the 9.73-acre study site from *Future Urban* zoning to City *Mixed-Use Corridor* (MUC-1) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements. The remainder of this memorandum provides further documentation of the study methodology, findings, and recommendations.

INTRODUCTION

This letter was prepared to address requirements identified within Oregon Administrative Rule (OAR) 660-12-0060 (Transportation Planning Rule, TPR), which contains the applicable criteria for a zone change analysis. The intent of the TPR is to ensure the transportation system can accommodate the change of uses to the adopted system plan and that any resultant significant effects can be mitigated.

The land included in the rezone is located east of Beavercreek Road directly across from the Oregon City High School, between S Loder Road and S Glen Oak Road. The property is included within the *Beavercreek Road Concept Plan* area as a future mixed-use center. The overall *Beavercreek Road Concept Plan* is currently subject to remand by the Department of Land Conservation and Development (DLCD) and is not considered an approved plan. The location of the property is generally shown in Figure 1 while Figure 2 illustrates the property location in the context of the Beavercreek Road Concept Plan. No specific development plan or site entitlements are proposed in conjunction with this zone change.

Note that while the overall *Beavercreek Road Concept Plan* is subject to the remand due to non-transportation related issues, the horizon period transportation system development assumptions

[1] Property also identified as T3S-R2E-10C, tax lot 800

and modeling efforts completed as part of the initial Concept Plan remain valid. As discussed herein, the Concept Plan transportation assumptions were developed and approved through a collaboration effort by the City, County, ODOT, and METRO, and as such are consistent with stakeholder direction. Therefore, volume growth assumptions and travel patterns have been retained from the original study.

PROJECT LITERATURE REVIEW

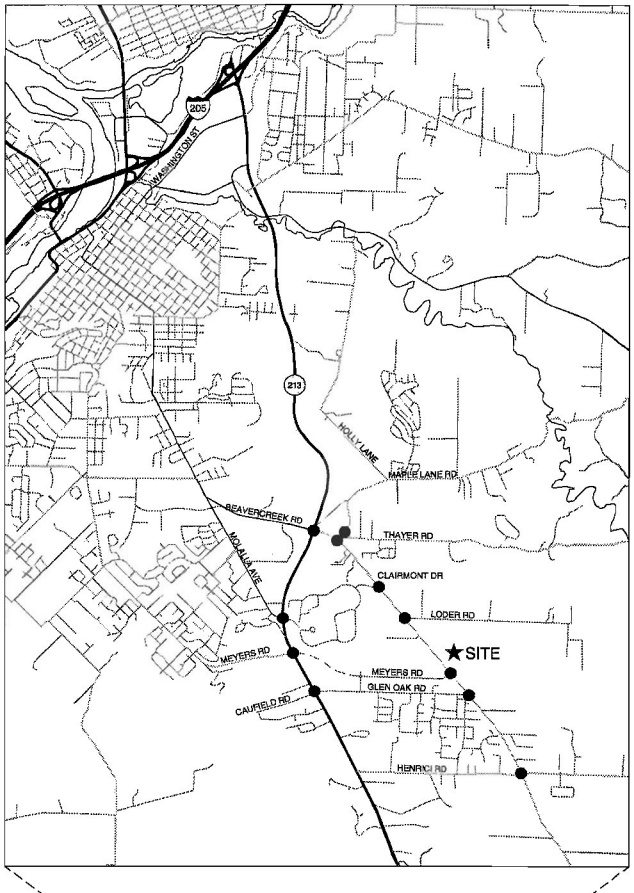
The *City of Oregon City Transportation System Plan* (TSP, Reference 1) and its subsequent amendments were reviewed to identify potential plan considerations affecting the subject property and its supporting transportation system. In addition, due to the history of this area, unadopted but proposed TSP revisions were reviewed to ensure that the proposed rezone project will continue to support the City, County, and ODOT planning efforts should the pending DLCD remand conditions be satisfied.

The proposed rezone for this parcel was previously contemplated and locally approved as part of the overall *Beavercreek Road Concept Plan* (Reference 2), which was completed in 2008. This master plan effort encompassed a 453-acre site within the Oregon City urban growth boundary that had retained its previous Clackamas County *Exclusive Farm Use* (EFU) zoning. Plans for the neighborhood include a diverse mix of retail, residential, and employment uses that would be connected with open space, trails, and green streets. The intent of the plan is to link Clackamas Community College, Oregon City High School, and the adjacent neighborhoods.

Subsequent to adoption by the City, the overall *Beavercreek Road Concept Plan* was remanded by DLCD for non-transportation related reasons, preventing plan adoption into the City's TSP and also preventing plans to legislatively rezone affected properties from their current County designations.

The subject parcel (refer to Figure 2), was identified for MUC zoning within the Concept Plan and was included under the Mixed Employment Village designation. As part of the Concept Plan, it was assumed that the overall Mixed Employment Village would contain a Floor Area Ratio (FAR) of 0.44 based on the net acres, which was identified as a reduction from gross acres of 20 percent to account for easements and roadways[2].

[2] It was noted that of the 26 acres identified as part of the overall Mixed Employment Village, the subject 9.73-acre parcel contains both the Meyers Road extension (identified as a *Collector* Roadway) and the natural gas easement, encompassing a higher proportion of the unbuildable area within the *Mixed Employment Village* than that averaged over the full 26 acres.



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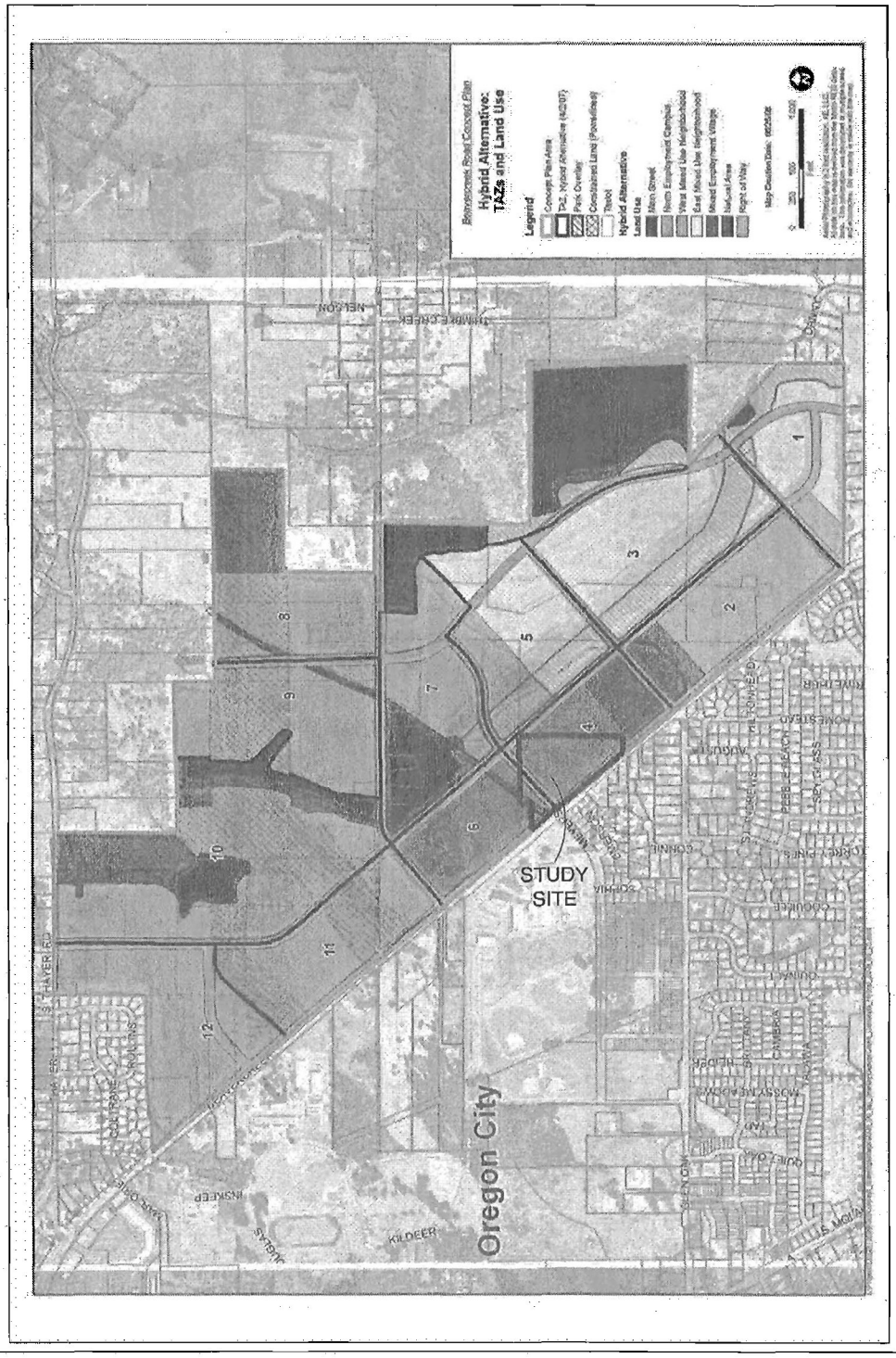
3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor



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BEAVERCREEK CONCEPT PLAN AND PARCEL LOCATION
OREGON CITY, OREGON

FIGURE 2

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3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Several other land use and transportation studies of the Oregon City area have been prepared that also serve as resources to this proposed plan amendment. Among them are the *Park Place Concept Plan* (Reference 3), the *Highway 213 Urban Corridor Design Study* (Reference 4), and the *OR 213: I-205 - Redland Rd O'Xing* (Reference 5) design study. Of these studies, the *Park Place Concept Plan* is not adopted and the 2020 horizon year of the adopted *Oregon City Transportation System Plan,* while applicable to City facilities, does not meet the required 15-year minimum planning horizon for ODOT facilities. The *OR 213: I-205 - Redland Rd O'Xing* contains the most recent, up-to-date, and endorsed set of traffic volume forecasts that were approved by ODOT, Metro, Clackamas County, and Oregon City for the OR 213 segment between I-205 and Redland Road; however, its study boundaries do not extend south of Redland Road.

Project scoping discussions with City and ODOT staff led to the agreement that the horizon analysis presented in this technical memorandum consider conditions in year 2027, consistent with the *Beavercreek Road Concept Plan.* The 2027 future conditions provide the longest planning period of all of the applicable planning efforts in the study area, and will continue to be consistent with previous planning efforts should the *Beavercreek Road Concept Plan* remand be addressed.

EXISTING TRANSPORTATION INFRASTRUCTURE

The existing transportation infrastructure assessment is provided herein to assist the City with the planning and prioritization of maintenance and infrastructure improvements within the study area. The existing conditions analysis is intended to identify current multi-modal connectivity and provisions affecting the study area roadways and infrastructure.

Roadway Facilities

As illustrated in Figure 2, Beavercreek Road borders the site to the west, and the future eastern extension of Meyers Road will bisect the site. Because a site plan application is not available as part of the zone change application, site access locations and connectivity needs are not known.

Oregon City High School is located to the west on the opposite side of Beavercreek Road, and developed residential neighborhoods are located south of the school. Rural land uses currently exist east of the study site, along with wetland and sensitive lands associated with the Thimble Creek Tributary. Table 1 summarizes the primary roadways within the study area.

Table 1
Existing Transportation Facilities and Roadway Designations

Roadway	Functional Classification	Number of Lanes	Posted Speed (miles per hour)	Sidewalks	Bicycle Lanes	On-Street Parking
Oregon 213	District Highway/ Expressway	3-5 Lanes	45	Partial[1]	Yes	No
Beavercreek Road	Major Arterial	2-5 Lanes	35-45 [2]	Partial[1]	Partial	No
Molalla Avenue	Major Arterial	3-Lanes	35	Yes	Yes	No
Meyers Road	Collector	3-Lanes	30	Yes	Yes	Yes
Henrici Road	Not classified	2-Lanes	40	No	No	No
Glen Oak Road	Collector	2-Lanes	35	Partial[1]	No	No
Loder Road	Not classified	2-Lanes	25	No	No	No

[1] Roadway infrastructure generally exists where frontage improvements have been provided.
[2] Beavercreek Road is posted with a 35 mph speed limit between OR 213 and Clairmont Drive and transitions to 45 mph south of Clairmont Drive. A 20 mph school zone is posted along the roadway near the Oregon City High School.

Pedestrian and Bicycle Facilities

Sidewalks and bicycle lanes are currently provided within the northern portion of the study area where frontage improvements have been completed. There are missing sidewalk and bicycle lane segments along many of the surrounding roadways. Plans for the study area roadways anticipate completion of sidewalk segments as part of private development and roadway enhancement projects, as well as provision of bicycle lanes in conjunction with roadway upgrades to serve the anticipated urban development.

Pedestrian and bicycle facilities are generally not available in the southern portion of the study area. Loder Road and Henrici Road are within the City's Urban Growth Boundary, but at the time of the City's adopted TSP were still under Clackamas County jurisdiction. Accordingly, these facilities are more rural in character and generally allow higher travel speeds.

Within the immediate site vicinity, sidewalks and bicycle lanes are provided on Meyers Road west of Beavercreek Road and along the Oregon City High School site frontage. No sidewalks are provided along the study site frontage or the properties to the north and south of it, though a northbound bicycle lane is provided along Beavercreek Road.

Transit Facilities

No fixed route transit service is currently provided along Beavercreek Road to the site. The nearest transit service is located at Clackamas Community College (CCC) to the north and west of the site. TriMet provides three transit routes to the college (Reference 6). These routes are Route 32: *Oatfield;* Route 33: *McLoughlin;* and, Route 99: *McLoughlin Express,* all of which begin or end their routes at the campus. Each transit line provides service between CCC and downtown Portland, and includes scheduled stops at the Oregon City Transit Center and Milwaukie Transit Center.

APPLICABLE ROADWAY PERFORMANCE STANDARDS

Intersection performance thresholds vary throughout the study area based on the roadway jurisdiction. Oregon City performance requirements are included within the City's TSP, and identify that a Level of Service (LOS) "D" or higher should be maintained at all signalized intersections along with a volume-to-capacity (V/C) ratio less than 1.0, and Level of Service "E" or better be maintained at unsignalized intersections[3]. ODOT mobility standards included within the *Oregon Highway Plan* (Reference 7) require a volume-to-capacity ratio of less than 0.99 along OR 213 during the 30th highest design hour.

Table 2 presents a summary of the study area intersections, roadway jurisdiction, and relevant performance standards.

Table 2 Summary of Intersection Performance Standards

Intersection	Roadway Jurisdiction	Traffic Control	Performance Standard
OR 213/ Beavercreek Road	ODOT	Signalized	V/C < 0.99
OR 213/ Molalla Avenue	ODOT	Signalized	V/C < 0.99
OR 213/ Meyers Road	ODOT	Signalized	V/C < 0.99
OR 213/ Glen Oak Road	ODOT	Signalized	V/C < 0.99
Thayer Road/ Maple Lane Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Maplelane Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Clairmont Drive	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Loder Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Meyers Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Glen Oak Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Henrici Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0

V/C: Volume-to-Capacity Ratio
LOS: level of service

[3] Oregon City standards allow Level of Service "E" or better for the poorest operating approach at unsignalized intersections if no movement serving more than 20 peak hour vehicles is operating at Level of Service "F."

TRANSPORTATION PLANNING RULE COMPLIANCE

The applicable criteria for zone change analyses are found within Oregon Administrative Rule (OAR) 660-12-0060, also known as the Transportation Planning Rule (TPR, Reference 8). The TPR requires that any changes to the adopted and recognized Transportation System Plan show consistency and compliance with the stated goals of the plan, the development and regular updates of which are a mandated requirement for cities. The overall purpose of Division 12 (Transportation Planning) is to coordinate transportation planning and land use planning to serve statewide, regional, and local needs; provide transportation mode choices; provide safe and convenient multi-modal travel; facilitate freight movement; protect facilities for their planned function; accommodate construction of planned facilities; ensure coordination between service providers; and ensure changes to comprehensive plans are supported by adequately planned transportation facilities.

As previously discussed within the Literature Review section of this memorandum, a review of various planning documents was conducted to ensure consistency with adopted plans and planning efforts pending adoption. Based on this review and discussions with jurisdiction staff, this transportation assessment was prepared to review year 2027 transportation system conditions throughout the study area, consistent with the *Beavercreek Road Concept Plan* (Reference 2).

Reasonably Likely Transportation Improvements

TPR analyses allow the inclusion of planned improvements in the horizon analysis period for which a funding mechanism has been identified. The funding mechanism could be an established local Capital Improvement Project, local projects contained within a City's Systems Development Charge (SDC) list, or funded ODOT Statewide Transportation Improvement Program (STIP) projects.

ODOT Statewide Transportation Improvement Program

Review of the approved ODOT STIP (2008 through 2011, as amended May 21, 2010) identified a project along OR 213 between the I-205 ramps and milepost 0.29 to construct a jughandle intersection at Washington Street (STIP #16985, Estimated Cost: $22,000,000).

Oregon City Transportation System Plan

Several projects along the OR 213 corridor were identified as part of the 2001 TSP within Table 5-5. These were identified as near-term (1-5 years), long-term (6-20 years), and include prioritization, as shown below in Table 3.

Table 3 Oregon City Planned Improvements

Project #	Project Description	Cost and Priority
NEAR-TERM IMPROVEMENTS (1-5 YEARS)		
Intersection Capacity and Operational Improvements		
R-4	OR 213/Beavercreek Road: widening and restriping to provide dual left-turn lanes and two through lanes on all intersection approaches, provision of an exclusive westbound right-turn lane, signal modification, redesign pedestrian and bicycle crossings. *Portions of this project have been constructed including the exclusive westbound right-turn lane, some modifications to the traffic signal hardware, dual left-turns on all but the northbound approach, and pedestrian and bicycle improvements on all but the north leg.*	$5,450,000, Priority #1
Upgrade Street Segments to City Street Standards		
R-12	Beavercreek Road: Clackamas Community College to Glen Oak Road – provide curb, gutter, and sidewalk along both sides of the roadway.	$1,000,000, Priority #3
R-17	Glen Oak Road: Hwy 213 to Beavercreek Road – provide curb, gutter, and sidewalk along both sides	$1,200,000, Priority #3
LONG TERM IMPROVEMENTS (6-20 YEARS)		
Roadway Capacity and Operational Improvements		
R-38	Molalla Avenue to Henrici Road (Project R-38): Provide dual northbound and southbound left-turn lanes at the OR 213/Molalla Avenue intersection; signal modification at OR 213/Molalla Avenue, widen to provide an additional travel lane in each direction from Molalla Avenue to Canyon Ridge Drive; widen to provide standard 3-lane cross-section from Canyon Ridge Drive to Henrici Road.	$2,610,000, Priority #3
R-38	OR 213/Molalla Avenue: Provision of dual northbound and southbound left-turn lanes, signal modification.	$835,000, Priority #3
R-55/ R-38	OR 213/Glen Oak-Caufield Road: Realign intersection offset, signalization, provision of exclusive EB and WB LT lanes.	$550,000, Priority #3
R-56/ R-38	OR 213/Henrici Road: Signalization, provision of exclusive WB LT and RT lanes.	$300,000, Priority #3
R-69	Beavercreek Road/Glen Oak Road: Signalization, provision of an exclusive NB RT lane.	$349,000, Priority #3
R-105	OR 213/Beavercreek Road (R-105): Single point diamond grade-separated interchange improvement as described within the OR 213 corridor study.	$20,000,000, Priority "B".
New Roadways based on Growth, Development, Enhanced Connectivity, and Operations		
R-98	Meyers Road from OR 213 to Beavercreek Road (R-98): East-West extension of Meyers Road – Collector	$N/A, Priority "B"

While a range of local improvement needs have been previously identified throughout the study area as part of the City's 2001 TSP (and subsequent plans), funding of the majority of these improvements is not considered "Reasonably Likely" as these projects are located along ODOT facilities and not included on the current STIP list. Based on discussions with City and ODOT Region 1 staff, no other improvements to OR 213 were assumed to be reasonably funded for the purposes of this rezone analysis.

Among the City-maintained study intersections along Beavercreek Road, the long-term analysis assumes signalization of the Glen Oak Road/Beavercreek Road intersection. Figure 3 illustrates the assumed lane configurations and traffic control devices at the study intersections.

Beavercreek Rezone
June 2010
HOLLY LANE
MAPLE LANE RD
BEAVERCREEK RD
THAYER RD
MOLALLA AVE
CLAIRMONT DR
LODER RD
MEYERS RD
MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
213
213
(NO SCALE)
LEGEND
- STOP SIGN
- TRAFFIC SIGNAL
K:\H_Bend\proj\file\10608 - 19896 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 2:07pm - mbell Layout Tab: Fig03
ASSUMED 2027 LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
WITHOUT MEYERS ROAD EXTENSION
OREGON CITY, OREGON
FIGURE
3
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Existing Zoning Conditions (Future 2027 Horizon Period)

An analysis was conducted for the year 2027 horizon year. The existing zoning assessment was prepared to identify how the study area's transportation system operates in the horizon year with build-out of the subject parcel as currently zoned (without the impact of the proposed rezone). This analysis provides a basis for comparison to transportation conditions with the proposed zone change.

Future forecast traffic volumes for the *OR 213: I-205 - Redland Rd O'Xing (Oregon City)* were based on modeling data provided by METRO. This modeling was completed in 2008 while both concept planning efforts were underway in Oregon City and regional center developments were being considered in the Clackamette Cove area and on the retired Rossman Landfill site. To ensure an accounting of the Beavercreek Road concept planning, the METRO model projections for growth showed significant mixed-use development (well beyond densities allowed within the EFU zoning) within the Transportation Analysis Zones (TAZ) that include the subject property. Accordingly, a portion of the Beavercreek Road Concept Plan, primarily build-out within the TAZs that include the subject property, was assumed and accounted for within the volume projections used in all recent OR 213 analysis for the highway segment between I-205 and Redland Road.

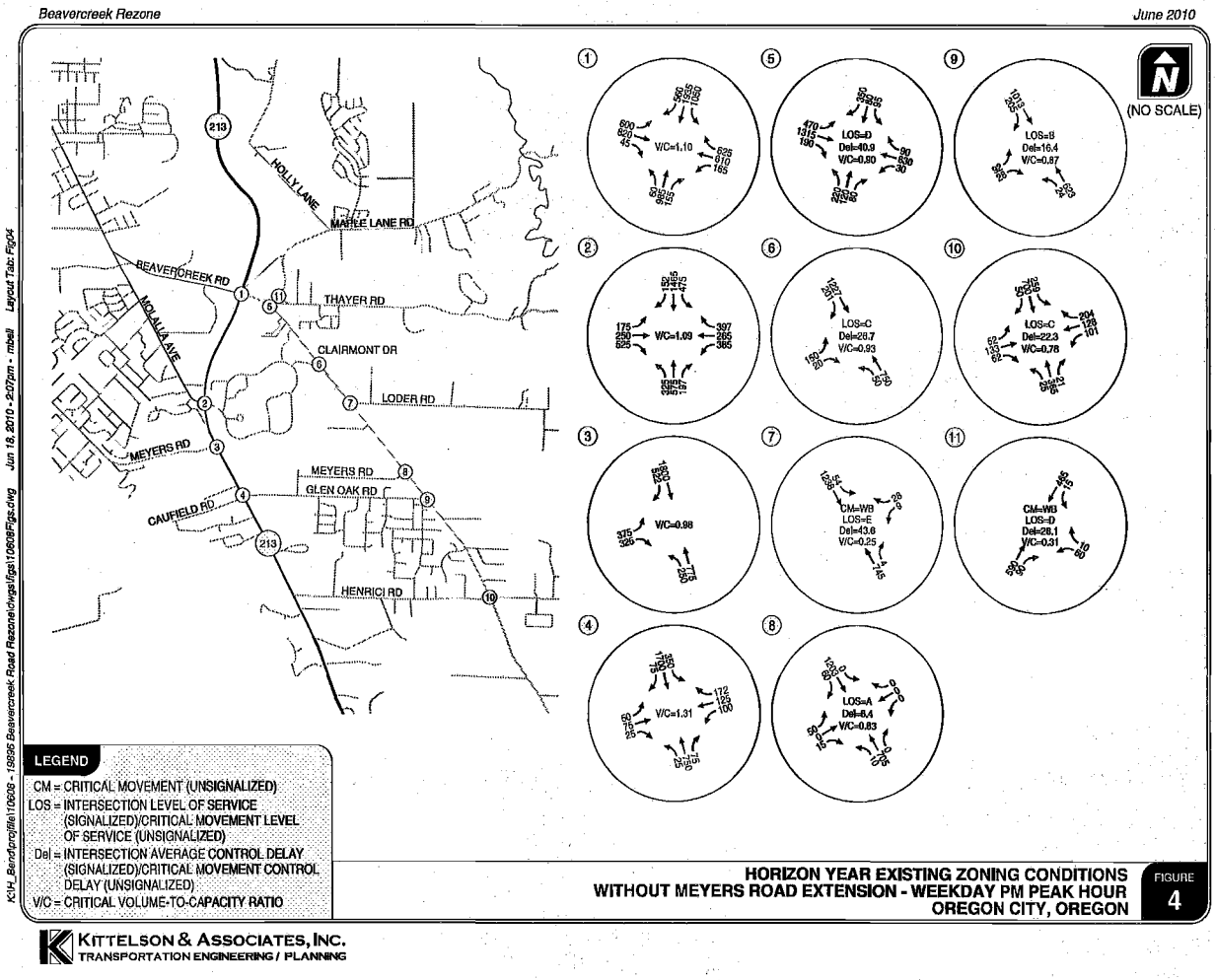
For intersections south of Redland Road, year 2027 volume projections through the *Beavercreek Road Concept Plan* "No-Build" conditions were utilized to provide an accurate assessment of future year 2027 traffic volumes. These forecast volumes were jointly developed with City, ODOT, and METRO staff as part of the previous planning efforts.

The subject property has been annexed into the City of Oregon City and includes a Comprehensive Plan designation of "Future Urban", but with the remand of the *Beavercreek Road Concept Plan*, it was assumed that the current zoning is essentially "capped" based on County provisions. Section 400 of the County's Development Code was obtained to identify the allowable uses within the existing EFU zoning, which indicates that the intent of EFU zoning is to allow low-intensity rural and agricultural uses. Minimum allowable lot sizes within the EFU zoning could allow for only a single residence on the subject parcel. Accordingly, the base scenario for the existing zoning assumes one single family dwelling unit within the overall 9.73-acre parcel.

Intersection Level-of-Service Analysis

Consistent with the *Beavercreek Road Concept Plan*, Figure 4 illustrates the weekday p.m. peak hour traffic volumes inclusive of regional growth and potential site build-out with the existing EFU zoning. These volumes were used to conduct an operational analysis at each of the study intersections to determine the horizon year levels of service.

As shown in Figure 4, intersections along OR 213 between Beavercreek Road and Meyers Road are forecast to exceed ODOT mobility standards in 2027 while all other intersections are shown to operate acceptably. By way of comparison, the *Beavercreek Road Concept Plan* identified these



HORIZON YEAR EXISTING ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON

FIGURE 4

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same system needs. Attachment "A" contains the horizon period existing zoning intersection operations analysis worksheets.

Proposed Zoning Conditions (Future Horizon Period)

The Mixed Use Corridor with Moderate Density Option (MUC-1) zoning category provides for a medium density mix of commercial, office, and residential uses. The purpose of the MUC zoning is to encourage development along selected sections of transportation corridors within Oregon City such as Beavercreek Road. The MUC-1 designation allows buildings up to three-stories in height and requires a minimum landscape area of 20 percent.

Allowable land uses within the MUC zoning include the following:

- Offices, including finance, insurance, real estate and government;
- Residential units, multi-family;
- Restaurants, eating and drinking establishments without a drive through; and
- Retail trade, including grocery, pharmacy, specialty stores, etc. provided the same business does not exceed 60,000 square-feet.

As shown in Figure 2, the subject property is located entirely within the area designated as Mixed Employment Village by the Beavercreek Road Concept Plan. A Floor Area Ratio (FAR) of 0.44 was identified under the Mixed Employment Village land use category within this plan. The 0.44 FAR was applied to the overall Mixed Employment Village Area lands and does not take into account the geometric constraints, 50-foot utility easements, or the planned Meyers Road extension that will uniquely impact the study site parcel, effectively reducing the amount of buildable space by approximately 22 percent. Applying a 22 percent reduction to the overall parcel area, site development could reasonably accommodate approximately 145,500 square-feet of total building space.

While a wide variety of land uses are available within the MUC-1 zoning, the potential building area was proportioned between office, commercial and residential uses consistent with the ratios shown in the *Beavercreek Road Concept Plan,* resulting in a development scenario that includes approximately 30 condominium units, 20,000 square-feet of retail uses, and 80,000 square-feet of office uses. *City MUC zoning provisions are included in Attachment "B."*

Trip Generation

Trip generation estimates were prepared for both the EFU and MUC zoning scenarios to determine the incremental trip generation potential during the critical weekday evening commute period (one hour between 4:00 and 6:00 p.m.). Trip generation estimates were prepared based on data contained within the Institute of Transportation Engineer's (ITE's) standard reference *Trip Generation, 8th Edition* (Reference 9).

The *Beavercreek Road Concept Plan* used data from ITE's *Trip Generation Handbook, 2nd Edition* (Reference 10), to determine the internal trip potential between the various land uses, which was

identified as three percent of the overall trips. This same methodology was applied to the TPR scenario, resulting in a six percent trip reduction. It should be noted that multi-modal and rerouted trips assumed in the Concept Plan were not included as part of this rezone project as it is unlikely these reductions would be experienced with the development of only a single parcel. Table 4 summarizes the trip generation potential of the two scenarios.

Table 4
Development Scenarios Trip Generation Potential

Land Use	ITE Code	Size	Weekday PM Peak Hour		
			Total	In	Out
Existing EFU Zoning					
Single Family Detached Housing	210	1 Unit	1	1	0
Proposed MUC Zoning					
Shopping Center	820	20,000 SF	75	37	38
Internal Trips (6%)			*(4)*	*(2)*	*(2)*
Pass-by Trips (34%)			*(24)*	*(12)*	*(12)*
Office	710	80,000 SF	119	20	99
Internal Trips (6%)			*(7)*	*(1)*	*(6)*
Condos/Townhomes	230	30 Units	16	11	5
Internal Trips (6%)			*(1)*	*(1)*	*(0)*
Net New Trips			174	52	122
Trip Difference (Proposed Zoning – Existing Zoning)					
Trip Difference			173	51	122

As shown in Table 4, future development of the 9.73-acre site with MUC-1 zoning could generate 173 more weekday p.m. peak hour trips than build-out with EFU uses.

Trip Distribution and Trip Assignment

The estimated trip distribution pattern of primary site-generated trips associated with the proposed rezone was obtained from the *Beavercreek Road Concept Plan*, as illustrated in Figure 5. This trip distribution pattern was estimated based on a review of select zone analyses produced by the METRO Sunrise model, as well as existing traffic patterns, local knowledge of the area, and professional judgment.

The incremental increase in site trip generation between the EFU zoning trip generation potential and the proposed MUC zoning trips (as shown in Table 4) during the critical weekday p.m. peak hour was assigned to the roadway network based on the trip distribution patterns and routing, as illustrated in Figure 5. Figure 6 includes a summary of the total additional vehicle trips projected at the study intersections assuming the property is rezoned and developed.

ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 5

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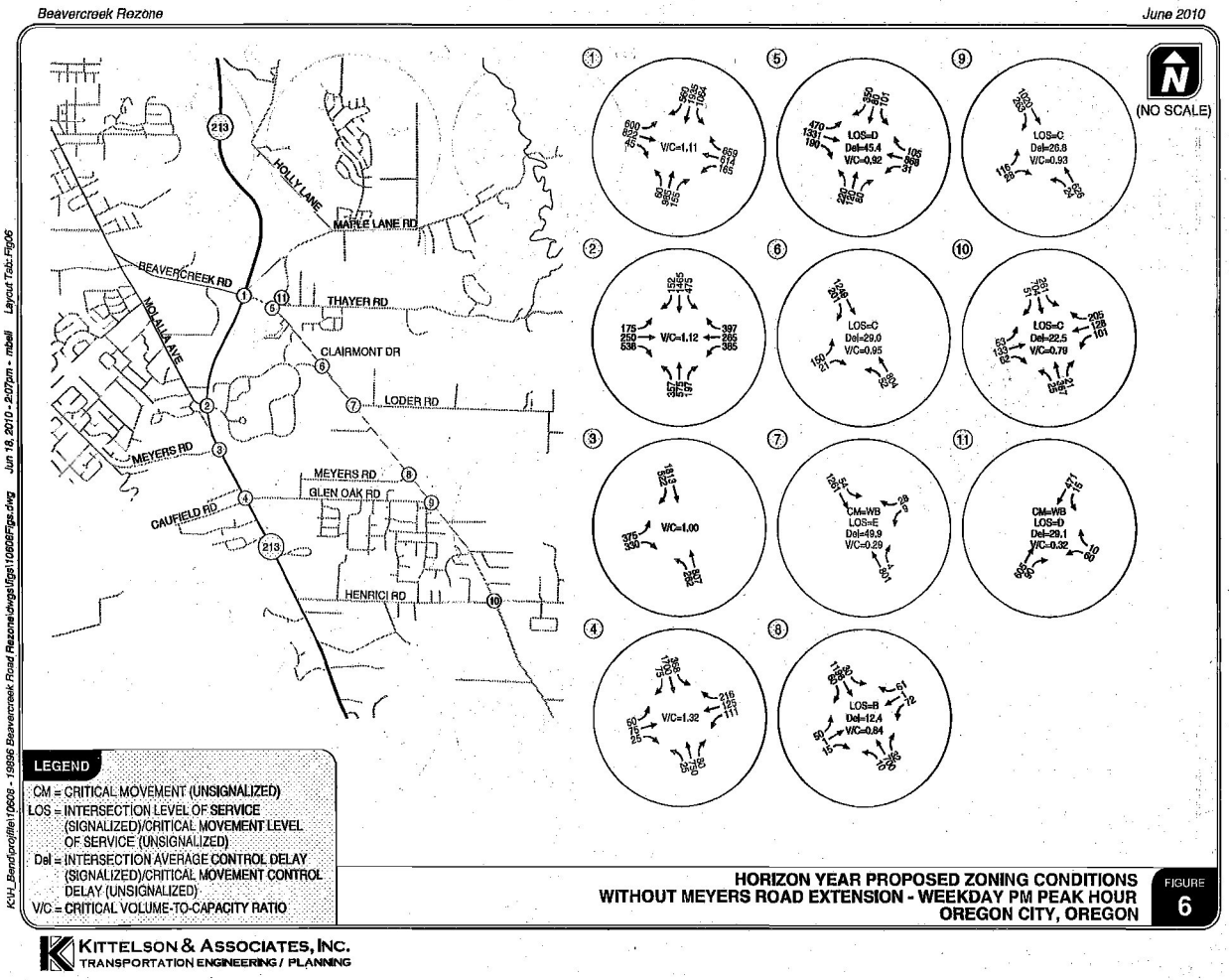
Beavercreek Rezone
June 2010
(NO SCALE)
HOLLY LANE
MAPLE LANE RD
BEAVERCREEK RD
MOLALLA AVE
THAYER RD
CLAIRMONT DR
LODER RD
MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
213
V/C=1.11
LOS=D
Del=45.4
V/C=0.92
LOS=C
Del=20.8
V/C=0.93
V/C=1.12
LOS=C
Del=29.0
V/C=0.95
LOS=C
Del=22.5
V/C=0.79
V/C=1.00
CM=WB
LOS=E
Del=49.9
V/C=0.29
CM=WB
LOS=D
Del=29.1
V/C=0.32
V/C=1.32
LOS=B
Del=12.4
V/C=0.84
LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
K:\H_Bend\proj\file\10608 - 19896 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 2:07pm - mbell Layout Tab: Fig06
HORIZON YEAR PROPOSED ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE 6
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Intersection Operations Analysis

The weekday p.m. peak hour turning-movement volumes shown in Figure 7 were used to conduct an operational analysis at each study intersection to determine the horizon year levels of service. As shown, all of the study intersections along OR 213 between Beavercreek Road and Glen Oak Road are forecast to continue to exceed ODOT mobility standards in 2027 and all other study intersections are shown to operate acceptably with the additional site trips under the proposed MUC zoning.

Based on direction from ODOT Region 1 staff, the proposed rezone would be determined to significantly impact a study intersection already in failure (defined as having a volume-to-capacity ratio greater than 0.99) if the volume-to-capacity ratio at the intersection increased by more than 0.01. With this threshold in mind, Table 5 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone.

Table 5 Forecast Year 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.12	**+0.03**
OR 213/ Meyers Road	0.99	0.98	1.00	**+0.02**
OR 213/ Glen Oak Road	0.99	1.31	1.32	+0.01

As shown in Table 5, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at both the OR 213/Molalla Avenue intersection and the OR 213/Meyers Road intersection. Thus, the proposed rezone was projected to have a significant affect on two of the four ODOT-maintained study intersections. *Attachment "C" contains the horizon period proposed zoning intersection operations analysis worksheets.*

Assessment of Potential Mitigation Measures

One of the anticipated study area capacity improvements is the extension of Meyers Road between OR 213 and its existing terminus to the east at High School Avenue. Clackamas County Community College is committed to dedicating some of the right-of-way needed for this connection in conjunction with future master plan development. A small number of other property owners control the required right-of-way for the future roadway extension and is expected to extend the future roadway as they further develop land along the roadway.

The future year operations analysis was repeated for the existing and proposed zoning conditions assuming the Meyers Road extension is in place. Figure 7 illustrates the assumed lane

configurations for this scenario, which were developed based on direction from ODOT Region 1 staff. Figure 8 illustrates the corresponding traffic conditions at the study intersections assuming the Meyers Road extension. Figure 9 shows the site-generated trip assignment for the proposed MUC zoning with the Meyers Road extension and Figure 10 illustrates the resultant traffic conditions.

Table 6 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone with the Meyers Road extension in place.

Table 6 Forecast 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.09	–
OR 213/ Meyers Road	0.99	1.13	1.17	**+0.04**
OR 213/ Glen Oak Road	0.99	1.29	1.29	–

As shown in Table 6, with the Meyers Road extension in place, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at only the OR 213/Meyers Road intersection. Further, the proposed rezone results in no change to the intersection volume-to-capacity ratios at the OR 213/Molalla Avenue and OR 213/Glen Oak Road intersections with the Meyers Road Extension in place.

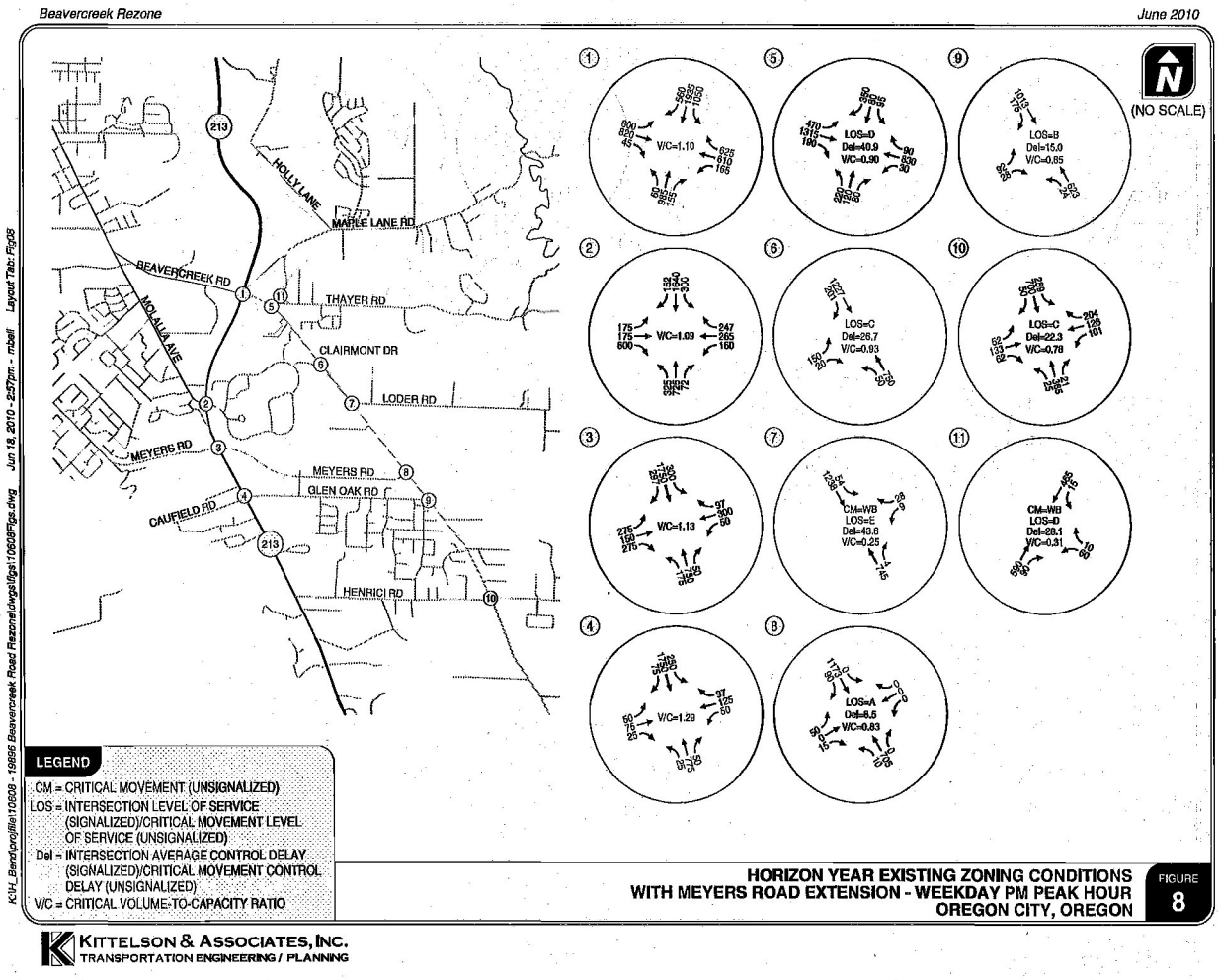
To comply with the TPR, the significant effect at the OR 213/Meyers Road intersection could be mitigated through various alternatives, as provided below.

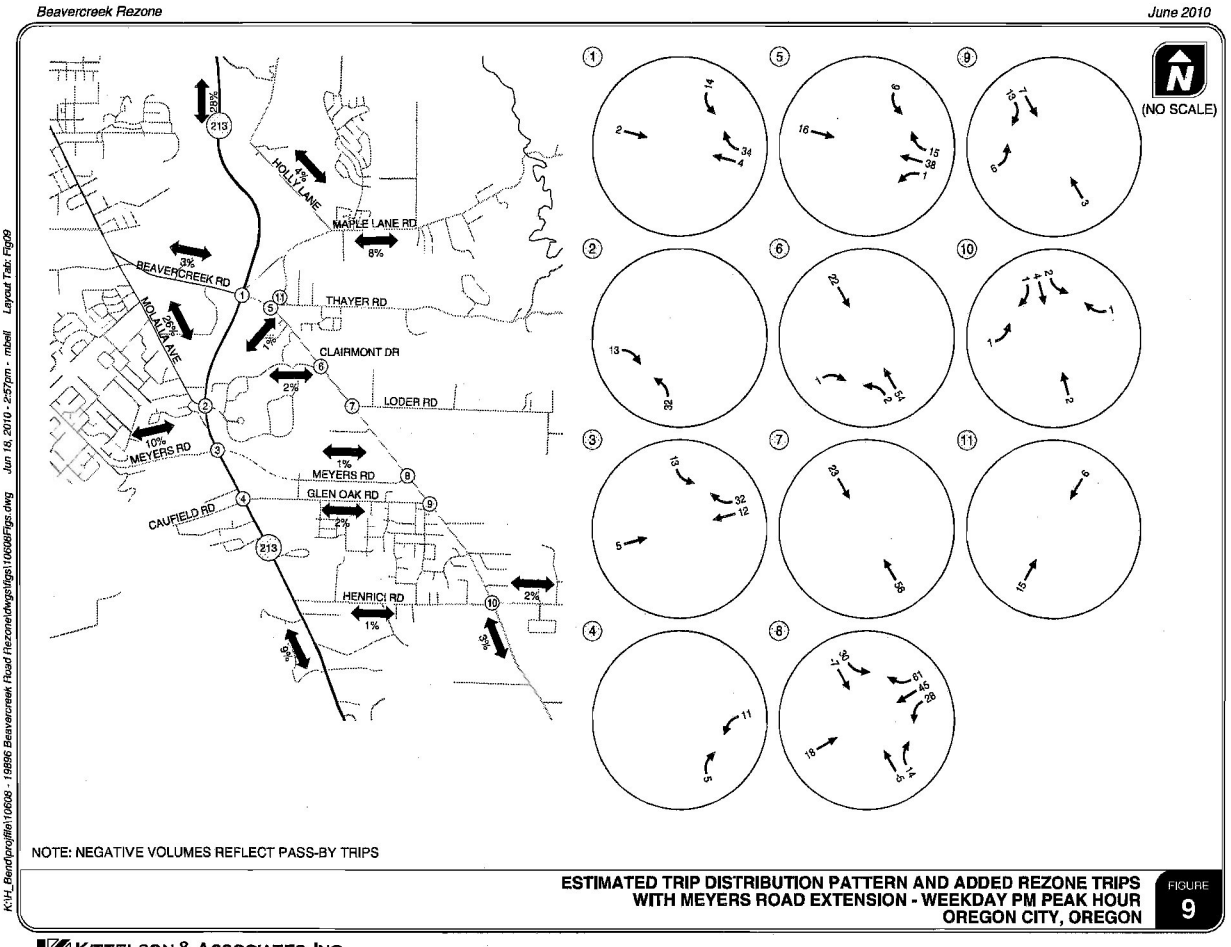
- The TPR allows the mitigation of significant effects through minor transportation improvements. Installation of a separate westbound right-turn lane along Meyers Road at the intersection reduces the volume-to-capacity ratio to 1.08; an improvement over conditions without the rezone trips (1.13).

- Based on the poor long-term performance at OR 213/Meyers Road the City and ODOT could adopt a plan that would enhance the intersection capacity at the time of initial construction. Intersection improvements needed for the intersection to operate acceptably in 2027 likely include widening OR 213 to become a five-lane cross-section, as identified in the City's 2003 TSP and within the Beavercreek Road Concept Plan. Construction of this roadway cross-section is partially in place where frontage improvements have been completed.

Attachment "D" contains the intersection operations analysis worksheets assuming the Meyers Road extension is in place during the horizon period.

Beavercreek Rezone
June 2010
213
HOLLY LANE
MARLE LANE RD
BEAVERCREEK RD
THAYER RD
MOLALLA AVE
CLAIRMONT DR
LODER RD
MEYERS RD
MEYERS RD
GLEN OAK RD
CAUFIELD RD
213
HENRICI RD
(NO SCALE)
LEGEND
- ASSUMED IMPROVEMENT
- STOP SIGN
- TRAFFIC SIGNAL
ASSUMED LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES
WITH MEYERS ROAD EXTENSION
OREGON CITY, OREGON
FIGURE
7
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
K:\H_Band\proj\file\10698 - 19995 Beavercreek Road Rezone\dwgs\fig\10606Figs.dwg Jun 18, 2010 - 2:07pm - mbell Layout Tab: Fig07

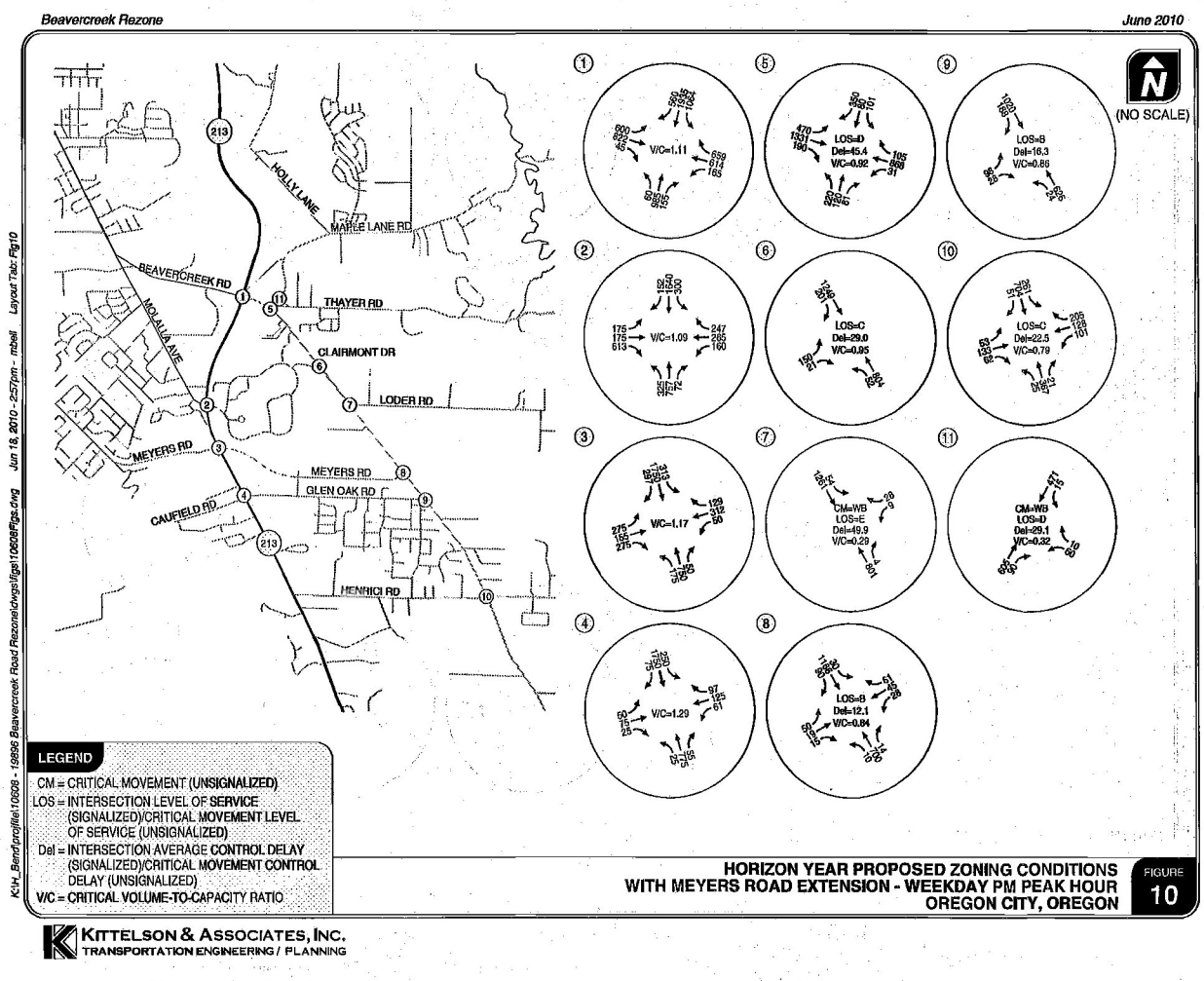

Beavercreek Rezone
June 2010
(NO SCALE)
HOLLY LANE
MAPLE LANE RD
BEAVERCREEK RD
MOLALLA AVE
THAYER RD
CLAIRMONT DR
LODER RD
MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
V/C=1.10
LOS=D
Del=40.9
V/C=0.90
LOS=B
Del=15.0
V/C=0.65
V/C=1.09
LOS=C
Del=26.7
V/C=0.93
LOS=C
Del=22.3
V/C=0.78
V/C=1.13
CM=WB
LOS=E
Del=43.8
V/C=0.25
CM=WB
LOS=D
Del=28.1
V/C=0.31
V/C=1.29
LOS=A
Del=8.5
V/C=0.83
LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
HORIZON YEAR EXISTING ZONING CONDITIONS
WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE 8
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
K:\H_Bend\proj\file\10608 - 19896 Beavercreek Road Rezone\dwg\figs\10608Figs.dwg Jun 18, 2010 - 2:57pm - nbell Layout Tab: Fig08



ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS
WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON

FIGURE 9

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING


Beavercreek Rezone
June 2010
(NO SCALE)
HOLLY LANE
MAPLE LANE RD
BEAVERCREEK RD
MOLALLA AVE
THAYER RD
CLAIRMONT DR
LODER RD
MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
213
V/C=1.11
LOS=D
Del=45.4
V/C=0.92
LOS=B
Del=16.3
V/C=0.86
V/C=1.09
LOS=C
Del=29.0
V/C=0.95
LOS=C
Del=22.5
V/C=0.79
V/C=1.17
CM=WB
LOS=E
Del=49.9
V/C=0.29
CM=WB
LOS=D
Del=29.1
V/C=0.32
V/C=1.29
LOS=B
Del=12.1
V/C=0.84
LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
K:\H_Bend\profiles\10608 - 19896 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 2:57pm - mbell Layout Tab: Fig10
HORIZON YEAR PROPOSED ZONING CONDITIONS
WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE
10
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

TRANSPORTATION PLANNING RULE COMPLIANCE

OAR Section 660-12-0060 sets forth the relative criteria for evaluating plan and land use regulation amendments. Table 7 summarizes the TPR criteria and their applicability to the proposed rezone application.

Table 7 Summary of Criteria in OAR 660-012-0060

Section	Criteria	Applicable?
1	Describes how to determine if a proposed land use action results in a significant affect on transportation facilities.	Yes *See response below*
2	Describes measures for complying with Criteria #1 where a significant effect is identified.	Yes *See response below*
3	Describes measures for complying with Criteria #1 and #2 without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility.	No
4	Determinations under Criteria #1, #2, and #3 are coordinated with other local agencies.	Yes *See response below*
5	Indicates that the presence of a transportation facility shall not be the basis for an exception to allow development on rural lands.	No (Lands are part of a master plan area)
6	Indicates that local agencies should credit developments that provide a reduction in trips.	No (No concurrent site plan)
7	Outlines requirements for a local street plan, access management plan, or future street plan for commercial areas.	No (Commercial lands are not proposed)
8	Defines a mixed-use, pedestrian-friendly neighborhood.	No (No concurrent site plan)

As shown, there are eight criteria that apply to Plan and Land Use Regulation Amendments. Of these, Criteria #1, #2, and #4 are applicable to the proposed land use action. Applicable sections of these criteria are provided below in italics with a corresponding response shown in standard font.

> *OAR 660-12-0060 (1) Where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures as provided in section (2) of this rule to assure that allowed land uses are consistent with the identified function, capacity, and performance standards (e.g. level of service, volume to capacity ratio, etc.) of the facility. A plan or land use regulation amendment significantly affects a 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 functional 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;

Response: Based on the incremental traffic increase from *EFU* to *MUC-1* zoning, the functional classification of all the adjacent roadways will not be affected with the proposed zone change.

(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

Response: Each of the study intersections along OR 213 performs below the minimum acceptable performance standard in the OHP with the existing zoning.

(C) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP or comprehensive plan.

Response: The performance of two study intersections along OR 213 was forecast to be degraded by a volume-to-capacity ratio increase of more than 0.01 with the incremental trips from the proposed rezone. As a result, the proposed rezone was found to have a significant effect on the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road.

OAR 660-12-0060 (2) Where a local government determines that there would be a significant effect, compliance with section (1) shall be accomplished through one or a combination of the following:

(a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.

(b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.

(d) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.

(e) Providing other measures as a condition of development or through a development agreement or similar funding method, including transportation system management measures, demand management or minor transportation improvements. Local governments

shall as part of the amendment specify when measures or improvements provided pursuant to this subsection will be provided.

Response: The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.

The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213.

OAR 660-12-0060 (4) Determinations under sections (1)-(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.

(a) In determining whether an amendment has a significant effect on an existing or planned transportation facility under subsection (1)(c) of this rule, local governments shall rely on existing transportation facilities and services and on the planned transportation facilities, improvements and services set forth in subsections (b) and (c) below.

(b) Outside of interstate interchange areas, the following are considered planned facilities, improvements and services:

(D) Improvements to state highways that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when ODOT provides a written statement that the improvements are reasonably likely to be provided by the end of the planning period.

(e) For purposes of this section, a written statement provided pursuant to paragraphs (b)(D), (b)(E) or (c)(A) provided by ODOT, a local government or transportation facility provider, as appropriate, shall be conclusive in determining whether a transportation facility, improvement or service is a planned transportation facility, improvement or service. In the absence of a written statement, a local government can only rely upon planned transportation facilities, improvements and services identified in paragraphs (b)(A)-(C) to determine whether there is a significant effect that requires application of the remedies in section (2).

Response: The project team has been coordinating assumed transportation improvements and the study scope extensively with ODOT Region 1 and City of Oregon City staff. This coordination has included written documentation as well as joint meetings with the ODOT, City, and project team staff.

FINDINGS

Based on the analysis presented in this report, the proposed rezone of the 9.73-acre study site from *Future Urban* (FU) zoning to *Mixed-Use Corridor* (MUC) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements assuming provision of the recommended mitigations. Key findings and recommendations from the analysis presented in this report are summarized below.

Findings

- The proposed 9.73-acre rezone from the *Future Urban* zoning to the City's *Mixed-Use Corridor (MUC-1)* zoning was estimated to generate an additional 173 net new weekday p.m. peak hour trips.
- All of the City-maintained study area intersections were forecast to operate acceptably with the existing and proposed zoning in the horizon analysis period.
- All of the OR 213 study intersections were forecast to exceed ODOT mobility standards during 2027 future year weekday p.m. peak hour traffic conditions under the existing zoning.
- The additional trips associated with the proposed rezone were forecast to have an incremental impact on the study intersections and that impact was found to constitute a *Significant Effect* at two locations.
    A. City of Oregon City-maintained study intersections were forecast to continue to operate acceptably.
    B. The intersection volume-to-capacity ratio was forecast to increase by more than 0.01 at the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road with the incremental trips from the proposed rezone. This change represents a significant effect per the thresholds established by ODOT Region 1 staff.
    C. Other ODOT-maintained study intersections along OR 213 were forecast to experience a volume-to-capacity ratio increase not greater than 0.01 and thus were not significantly effected.
- The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.
- The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213 or with the long-term planned improvement of a five-lane cross section extending south through Meyers Road (*Oregon City TSP*).
- The findings listed above are premised on the assumed site-generated trip generation for the MUC-1 zoning.

- Interconnectivity should be reviewed with the future site plan development application(s) (including within the subject parcel) to provide direct and convenient multimodal access to the site.
- The City of Oregon City could elect to approve the proposed rezone by:
    1. Making an interpretation that the extension of Meyers Road from OR 213 to its existing terminus is reasonably funded and finding that the improvement project identified for the Meyers Road/OR 213 intersection in the City's Transportation System Plan includes separate left-turn, through, and right-turn lanes on the westbound (new) approach to OR 213.
    2. Other options available to the City, as appropriate.

Please contact us if you have any questions regarding this zone change analysis.

We trust this letter adequately addresses the traffic impacts associated with the proposed rezone application. Please contact us if you have any questions or comments regarding the contents of this report or the analysis performed.

Sincerely,
KITTELSON & ASSOCIATES, INC.

CJB for
Joe Bessman, PE, PTOE
Senior Engineer

Chris Brehmer
Chris Brehmer, PE
Principal Engineer

Cc: Dan Drentlaw, City of Oregon City
John Replinger, PE, Replinger & Associates, LLC
Gail Curtis, AICP, Oregon Department of Transportation – Region 1
Martin Jensvold, PE, Oregon Department of Transportation – Region 1
Phil Gentemann, Centurion Homes
Bruce Goldson, PE, PLS

REGISTERED PROFESSIONAL ENGINEER 62836PE OREGON JULY 11, 2000 CHRISTOPHER LYNN BREHMER
Christopher Lynn Brehmer
SIGNED 6-21-10
Expires: 12-31-11

ATTACHMENTS:

A. Horizon Year Existing Zoning Operations Analysis Worksheets

B. City MUC Zoning Code Provisions

C. Horizon Year Proposed Zoning Operations Analysis Worksheets

D. Horizon Year Operations Analysis Worksheets with Meyers Road Extension

REFERENCES:

1. City of Oregon City. *City of Oregon City Transportation System Plan.* 2001.
2. City of Oregon City. *Beavercreek Road Concept Plan.* August 2008.
3. City of Oregon City. *Park Place Concept Plan.* March 12, 2008.
4. Kittelson & Associates, Inc. *Highway 213 Urban Corridor Design Study.* June 2000.
5. Kittelson & Associates, Inc. *OR 213: I-205 - Redland Rd O'Xing.* 2009.
6. TriMet. http://trimet.org/ June 2010.
7. Oregon Department of Transportation. *1999 Oregon Highway Plan.* March 1999.
8. Department of Land Conservation and Development. Oregon Administrative Rule 660-12-0060, http://arcweb.sos.state.or.us/banners/rules.htm.
9. Institute of Transportation Engineers. *Trip Generation: 8th Edition.* 2008.
10. Institute of Transportation Engineers. *Trip Generation Handbook: 2nd Edition.* 2004.

Attachment A
Horizon Year Existing
Zoning Operations
Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	57	265	7	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m95	#602	m38	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

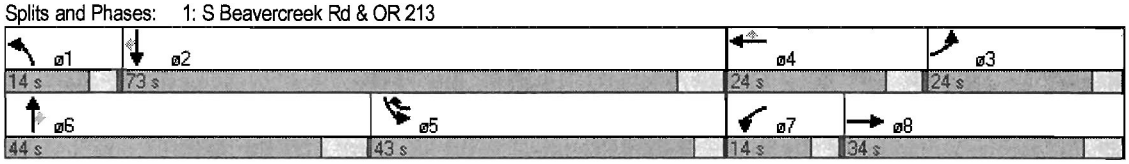
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.1	25.9	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	86.3	58.8	31.0	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	C	F	F	C
Approach Delay (s)		132.1			97.6			56.6			77.0	
Approach LOS		F			F			E			E	

Intersection Summary				
HCM Average Control Delay	88.2	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.10			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	104.5%	ICU Level of Service	G	
Analysis Period (min)	15			

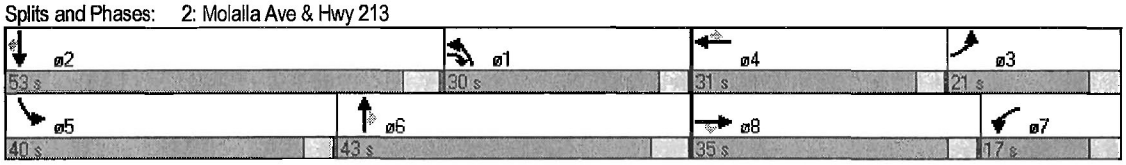
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.89	1.53	0.79	0.66	0.97	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	425	~501	230	0	308	260	96	~467	~847	12
Queue Length 95th (ft)	#273	305	544	#778	334	97	m#444	m306	m149	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.89	1.53	0.72	0.64	0.97	0.58	0.40	1.05	1.20	0.25

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	551	405	279	80	342	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.19	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.84	1.53	0.79	0.27	0.97	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.4	57.3	52.0	46.7	53.5	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.11	1.20	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	9.6	256.0	10.9	0.5	30.3	1.6	1.2	28.4	90.3	0.0
Delay (s)	61.3	62.4	47.0	313.3	62.9	47.2	88.8	46.4	45.1	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		53.7			149.0			58.7			102.2	
Approach LOS		D			F			E			F	

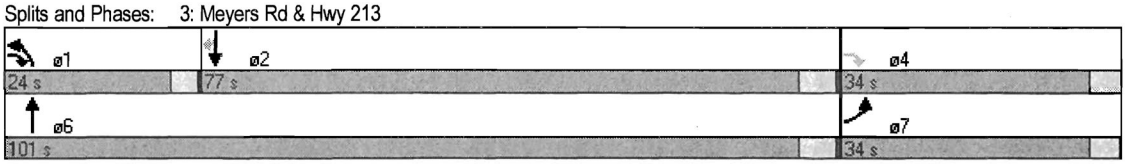
Intersection Summary				
HCM Average Control Delay	93.6	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	107.1%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	325	250	775	1800	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				325	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	342	263	816	1895	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	342	263	816	1895	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	
Control Delay	89.9	33.9	102.3	11.5	22.9	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	33.9	102.3	11.5	22.9	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	218	232	315	911	3	
Queue Length 95th (ft)	#555	315	#409	425	m344	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	977	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	325	250	775	1800	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	342	263	816	1895	549
RTOR Reduction (vph)	0	6	0	0	0	147
Lane Group Flow (vph)	395	336	263	816	1895	402
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.15	0.44	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.53	0.96	0.61	1.00	0.48
Uniform Delay, d1	51.6	32.0	56.6	9.1	30.3	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.54	0.04
Incremental Delay, d2	37.3	0.8	44.1	2.1	5.3	0.2
Delay (s)	88.9	32.8	100.8	11.2	21.8	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.9			33.0	17.1	
Approach LOS	E			C	B	

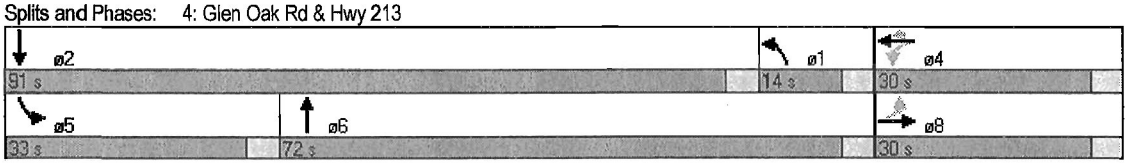
Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.978		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1858	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.544			0.690		0.950			0.950		
Satd. Flow (perm)	0	1010	0	0	1311	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				179		5			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	234	179	26	859	0	365	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.76			0.91	0.39	0.20	0.92		0.92	1.45	
Control Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			202	0	22	673		315	~2292	
Queue Length 95th (ft)		#236			#358	64	53	#964		#498	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		216			273	470	152	973		418	1276	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.72			0.86	0.38	0.17	0.88		0.87	1.45	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 130.2
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1859	1576	1787	1824		1805	1835	
Flt Permitted		0.54			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1011			1311	1576	1787	1824		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
RTOR Reduction (vph)	0	6	0	0	0	144	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	234	35	26	857	0	365	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		24.6			24.6	24.6	5.8	67.5		27.7	89.4	
Effective Green, g (s)		25.6			25.6	25.6	6.8	68.5		28.7	90.4	
Actuated g/C Ratio		0.19			0.19	0.19	0.05	0.52		0.22	0.69	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		196			255	306	92	948		393	1259	
v/s Ratio Prot							0.01	c0.47		0.20	c1.01	
v/s Ratio Perm		0.15			c0.18	0.02						
v/c Ratio		0.77			0.92	0.11	0.28	0.90		0.93	1.47	
Uniform Delay, d1		50.3			52.1	43.8	60.2	28.7		50.5	20.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		16.3			34.7	0.2	1.7	11.8		27.9	214.9	
Delay (s)		66.6			86.8	43.9	61.8	40.4		78.4	235.6	
Level of Service		E			F	D	E	D		E	F	
Approach Delay (s)		66.6			68.2			41.0			209.7	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	147.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	131.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

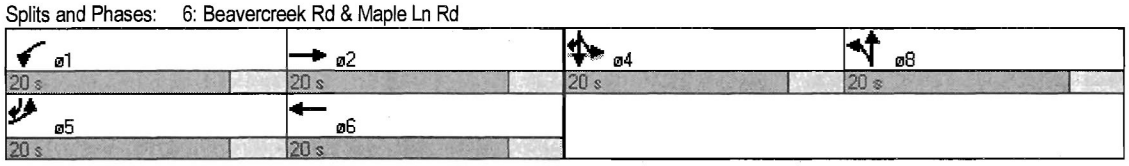
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4	4 5
Permitted Phases		4										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary				
HCM Average Control Delay	40.9	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.90			
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	82.2%	ICU Level of Service	E	
Analysis Period (min)	15			

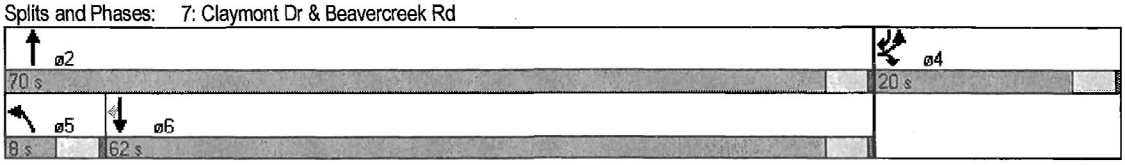
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 90
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary				
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

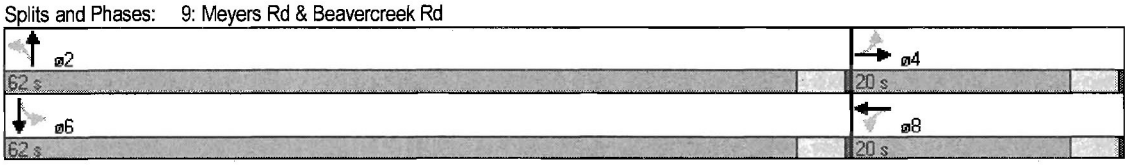
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.993	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1869	0
Flt Permitted	0.757						0.112					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	213	1881	0	1900	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		102									7	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1329	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.81	
Control Delay	41.7	0.5					3.0	3.4			11.4	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.0	3.4			11.4	
Queue Length 50th (ft)	29	0					1	90			338	
Queue Length 95th (ft)	59	0					5	178			#923	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	394					186	1645			1635	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.81	

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 83.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1203	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1869	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1266	63
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1564	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.0	
Delay (s)	43.6	36.8					1.9	2.9			9.8	
Level of Service	D	D					A	A			A	
Approach Delay (s)		42.0			0.0			2.9			9.8	
Approach LOS		D			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	77.0%	ICU Level of Service	D
Analysis Period (min)	15		

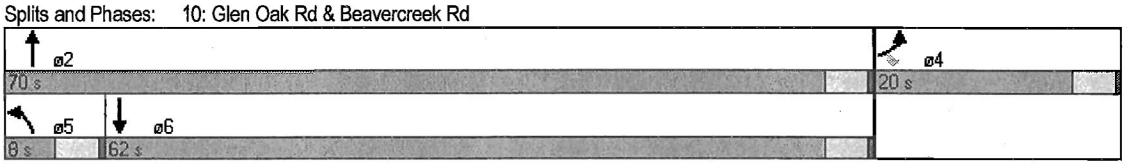
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.977	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1856	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1856	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			23	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	216
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1282	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.87	
Control Delay	44.2	13.8	51.0	3.8	18.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	18.9	
Queue Length 50th (ft)	54	0	14	85	342	
Queue Length 95th (ft)	95	23	39	163	#1023	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1478	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.87	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 89.6
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1857	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1857	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	216
RTOR Reduction (vph)	0	26	0	0	6	0
Lane Group Flow (vph)	97	3	25	656	1276	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1407	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.69	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.91	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	10.1	
Delay (s)	44.4	38.1	110.5	3.2	18.8	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	18.8	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	16.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.87			
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	77.5%	ICU Level of Service	D	
Analysis Period (min)	15			

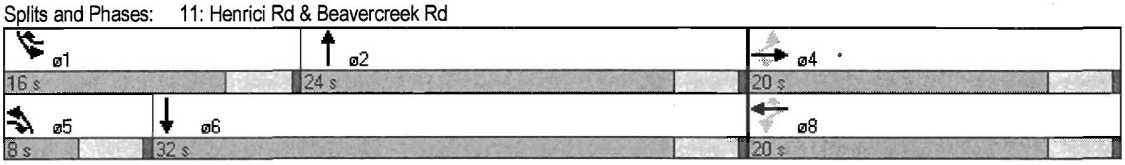
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Attachment B
City MUC Zoning Code Provisions

Oregon City, Oregon, Code of Ordinances >> Title 17 - ZONING >> Chapter 17.29 - "MUC"—MIXED -USE CORRIDOR DISTRICT >>

Chapter 17.29 - "MUC"—MIXED-USE CORRIDOR DISTRICT*

Editor's note—

Ord. No. 08-1014, adopted Jul. 1, 2009, repealed Chapter 17.29 in its entirety and enacted new provisions to read as herein set out. Prior to amendment, Chapter 17.29 pertained to similar subject matter. See Ordinance Disposition List for derivation.

Sections:

17.29.010 - Designated.
17.29.020 - Permitted uses—MUC-1 and MUC-2.
17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.
17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.
17.29.050 - Dimensional standards—MUC-1.
17.29.060 - Dimensional standards—MUC-2.
17.29.070 - Floor area ratio (FAR).

17.29.010 - Designated.

The Mixed-Use Corridor (MUC) District is designed to apply along selected sections of transportation corridors such as Molalla Avenue, 7th Street and Beavercreek Road, and along Warner-Milne Road. Land uses are characterized by high-volume establishments such as retail, service, office, multi-family residential, lodging, recreation and meeting facilities, or a similar use as defined by the community development director. A mix of high -density residential, office, and small-scale retail uses are encouraged in this District. Moderate density (MUC-1) and high density (MUC-2) options are available within the MUC zoning district. The area along 7th Street is an example of MUC-1, and the area along Warner-Milne Road is an example of MUC-2.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.020 - Permitted uses—MUC-1 and MUC-2.

A. Banquet, conference facilities and meeting rooms;

B. Bed and breakfast and other lodging facilities for up to ten guests per night;

C. Child care centers and/or nursery schools;

D. Indoor entertainment centers and arcades;

E. Health and fitness clubs;

F. Medical and dental clinics, outpatient; infirmary services;

G. Museums, libraries and cultural facilities;

H. Offices, including finance, insurance, real estate and government;

I. Outdoor markets, such as produce stands, craft markets and farmers markets that are operated on the weekends and after six p.m. during the weekday;

J. Postal services;

K. Parks, playgrounds, play fields and community or neighborhood centers;

L. Repair shops, for radio and television, office equipment, bicycles, electronic equipment, shoes and small appliances and equipment;

N. Residential units, multi-family;

O. Restaurants, eating and drinking establishments without a drive through;

P. Services, including personal, professional, educational and financial services; laundry and dry-cleaning;

Q. Retail trade, including grocery, hardware and gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores, and similar, provided the maximum footprint for a stand alone building with a single store or multiple buildings with the same business does not exceed sixty thousand square feet;

R. Seasonal sales, subject to Oregon City Municipal Code Section 17.54.060;

S. Assisted living facilities; nursing homes and group homes for over fifteen patients;

T. Studios and galleries, including dance, art, photography, music and other arts;

U. Utilities: Basic and linear facilities, such as water, sewer, power, telephone, cable, electrical and natural gas lines, not including major facilities such as sewage and water treatment plants, pump stations, water tanks, telephone exchanges and cell towers.

V. Veterinary clinics or pet hospitals, pet day care.

W. Home occupations;

X. Research and development activities;

Y. Temporary real estate offices in model dwellings located on and limited to sales of real estate on a single piece of platted property upon which new residential buildings are being constructed;

Z. Residential care facility.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.030 - Conditional uses—MUC-1 and MUC-2 zones.

The following uses are permitted in this district when authorized and in accordance with the process and standards contained in Chapter 17.56:

A. Ancillary drive-in or drive-through facilities;

B. Emergency service facilities (police and fire), excluding correctional facilities;

C. Gas stations;

D. Outdoor markets that do not meet the criteria of Section 17.29.020H.;

E. Public utilities and services including sub-stations (such as buildings, plants and other structures);

F. Public and/or private educational or training facilities;

G. Religious institutions;

H. Retail trade, including gift shops, bakeries, delicatessens, florists, pharmacies, specialty stores and any other use permitted in the neighborhood, historic or limited commercial districts that have a footprint for a stand alone building with a single store in excess of sixty thousand square feet in the MUC-1 or MUC-2 zone;

I. Hotels and motels, commercial lodging;

J. Hospitals;

K. Parking structures and lots not in conjunction with a primary use;

L. Passenger terminals (water, auto, bus, train).

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.040 - Prohibited uses in the MUC-1 and MUC-2 zones.

The following uses are prohibited in the MUC district:

A. Distributing, wholesaling and warehousing;

B. Outdoor sales or storage;

C. Correctional facilities;

D. Heavy equipment service, repair, sales, storage or rental[2] (including but not limited to construction equipment and machinery and farming equipment);

E. Kennels;

E. Motor vehicle and recreational vehicle sales and incidental service;

F. Motor vehicle and recreational vehicle repair/service;

G. Outdoor sales or storage;

H. Self-service storage facilities.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.050 - Dimensional standards—MUC-1.

A. Minimum lot areas: None.

B. Maximum building height: Forty feet or three stories, whichever is less.

C. Minimum required setbacks if not abutting a residential zone: None.

D. Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every one foot of building height over thirty-five feet.

E. Maximum allowed setbacks.

1. Front yard: Five feet (may be extended with Site Plan and Design Review (Section 17.62.055).
2. Interior side yard: None.
3. Corner side setback abutting street: Thirty feet provided the Site Plan and Design Review requirements of Section 17.62.055 are met.
4. Rear yard: None.

F. Maximum lot coverage of the building and parking lot: Eighty percent.

G. Minimum required landscaping (including landscaping within a parking lot): Twenty percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.060 - Dimensional standards—MUC-2.

A. Minimum lot area: None.

B. Minimum floor area ratio: 0.25.

C. Minimum building height: Twenty-five feet or two stories except for accessory structures or buildings under one thousand square feet.

D. Maximum building height: Sixty feet.

E. Minimum required setbacks if not abutting a residential zone: None.

F.

Minimum required interior and rear yard setbacks if abutting a residential zone: Twenty feet, plus one foot additional yard setback for every two feet of building height over thirty-five feet.

G. Maximum Allowed Setbacks.

1. Front yard: Five feet (may be expanded with Site Plan and Design Review Section 17.62.055).

2. Interior side yard: None.

3. Corner side yard abutting street: Twenty feet provided the site plan and design review requirements of Section 17.62.055 are met.

4. Rear yard: None.

H. Maximum site coverage of building and parking lot: Ninety percent.

I. Minimum landscaping requirement (including parking lot): Ten percent.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

17.29.070 - Floor area ratio (FAR).

Floor area ratios are a tool for regulating the intensity of development. Minimum FARs help to achieve more intensive forms of building development in areas appropriate for larger-scale buildings and higher residential densities.

A. Standards.

1. The minimum floor area ratios contained in 17.29.050 and 17.29.060 apply to all non-residential and mixed-use building development, except stand-alone commercial buildings less than ten thousand square feet in floor area.

2. Required minimum FARs shall be calculated on a project-by-project basis and may include multiple contiguous blocks. In mixed-use developments, residential floor space will be included in the calculations of floor area ratio to determine conformance with minimum FARs.

3. An individual phase of a project shall be permitted to develop below the required minimum floor area ratio provided the applicant demonstrates, through covenants applied to the remainder of the site or project or through other binding legal mechanism, that the required density for the project will be achieved at project build out.

(Ord. No. 08-1014, §§ 1—3(Exhs. 1—3), 7-1-2009)

Attachment C
Horizon Year Proposed
Zoning Operations
Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	90.5	54.6	5.9	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	57	264	7	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m95	#602	m38	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

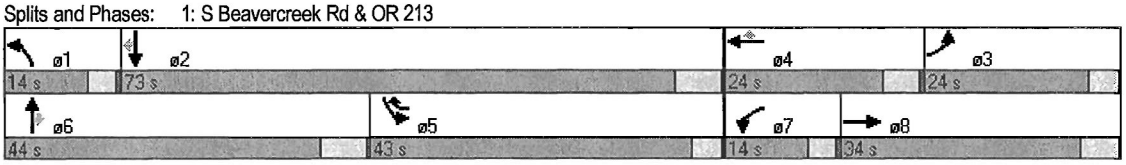
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.1	25.9	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	86.3	58.7	31.0	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	C	F	F	C
Approach Delay (s)		132.6			102.5			56.5			78.6	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	89.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	105.0%	ICU Level of Service	G
Analysis Period (min)	15		

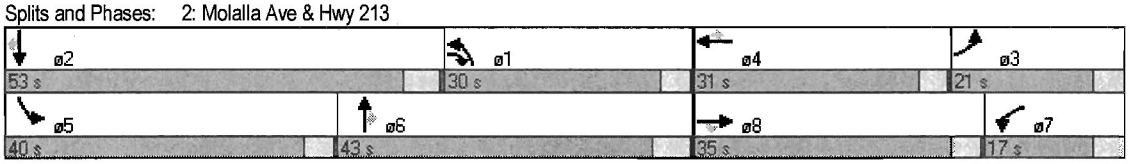
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.91	1.53	0.79	0.66	1.06	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	56.6	294.7	68.2	9.7	110.6	46.1	25.2	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	441	~501	230	0	~366	259	96	~467	~847	12
Queue Length 95th (ft)	#273	305	563	#778	334	97	m#513	m305	m150	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.91	1.53	0.72	0.64	1.06	0.58	0.40	1.05	1.20	0.25

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	538	385	265	397	357	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	566	405	279	418	376	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	564	405	279	80	376	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.21	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.86	1.53	0.79	0.27	1.06	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.9	57.3	52.0	46.7	54.0	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.08	1.09	1.17	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	11.3	256.0	10.9	0.5	56.2	1.6	1.1	28.4	90.3	0.0
Delay (s)	61.3	62.4	49.1	313.3	62.9	47.2	114.6	45.8	44.0	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		54.8			149.0			67.2			102.2	
Approach LOS		D			F			E			F	

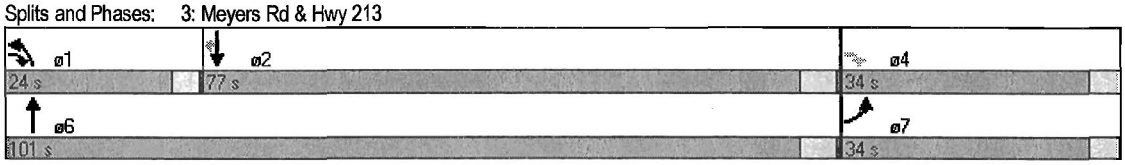
Intersection Summary				
HCM Average Control Delay	95.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.12			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	108.9%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	330	262	807	1813	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				323	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	347	276	849	1908	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	347	276	849	1908	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	
Control Delay	89.9	34.1	113.3	12.1	24.8	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	34.1	113.3	12.1	24.8	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	222	~249	339	~920	3	
Queue Length 95th (ft)	#555	321	#435	458	m367	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	976	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.57	1.01	0.63	1.00	0.56	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 100
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	330	262	807	1813	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	347	276	849	1908	549
RTOR Reduction (vph)	0	6	0	0	0	146
Lane Group Flow (vph)	395	341	276	849	1908	403
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.16	0.46	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.54	1.01	0.63	1.00	0.49
Uniform Delay, d1	51.6	32.1	57.0	9.4	30.5	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.55	0.04
Incremental Delay, d2	37.3	0.9	57.3	2.3	6.8	0.2
Delay (s)	88.9	33.0	114.3	11.7	23.6	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.8			36.9	18.6	
Approach LOS	E			D	B	

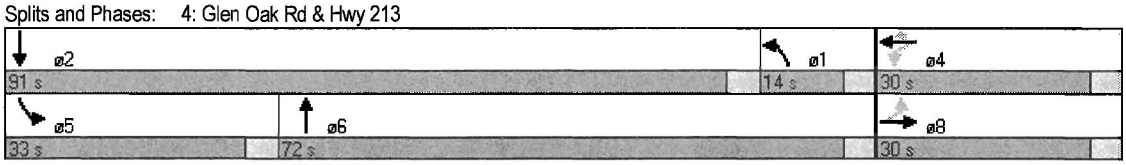
Intersection Summary				
HCM Average Control Delay	30.9	HCM Level of Service	C
HCM Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	95.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.977		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1856	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.538			0.676		0.950			0.950		
Satd. Flow (perm)	0	999	0	0	1284	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				225		6			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	246	225	26	864	0	383	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.74			0.94	0.45	0.20	0.94		0.95	1.46	
Control Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		69.9			93.7	8.6	62.2	49.4		83.6	235.4	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			216	0	22	679		334	~2292	
Queue Length 95th (ft)		#238			#387	70	53	#974		#534	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		211			264	503	150	962		413	1263	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.74			0.93	0.45	0.17	0.90		0.93	1.46	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 131.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	111	125	216	25	750	80	368	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1856	1576	1787	1823		1805	1835	
Flt Permitted		0.54			0.68	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		998			1285	1576	1787	1823		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	116	130	225	26	781	83	383	1771	78
RTOR Reduction (vph)	0	6	0	0	0	180	0	3	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	246	45	26	861	0	383	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		25.9			25.9	25.9	5.8	66.7		28.5	89.4	
Effective Green, g (s)		26.9			26.9	26.9	6.8	67.7		29.5	90.4	
Actuated g/C Ratio		0.20			0.20	0.20	0.05	0.51		0.22	0.68	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		202			260	319	91	927		400	1246	
v/s Ratio Prot							0.01	c0.47		0.21	c1.01	
v/s Ratio Perm		0.15			c0.19	0.03						
v/c Ratio		0.74			0.95	0.14	0.29	0.93		0.96	1.48	
Uniform Delay, d1		49.9			52.4	43.6	60.8	30.5		51.2	21.3	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		13.8			40.9	0.2	1.7	15.0		33.7	221.8	
Delay (s)		63.7			93.3	43.8	62.5	45.5		84.9	243.1	
Level of Service		E			F	D	E	D		F	F	
Approach Delay (s)		63.7			69.7			46.0			216.0	
Approach LOS		E			E			D			F	

Intersection Summary				
HCM Average Control Delay	150.9	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.32			
Actuated Cycle Length (s)	133.1	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	131.7%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

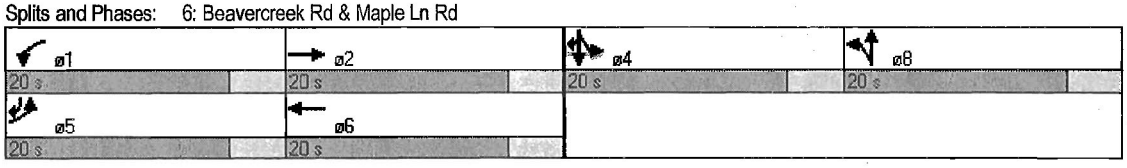
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	206	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4	4 5
Permitted Phases		4										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	140		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	80	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	82	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	175	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.53		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.7		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

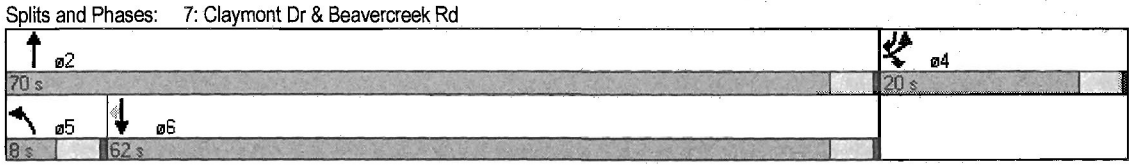
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 100
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

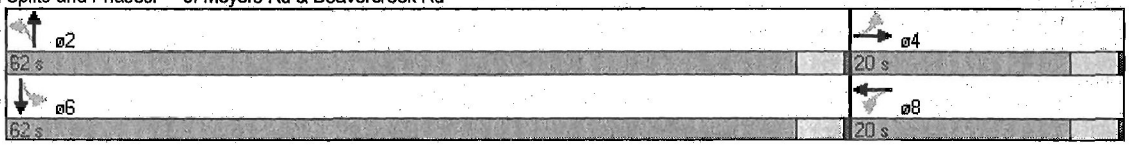
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.859			0.852			0.993			0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1632	0	1805	1619	0	1805	1869	0	1805	1869	0
Flt Permitted	0.715			0.746			0.078			0.325		
Satd. Flow (perm)	1358	1632	0	1417	1619	0	148	1869	0	618	1869	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			7			8	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	17	0	76	65	0	11	771	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.33	0.08		0.44	0.26		0.09	0.51		0.06	0.87	
Control Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	35.9	15.2		39.6	11.3		4.8	4.9		3.0	16.2	
Queue Length 50th (ft)	24	0		34	0		1	103		3	357	
Queue Length 95th (ft)	55	18		73	33		7	217		11	#918	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	275	343		287	379		120	1522		503	1522	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	0.05		0.26	0.17		0.09	0.51		0.06	0.87	

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 79.2
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1	15	72	1	61	10	700	32	30	1196	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.86		1.00	0.85		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1632		1805	1619		1805	1870		1805	1869	
Flt Permitted	0.71	1.00		0.75	1.00		0.08	1.00		0.32	1.00	
Satd. Flow (perm)	1358	1632		1418	1619		147	1870		617	1869	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	1	16	76	1	64	11	737	34	32	1259	63
RTOR Reduction (vph)	0	14	0	0	57	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	3	0	76	8	0	11	770	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Effective Green, g (s)	8.4	8.4		8.4	8.4		63.6	63.6		63.6	63.6	
Actuated g/C Ratio	0.11	0.11		0.11	0.11		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	143	171		149	170		117	1487		491	1486	
v/s Ratio Prot		0.00			0.00			0.41			c0.71	
v/s Ratio Perm	0.04			c0.05			0.07			0.05		
v/c Ratio	0.37	0.02		0.51	0.05		0.09	0.52		0.07	0.89	
Uniform Delay, d1	33.3	32.1		33.9	32.2		1.8	2.9		1.8	5.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.0		2.9	0.1		1.6	1.3		0.3	8.3	
Delay (s)	35.0	32.1		36.8	32.3		3.4	4.1		2.0	14.0	
Level of Service	C	C		D	C		A	A		A	B	
Approach Delay (s)		34.3			34.7			4.1			13.7	
Approach LOS		C			C			A			B	

Intersection Summary				
HCM Average Control Delay	12.4	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	83.9%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.972	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1847	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1847	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			29	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	122	29	25	659	1074	277
Shared Lane Traffic (%)						
Lane Group Flow (vph)	122	29	25	659	1351	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.54	0.13	0.32	0.44	0.97	
Control Delay	45.8	13.3	52.3	4.6	31.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	45.8	13.3	52.3	4.6	31.4	
Queue Length 50th (ft)	67	0	14	94	456	
Queue Length 95th (ft)	114	23	40	182	#1143	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	313	304	78	1499	1398	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.39	0.10	0.32	0.44	0.97	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 92.3
Natural Cycle: 110
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	116	28	24	626	1020	263
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.97	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1847	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1847	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	122	29	25	659	1074	277
RTOR Reduction (vph)	0	25	0	0	8	0
Lane Group Flow (vph)	122	4	25	659	1343	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	11.5	11.5	1.7	75.2	69.5	
Effective Green, g (s)	11.5	11.5	1.7	75.2	69.5	
Actuated g/C Ratio	0.12	0.12	0.02	0.79	0.73	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	219	196	32	1509	1356	
v/s Ratio Prot	c0.07		0.01	c0.35	c0.73	
v/s Ratio Perm		0.00				
v/c Ratio	0.56	0.02	0.78	0.44	0.99	
Uniform Delay, d1	39.2	36.6	46.3	3.1	12.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	3.1	0.0	74.5	0.9	22.3	
Delay (s)	42.3	36.7	120.9	4.0	34.6	
Level of Service	D	D	F	A	C	
Approach Delay (s)	41.2			8.3	34.6	
Approach LOS	D			A	C	

Intersection Summary				
HCM Average Control Delay	26.8	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.93			
Actuated Cycle Length (s)	94.7	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	82.8%	ICU Level of Service	E	
Analysis Period (min)	15			

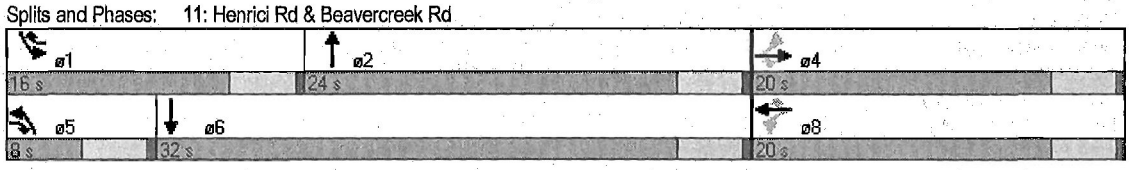
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Attachment D
Horizon Year Operations Analysis Worksheets with Meyers Road Extension

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	94.2	60.6	7.7	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	58	252	6	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m98	#602	m46	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

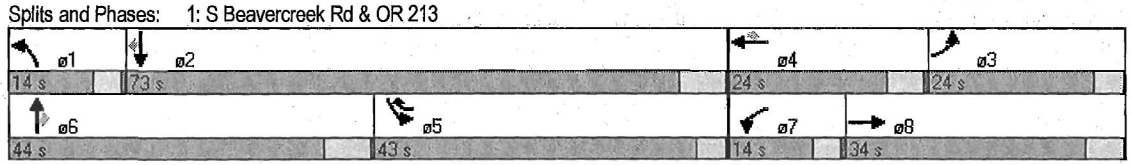
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.35	0.82	1.20	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.2	26.2	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	90.0	65.3	41.8	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	D	F	F	C
Approach Delay (s)		132.1			97.6			63.5			77.0	
Approach LOS		F			F			E			E	

Intersection Summary				
HCM Average Control Delay	89.3	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.10			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	104.5%	ICU Level of Service	G	
Analysis Period (min)	15			

c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			27			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.10	0.58	0.80	0.52	0.97	0.59	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	105.1	60.9	69.5	9.2	60.2	36.9	24.6	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~610	133	230	0	281	214	20	228	~1024	13
Queue Length 95th (ft)	#273	225	#779	#223	334	75	m241	m220	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.10	0.58	0.72	0.50	0.97	0.59	0.13	0.66	1.26	0.24

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

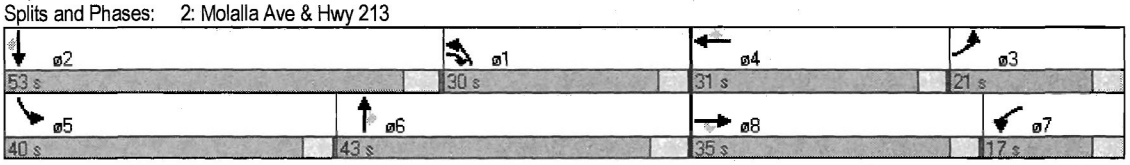
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	600	160	265	247	325	725	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	632	168	279	260	342	763	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	17	0	0	69
Lane Group Flow (vph)	184	184	612	168	279	49	342	763	59	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.22		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.04	0.58	0.80	0.17	0.97	0.58	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.0	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	47.0	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	90.9	54.7	64.5	46.3	59.8	34.5	30.9	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	C	C	D	F	B
Approach Delay (s)		82.8			55.5			41.6			121.0	
Approach LOS		F			E			D			F	

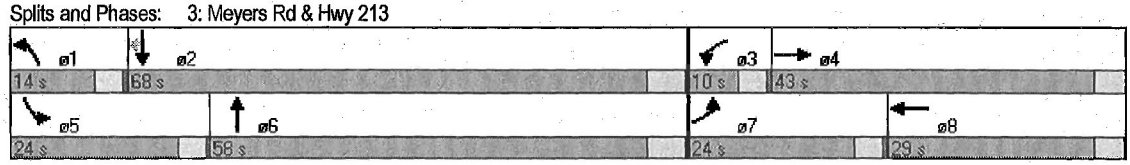
Intersection Summary			
HCM Average Control Delay	85.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	101.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	1.00		1.00	1.00		1.00		0.97
Frt		0.903			0.963			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1664	0	1770	1785	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1762	1664	0	1765	1785	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		69			11			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	447	0	53	418	0	184	842	0	316	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38
Control Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	49.7		100.7	170.6		219.1	111.7		157.1	70.1	2.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	319		47	~446		~205	~855		~345	~974	8
Queue Length 95th (ft)	#459	#499		#118	#658		#360	#1108		m#262	m515	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	554		79	340		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.81		0.67	1.23		1.29	1.13		1.21	1.10	0.38

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	150	275	50	300	97	175	750	50	300	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1664		1770	1786		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	158	289	53	316	102	184	789	53	316	1842	313
RTOR Reduction (vph)	0	48	0	0	9	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	399	0	53	409	0	184	840	0	316	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	341		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.23		c0.10	0.46		c0.18	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.79		0.84	1.20		1.29	1.15		1.21	1.12	0.31
Uniform Delay, d1	57.0	43.1		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.35	0.62	0.19
Incremental Delay, d2	68.3	8.2		60.8	114.7		171.5	81.4		96.2	53.0	0.1
Delay (s)	125.3	51.3		125.6	169.3		233.5	121.8		173.7	74.8	4.3
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.3			164.4			141.8			78.5	
Approach LOS		F			F			F			E	

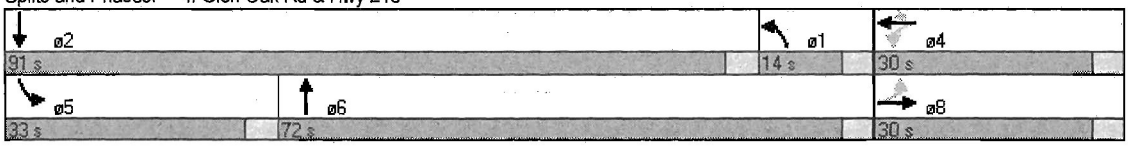
Intersection Summary				
HCM Average Control Delay	101.2	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.13			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	10.0	
Intersection Capacity Utilization	109.5%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.991			0.994	
Flt Protected		0.984			0.986		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1873	1615	1787	1831	0	1805	1836	0
Flt Permitted		0.590			0.797		0.950			0.950		
Satd. Flow (perm)	0	1095	0	0	1514	1576	1787	1831	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	182	101	26	859	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.84			0.73	0.29	0.21	0.82		0.76	1.42	
Control Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		82.7			66.6	10.8	61.1	31.2		62.3	213.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		119			143	0	21	538		202	~2154	
Queue Length 95th (ft)		#220			230	49	53	#961		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		250			339	431	163	1060		448	1339	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.62			0.54	0.23	0.16	0.81		0.58	1.42	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 121.8
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	50	125	97	25	775	50	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.99	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1825			1873	1577	1787	1831		1805	1836	
Flt Permitted		0.59			0.80	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1095			1515	1577	1787	1831		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	52	130	101	26	807	52	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	85	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	182	16	26	857	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		19.0			19.0	19.0	4.7	70.4		22.1	87.8	
Effective Green, g (s)		20.0			20.0	20.0	5.7	71.4		23.1	88.8	
Actuated g/C Ratio		0.16			0.16	0.16	0.05	0.58		0.19	0.72	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		177			245	255	82	1059		338	1320	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.12	0.01						
v/c Ratio		0.85			0.74	0.06	0.32	0.81		0.77	1.44	
Uniform Delay, d1		50.3			49.3	43.8	57.0	20.7		47.7	17.4	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		29.5			11.5	0.1	2.2	4.7		10.1	202.2	
Delay (s)		79.8			60.8	43.9	59.2	25.3		57.8	219.5	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		79.8			54.8			26.3			200.0	
Approach LOS		E			D			C			F	

Intersection Summary				
HCM Average Control Delay	138.7	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.29			
Actuated Cycle Length (s)	123.5	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	131.0%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

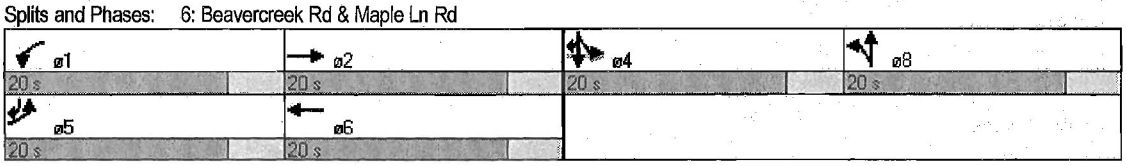
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

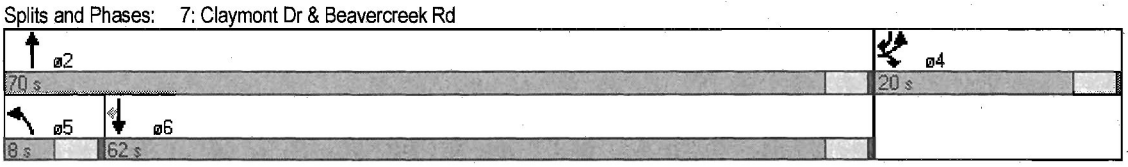
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 90
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	745	4	54	1238
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	784	4	57	1303
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	788	0	0	1360
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	745	4	54	1238
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	784	4	57	1303
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2225	808			810	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2225	808			810	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	75	92			93	
cM capacity (veh/h)	38	362			780	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	788	1360
Volume Left	9	0	57
Volume Right	29	4	0
cSH	155	1700	780
Volume to Capacity	0.25	0.46	0.07
Queue Length 95th (ft)	24	0	6
Control Delay (s)	43.6	0.0	3.4
Lane LOS	E		A
Approach Delay (s)	43.6	0.0	3.4
Approach LOS	E		

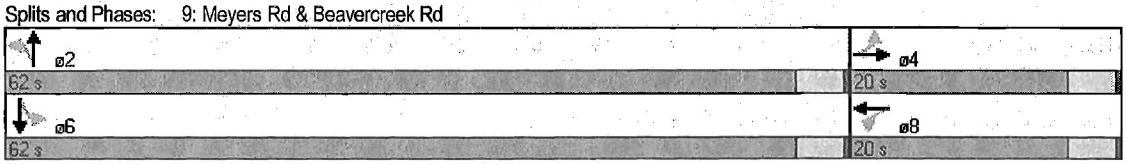
Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	119.0%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850									0.989	
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1805	1615	0	1900	1900	0	1805	1881	0	1900	1862	0
Flt Permitted	0.757						0.111					
Satd. Flow (perm)	1438	1615	0	1900	1900	0	211	1881	0	1900	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		108									12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	16	0	0	0	0	11	742	0	0	1330	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.36	0.06					0.06	0.45			0.82	
Control Delay	41.7	0.5					3.1	3.4			11.6	
Queue Delay	0.0	0.0					0.0	0.0			0.0	
Total Delay	41.7	0.5					3.1	3.4			11.6	
Queue Length 50th (ft)	29	0					1	90			340	
Queue Length 95th (ft)	59	0					5	178			#925	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150						100					
Base Capacity (vph)	278	399					185	1645			1630	
Starvation Cap Reductn	0	0					0	0			0	
Spillback Cap Reductn	0	0					0	0			0	
Storage Cap Reductn	0	0					0	0			0	
Reduced v/c Ratio	0.19	0.04					0.06	0.45			0.82	

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 83.1
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	0	15	0	0	0	10	705	0	0	1173	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0					4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00					1.00	1.00			1.00	
Frt	1.00	0.85					1.00	1.00			0.99	
Flt Protected	0.95	1.00					0.95	1.00			1.00	
Satd. Flow (prot)	1805	1615					1805	1881			1862	
Flt Permitted	0.76	1.00					0.11	1.00			1.00	
Satd. Flow (perm)	1439	1615					212	1881			1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	0	16	0	0	0	11	742	0	0	1235	95
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	2	0
Lane Group Flow (vph)	53	1	0	0	0	0	11	742	0	0	1328	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	5.8	5.8					70.9	70.9			70.9	
Effective Green, g (s)	5.8	5.8					70.9	70.9			70.9	
Actuated g/C Ratio	0.07	0.07					0.84	0.84			0.84	
Clearance Time (s)	4.0	4.0					4.0	4.0			4.0	
Vehicle Extension (s)	3.0	3.0					3.0	3.0			3.0	
Lane Grp Cap (vph)	99	111					177	1575			1559	
v/s Ratio Prot		0.00						0.39			c0.71	
v/s Ratio Perm	c0.04						0.05					
v/c Ratio	0.54	0.01					0.06	0.47			0.85	
Uniform Delay, d1	38.1	36.8					1.2	1.9			3.9	
Progression Factor	1.00	1.00					1.00	1.00			1.00	
Incremental Delay, d2	5.5	0.0					0.7	1.0			6.1	
Delay (s)	43.6	36.8					1.9	2.9			10.0	
Level of Service	D	D					A	A			B	
Approach Delay (s)		42.0			0.0			2.9			10.0	
Approach LOS		D			A			A			B	

Intersection Summary				
HCM Average Control Delay	8.5	HCM Level of Service	A	
HCM Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	77.2%	ICU Level of Service	D	
Analysis Period (min)	15			

c Critical Lane Group

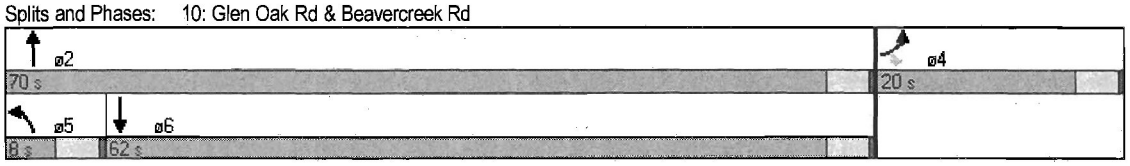
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.980	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1862	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1862	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			19	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	97	29	25	656	1066	184
Shared Lane Traffic (%)						
Lane Group Flow (vph)	97	29	25	656	1250	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.48	0.14	0.31	0.42	0.84	
Control Delay	44.2	13.8	51.0	3.8	17.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.2	13.8	51.0	3.8	17.3	
Queue Length 50th (ft)	54	0	14	85	317	
Queue Length 95th (ft)	95	23	39	163	#983	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1579	1482	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.30	0.09	0.31	0.42	0.84	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 89.6	
Natural Cycle: 90	
Control Type: Semi Act-Uncoord	

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	92	28	24	623	1013	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1862	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	97	29	25	656	1066	184
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	97	3	25	656	1245	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.8	8.8	1.7	76.0	70.3	
Effective Green, g (s)	8.8	8.8	1.7	76.0	70.3	
Actuated g/C Ratio	0.09	0.09	0.02	0.82	0.76	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	153	33	1556	1411	
v/s Ratio Prot	c0.05		0.01	c0.35	c0.67	
v/s Ratio Perm		0.00				
v/c Ratio	0.57	0.02	0.76	0.42	0.88	
Uniform Delay, d1	40.2	38.1	45.3	2.3	8.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.3	0.0	65.1	0.8	8.3	
Delay (s)	44.4	38.1	110.5	3.2	16.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.0			7.1	16.5	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	15.0	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.85			
Actuated Cycle Length (s)	92.8	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	75.7%	ICU Level of Service	D	
Analysis Period (min)	15			

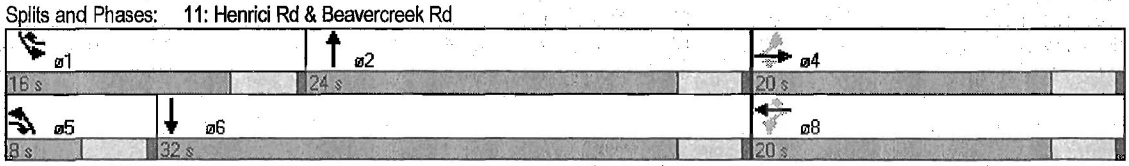
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.800			0.691		0.950			0.950		
Satd. Flow (perm)	0	1488	1571	0	1249	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			215		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	195	65	0	241	215	26	406	0	273	790	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.54	0.12		0.80	0.24	0.21	0.65		0.77	0.78	
Control Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.3	4.3		42.4	2.0	30.6	22.3		39.7	20.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		59	0		79	0	9	123		94	244	
Queue Length 95th (ft)		115	19		#178	25	30	210		#200	#465	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		417	537		350	929	126	628		375	1012	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	133	62	101	128	204	25	365	21	259	700	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.80	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1489	1577		1248	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	140	65	106	135	215	26	384	22	273	737	53
RTOR Reduction (vph)	0	0	47	0	0	123	0	3	0	0	4	0
Lane Group Flow (vph)	0	195	18	0	241	92	26	403	0	273	786	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		348	537		292	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.56	0.03		0.83	0.12	0.37	0.61		0.79	0.80	
Uniform Delay, d1		19.9	15.7		21.5	10.2	27.6	15.1		22.7	11.5	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.0	0.1	3.3	4.2		11.7	6.9	
Delay (s)		22.0	15.8		38.5	10.3	30.9	19.3		34.4	18.4	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.4			25.2			20.0			22.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	912	0	174	646	694	63	1037	163	1120	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.19	1.01	0.53	0.98	0.28	1.10	1.08	0.54
Control Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	110.5		70.9	149.2	70.2	94.3	60.2	8.2	104.2	78.6	3.9
Queue Length 50th (ft)	~342	~480		77	~357	~571	58	242	6	~573	~1089	11
Queue Length 95th (ft)	#463	#616		117	#482	#660	m96	#604	m49	#708	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.19	1.01	0.48	0.98	0.28	1.10	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

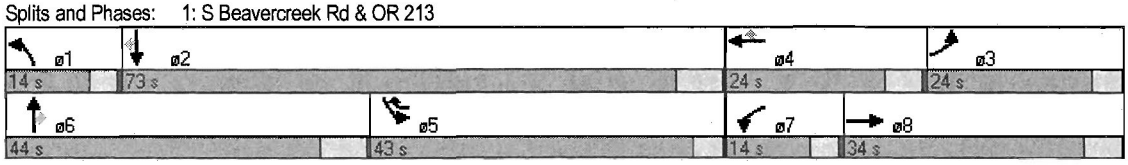
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	822	45	165	614	659	60	985	155	1064	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	865	47	174	646	694	63	1037	163	1120	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	909	0	174	646	690	63	1037	51	1120	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.26		0.05	c0.18	0.29	0.04	c0.30		0.33	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.19	0.96	0.59	1.00	0.11	1.08	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	36.0	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.36	0.82	1.29	1.00	1.00	1.00
Incremental Delay, d2	100.5	63.5		4.4	100.9	24.4	7.0	25.8	0.4	51.8	52.9	1.5
Delay (s)	157.5	115.4		64.6	157.9	60.4	90.3	64.9	44.9	98.9	84.3	20.0
Level of Service	F	F		E	F	E	F	E	D	F	F	C
Approach Delay (s)		132.6			102.5			63.6			78.6	
Approach LOS		F			F			E			E	

Intersection Summary				
HCM Average Control Delay	91.0	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.11			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	105.0%	ICU Level of Service	G	
Analysis Period (min)	15			

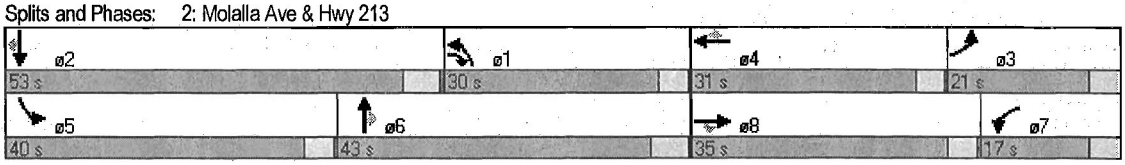
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1732	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			31			260			26			115
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.81	0.69	1.12	0.58	0.80	0.52	0.97	0.61	0.13	0.81	1.26	0.24
Control Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.9	67.2	112.8	60.9	69.5	9.2	60.5	37.5	25.1	52.6	143.3	5.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	155	~634	133	230	0	283	236	22	228	~1024	13
Queue Length 95th (ft)	#273	225	#804	#223	334	75	m239	m234	m17	m180	m#916	m12
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	238	425	575	291	386	523	354	1304	590	476	1375	678
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.43	1.12	0.58	0.72	0.50	0.97	0.61	0.13	0.66	1.26	0.24

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	175	613	160	265	247	325	757	72	300	1640	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1589	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	184	645	168	279	260	342	797	76	316	1726	160
RTOR Reduction (vph)	0	0	20	0	0	211	0	0	16	0	0	69
Lane Group Flow (vph)	184	184	625	168	279	49	342	797	60	316	1726	91
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	16.2	19.1	45.1	21.4	24.3	24.3	26.0	48.3	48.3	29.2	51.5	51.5
Effective Green, g (s)	17.2	20.1	47.1	22.4	25.3	25.3	27.0	50.3	50.3	30.2	53.5	53.5
Actuated g/C Ratio	0.13	0.15	0.35	0.17	0.19	0.19	0.20	0.37	0.37	0.22	0.40	0.40
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	228	267	590	291	349	287	354	1306	574	388	1376	610
v/s Ratio Prot	c0.10	0.10	c0.21	0.10	c0.15		0.19	0.23		0.18	c0.50	
v/s Ratio Perm			0.18			0.03			0.04			0.06
v/c Ratio	0.81	0.69	1.06	0.58	0.80	0.17	0.97	0.61	0.10	0.81	1.25	0.15
Uniform Delay, d1	57.3	54.5	44.0	51.9	52.4	46.0	53.5	34.4	27.6	49.7	40.8	26.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.01	1.12	1.03	0.69	0.59
Incremental Delay, d2	18.5	7.2	53.7	2.8	12.1	0.3	8.0	0.2	0.0	1.3	115.0	0.0
Delay (s)	75.8	61.7	97.6	54.7	64.5	46.3	60.1	35.0	31.0	52.7	143.3	15.3
Level of Service	E	E	F	D	E	D	E	D	C	D	F	B
Approach Delay (s)		87.1			55.5			41.8			121.0	
Approach LOS		F			E			D			F	

Intersection Summary				
HCM Average Control Delay	86.6	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.09			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0	
Intersection Capacity Utilization	102.4%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		0	150		0	225		225
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00	0.99		1.00	1.00		1.00		0.97
Frt		0.904			0.956			0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1771	0	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1763	1666	0	1765	1771	0	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66			14			3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	464	0	184	842	0	329	1842	313
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Detector Phase	7	4		3	8		1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0		14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	0.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	0.0%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0		10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5		3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5		0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes		Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0						5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0						20.0	20.0
Pedestrian Calls (#/hr)	0	0			0						0	0
v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38
Control Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.0		100.7	223.6		219.1	111.7		175.9	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	~528		~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#746		#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150			150			225		225
Base Capacity (vph)	275	552		79	339		143	746		262	1671	815
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	1.37		1.29	1.13		1.26	1.10	0.38

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection

Natural Cycle: 140

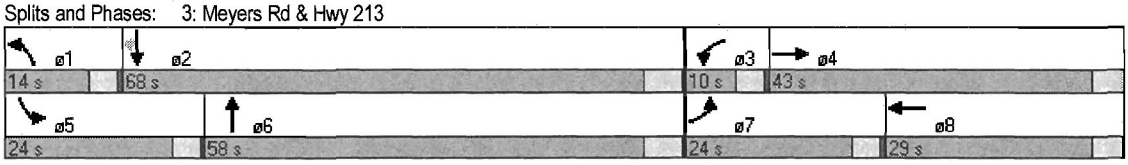
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0		3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	0.99		1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	0.96		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1771		1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	11	0	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	453	0	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot			Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases												2
Actuated Green, G (s)	20.0	41.0		4.8	25.8		10.0	52.2		20.0	62.2	62.2
Effective Green, g (s)	21.0	41.0		4.8	25.8		11.0	54.2		20.0	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19		0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	506		63	338		143	733		262	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.26		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm												0.15
v/c Ratio	1.05	0.80		0.84	1.34		1.29	1.15		1.26	1.12	0.31
Uniform Delay, d1	57.0	43.3		64.7	54.6		62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	8.9		60.8	171.4		171.5	81.4		118.0	53.0	0.1
Delay (s)	125.3	52.2		125.6	226.0		233.5	121.8		195.2	75.0	4.6
Level of Service	F	D		F	F		F	F		F	E	A
Approach Delay (s)		80.7			215.7			141.8			82.1	
Approach LOS		F			F			F			F	

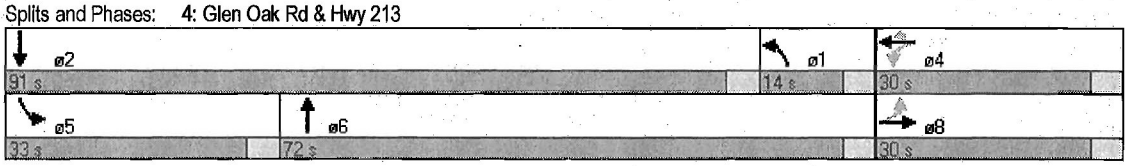
Intersection Summary				
HCM Average Control Delay	109.2	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.17			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	112.8%	ICU Level of Service	H	
Analysis Period (min)	15			
c Critical Lane Group				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.990			0.994	
Flt Protected		0.984			0.984		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1870	1615	1787	1830	0	1805	1836	0
Flt Permitted		0.581			0.765		0.950			0.950		
Satd. Flow (perm)	0	1079	0	0	1454	1576	1787	1830	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				101		4			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	194	101	26	864	0	260	1901	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.81			0.77	0.28	0.21	0.83		0.76	1.43	
Control Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		78.2			70.1	10.5	61.6	33.0		62.8	220.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		120			155	0	21	566		206	~2201	
Queue Length 95th (ft)		#223			247	49	53	#973		306	#2652	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		244			322	427	161	1047		444	1325	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.64			0.60	0.24	0.16	0.83		0.59	1.43	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 123.1
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	61	125	97	25	775	55	250	1750	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1869	1577	1787	1830		1805	1836	
Flt Permitted		0.58			0.76	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1078			1453	1577	1787	1830		1805	1836	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	64	130	101	26	807	57	260	1823	78
RTOR Reduction (vph)	0	6	0	0	0	84	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	194	17	26	862	0	260	1900	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		20.2			20.2	20.2	4.8	70.3		22.3	87.8	
Effective Green, g (s)		21.2			21.2	21.2	5.8	71.3		23.3	88.8	
Actuated g/C Ratio		0.17			0.17	0.17	0.05	0.57		0.19	0.71	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		183			247	268	83	1046		337	1306	
v/s Ratio Prot							0.01	c0.47		0.14	c1.04	
v/s Ratio Perm		c0.14			0.13	0.01						
v/c Ratio		0.82			0.79	0.06	0.31	0.82		0.77	1.45	
Uniform Delay, d1		50.0			49.6	43.5	57.6	21.7		48.2	18.0	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		24.6			15.0	0.1	2.2	5.4		10.4	209.0	
Delay (s)		74.5			64.7	43.6	59.7	27.1		58.7	227.0	
Level of Service		E			E	D	E	C		E	F	
Approach Delay (s)		74.5			57.4			28.0			206.8	
Approach LOS		E			E			C			F	

Intersection Summary			
HCM Average Control Delay	142.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.29		
Actuated Cycle Length (s)	124.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	605	90	15	471
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	637	95	16	496
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	732	0	16	496
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	605	90	15	471
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	637	95	16	496
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1214	686			734	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1214	686			734	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	68	98			98	
cM capacity (veh/h)	197	447			870	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	732	16	496
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	229	1700	870	1700
Volume to Capacity	0.32	0.43	0.02	0.29
Queue Length 95th (ft)	33	0	1	0
Control Delay (s)	29.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	29.1	0.0	0.3	
Approach LOS	D			

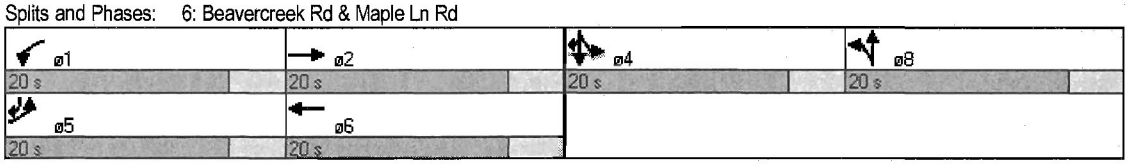
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.984			0.939				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3545	0	1805	1715	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3545	0	1800	1715	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			15			39				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1568	0	32	1003	0	227	208	0	104	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4	4 5
Permitted Phases		4										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.67		0.16	1.17		0.64	0.56		0.37	0.28	0.51
Control Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.3		32.7	117.8		35.9	27.9		31.3	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	152		13	~285		91	66		42	33	31
Queue Length 95th (ft)	#493	395		40	#466		174	141		87	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2332		430	856		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.67		0.07	1.17		0.53	0.47		0.24	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1331	190	31	868	105	220	120	81	101	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.98		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3544		1805	1716		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1372	196	32	895	108	227	124	84	104	82	361
RTOR Reduction (vph)	0	11	0	0	11	0	0	32	0	0	0	85
Lane Group Flow (vph)	485	1557	0	32	992	0	227	176	0	104	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.1		3.0	18.6		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.1		4.0	19.6		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2245		97	935		345	328		274	289	601
v/s Ratio Prot	c0.27	c0.31		0.02	c0.28		c0.13	0.10		0.06	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.33	1.06		0.66	0.54		0.38	0.28	0.46
Uniform Delay, d1	28.6	10.4		33.9	27.3		27.8	27.1		28.3	27.8	17.1
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		2.0	47.0		4.5	1.7		0.9	0.5	0.6
Delay (s)	136.8	11.4		35.9	74.3		32.3	28.8		29.2	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.0			73.1			30.6			21.5	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	45.4	HCM Level of Service	D
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	74.3	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		

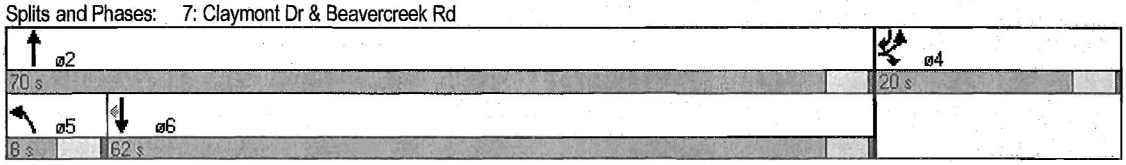
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		22				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	22	55	846	1315	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	22	55	846	1315	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.68	0.59	1.01	0.15
Control Delay	45.9	14.0	81.5	6.9	44.2	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.0	81.5	6.9	44.2	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	30	160	~792	0
Queue Length 95th (ft)	144	20	#95	288	#1096	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	309	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.68	0.59	1.01	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 100
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	21	52	804	1249	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	22	55	846	1315	212
RTOR Reduction (vph)	0	19	0	0	0	36
Lane Group Flow (vph)	158	3	55	846	1315	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	0.03	c0.45	c0.70	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.86	0.59	1.02	0.13
Uniform Delay, d1	35.9	32.8	42.6	4.3	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	64.6	1.7	29.6	0.0
Delay (s)	40.5	32.8	107.2	6.1	43.5	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			12.3	37.7	
Approach LOS	D			B	D	

Intersection Summary				
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	9	28	801	4	54	1261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	25		0	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.999			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1480	1468	1861	0	0	1891
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1480	1468	1861	0	0	1891
Link Speed (mph)	30		30			30
Link Distance (ft)	2058		2187			1391
Travel Time (s)	46.8		49.7			31.6
Confl. Peds. (#/hr)				22	22	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	22%	10%	2%	0%	7%	0%
Adj. Flow (vph)	9	29	843	4	57	1327
Shared Lane Traffic (%)						
Lane Group Flow (vph)	9	29	847	0	0	1384
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other
Control Type: Unsignalized	

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	9	28	801	4	54	1261
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	9	29	843	4	57	1327
Pedestrians	22					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	2					
Right turn flare (veh)		1				
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2308	867			869	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	2308	867			869	
tC, single (s)	6.6	6.3			4.2	
tC, 2 stage (s)						
tF (s)	3.7	3.4			2.3	
p0 queue free %	71	91			92	
cM capacity (veh/h)	33	334			740	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	39	847	1384
Volume Left	9	0	57
Volume Right	29	4	0
cSH	136	1700	740
Volume to Capacity	0.29	0.50	0.08
Queue Length 95th (ft)	28	0	6
Control Delay (s)	49.9	0.0	3.9
Lane LOS	E		A
Approach Delay (s)	49.9	0.0	3.9
Approach LOS	E		

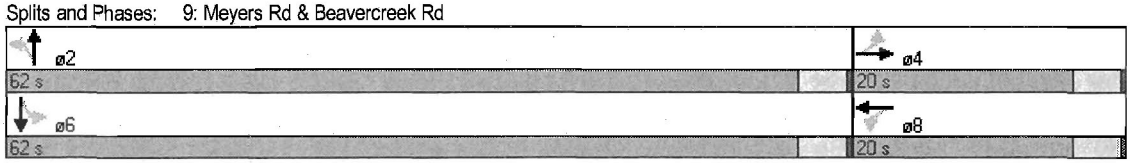
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	120.2%	ICU Level of Service	H
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		0	100		0	100		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.933			0.914			0.997			0.989	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	1773	0	1805	1737	0	1805	1876	0	1805	1862	0
Flt Permitted	0.627			0.734			0.083			0.336		
Satd. Flow (perm)	1191	1773	0	1395	1737	0	158	1876	0	638	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		16			64			3			12	
Link Speed (mph)		30			30			45			45	
Link Distance (ft)		589			370			1225			2187	
Travel Time (s)		13.4			8.4			18.6			33.1	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	53	36	0	29	111	0	11	752	0	32	1322	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	62.0	62.0	0.0	62.0	62.0	0.0
Total Split (%)	24.4%	24.4%	0.0%	24.4%	24.4%	0.0%	75.6%	75.6%	0.0%	75.6%	75.6%	0.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		58.0	58.0		58.0	58.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5		0.5	0.5		0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	0.40	0.17		0.19	0.44		0.08	0.49		0.06	0.86	
Control Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	39.9	21.6		32.5	20.9		4.2	4.4		2.7	15.2	
Queue Length 50th (ft)	23	8		12	20		1	90		2	326	
Queue Length 95th (ft)	56	34		35	64		6	190		10	#893	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Internal Link Dist (ft)		509			290			1145			2107	
Turn Bay Length (ft)	150			100			100			100		
Base Capacity (vph)	246	379		288	410		130	1539		523	1529	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.22	0.09		0.10	0.27		0.08	0.49		0.06	0.86	

Intersection Summary
Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 77.5
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 9: Meyers Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	19	15	28	45	61	10	700	14	30	1166	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Frt	1.00	0.93		1.00	0.91		1.00	1.00		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1773		1805	1736		1805	1876		1805	1862	
Flt Permitted	0.63	1.00		0.73	1.00		0.08	1.00		0.34	1.00	
Satd. Flow (perm)	1192	1773		1394	1736		158	1876		639	1862	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	53	20	16	29	47	64	11	737	15	32	1227	95
RTOR Reduction (vph)	0	14	0	0	58	0	0	1	0	0	2	0
Lane Group Flow (vph)	53	22	0	29	53	0	11	751	0	32	1320	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	0%
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Effective Green, g (s)	7.6	7.6		7.6	7.6		62.7	62.7		62.7	62.7	
Actuated g/C Ratio	0.10	0.10		0.10	0.10		0.80	0.80		0.80	0.80	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	116	172		135	169		127	1502		512	1491	
v/s Ratio Prot		0.01			0.03			0.40			c0.71	
v/s Ratio Perm	c0.04			0.02			0.07			0.05		
v/c Ratio	0.46	0.13		0.21	0.31		0.09	0.50		0.06	0.89	
Uniform Delay, d1	33.4	32.3		32.6	32.9		1.7	2.6		1.6	5.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	0.3		0.8	1.1		1.3	1.2		0.2	8.0	
Delay (s)	36.2	32.6		33.4	34.0		3.0	3.8		1.9	13.4	
Level of Service	D	C		C	C		A	A		A	B	
Approach Delay (s)		34.8			33.9			3.8			13.1	
Approach LOS		C			C			A			B	

Intersection Summary				
HCM Average Control Delay	12.1	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.84			
Actuated Cycle Length (s)	78.3	Sum of lost time (s)	8.0	
Intersection Capacity Utilization	82.9%	ICU Level of Service	E	
Analysis Period (min)	15			

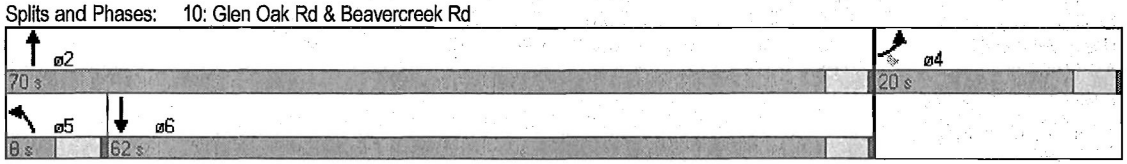
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	100			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850			0.979	
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1805	1615	1805	1900	1860	0
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1805	1615	1805	1900	1860	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		29			21	
Link Speed (mph)	35			45	45	
Link Distance (ft)	5194			1714	1225	
Travel Time (s)	101.2			26.0	18.6	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	103	29	25	659	1074	198
Shared Lane Traffic (%)						
Lane Group Flow (vph)	103	29	25	659	1272	0
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	
Total Split (s)	20.0	20.0	8.0	70.0	62.0	0.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	0.0%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Recall Mode	None	None	None	Max	Max	
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	
v/c Ratio	0.49	0.14	0.31	0.42	0.86	
Control Delay	44.4	13.7	51.2	4.0	18.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	44.4	13.7	51.2	4.0	18.6	
Queue Length 50th (ft)	57	0	14	88	342	
Queue Length 95th (ft)	100	23	40	168	#1017	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Internal Link Dist (ft)	5114			1634	1145	
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	323	313	81	1574	1477	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.32	0.09	0.31	0.42	0.86	

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 89.7
Natural Cycle: 90
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 10: Glen Oak Rd & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	98	28	24	626	1020	188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	0.85	1.00	1.00	0.98	
Flt Protected	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (prot)	1805	1615	1805	1900	1860	
Flt Permitted	0.95	1.00	0.95	1.00	1.00	
Satd. Flow (perm)	1805	1615	1805	1900	1860	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	103	29	25	659	1074	198
RTOR Reduction (vph)	0	26	0	0	5	0
Lane Group Flow (vph)	103	3	25	659	1267	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%
Turn Type		Perm	Prot			
Protected Phases	4		5	2	6	
Permitted Phases		4				
Actuated Green, G (s)	9.1	9.1	1.7	75.9	70.2	
Effective Green, g (s)	9.1	9.1	1.7	75.9	70.2	
Actuated g/C Ratio	0.10	0.10	0.02	0.82	0.75	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	177	158	33	1551	1404	
v/s Ratio Prot	c0.06		0.01	c0.35	c0.68	
v/s Ratio Perm		0.00				
v/c Ratio	0.58	0.02	0.76	0.42	0.90	
Uniform Delay, d1	40.1	37.9	45.4	2.4	8.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	4.8	0.0	65.1	0.9	9.7	
Delay (s)	44.9	38.0	110.6	3.3	18.5	
Level of Service	D	D	F	A	B	
Approach Delay (s)	43.4			7.2	18.5	
Approach LOS	D			A	B	

Intersection Summary				
HCM Average Control Delay	16.3	HCM Level of Service	B	
HCM Volume to Capacity ratio	0.86			
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	77.2%	ICU Level of Service	D	
Analysis Period (min)	15			

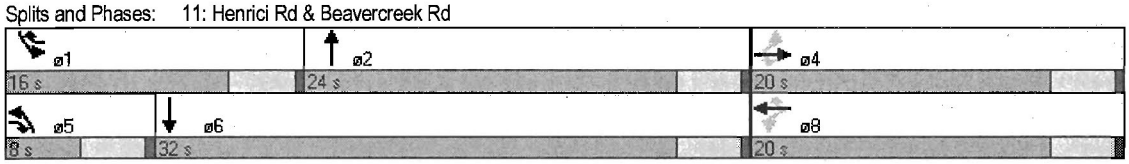
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		80	0		50	100		0	160		0
Storage Lanes	0		1	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor			0.97		1.00		1.00	1.00		0.99	1.00	
Frt			0.850			0.850		0.992			0.990	
Flt Protected		0.986			0.978		0.950			0.950		
Satd. Flow (prot)	0	1834	1615	0	1772	1583	1805	1783	0	1787	1873	0
Flt Permitted		0.795			0.688		0.950			0.950		
Satd. Flow (perm)	0	1479	1571	0	1243	1583	1803	1783	0	1776	1873	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			65			216		5			8	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		5510			678			950			1510	
Travel Time (s)		93.9			11.6			14.4			22.9	
Confl. Peds. (#/hr)			4	4			2		6	6		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	65	0	241	216	26	408	0	275	795	0
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Detector Phase	4	4	5	8	8	1	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	8.0	8.0	20.0		8.0	20.0	
Total Split (s)	20.0	20.0	8.0	20.0	20.0	16.0	8.0	24.0	0.0	16.0	32.0	0.0
Total Split (%)	33.3%	33.3%	13.3%	33.3%	33.3%	26.7%	13.3%	40.0%	0.0%	26.7%	53.3%	0.0%
Maximum Green (s)	16.0	16.0	4.0	16.0	16.0	12.0	4.0	20.0		12.0	28.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5		0.5	0.5	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead			Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?			Yes			Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None	None	None	Max		None	Max	
Walk Time (s)	5.0	5.0		5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0			0	
v/c Ratio		0.55	0.12		0.81	0.24	0.21	0.65		0.78	0.78	
Control Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		25.5	4.3		43.1	2.0	30.6	22.4		40.1	21.1	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		60	0		79	0	9	123		95	246	
Queue Length 95th (ft)		115	19		#178	25	30	#212		#201	#470	
Internal Link Dist (ft)		5430			598			870			1430	
Turn Bay Length (ft)			80			50	100			160		
Base Capacity (vph)		414	537		348	929	126	628		375	1013	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.47	0.12		0.69	0.23	0.21	0.65		0.73	0.78	

Intersection Summary
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 57.4
Natural Cycle: 60
Control Type: Semi Act-Uncoord
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 11: Henrici Rd & Beavercreek Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	53	133	62	101	128	205	25	367	21	261	704	51
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00	0.98		1.00	1.00	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Frt		1.00	0.85		1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.99	1.00		0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1834	1577		1768	1583	1805	1783		1787	1873	
Flt Permitted		0.79	1.00		0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1479	1577		1244	1583	1805	1783		1787	1873	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	56	140	65	106	135	216	26	386	22	275	741	54
RTOR Reduction (vph)	0	0	47	0	0	124	0	3	0	0	4	0
Lane Group Flow (vph)	0	196	18	0	241	92	26	405	0	275	791	0
Confl. Peds. (#/hr)			4	4			2		6	6		2
Heavy Vehicles (%)	0%	3%	0%	6%	4%	2%	0%	3%	50%	1%	0%	4%
Turn Type	Perm		pm+ov	Perm		pm+ov	Prot			Prot		
Protected Phases		4	5		8	1	5	2		1	6	
Permitted Phases	4		4	8		8						
Actuated Green, G (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Effective Green, g (s)		13.8	16.1		13.8	25.2	2.3	21.8		11.4	30.9	
Actuated g/C Ratio		0.23	0.27		0.23	0.43	0.04	0.37		0.19	0.52	
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		346	537		291	783	70	659		345	981	
v/s Ratio Prot			0.00			0.02	0.01	0.23		c0.15	c0.42	
v/s Ratio Perm		0.13	0.01		c0.19	0.04						
v/c Ratio		0.57	0.03		0.83	0.12	0.37	0.61		0.80	0.81	
Uniform Delay, d1		20.0	15.7		21.5	10.2	27.6	15.2		22.7	11.6	
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		2.1	0.0		17.3	0.1	3.3	4.2		12.1	7.1	
Delay (s)		22.1	15.8		38.8	10.3	30.9	19.4		34.8	18.7	
Level of Service		C	B		D	B	C	B		C	B	
Approach Delay (s)		20.5			25.3			20.1			22.8	
Approach LOS		C			C			C			C	

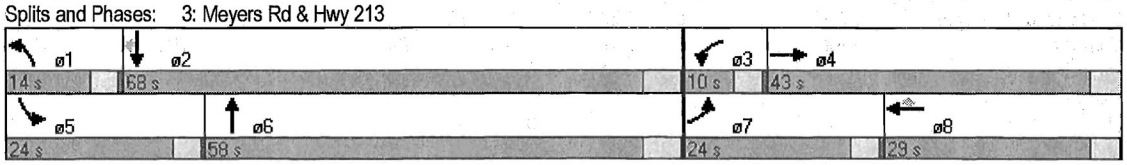
Intersection Summary			
HCM Average Control Delay	22.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	59.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	79.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		50	150		0	225		225
Storage Lanes	1		0	1		1	1		0	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00	0.99		1.00		0.98	1.00	1.00		1.00		0.97
Frt		0.904				0.850		0.991				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1666	0	1770	1863	1583	1752	1827	0	1770	3471	1553
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1761	1666	0	1765	1863	1553	1752	1827	0	1766	3471	1514
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		66				41		3				166
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		583			1961			428			1243	
Travel Time (s)		9.9			33.4			6.5			18.8	
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
Shared Lane Traffic (%)												
Lane Group Flow (vph)	289	452	0	53	328	136	184	842	0	329	1842	313
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Detector Phase	7	4		3	8	8	1	6		5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	3.0		4.0	4.0	4.0
Minimum Split (s)	24.0	20.0		8.0	20.0	20.0	14.0	22.0		8.0	31.0	31.0
Total Split (s)	24.0	43.0	0.0	10.0	29.0	29.0	14.0	58.0	0.0	24.0	68.0	68.0
Total Split (%)	17.8%	31.9%	0.0%	7.4%	21.5%	21.5%	10.4%	43.0%	0.0%	17.8%	50.4%	50.4%
Maximum Green (s)	20.0	39.0		6.0	25.0	25.0	10.0	53.0		20.0	63.0	63.0
Yellow Time (s)	3.5	4.0		3.5	3.5	3.5	3.5	4.5		3.5	4.5	4.5
All-Red Time (s)	0.5	0.0		0.5	0.5	0.5	0.5	0.5		0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	0.0	-1.0	0.0	0.0	0.0	-1.0	-2.0	0.0	0.0	-2.0	-2.0
Total Lost Time (s)	3.0	4.0	3.0	4.0	4.0	4.0	3.0	3.0	4.0	4.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?				Yes	Yes	Yes	Yes			Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max		None	C-Max	C-Max
Walk Time (s)	5.0	5.0			5.0	5.0					5.0	5.0
Flash Dont Walk (s)	15.0	11.0			11.0	11.0					20.0	20.0
Pedestrian Calls (#/hr)	0	0			0	0					0	0
v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38
Control Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	122.3	51.2		100.7	92.7	38.2	215.1	111.7		173.2	70.3	2.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~275	328		47	288	73	~205	~855		~370	~973	9
Queue Length 95th (ft)	#459	#514		#118	#476	141	#360	#1108		m#279	m502	m0
Internal Link Dist (ft)		503			1881			348			1163	
Turn Bay Length (ft)	150			150		50	150			225		225
Base Capacity (vph)	275	551		79	345	321	144	746		263	1671	815
Starvation Cap Reductn	0	0		0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.05	0.82		0.67	0.95	0.42	1.28	1.13		1.25	1.10	0.38

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	275	155	275	50	312	129	175	750	50	313	1750	297
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	4.0		4.0	4.0	4.0	3.0	3.0		4.0	3.0	3.0
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99		1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.90		1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	1666		1770	1863	1553	1752	1826		1770	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	289	163	289	53	328	136	184	789	53	329	1842	313
RTOR Reduction (vph)	0	46	0	0	0	33	0	2	0	0	0	87
Lane Group Flow (vph)	289	406	0	53	328	103	184	840	0	329	1842	226
Confl. Peds. (#/hr)	3		2	2		3	2		2	2		2
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	3%	3%	2%	2%	4%	4%
Turn Type	Prot			Prot		Perm	Prot			Prot		Perm
Protected Phases	7	4		3	8		1	6		5	2	
Permitted Phases						8						2
Actuated Green, G (s)	20.0	40.9		4.8	25.7	25.7	10.1	52.2		20.1	62.2	62.2
Effective Green, g (s)	21.0	40.9		4.8	25.7	25.7	11.1	54.2		20.1	64.2	64.2
Actuated g/C Ratio	0.16	0.30		0.04	0.19	0.19	0.08	0.40		0.15	0.48	0.48
Clearance Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	5.0		4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	275	505		63	355	296	144	733		264	1651	720
v/s Ratio Prot	c0.16	0.24		0.03	c0.18		0.10	0.46		c0.19	c0.53	
v/s Ratio Perm						0.07						0.15
v/c Ratio	1.05	0.80		0.84	0.92	0.35	1.28	1.15		1.25	1.12	0.31
Uniform Delay, d1	57.0	43.4		64.7	53.7	47.4	62.0	40.4		57.5	35.4	21.8
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.34	0.62	0.21
Incremental Delay, d2	68.3	9.0		60.8	29.1	0.7	167.8	81.4		113.8	53.0	0.1
Delay (s)	125.3	52.4		125.6	82.7	48.1	229.8	121.8		190.9	75.0	4.6
Level of Service	F	D		F	F	D	F	F		F	E	A
Approach Delay (s)		80.8			78.0			141.1			81.5	
Approach LOS		F			E			F			F	

Intersection Summary				
HCM Average Control Delay	93.9	HCM Level of Service	F	
HCM Volume to Capacity ratio	1.08			
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	104.8%	ICU Level of Service	G	
Analysis Period (min)	15			
c Critical Lane Group				

Attachment A
Exhibit 2

This project is partially funded by a grant from the Transportation and Growth Management (TGM) Program, a joint program of the Oregon Department of Transportation and the Oregon Department of Land Conservation and Development. This TGM grant is financed, in part, by Federal Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), local government, and State of Oregon funds. The contents of this document do not necessarily reflect views or policies of the State of Oregon.

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Beavercreek Road Concept Plan

Summary and Recommendations

Final Plan - August 2008

Funding provided by:

City of Oregon City

Oregon Department of Transportation –
Transportation and Growth Management Program

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Oak Project No. 13599

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Appendix

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2. Concept Plan Alternatives
3. GIS Analysis Map
4. Job and Housing Estimates

Technical Appendix (Under Separate Cover)

A. Public Involvement Plan
B. Goals and Evaluation Criteria
C. Existing Conditions, Opportunities and Constraints Reports
   1. Land use
   2. Transportation
   3. Sustainability
   4. Market
   5. Natural resources
   6. Infrastructure
D. Focus Group Summaries
E. Summaries of Community Events
   1. Open House No. 1
   2. Design Workshop
   3. Open House No. 2
F. Alternatives Evaluation Report
G. Final Transportation Evaluation
H. Infrastructure Reports
   1. Water
   2. Sewer
   3. Storm Water/Water Quality
I. Fiscal Impact Analysis
J. Draft Code

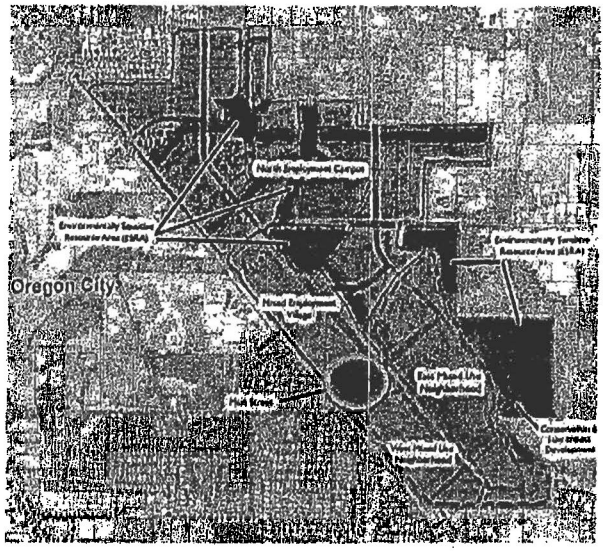
I. Introduction

Summary

The Beavercreek Road Concept Plan is a guide to the creation of a complete and sustainable community in southeast Oregon City. Most of the 453 acre site along Beavercreek Road was added to the regional urban growth boundary by Metro in 2002 and 2004. The plan envisions a diverse mix of uses (an employment campus north of Loder Road, mixed use districts along Beavercreek Road, and two mixed use neighborhoods) all woven together by open space, trails, a network of green streets, and sustainable development practices. Transit-oriented land uses have been strategically located to increase the feasibility of transit service in the future. The plan has been carefully crafted to create a multi-use community that has synergistic relationships with Clackamas Community College, Oregon City High School, and adjacent neighborhoods.

Key features of the Concept Plan are:

- *A complete mix of land uses, including:*
  - A North Employment Campus for tech flex and campus industrial uses, consistent with Metro requirements for industrial and employment areas.
  - A Mixed Employment Village along Beavercreek Road, between Meyers Road and Glen Oak Road, located as a center for transit-oriented densities, mixed use, 3-5 story building scale, and active street life.
  - A 10-acre Main Street area at Beavercreek Road and Glen Oak Road, located to provide local shops and services adjacent neighborhoods and Beavercreek sub-districts.
  - A West Mixed Use Neighborhood along Beavercreek Road, intended for medium to high density (R-2) housing and mixed use.
  - An East Mixed Use Neighborhood, intended for low density residential (R-5) and appropriate mixed use. The East Neighborhood has strong green edges and the potential for a fine grain of open space and walking routes throughout.



Proposed Land Use Sub-districts

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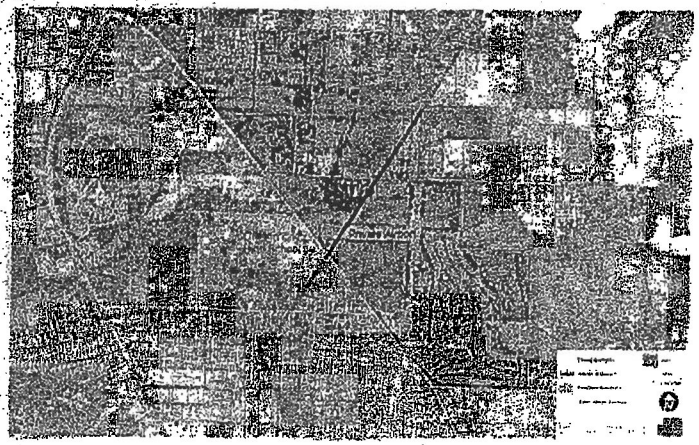
- *Policy support for employment and program connections with Clackamas Community College.*
- *Sustainability strategies, including:*
  - Mixed and transit supportive land uses.
  - A sustainable stormwater management plan that supports low impact development, open conveyance systems, regional detention, and adequate sizing to avoid downstream flooding.
  - Green street design for all streets, including the three lane boulevard design for Beavercreek Road.
  - A preliminary recommendation supporting LEED certification or equivalent for all commercial and multi-family buildings, with Earth Advantage or equivalent certification for single family buildings. This recommendation includes establishment of a Green Building Work Group to work collaboratively with the private sector to establish standards.
  - Open spaces and natural areas throughout the plan. North of Loder Road, these include the power line corridors, the tributary to Thimble Creek, and a mature tree grove. South of Loder Road, these include an 18-acre Central Park, the east ridge area, and two scenic view points along the east ridge.
- *A trail framework that traverses all sub-districts and connects to city and regional trails.*
- *A street framework that provides for a logical and connected street pattern, parallel routes to Beavercreek Road, and connections at Clairmont, Meyers, Glen Oak, and the southern entrance to the site.*
- *A draft Beavercreek Road Zone development code to implement the plan.*

Purpose of this Report and Location of Additional Information

This report is a summary of the Plan, with emphasis on describing key elements and recommendations. Many of the recommendation are based on technical reports and other information that is available in the Technical Appendix to this report.



Beavercreek Road Concept Plan Area - Existing Conditions

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II. Purpose and Process

The purpose of the Beavercreek Road Concept Plan is to provide a conceptual master plan to be adopted as an ancillary document to the City of Oregon City's Comprehensive Plan. As such, it provides a comprehensive and cohesive guide to future development, in three parts:

- Framework plan maps, goals and policies – These elements will be adopted as part of the Oregon City Comprehensive Plan. Compliance will be required for all land use permits and development.
- Ancillary report materials – The descriptive text, graphics and technical appendix of this report will be adopted as an "ancillary document" to the Comprehensive Plan, which provides "operational guidance to city departments in planning and carrying out city services" (Oregon City Comprehensive Plan, page 4). These documents include information for updating the City's utility master plans and Transportation System Plan.
- Draft development code – A working draft development code was prepared as part of the Concept Plan. Once final, it will be adopted as part of the Oregon City Code. Compliance will be required for all land use permits and development. The Beavercreek Zone code relies on master planning to implement the concepts in the Plan.

The Concept Plan was developed by a 15-member Citizen Advisory Committee (CAC) and 9-member Technical Advisory Committee (TAC) (see Project Participants list at the beginning of this report). The committees met twelve times between June 2006 and July 2007.



Design Workshop Participants

In addition to the Committee meetings, additional process steps and community involvement included:

- Study area tour for CAC and TAC members
- Two public open houses
- Market focus group
- Sustainability focus group
- Employment lands coordination with Metro
- Community design workshop
- Website
- Project posters, site sign, email notice, and extensive mailing prior to each public event

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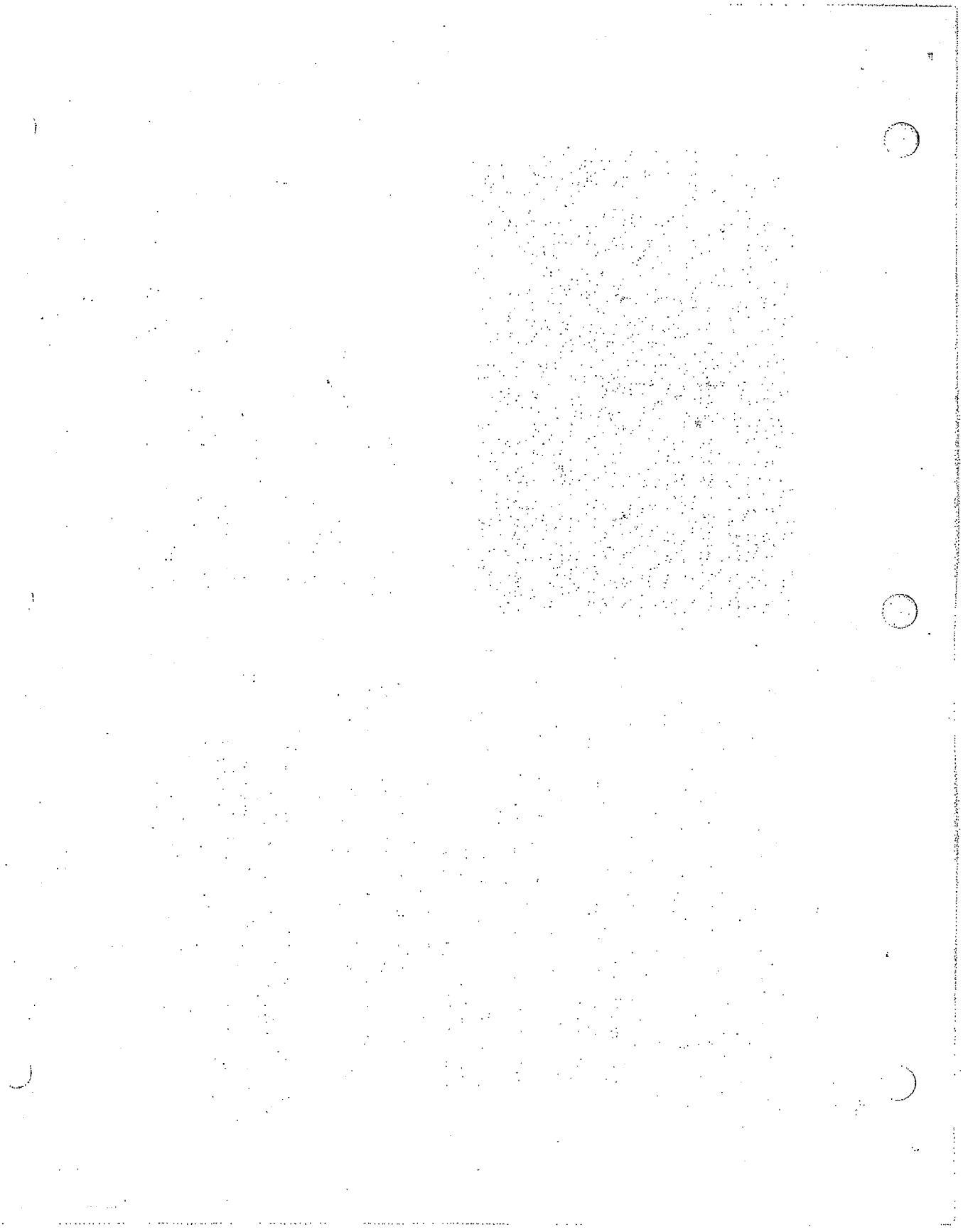

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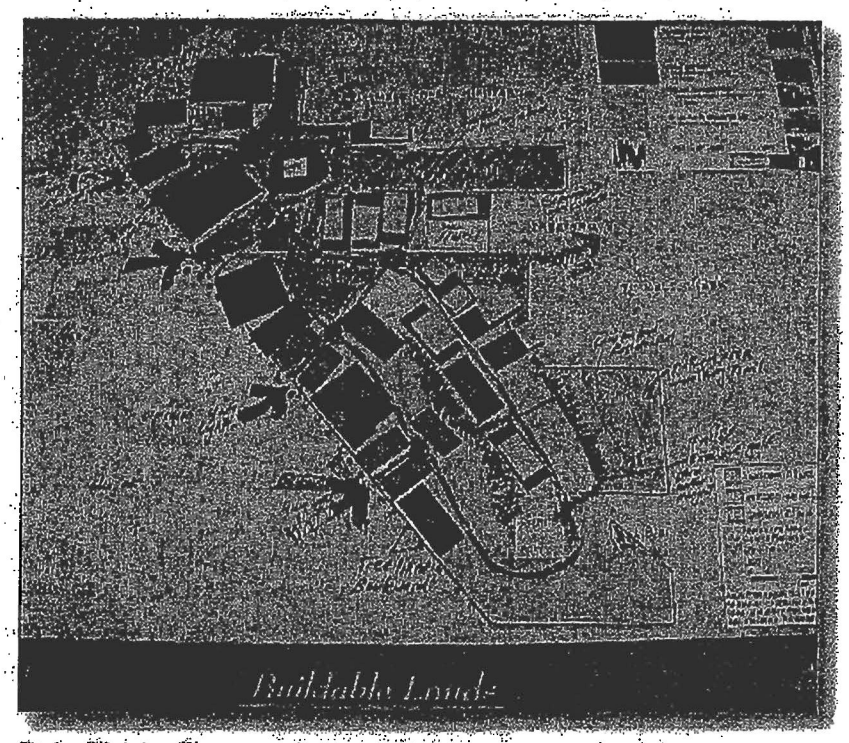
The major steps in the process were:

- Inventory of base conditions, opportunities, constraints for land use, transportation, natural resources, market conditions, infrastructure and sustainability.
- Establishment of project goals.
- Extensive discussion of employment lands questions: how much, what type and where?
- Following the community workshop, preparation of three alternative concept plans (sketch level), addition of a fourth plan, prepared by a CAC member, and narrowing of the alternatives to two for further analysis.
- Evaluation of the alternatives (including transportation modeling) and preparation of a hybrid Concept Plan (framework level).
- Preparation of detailed plans for water, sewer, storm water, and transportation facilities.
- Preparation of a draft development code.
- Committee action to forward the Concept Plan package to the Planning Commission and City Commission.

For additional information please see Technical Appendix, Sections A, D, E, and F.



Design Workshop Plan

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III. Vision, Goals and Principles

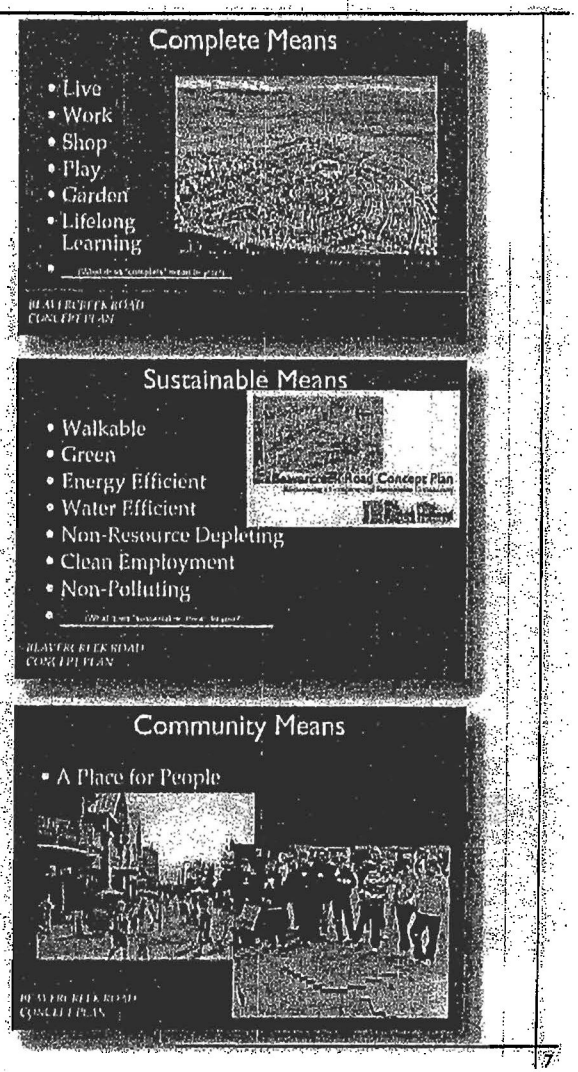
The overall vision for the Beavercreek Concept Plan is to create "A Complete and Sustainable Community". The images shown on this page were displayed throughout the process to convey the project's intent for this vision statement.

Regarding the meaning of sustainability, the vision statement is based in part on the definition of sustainability originally developed by the United Nations Brandtland Commission: "A sustainable society meets the needs of the present without sacrificing the ability of future generations to meet their own needs".

The following project goals were developed by the Citizen Advisory Committee. The Committee also added objectives to each of the goals – please see Appendix 1 for the objectives.

The Beavercreek Road Concept Plan Area will:

- Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center;
- Be a model of sustainable design, development practices, planning, and innovative thinking;
- Attract "green" jobs that pay a living wage;
- Maximize opportunities for sustainable industries that serve markets beyond the Portland region and are compatible with the site's unique characteristics;
- Incorporate the area's natural beauty into an ecologically compatible built environment;
- Provide multi-modal transportation links (such as bus routes, trails, bike-ways, etc.) that are connected within the site as well as to the surrounding areas;



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- Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand;
- Promote connections and relationships with Oregon City High School and Clackamas Community College;
- Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability; and
- Ecological Health – Manage water resources on site to eliminate pollution to watersheds and lesson impact on municipal infrastructure by integrating ecological and man-made systems to maximize function, efficiency and health.

The following 10 Principles of Sustainable Community Design were submitted by a CAC member, supported by the committee, and used throughout the development of the Concept Plan:

1. Mix Land Uses - Promote a mix of land uses that support living wage jobs and a variety of services.
2. Housing Types - Create a range of housing choices for all ages and incomes.
3. Walk-ability - Make the Neighborhood "walkable" and make services "walk-to-able."
4. Transportation - Provide a range of transportation options using a connected network of streets and paths.
5. Open Space - Protect and maintain a functioning green space network for a variety of uses.
6. Integrate Systems - Integrate ecological and man-made systems to maximize function, efficiency and health.
7. Watershed Health - Manage water resources on site to eliminate pollution to watershed and lesson impact on municipal infrastructures.
8. Reuse, Recycle, Regenerate - Reuse existing resources, regenerate existing development areas.
9. Green Buildings - Build compact, innovative structures that use less energy and materials.
10. Work Together - Work with community members and neighbors to design and develop.



Thimble Creek Tributary

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IV. Regional and Local Context

The Beavercreek Road Concept Plan area is 453 acres of land located at the southeast edge of Oregon City and the Urban Growth Boundary (UGB). It marks a transition point between the City's current edge of urbanization and rural and resource lands to the south and east.

The majority of the site (245 acres) was added to the Metro UGB in December 2002 and an additional 63 acres were added to the UGB in 2004. The remaining site acreage was in the UGB and/or the Oregon City limits prior to 2002. The Concept Plan area carries Metro design type designations of Employment, Industrial, and Outer Neighborhood on the Region 2040 Growth Concept Map. The properties with the Outer Neighborhood designation have been in the UGB since 1980. Employment design type areas, as defined by Metro, allow various types of employment with some residential development and limited commercial uses. Industrial design type areas are set aside by Metro primarily for industrial activities with limited supporting uses.

During the update of Oregon City's Comprehensive Plan, a policy was adopted acknowledging the jobs-related importance of the site to Oregon City and the region, while also allowing some flexibility in the project area's land use. Comprehensive Plan policy 2.6.8 states:

"Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which is approved as an amendment to the Comprehensive Plan, would guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the City's employment goals."

There are relatively limited employment centers within this area of Oregon City and Clackamas County. This imbalance of jobs and housing contributes to Clackamas County's pattern of approximately 60% of the work force traveling outside of the County to work.

The site is surrounded by residential and undeveloped properties within the city limits, including the Hamlet of Beavercreek, and rural Clackamas County. The nearest commercial area is the Berry Hill Shopping Center at the intersection of Beavercreek Road and Highway 213. Clackamas County College (CCC) and Oregon City High School are across Beavercreek Road adjacent to the site. These institutional uses offer a unique opportunity to plan synergistic land uses that connect the properties, reinforce an identity for the area, and help localize trips. A Tri-Met transit hub is located on the CCC property.

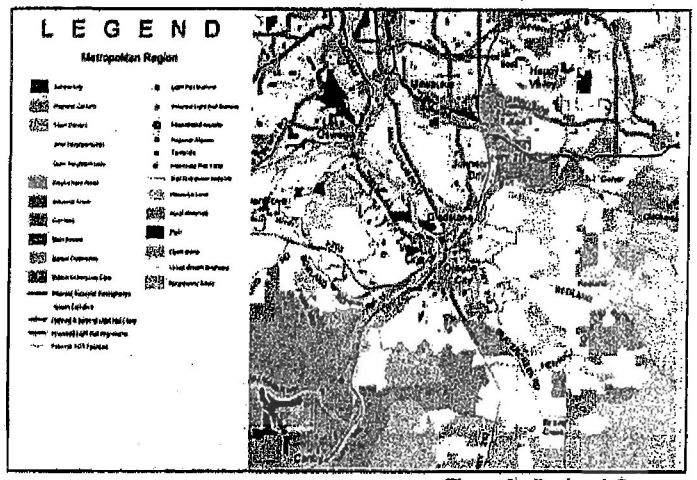

Figure 2 - Regional Context

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Like all additions to the Portland Metropolitan Area Urban Growth Boundary, the Beavercreek Road area is inextricably tied to it's place in the region and its place within Oregon City. The Concept Plan responds to this context in multiple ways.

From a regional perspective, the Beavercreek Road area is currently a transition point from urban to rural use. Whether this "hard line" of transition will remain in the future cannot be established with certainty. The CAC openly acknowledged this issue in its discussions and sought to balance the needs of creating a great urban addition to Oregon City with sensitivity to adjacent areas. Examples of this balance include:

- The plan has land use and transportation connections that support future transit. This will link the Beavercreek Road area, via alternative transportations, to Clackamas Community College (CCC), the Oregon City Regional Center (downtown and adjacent areas) and the rest of the region.
- Trails and green spaces have been crafted to link into the broader regional network.
- The plan recommends lower densities and buffer treatments along Old Acres Road.
- The north south collector roads are coalesced to one route that could (if needed) be extended south of Old Acres Road.
- The recommended street framework provides for a street that parallels Beavercreek Road, connecting Thayer Road to Old Acres Road, and potentially north and south in the future. This keeps options open: if the UGB extends south, the beginning of a street network is in place. If it does not, the connection is available for rural to urban connectivity if desired.
- As with the street network described above, the East Ridge trail is extended all the way to Old Acres Road, and therefore, potentially beyond.

This will provide a connection from rural areas to the open spaces and trail network of Beavercreek Road area and the rest of the region.

From a City and local neighborhood perspective, the Beavercreek Road area offers an opportunity to establish a new complete and sustainable community within Oregon City. Specific linkages include the following:

- Oregon City needs employment land. The Beavercreek Concept Plan provides 156 net acres of it in two forms: 127 net acres of tech flex campus industrial land, 29 acres of more vertical mixed use village and main street. Additional employment will be available on the Main Street and as mixed use in the two southern neighborhoods.
- The street framework connects to all of the logical adjacent streets. This includes Thayer, Clairmont, Meyers, Glen Oak, and Old Acres Roads. This connectivity will disperse traffic to many routes, but equally important, make Beavercreek Road connected to, rather than isolated from, adjacent neighborhoods, districts and corridors.
- The plan provides for a complete community: jobs, varied housing, open space, trails, mixed use, focal points of activity, trails, and access to nature.
- The plan provides for a sustainable community, in line with the City's

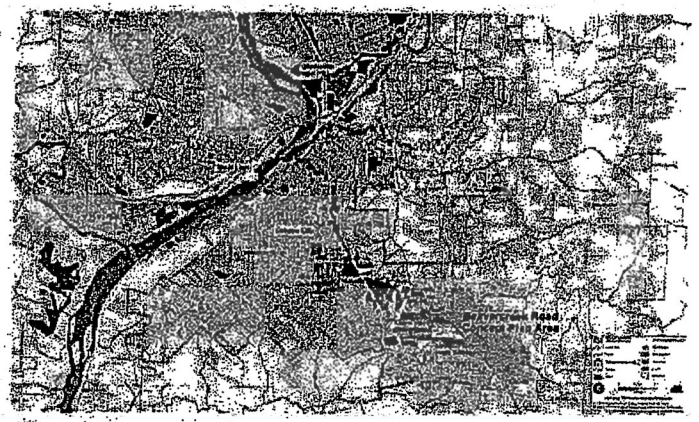

Figure 3 - Oregon City Context

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Comprehensive Plan support for sustainability. This takes the form of mixed land uses, transportation options, green streets, sustainable storm water systems, and LEED or equivalent certification for buildings. Much more can certainly be done – the Concept Plan offers an initial platform to work from.

- Physical linkages have been provided to Oregon City High School and Clackamas Community College. These take the form of the planned 3-lane green street design for Beavercreek Road and the intersections and trails at Clairmont, Loder and Meyers Roads. The physical linkages are only the beginning – the City, School District and College need to work together to promote land uses on the east side of Beavercreek Road that truly create an institutional connection.

For additional information, see Existing Conditions, Opportunities and Constraints Reports, Technical Appendix C.

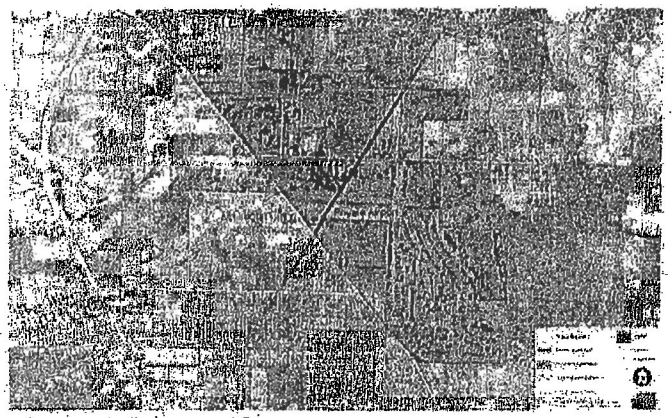

Figure 4 - Existing Conditions

Site Conditions and Buildable Lands

A portion of the study area (approximately 50 acres) is currently within the existing city limits and zoned Campus Industrial (CI). The study area's northern boundary is Thayer Road and the southern boundary is Old Acres Lane. Loder Road is the only existing road that runs through the project area.

Currently, the project area is largely undeveloped, which has allowed the site to retain its natural beauty. There are 448 gross acres in the project area, not including the right-of-way for Loder Road (approximately five acres). The existing land uses are primarily large-lot residential with agricultural and undeveloped rural lands occupying approximately 226 acres of the project area. The Oregon City Golf Club (OCGC) and private airport occupy the remaining 222 acres.

There are several large power line and natural gas utility easements within the project boundaries. These major utility easements crisscross the northern and central areas of the site. The utility easements comprise approximately 97 acres or 20% of the project area.

There are 51 total properties ranging in size from 0.25 acres to 63.2 acres. Many of these properties are under single ownership, resulting in only 42 unique property owner names (Source: Clackamas County Assessor). There are several existing homes and many of the properties have outbuildings such as, sheds, greenhouses, barns, etc., which result in 127 existing structures on the site (Source: Clackamas County Assessor).

A key step in the concept planning process is the development of a Buildable Lands Map. The Buildable Lands Map was the base map from which the concept plan alternatives and the final recommended plan were. "Buildable" lands, for the purpose of the Beavercreek Road Concept Plan, are defined as the gross site area minus wetlands, steep slopes, other Goal 5 resources, public utility easements, road rights-of-way, and committed properties (developed properties with an assessed improvement value

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greater than $350,000). Properties with an assessed improvement value of less than$350,000 (based on County assessment data) are considered redevelopable over the long-term as the existing structures are converted to higher value uses. The OCGC has an improvement value over $350,000, but has been included as buildable lands (minus the clubhouse) because the owners may wish to redevelop the property in coordination with the recommended concept plan over time. The private airport has also been included as buildable over the long-term, recognizing that the owners may choose to continue the airport's use for many years.

When land for power lines, the natural gas line, natural resources, and committed structures are removed the net draft buildable acreage is approximately 292 acres. The CAC reviewed the Preliminary Buildable Lands map and approved a three-tier system to define the buildable lands. Tier A or "Unconstrained" has approximately 292 acres, Tier B or "Low Impact Development Allowed with Review" has approximately 28 acres, and Tier C "Constrained" has approximately 131 acres. The "Low Impact" area was later further evaluated and recommended for conservation under a Environmentally Sensitive and Resource Area designation on the plan.

The Buildable Lands Map was reviewed at the July 20th and August 17th Citizen and Technical Advisory Committee (CAC/TAC) meetings, as well as at the August 24th, 2006 Open House. The draft buildable land boundaries and acreages shown in Figure 6 reflect the input received from the advisory committee members, property owners, and citizen input.

For additional information, see Existing Conditions, Opportunities and Constraints Reports, Technical Appendix C.

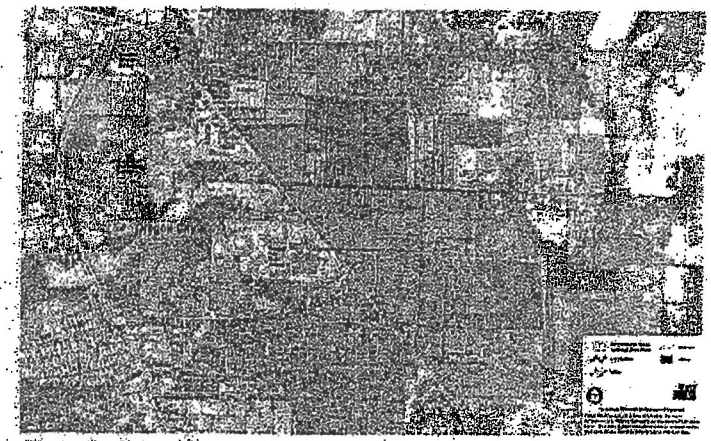

Figure 5 - Ownerships

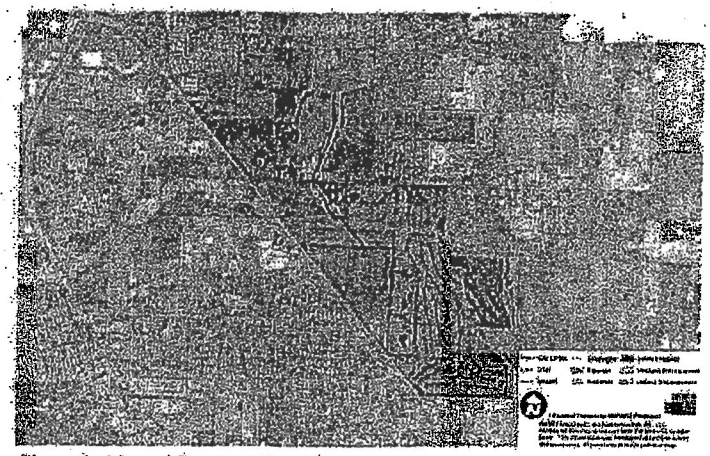

Figure 6 - Natural Resource Inventory

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Figure 7 - Buildable Lands

Employment – A Key Issue

How much employment? What type? And where? These questions were extensively discussed during the development of the Concept Plan. Three perspectives emerged as part of the discussion:

Oregon City Perspective

Prior to initiating the Concept Plan process, the City adopted a comprehensive plan policy which emphasizes family wage employment on the site. The policy reads: "Require lands east of Clackamas Community College that are designated as Future Urban Holding to be the subject of concept plans, which is approved as an amendment to the Comprehensive Plan, [and will] guide zoning designations. The majority of these lands should be designated in a manner that encourages family-wage jobs in order to generate new jobs and move towards meeting the City's employment goals." Oregon City Comprehensive Plan, Policy 2.6.8.

Metro Perspective

Metro brought the majority of the concept plan area (245 gross acres) into the UGB in 2002 and 2004 to fulfill regional industrial employment needs. These areas (308 gross acres) are designated as the Industrial Design Type on Metro's 2040 Growth Concept Map. As part of its land need metrics reported to the region and state, Metro estimated 120 net acres of the Beavercreek Road Concept Plan's land would be used for employment uses. Metro representatives met with the Concept Plan CAC and emphasized: (1) it was important to Metro for the Concept Plan to fulfill their original intent for providing Industrial land; and, (2) that there was flexibility, from Metro's perspective, for the local process to evaluate creative ways to meet that intent.

Citizen Advisory Committee Perspective

The CAC discussed extensively the issues and options for employment lands. Many sources of information were consulted: a market analysis by ECONorthwest (See Appendix __), a developer focus group, land inventory and expert testimony submitted by property owners, the Metro perspective cited above, and concerns of neighbors. The advice ranged from qualified optimism about long term employment growth to strong opposition based on shorter term market factors and location considerations. Some members of the CAC advocated for a jobs target (as opposed to an acreage target) to be the basis for employment planning.

At it's meeting on September 14th, 2006, the CAC developed a set of "bookends" for the project team to use while creating the plan alternatives.

a. At least one plan alternative will be consistent with the Metro Regional Growth Concept.

b. At least one plan alternative (may be the same as above) would be designed consistent with Policy 2.6.8.

c. Other alternatives would have the freedom to vary from "a" and "b" above, but would also include employment.

d. No alternative would have heavy industrial, regional warehousing or similar employment uses".

After evaluating alternatives, the CAC ultimately chose a hybrid employment strategy. The recommended Concept Plan includes: (1) about 127 net acres of land as North Employment Campus, which is consistent with Metro's intent and similar to Oregon City's Campus Industrial designation; (2) about 29 acres as Mixed Employment Village and Main Street, which allows a variety of uses in a village-oriented transit hub; and, (3) mixed use neighborhoods to the south that also provide for jobs tailored to their neighborhood setting.

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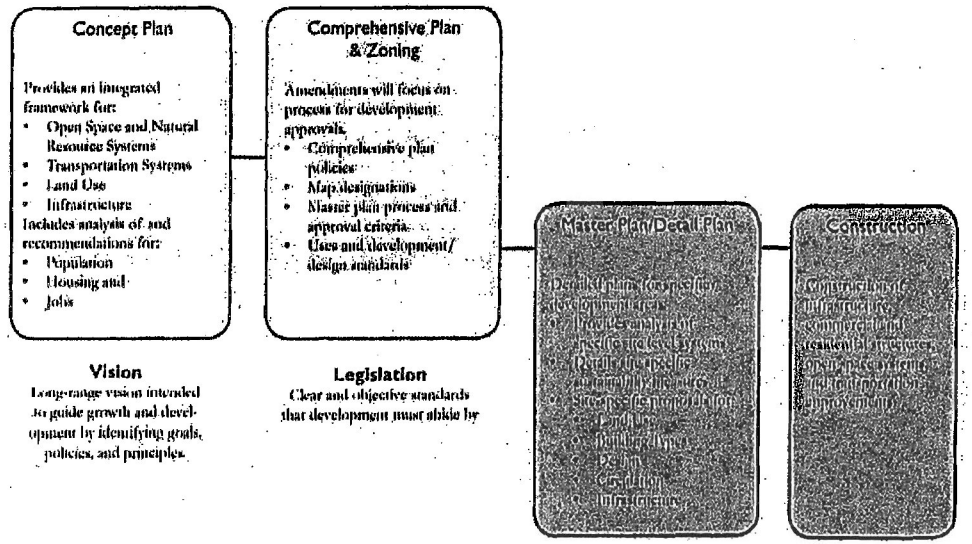
V. Concept Plan Summary

The Framework Plan Approach

The Beavercreek Road Concept Plan is a framework for a new, urban community. The plan is comprised of generalized maps and policies that integrate land use, transportation, open space, and green infrastructure. The framework maps and policies are supported by detailed code and requirements for master planning and design review. The approach here is to set the broad framework and intent on the figures and text in this Plan. Detailed development plans demonstrating compliance with the Concept Plan are required in the implementing code.

The framework plan approach is intended to:

- Ensure the vision, goals and standards are requirements in all land use decisions
- Provide for flexibility in site specific design and implementation of the Plan and code
- Allow for phased development over a long period of time (20+ years)



The code describes many detailed requirements such as street connectivity, block configuration, pocket parks, building scale, pedestrian connections, low impact development features, tree preservation, and sustainable buildings. These design elements will be essential to the success of the area as a walkable, mixed use community. The expectation of this Plan is that the flexibility is coupled with a high standard for sustainable and pedestrian-oriented design.

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Land Use Sub-Districts

Figure 8 illustrates the five land-use "sub-districts" of the concept plan area. Each has a specific focus of land use and intended relationship to its setting and the plan's transportation and open space systems. Each is briefly described below and illustrated on Figures 9 through 12.

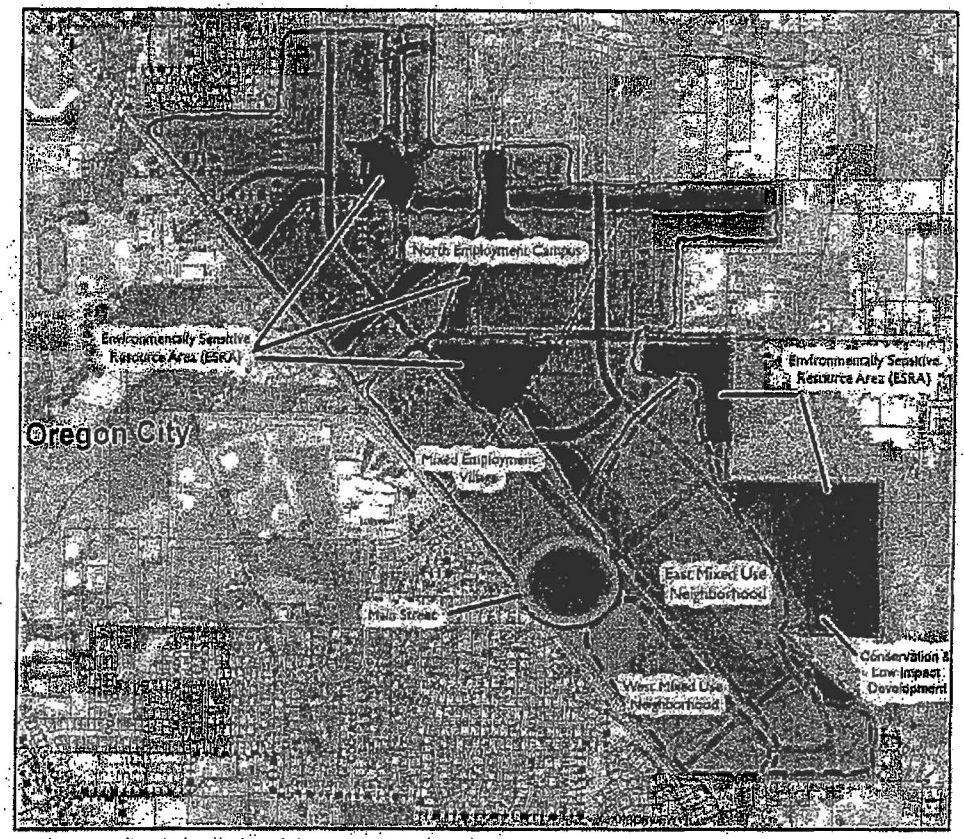

Figure 8 - Land Use Sub-districts

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North Employment Campus – NEC

The purpose of the North Employment Campus is to provide for the location of family wage employment that strengthens and diversifies the economy. The NEC allows a mix of clean industries, offices serving industrial needs, light industrial uses, research and development and large corporate headquarters. The uses permitted are intended to improve the region's economic climate, promote sustainable and traded sector businesses, and protect the supply of sites for employment by limiting incompatible uses. The sub-district is intended to comply with Metro's Title 4 regulations. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College (CCC) are encouraged to help establish a positive identity for the area and support synergistic activity between CCC and NEC properties. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

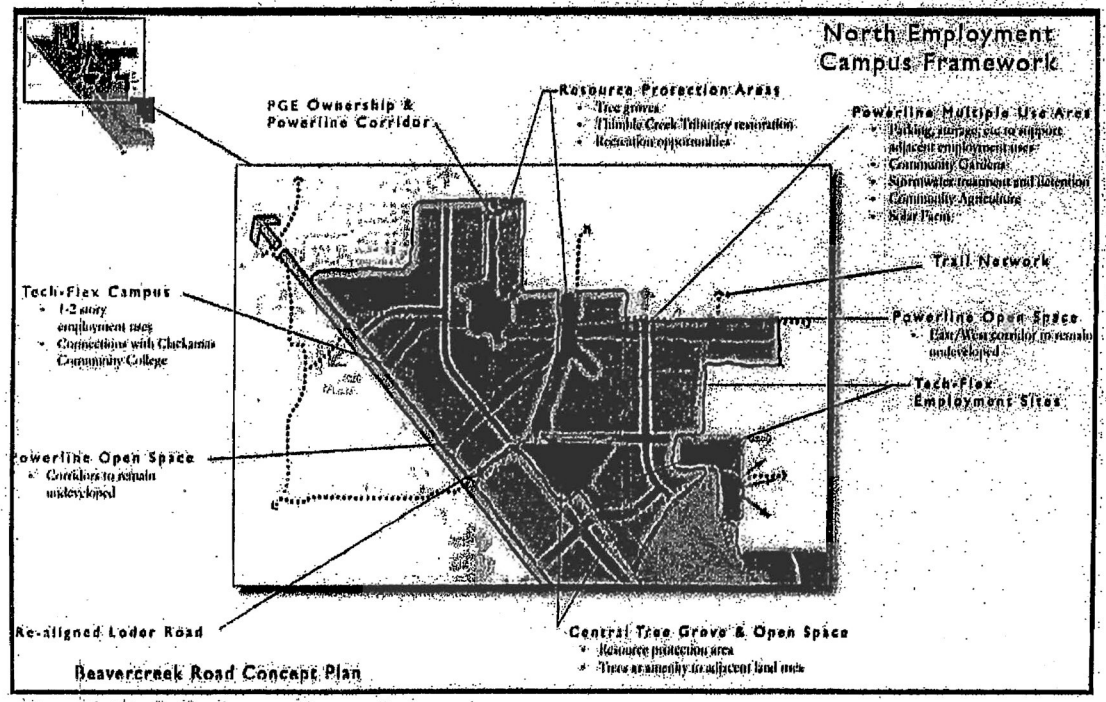

Figure 9 - North Employment Campus Framework

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Mixed Employment Village – MEV

The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian-friendly, and mixed use setting. The MEV is intended to be transit supportive in its use mix, density, and design so that transit remains an attractive and feasible option. The MEV allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and Beavercreek Road sub-districts. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College and Oregon City High School are encouraged. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

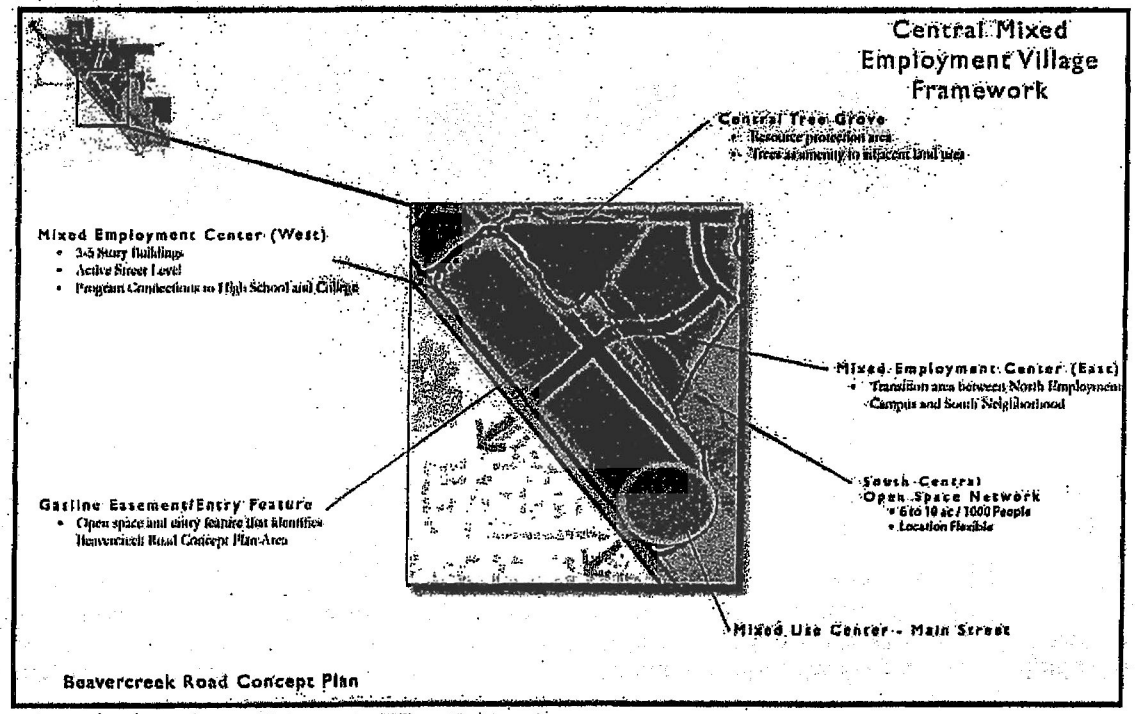

Figure 10 - Central Mixed Employment Village Framework

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Main Street – MS

The purpose of this small mixed-use center is to provide a focal point of pedestrian activity. The MS allows small scale commercial, mixed use and services that serve the daily needs of the surrounding area. "Main Street" design will include buildings oriented to the street, an minimum of 2 story building scale, attractive streetscape, active ground floor uses and other elements that reinforce pedestrian oriented character and vitality of the area.

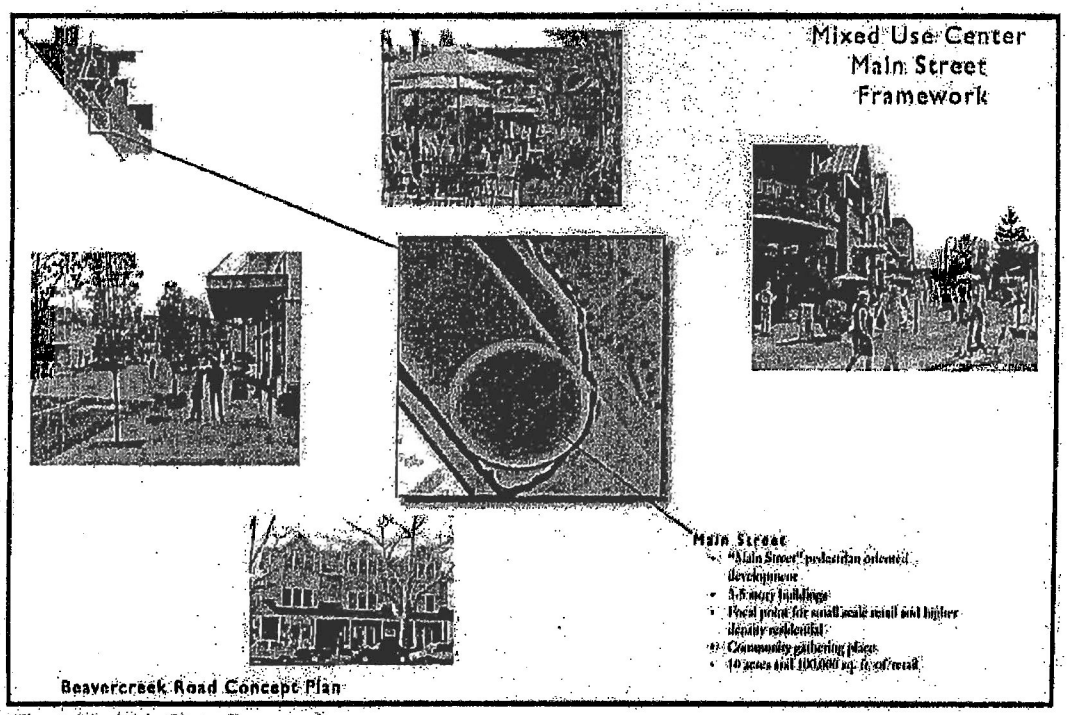

Figure 11 - Main Street Framework

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West Mixed Use Neighborhood – WMU

The West Mixed Use Neighborhood will be a walkable, transit-oriented neighborhood. This area allows a transit supportive mix of housing, live/work units, mixed use buildings and limited commercial uses. A variety of housing and building forms is required, with the overall average of residential uses not exceeding 22 dwelling units per acre. The WMU area's uses, density and design will support the multi-modal transportation system and provide good access for pedestrians, bicycles, transit and vehicles. Site and building design will create a walkable area and utilize cost effective green development practices.

East Mixed Use Neighborhood – EMU

The East Mixed Use Neighborhood will be a walkable and tree-lined neighborhood with a variety of housing types. The EMU allows for a variety of housing types while maintaining a low density residential average not exceeding densities permitted in the R-5 zone. Limited non-residential uses are permitted to encourage a unique identity, sustainable community, and in-home work options. The neighborhood's design will celebrate open space, trees, and relationships to public open spaces. The central open space, ridge open space scenic viewpoints, and a linked system of open spaces and trails are key features of the EMU. Residential developments will provide housing for a range of income levels, sustainable building design, and green development practices.

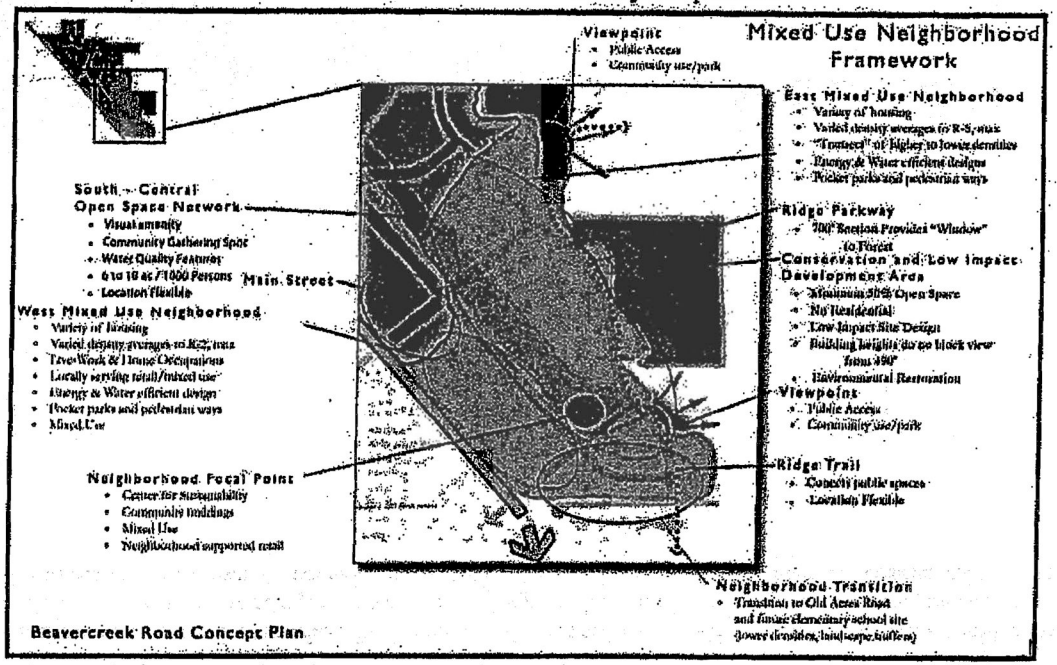

Figure 12 - West and East Mixed Use Neighborhoods

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Open Space

The Open Space Framework illustrated on Figure 13 provides a network of green spaces intended to provide:

- A connected system of parks, open spaces and natural areas that link together and link to the Environmentally Sensitive Resource Areas.
- Scenic and open space amenities and community gathering places
- Access to nature
- Tree and natural area preservation
- Locations where storm water and water quality facilities can be combined with open space amenities, and opportunities to implement sustainable development and infrastructure
- Green spaces near the system of trails and pedestrian connections
- Open spaces which complement buildings and the urban, built environment

Power Line Open Spaces:

The power line corridors and gas line corridor comprise 97 acres of land. The power line corridors north of Loder Road are a dominant feature. They are a dominant feature because they define open corridors and have a significant visual impact related to the towers. They also have a influence on the pattern of land use and transportation connections. In response to these conditions, the Concept Plan includes four main strategies for the use of the power line corridors:

- Provide publicly accessible open spaces. The implementing code includes a minimum 100 foot-wide open space and public access easement would be required at the time of development reviews, or, obtained through cooperative agreements with the utilities and property owners.
- Provide trails. A new east-west trail is shown on Figure 13 that follows the main east-west corridor. This corridor has outstanding views of Mt. Hood.
- Allow a broad array of uses. Ideas generated by the CAC, and permitted by the code, include: community gardens, urban agriculture, environmental science uses by CCC, storage and other "non-building" uses by adjacent industries, storm water and water quality features, plant nurseries, and solar farms.
- Link to the broader open space network. The power line corridors are linked to the open spaces and trail network in the central and southern areas of the plan.

South-Central Open Space Network

Park spaces in the central and southern areas of the plan will be important to the livability and sustainability goals for the plan. The basic concept is to assure parks are provided, provide certainty for the total park acreage, guide park planning to integrate with other elements, and provide flexibility for the design and distribution of parks.

The following provisions will apply during master planning and other land use reviews:

- Park space will be provided consistent with the City's Park and Recreation Master Plan standard of 6 to 10 acres per 1000 population.
- The required acreage may be proposed to be distributed to a multiple park spaces, consistent with proposed land uses and master plan design.
- A central park will be provided. The location and linearity of the park was first indicated by Metro's Goal 5 mapping. It was illustrated by several citizen groups during the design workshop held in October, 2006. This open space feature is intended as a connected, continuous and central green space that links the districts and neighborhoods south of Loder Road. The code provides for flexibility in its width and shape, provided there remains a clearly identifiable and continuous open space. It may be designed as a series of smaller spaces that are clearly connected by open space. It may be designed

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as a series of smaller spaces that are clearly connected by open space. If buildings are incorporated as part of the central park, they must include primary uses which are open to the public. Civic buildings are encouraged adjacent to the central park. Streets may cross the park as needed. The park is an opportunity to locate and design low impact storm water facilities as an amenity for adjacent urban uses.

East Ridge

The East Ridge is a beautiful edge to the site that should be planned as a publicly accessible amenity and protected resource area. The natural resource inventory identified important resources and opportunities for habitat restoration in the riparian areas of Thimble Creek. In addition, Lidar mapping and slope analysis identified steeper slopes (greater than 15%) that are more difficult to develop than adjacent flat areas of the concept plan. The sanitary sewer analysis noted that lower areas on the east

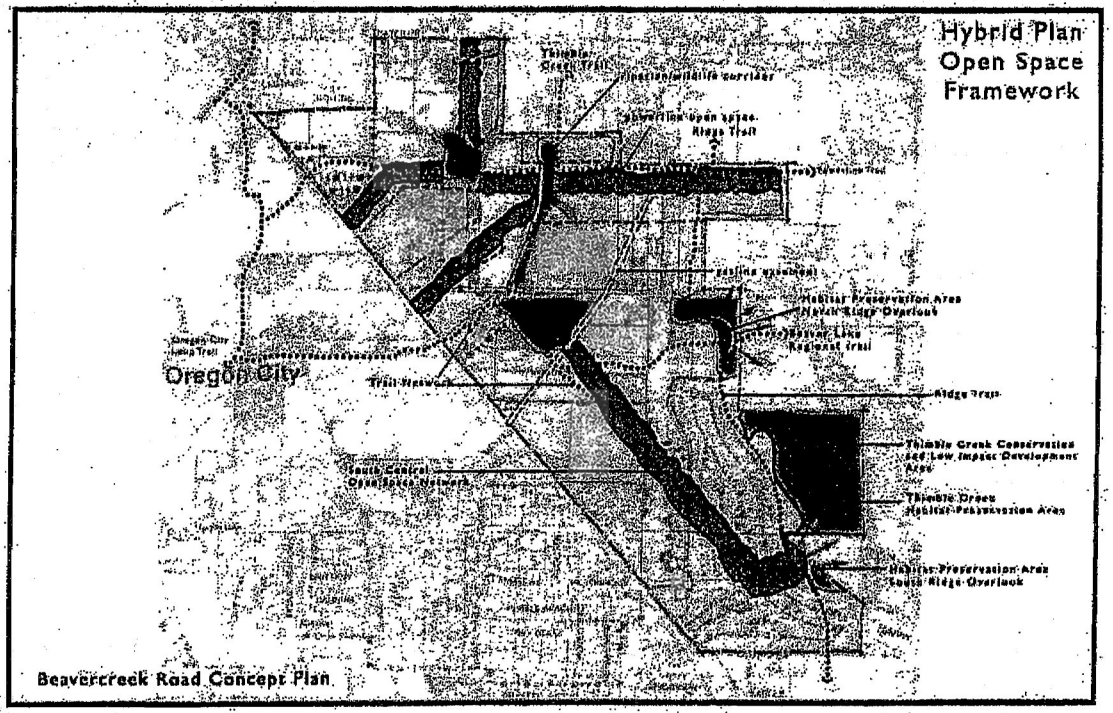

Figure 13 - Open Space Framework

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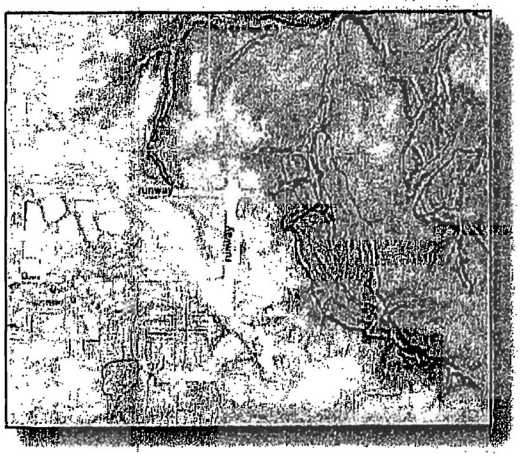

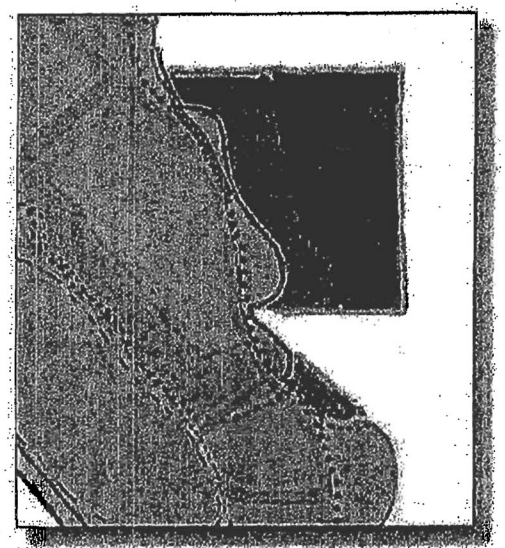

Figure 13A - East Ridge Lidar and 490 foot elevation

ridge could not be readily served with gravity systems - they would require private pump facilities. For all of these reasons, it is recommended here that an East Ridge open space and conservation area be designated.

The plan and code call for:

- Establishing the Class I and II Riparian area (per Metro mapping) plus 200 feet as a protected open space area. No development is permitted, except for very limited uses such as trails.
- Between the west edge of the above referenced protected open space area and the 490 foot elevation (MSL), establish a conservation area within which the following provisions apply:
  - a. A minimum of 50% of the conservation area must be open space. No residential uses are permitted.
  - b. All development must be low impact with respect to grading, site design, storm water management, energy management, and habitat.
  - c. Building heights must not obscure views from the 490 foot elevation of the ridge.
  - d. Open space areas must be environmentally improved and restored.
- Establishing a limit of development that demarks the clear edge of urban uses and a "window" to adjacent natural areas. In the central area of the est ridge, the "window" must be a minimum of 700 feet of continuous area and publicly accessible. The specific location of the "window" is flexible and will be establishing as part of a master plan.
- Creating two scenic view points that are small public parks, located north and south of the central area.
- Creating an East Ridge Trail - the location of the trail is flexible and will be established during master planning. It will be located so as to be safe, visible, and connect the public areas along the ridge. Along the "window" area described above, it will be coordinated with the location of the adjacent East Ridge Parkway.

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Transportation

In summary, the key elements of the Concept Plan transportation strategy are to:

- Plan a mixed use community that provides viable options for internal trip making (i.e. many daily needs provided on-site), transit use, maximized walking and biking, and re-routed trips within the Oregon City area.
- Improve Beavercreek Road as a green street boulevard.
- Create a framework of collector streets that serve the Beavercreek Road Concept Plan area.
- Require local street and pedestrian way connectivity.
- Require a multimodal network of facilities that connect the Beavercreek Road Concept Plan area with adjacent areas and surrounding transportation facilities.
- Provide an interconnected street system of trails and bikeways.
- Provide transit-attractive destinations.
- Provide a logical network of roadways that support the extension of transit services into the Beavercreek Road Concept Plan area.
- Use green street designs throughout the plan.
- Update the Oregon City Transportation System Plan to include the projects identified in the Beavercreek Road Concept Plan, provide necessary off-site improvements, and, assure continued compliance with Oregon's Transportation Planning Rule.

Streets

Figure 14 illustrates the street plan. Highlights of the plan include:

- *Beavercreek as a green boulevard.* The cross-section will be a 5 lane arterial to Clairmont, then a 3 lane arterial (green street boulevard) from Clairmont to UGB. The signalization of key intersections is illustrated on the Street Plan.
- *Center Parkway as a parallel route to Beavercreek Road.* This new north-south route provides the opportunity to completely avoid use of Beavercreek Road for trips between Old Acres and Thayer Road. This provides a much-needed separation of local and through trips, as well as an attractive east-side walking and biking route. Major cross-street intersections, such as Loder, Meyers and Glen Oak may be treated with roundabouts or other treatments to help manage average speeds on this street. Minor intersections are likely to be stop-controlled on the side street approaches. The alignment of Center Parkway along the central open space is intended to provide an open edge to the park. The cross-section for Center Parkway includes a multi-use path on the east side and green street swale. Center Parkway is illustrated as a three-lane facility. Depending on land uses and block configurations, it may be able to function well with a two lane section and left turn pockets at selected locations.
- *Ridge Parkway as a parallel route to Center Parkway and Beavercreek Road.* The section of Ridge Parkway south of the Glen Oak extension is intended as the green edge of the neighborhood. This will provide a community "window" and public walkway adjacent to the undeveloped natural areas east of the parkway. Ridge Parkway should be two lanes except where left turn pockets are needed. Major intersections south of Loder are likely to only require stop control of the side street, if configured as "tee" intersections. Mini roundabouts could serve as a suitable option, particularly if a fourth leg is added.
- *Ridge Parkway.* Ridge Parkway was chosen to extend as the through-connection south of the planning area to Henrici Road. Center Parkway and Ridge Parkway are both recommended for extension to the north as long-term consideration for Oregon City and Clackamas County during the update of respective Transportation System Plans. It is beyond the scope of this study to identify and determine each route and the feasibility of such extensions. Fatal flaws to one or both may be discovered during subsequent planning. Nonetheless, it is prudent at this level of study, in this area of the community, to identify opportunities to efficiently and systematically expand the transportation system to meet existing and future needs.

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- *Extensions of Clairmont, Meyers, Glen Oak Roads and the south entrance through to the Ridge Parkway.* These connections help complete the network and tie all parts of the community to adjacent streets and neighborhoods.
- *Realignment of Loder Road at its west end. Loder is recommended for re-configuration to create a safer "T" intersection.* The specific location of the intersection is conceptual and subject to more site specific planning.

The streets of the Concept Plan area are recommended to be green streets. This is an integral part of the storm water plan and overall identity and vision planned for the area. The green street cross-sections utilize a combination of designs: vegetated swales, planter islands, curb extensions, and porous pavement. Figures 15 – 19 illustrate the recommended green street cross-sections. These are intended as a starting point for more detailed design.

Trails

Figure 14 also illustrates the trail network. The City's existing Thimble Creek Trail and Metro's Beaver Lake Regional Trail have been incorporated into the plan. New trails include the Powerline Corridor Trail, multi-use path along Center Parkway, and the Ridge Trail.

Transit

The Concept Plan sets the stage for future transit, recognizing that how that service is delivered will play out over time. Specifics of transit service will depend on the actual rate and type of development built, Tri-Met resources and policies, and, consideration of local options. Three options have been identified:

1. A route modification is made to existing bus service to Clackamas Community College (CCC) that extends the route through CCC to Beavercreek Road via Clairmont, then south to Meyers or Glen Oak, back to HWY 213, and back onto Molalla to complete the normal route down to the Oregon City Transit Center. To date, CCC has identified Meyers Road as a future transit connection to the college.
2. A new local loop route that connects to the CCC transit center and serves the Beavercreek Road Concept Planning area, the High School, the residential areas between Beavercreek and HWY 213, and the residential areas west of HWY 213 (south of Warner Milne).
3. A new "express" route is created from the Oregon City Transit Center, up/down HWY 213 to major destinations (CCC, the Beavercreek Road Employment area, Red Soils, Hilltop Shopping Center, etc).

It is the recommendation of this Plan that the transit-oriented (and Use mix), density, and design of the Beavercreek Road area be implemented so that transit remains a viable option over the long term. The City should work with Tri-Met, CCC, Oregon City High School, and developers within the Concept Plan area to facilitate transit.

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Connectivity

The street network described above will be supplemented by a connected local street network. Consistent with the framework plan approach, connectivity is required by policy and by the standards in the code. The specific design for the local street system is flexible and subject to master plan and design review. Figure 20 illustrates different ways to organize the street and pedestrian systems. These are just three examples, and are not intended to suggest additional access to Beavercreek Road beyond what is recommended in Figure 14. The Plan supports innovative ways to configure the streets that are consistent with the goals and vision for the Beavercreek Concept Plan area.

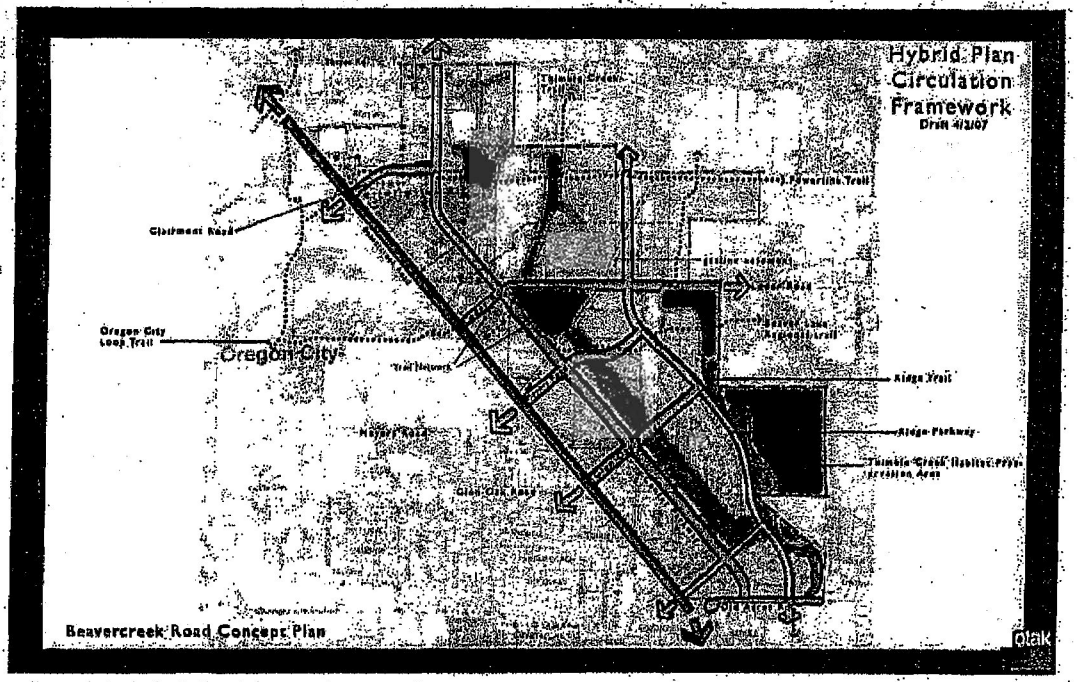

Figure 14 - Circulation Framework



Figure 20 - Connectivity Diagrams

Conceptual only - See Figure 14 for recommended access points to Beavercreek Road.

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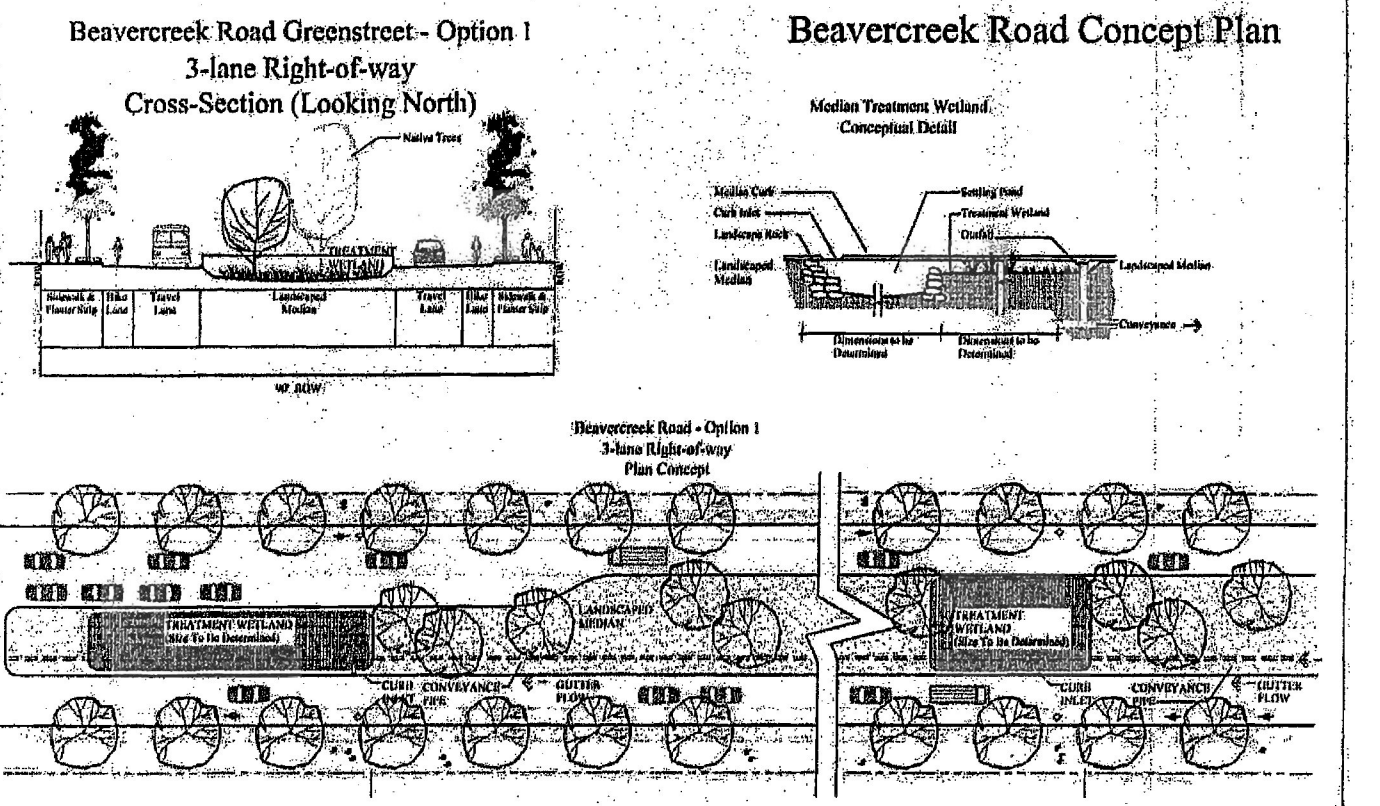

Figure 15 - Beavercreek Road Green Street

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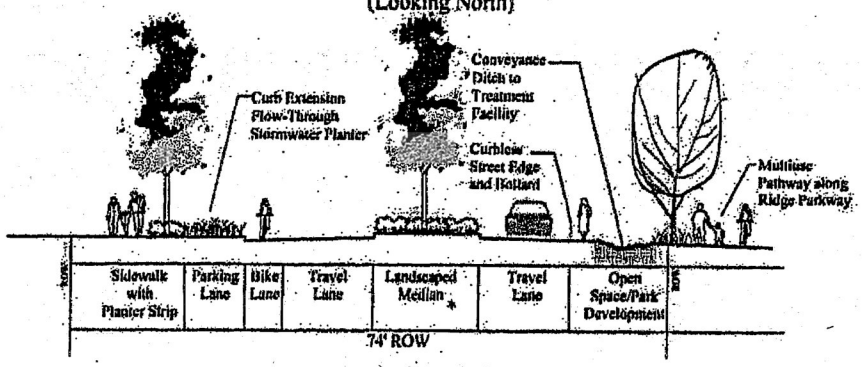
Ridge Parkway & Center Parkway

(Looking North)



Ridge Parkway & Center Parkway
Plan View

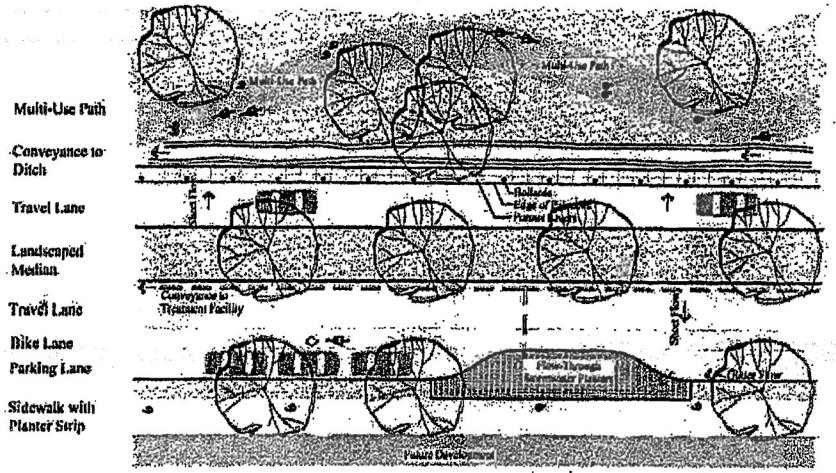


Figure 16 - Ridge Parkway and Central Parkway Green Streets

*Center median is optional for Ridge Parkway.

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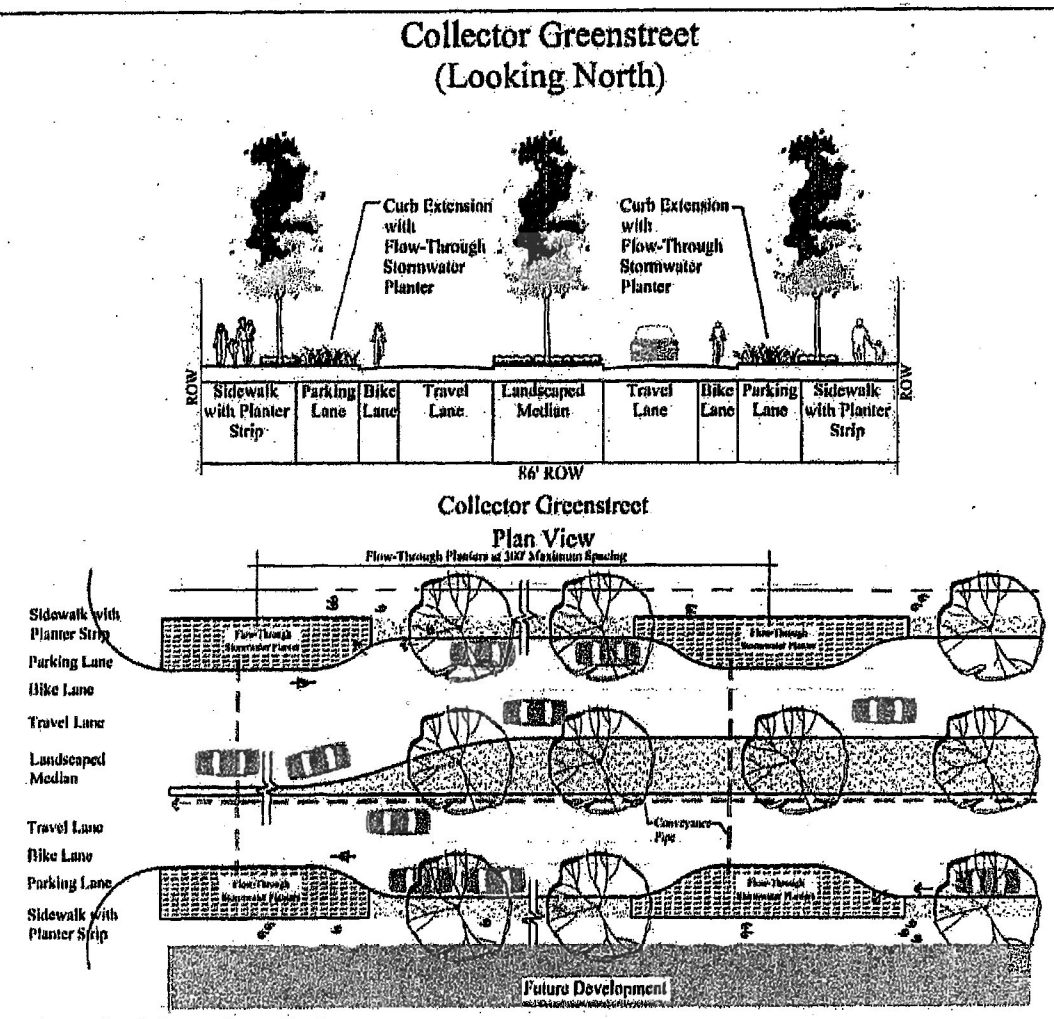

Figure 17 - Collector Green Street

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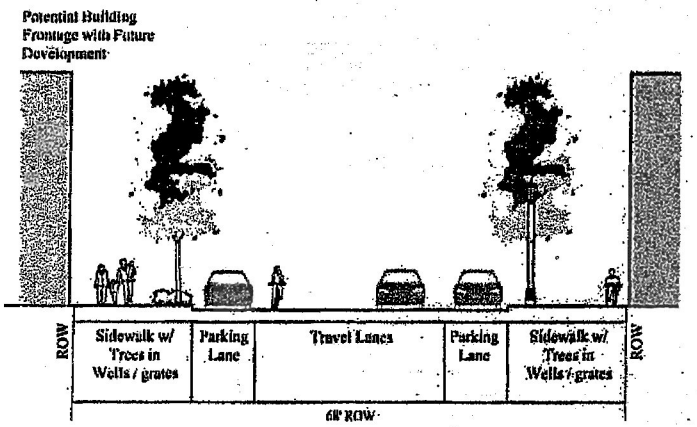
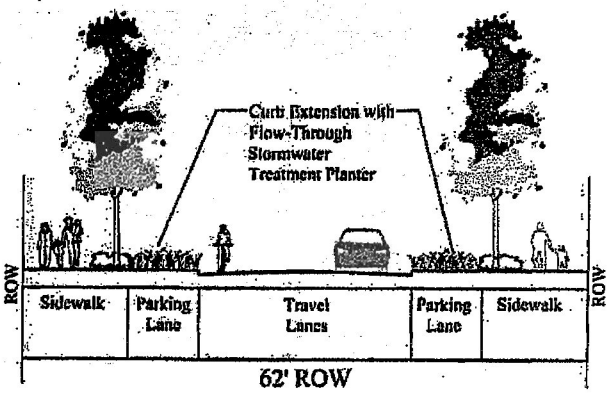
Main Street Collector



Neighborhood Greenstreet



Main Street Collector Plan View

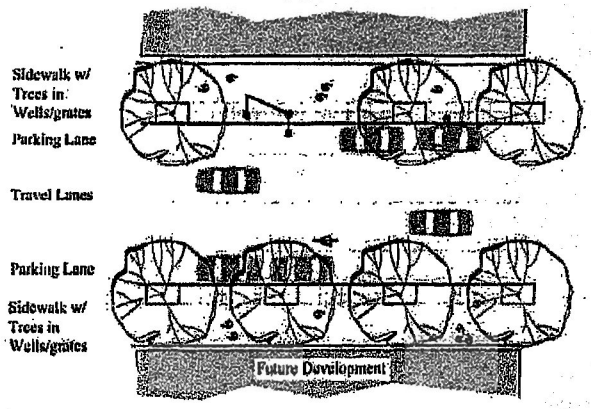


Figure 18 - Main Street Green Street

Neighborhood Greenstreet Plan View

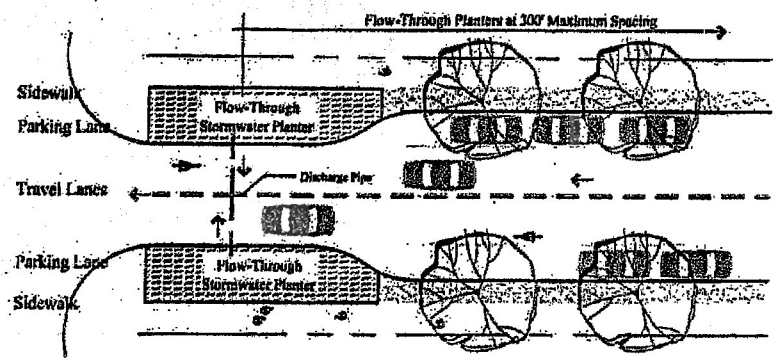


Figure 19 - Neighborhood Green Street

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Cost Estimate

A planning-level cost estimate analysis was conducted in order to approximate the amount of funding that will be needed to construct the needed improvements to the local roadway system, with the build-out of the Beavercreek Road Concept Plan. The table below lists these improvements and their estimated costs. These generalized cost estimates include assumptions for right-of-way, design, and construction.

For additional information, please see Technical Appendix, Sections C2 and G.

Roadway Improvements	Improvement	Estimated Cost
Beavercreek Road: Marjorie Lane to Clairmont Drive	Construct 5-lane cross-section to City standards	$6,300,000
Beavercreek Road: Clairmont Drive to Henrici Road	Construct 3-lane cross-section to City standards	$12,300,000
Clairmont Drive: Beavercreek Road – Center Parkway	Construct new 3-lane collector to City standards and modify signal at Beavercreek Road	$2,400,000
Loder Road: Beavercreek Road to Center Parkway	Construct 3-lane cross-section to City standards and signalize Beavercreek Road intersection	$1,400,000
Loder Road: Center Parkway – East Site Boundary	Construct 3-lane cross-section to City standards	$4,200,000
Meyers Road: Beavercreek Road – Ridge Parkway	Construct new 3-lane collector to City standards and modify signal at Beavercreek Road	$3,500,000
Glean Oak Road: Beavercreek Road – Ridge Parkway	Construct new 3-lane collector to City standards and modify signal at Beavercreek Road	$3,400,000
Center Parkway	Construct new 3-lane collector with 12' multi-use path	$17,700,000
Ridge Parkway	Construct new 3-lane collector	$9,800,000
Total Roadway Improvements		$61,000,000
Intersection Only Improvements	**Improvement**	**Estimated Cost**
Beavercreek Road/Maplelane	Road Construct new WB right-turn lane	$250,000
Beavercreek Road/ Meyers Road	Construct new NB and SB through lanes	$5,000,000
Total Intersection Improvements		$5,250,000
TOTAL IMPROVEMENTS		*$66,250,000*

Transportation Cost Estimate

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Figure 21 - Sustainable Stormwater Plan

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Storm Water and Water Quality

This Beavercreek Road stormwater infrastructure plan embraces the application of low-impact development practices that mimic natural hydrologic processes and minimize impacts to existing natural resources. It outlines and describes a stormwater hierarchy focused on managing stormwater in a naturalistic manner at three separate scales: site, street, and neighborhood.

Tier 1 – Site Specific Stormwater Management Facilities (Site)

All property within the study area will have to utilize on-site best management practices (BMPs) to reduce the transport of pollutants from their site. Non-structural BMPs, such as source control (e.g. using less water) are the best at eliminating pollution. Low-impact structural BMPs such as rain gardens, vegetated swales, pervious surface treatments, etc. can be designed to treat stormwater runoff and reduce the quantity (flow and volume) by encouraging retention/infiltration. They can also provide beneficial habitat for wildlife and aesthetic enhancements to a neighborhood. These low-impact BMP's are preferred over other structural solutions such as underground tanks and filtration systems. Most of these facilities will be privately maintained.

Tier 2 – Green Street Stormwater Management Facilities (Street)

Green Streets are recommended for the entire Beavercreek Concept Plan area. The recommended green street design in Figures 15 - 19 use a combination of vegetated swales or bioretention facilities adjacent to the street with curb cuts that allow runoff to enter. Bioretention facilities confined within a container are recommended in higher density locations where space is limited or is needed for other urban design features, such as on-street parking or wide sidewalks. The majority of the site is underlain with silt loam and silty clay loam. Both soils are categorized as Hydrologic Soil Group C and have relatively slow infiltration rates.

The recommended green streets will operate as a collection and conveyance system to transport stormwater from both private property and streets to regional stormwater facilities. The conveyance facilities need to be capable of managing large storm events that exceed the capacity of the swales. For this reason, the storm water plan's conveyance system is a combination of open channels, pipes, and culverts. Open channels should be used wherever feasible to increase the opportunity for stormwater to infiltrate and reduce the need for piped conveyance.

Tier 3 – Regional Stormwater Management Facilities (Neighborhood)

Regional stormwater management facilities are recommended to manage stormwater from larger storms that pass through the Tier 1 and Tier 2 facilities. Figure 21 illustrates seven regional detention pond locations. Coordinating the use of these for multiple properties will require land owner cooperation during development reviews, and/or, City initiative in advance of development.

The regional facilities should be incorporated into the open space areas wherever possible to reduce land costs, and reduce impacts to the buildable land area. Regional stormwater facilities should be designed to blend with the other uses of the open space area, and can be designed as a water feature that offers educational or recreational opportunities. Stormwater runoff should be considered as a resource, rather than a waste stream. The collection and conveyance of stormwater runoff to regional facilities can offer an opportunity to collect the water for re-use.

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Discharge Locations

Post-development stormwater runoff rates from the Beavercreek Road Concept Plan Area will need to match pre-development rates at the existing discharge locations, per City Stormwater Design Standards. Since there are several small discharge locations to Thimble Creek, flow control facilities may not be feasible at all discharge locations. In this situation, over-detention is needed at some discharge locations to compensate for the un-detained areas so that flows in Thimble Creek at the downstream point of compliance meet City Stormwater Design Standards for flow control.

The stormwater infrastructure for the Beavercreek Road Concept Plan Area is estimated to cost between $7.8 million and $9.4 million for base construction. When construction contingencies, soft costs (engineering, permitting, construction management), and land acquisition, the total cost is estimated at $15 to $23 million.

Water

The proposed water infrastructure plan creates a network of water supply pipelines as the "backbone" system. In addition, as individual parcels are developed, a local service network of water mains will be needed to serve individual lots.

Since there are two pressure zones in the concept plan area, there will need to be a network of pipes for each of the two zones. These systems are illustrated on Figure 22. The Fairway Downs Pressure Zone will serve the south one-third of the concept plan area. This zone receives water from the system reservoirs. But, because this zone is at the highest elevation in the entire water system, pressure from the reservoir system is insufficient to maintain a usable pressure to customers in this part of the system. The water pressure is increased by using a booster pump station located at the intersection of Glen Oak Road and Beavercreek Road.

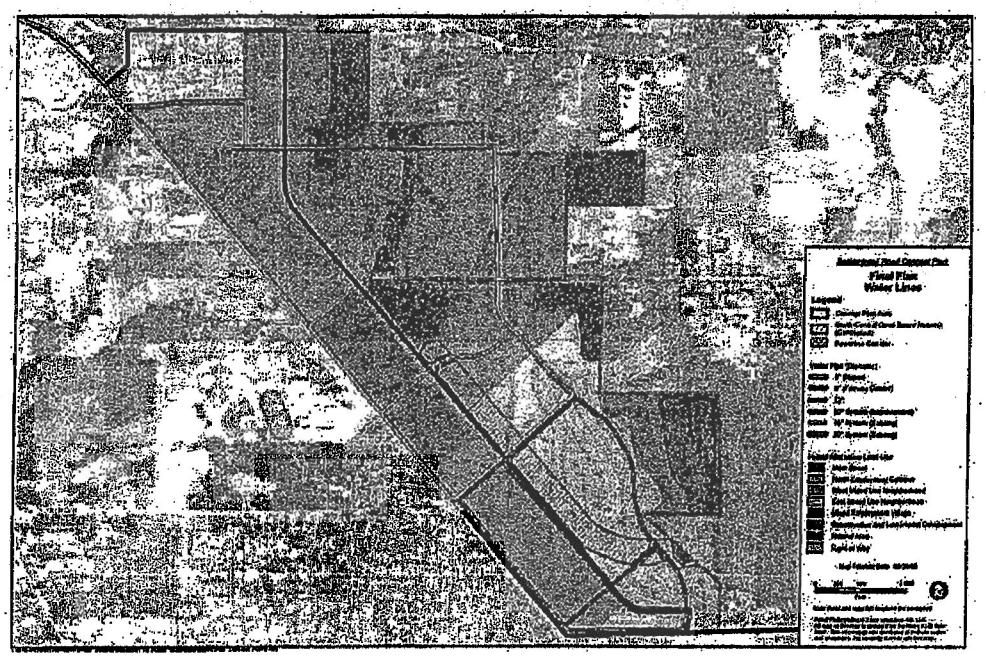

Figure 22 - Water Plan

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In the Fairway Downs Pressure Zone, the majority of the water mains will be installed in the proposed public rights-of-way. However, a small portion of the system may need to be in strip easements along the perimeter of the zone at the far southeast corner of the concept plan area. The system layout shown is preliminary and largely dependent on future development and the final system of internal (local) streets. Additional mains may be needed or some of the water mains shown may need to be removed. For instance, if the development of the residential area located at the southeast end of the site, adjacent to Old Acres Road, includes internal streets, the water mains shown along the perimeter of the site may be deleted because service will be provided from pipes that will be installed in the internal street system.

Some of the planned streets in the Fairway Downs Pressure Zone will contain two water mains. One water main will provide direct water service to the area from the booster pump system. The other water main will carry water to the lower elevation areas in the Upper Pressure Zone.

The Upper Pressure Zone will serve the north two-thirds of the concept plan area. The "backbone" network for the Upper Pressure Zone will have water mains that are pressured from the Henrici and Boynton reservoirs. A single 12-inch water main will run parallel with Beavercreek Road through the middle of concept plan area. This water conduit will serve as the "spine" for the Upper Pressure Zone. A network of 8-inch water pipes will be located in the public rights-of-way and will provide water to the parcels that are identified for development. The system can be extended easterly on Loder Road, if needed.

The preliminary design ensures that the system is looped so that there are no dead-end pipes in the system. Along a portion of the north perimeter, approximately 1,600 feet of water pipe will be needed to complete a system loop and provide water service to adjacent lots. This pipe will share a utility easement with a gravity sanitary sewer and a pressure sewer. There may also be stormwater facilities in this same alignment.

In the Water Master Plan, under pipeline project P-201, there is a system connection in a strip easement between Thayer Road and Beavercreek Road at the intersection with Marjorie Lane. Consideration should be given to routing this connection along Thayer Road to Mapleline Road and then onto Beavercreek Road. This will keep this proposed 12-inch main in the public street area where it can be better accessed.

The estimated total capital cost for the "backbone" network within the concept plan area will be in the area of $5,400,000. This estimate is based the one derived for Alternative D, which for concept planning purposes, is representative of the plan and costs for the final Concept Plan. This is in addition to the $6.9 million of programmed capital improvement projects that will extend the water system to the concept plan area. All estimates are based on year 2003 dollars. Before the SDC can be established, the estimates will need to be adjusted for the actual programmed year of construction.

For additional information, please see Technical Appendix, Sections C6 and H3.

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Sanitary Sewer

The northern half of the concept area drains generally to the north and follows the natural land contours formed by the uppermost portion of Thimble Creek. The proposed sanitary sewer system in the vicinity of Loder Road will follow the north-south street rights-of-way. This part of the system will terminate at the low point of the concept plan area in a wetwell. A sanitary lift station over the wetwell will pump the wastewater uphill in a westerly direction to a point that it can be discharged into a gravity sewer that will flow west to the trunk sewer in Beavercreek Road. The lift station and pressure sewer project has been identified in the Sanitary Sewer Master Plan as projects BC-COL-5 and 6. A utility bridge that will carry the pressure pipe and gravity sewer pipe over Thimble Creek is anticipated.

A short road access to the pump station that is parallel to Thimble Creek will also be needed.

The majority of the southern half of the concept area will have a gravity sanitary sewer system that will convey waste water to the existing 2,400-foot long trunk sewer in Beavercreek Road, which currently extends from Highway 213 to approximately 800 feet south of Marjorie Lane. This portion of the system can be built in the planned roadways and in the existing Beavercreek Road right-of-way. This portion of the system can be built in the planned roadways. A portion of the system, approximately 900 feet long, will need to be built in the current alignment of Loder Road so that the gravity sewer can be connected to the trunk sewer in Beavercreek Road. The circulation plan includes a realignment of Loder Road. Therefore, a sewer easement will need to be retained across the future parcel that now includes the current Loder Road alignment.

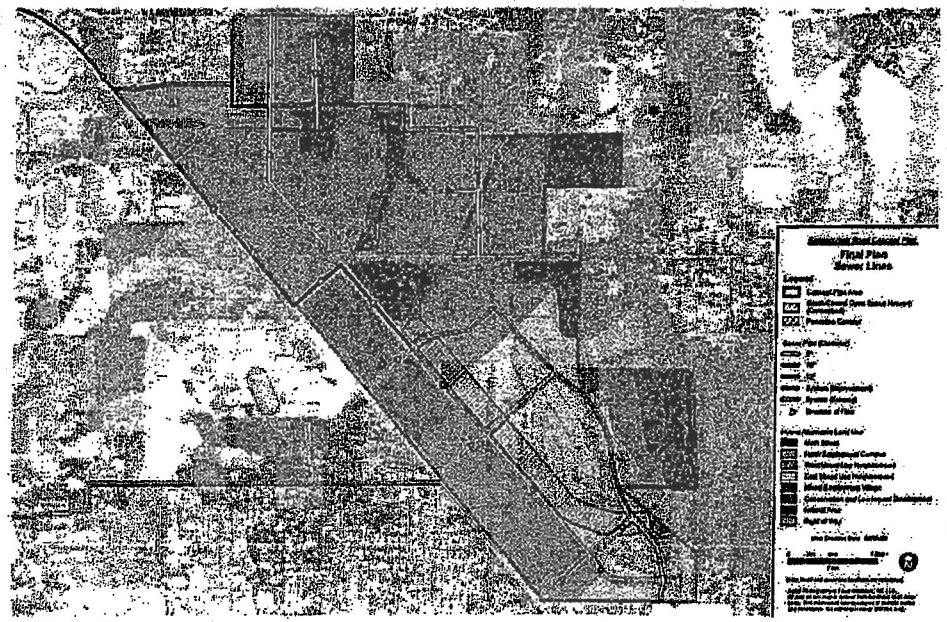

Figure 23 - Sewer Plan

The approximate elevation of 490 ft (MSL) is important in the southern half of the concept plan area relative to gravity sewer service. Roadways and development constructed above 490 ft will most likely allow for gravity sewer service. If land uses requiring sanitary sewer service (or roadways with sewer underneath) are located lower than 490 ft, individual pump stations and pressurized services may be required.

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The estimated total capital cost will be in the vicinity of $4,400,000. This estimate is based on the cost analysis for Alternative D, which is comparable. This is in addition to the $2.3 million in sanitary sewer master plan capital costs that needed to bring the sanitary sewers to the concept plan area. These estimates are based on year 2003 dollars. The estimates will need to be adjusted for the programmed year of construction.

For additional information, please see Technical Appendix, Sections C6 and H2.

Funding strategies

For water, sewer, storm water and parks, there are five primary funding sources and strategies that can be used.

- *System development charges (SDCs)*– Oregon City requires developers to pay SDCs for new development. Developers pay these charges up front based on the predicted impact of the new development on the existing infrastructure and the requirements it creates for new improvements. Although the charges are paid by the developer, the developer may pass on some of these costs to buyers of newly developed property. Thus, SDCs allocate costs of development to the developer and buyers of the new homes or new commercial or industrial buildings.
- *Urban renewal/ tax increment financing* - Tax increment financing is the primary funding vehicle used within urban renewal areas (URA). The tax increment revenue is generated within a URA when a designated area is established and the normal property taxes within that area are 'frozen' (often called the frozen base). Any new taxes generated within that area through either property appreciation or new investment becomes the increment. Taxing jurisdictions continue to collect income from the frozen base but agree to release assessed value above the base to the URA. The URA then can issue bonds to pay for identified public improvements. The tax increment is used to pay off the bonds.

Oregon City has the authority to establish an URA. The Beavercreek Road Concept Plan Area would have to meet the definition of 'blight' as defined in ORS 457. It is likely to meet 'blight' standards because its existing ratios of improvement-to-land values are likely low enough to meet that standard.

- *Local Improvement Districts* - Local Improvement Districts (LIDs) are formed for the purpose of assessing local property owners an amount sufficient to pay for a project deemed to be of local benefit. LIDs are a specific type of special assessment district, which more broadly includes any district that is formed within an existing taxing district to assess specific property owners for some service that is not available throughout the larger district. The revenues from the LID assessments are used to pay the debt payments on a special assessment bond or a note payable issued for the capital improvements.

LID assessments increase costs for property owners. Under a LID the improvements must increase the value of the taxed properties by more than the properties are taxed. LIDs are typically used to fund improvements that primarily benefit residents and property owners within the LID.

- *Bonds* - Bonds provide a financing mechanism for local governments to raise millions of dollars for parks and other capital projects. The City could back a bond with revenue from a LID, the Urban Renewal Districts, or property taxes citywide. General obligation (GO) bonds issued by local governments are secured by a pledge of the issuer's power to levy real and personal property taxes. Property taxes necessary to repay GO bonds are not subject to limitation imposed by recent property tax initiatives. Oregon law requires GO bonds to be authorized by popular vote.

Bond levies are used to pay principal and interest for voter-approved bonded debt for capital improvements. Bond levies typically are approved in terms of dollars, and the tax rate is calculated as the total levy divided by the assessed value in the district.

- Developer funded infrastructure – The City conditions land use approvals and permits to include required infrastructure. Beyond

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the sources cited above, developers cover the remaining costs for the infrastructure required for their development.

Additional funding tools that could be investigated and implemented within the Concept Plan area include a Road District, a County Service District, Intergovernmental Agreements, an Advance Finance District, a Certificate of Participation, and a Utility Fee. There are benefits and limitations associated with each of the funding options that should be reviewed carefully before implementing.

For transportation infrastructure, the same sources as cited above are available. For larger facilities, such as Beavercreek Road, additional funds may be available. They include Metro-administered federal STP and CMAQ funding, and, regional Metro Transportation Improvement Plan funding. These sources are limited and extremely competitive. County funding via County SCSs should also be considered a potential source for Beavercreek Road. Facilities like Beavercreek Road are often funded with a combination of sources, where one source leverages the availability of another.

Sustainability

One of the adopted goals is: The Beavercreek Road Concept Plan Area will be a model of sustainable design, development practices, planning, and innovative thinking.

Throughout the development of the concept plan, sustainability has been paramount in guiding the CAC, the City, and the consultant team. The final plan assumes that sustainable practices will be a combination of private initiatives (such as LEED certified buildings), public requirements (green streets and low impact development policies), and public-private partnerships. It is recommended that City use incentives, education and policy support as much as possible for promoting sustainability at Beavercreek Road. Some initiatives will require regulation and City mandates, but caution and balance should be used. At the end of the day, it is up to the private sector to invest in sustainable development. The Beavercreek Road's site's legacy as a model of sustainable design will depend, in large part on the built projects that are successful in the marketplace and help generate the type of reputation that the community desires and deserves.

The key to fulfilling the above-listed goal will be in the implementation. For the City's part, implementation strategies that support sustainable design will be included within the Oregon City Comprehensive Plan policies and Code provisions. They will be applied during master plan and design review permitting. Some of these strategies will be "required" while other are appropriate to "encourage." These sustainability strategies include:

- Energy efficiency
- Water conservation
- Compact development
- Solar orientation
- Green streets/infrastructure
- Adaptive reuse of existing buildings/infrastructure
- Alternative transportation
- Pedestrian/Cyclist friendly developments
- Natural drainage systems
- Tree preservation and planting to "re-establish" a tree canopy
- Minimizing impervious surfaces
- Sustainability education (builder, residents, businesses and visitors)
- Collaboration with "local" institutional and economic partners, particularly Clackamas Community College and Oregon City High School
- Community-based sustainable programs and activities

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Principles for Sustainable Community Design

The CAC discussed Principles for Sustainable Community Design that were offered by one of the members. These provide a good framework for how the Concept Plan is addressing sustainability.

Mix Land Uses - Promote a mix of land uses that support living wage jobs and a variety of services.

All of the sub-districts are, to some degree, mixed use districts. The Mixed Use Village, Main Street and West Mixed Use Neighborhood allow a rich mix of employment, housing, and services. Taken together, the entire 453 acre area will be a complete community.

Housing Types - Create a range of housing choices for all ages and incomes.

The concept plan includes housing in many forms: mixed use formats in the 3-5 story buildings, high density apartments and condominiums, live-work units, townhomes, small cottage lots, and low density single family homes.

Walk-ability - Make the Neighborhood "walkable" and make services "walk-to-able."

The plan provides a street and trail framework. The code will require a high level of connectivity and maximum block sizes for most sub-districts. Services are provided throughout the plan as part of mixed use areas and a broad range of permitted uses.

Transportation - Provide a range of transportation options using a connected network of streets and paths.

The plan provides for all modes: walking, biking, driving and transit. Transit-supportive land use is specifically required in the Mixed Employment Village, Main Street and West Mixed Use Neighborhoods. The framework of connected streets and paths will be supplemented by a further-connected system of local streets and walking routes.

Open Space - Protect and maintain a functioning green space network for a variety of uses.

Open space is distributed throughout the plan. New green spaces are connected with existing higher-value natural areas.

Integrate Systems - Integrate ecological and man-made systems to maximize function, efficiency and health.

Infrastructure systems (green storm water, multi-modal transportation) are highly integrated with the open space network and array of land uses. It will be important for the implementation of the plan to further integrate heating, cooling, irrigation and other man-made systems with the Concept Plan framework.

Ecological Health - Manage natural resources to eliminate pollution to watersheds and lessen impact on habitat and green infrastructure.

Methods to achieve this principle are identified in the Stormwater Infrastructure Report. Additionally, the code requires measures to preserve natural resources and eliminate pollution to watersheds necessary to achieve this principle.

Reuse, Recycle, Regenerate - Reuse existing resources, regenerate existing development areas.

The principle will be applied primarily at time of development and beyond.

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Green Buildings - Build compact, innovative structures that use less energy and materials.

The draft code includes provisions for green buildings. This is a new area for the City to regulate, so a public-private Green Building Work Group is recommend to explore issues, build consensus, and develop specific code recommendations.

Work Together - Work with community members and neighbors to design and develop.

The development of the alternatives and the recommended plan has been a collaborative process with all project partners. The concept plan process through implementation and subsequent project area developments will continue to be a collaborative process where all stakeholders are invited to participate.

For additional information, please see Technical Appendix, Sections C3, D, and F.

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Metrics

Land Use

The following table summarizes the acreages for major land uses on the Concept Plan.

Land Use Category (acres)	Hybrid
North Employment Campus (adjusted gross acreage)*	149
Mixed Employment Village	26
Main Street	10
West Mixed Use Neighborhood	22
East Mixed Use Neighborhood	77
Total Acres of "built" land use	**284**
Other Land Uses (not "built")	
Parks/Open Space/Natural Areas (Total)**	113
Major ROW+	56
Existing Uses (unbuildable)	0
Total Project Area Gross Acres	**453**

*Adjusted gross acreage is the sum of 50% of the employment land use shown under the powerline easement plus all other unconstrained employment land use areas. Calculations shown below:

Land Use Category (acres)	Hybrid
Total North Employment Campus	175
Unconstrained NEC	123
Employment with powerline overlay	52
Useable portion of powerline overlay (50%)	26
North Employment Campus (adjusted gross acreage)*	149

Housing and Employment Estimates

The Concept Plan has an estimated capacity for approximately 5000 jobs and 1000 dwellings. The following table displays the estimates and assumptions used to estimate jobs and housing. On a net acreage, these averages are 33 jobs/ net developable acre and 10.3 dwellings/ net developable acre.

Land Use Category	Hybrid Gross Acres	Hybrid Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
North Employment Campus (adjusted gross acreage)	149	127	0.3	450	3,678		
Mixed Employment Village	28	21	0.44	350	1,139		
Main Street****	10	8	0.44	350	219	25	100
West Mixed Use Neighborhood	22	18			15	22	387
East Mixed Use Neighborhood	77	62			21	8.7	536
Total # of Jobs					5,073		
Total # of Housing Units							1,023
Total Acres of Developed Land++	284	235					

*For Hybrid - Net acres equals gross acres minus 15% for local roads and easements in Employment, Mixed Employment, Mixed Use, and residential areas assume 20% for local roads and easements

**Based on Metro 2002-2022 Urban Growth Report: An Employment Land Need Analysis. Includes total on site employment (full and part time). Mixed Employment FAR and job density reflects a mix of office, tech/flex, and ground floor retail.

***Number of Jobs in Employment, Mixed Employment, Mixed Use calculated by multiplying total acres by the FAR; Converting to square feet; and dividing by number of jobs/square foot. Jobs in residential areas (Work at Home Jobs) estimated at 4% (potential could be as high as 15%).

**** Mixed Use land use assumes 50% of acreage devoted to commercial uses and the remaining 50% devoted to vertical mixed use.

+Number of units calculated by multiplying total net acres of residential land use by average units per acre

++Includes 50% of useable power line corridor (26 acres total) as part of developed land (included in Employment land area)

+++Does not include powerline corridor acreage as part of developed land

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VI. Goals and Policies

The following goals and policies are recommended for adoption into the Oregon City Comprehensive Plan. The goal statements are those developed by the Citizen Advisory Committee as goals for the plan.

Goal 1 Complete and Sustainable Community

Create a complete and sustainable community, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center.

Policy 1.1

Adopt new comprehensive plan and zone designations, and development code, that implement the Beavercreek Concept Plan. Require all development to be consistent with the Concept Plan and implementing code.

Policy 1.2

Establish sub-districts to implement the Concept Plan. The sub-districts are:

North Employment Campus – NEC

The purpose of the North Employment Campus is to provide for the location of family wage employment that strengthens and diversifies the economy. The NEC allows a mix of clean industries, offices serving industrial needs, light industrial uses, research and development and large corporate headquarters. The uses permitted are intended to improve the region's economic climate, promote sustainable and traded sector businesses, and protect the supply of sites for employment by limiting incompatible uses. The sub-district is intended to comply with Metro's Title 4 regulations. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College (CCC) are encouraged to help establish a positive identity for the area and support synergistic activity between CCC and NEC properties. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

Mixed Employment Village – MEV

The purpose of the Mixed Employment Village is to provide employment opportunities in an urban, pedestrian friendly, and mixed use setting. The MEV is intended to be transit supportive in its use mix, density, and design so that transit remains an attractive and feasible option. The MEV allows a mix of retail, office, civic and residential uses that make up an active urban district and serve the daily needs of adjacent neighborhoods and Beavercreek Road sub-districts. Site and building design will create pedestrian-friendly areas and utilize cost effective green development practices. Business and program connections to Clackamas Community College and Oregon City High School are encouraged. Businesses making sustainable products and utilizing sustainable materials and practices are encouraged to reinforce the identity of the area and promote the overall vision for the Beavercreek Road area.

Main Street – MS

The purpose of this small mixed-use center is to provide a focal point of pedestrian activity. The MS allows small scale commercial, mixed use and services that serve the daily needs of the surrounding area. "Main Street" design will include buildings oriented to the street, and minimum of 2 story building scale, attractive streetscape, active ground floor uses and other elements that reinforce pedestrian oriented character and vitality of the area.

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West Mixed Use Neighborhood – WMU

The West Mixed Use Neighborhood will be a walkable, transit-oriented neighborhood. This area allows a transit supportive mix of housing, live/work units, mixed use buildings and limited commercial uses. A variety of housing and building forms is required, with the overall average of residential uses not exceeding 22 dwelling units per acre. The WMU area's uses, density and design will support the multi-modal transportation system and provide good access for pedestrians, bicycles, transit and vehicles. Site and building design will create a walkable area and utilize cost effective green development practices.

East Mixed Use Neighborhood – EMU

The East Mixed Use Neighborhood will be a walkable and tree-lined neighborhood with a variety of housing types. The EMU allows for a variety of housing types while maintaining a low density residential average not exceeding the densities permitted in the R-5 zone. Limited non-residential uses are permitted to encourage a unique identity, sustainable community, and in-home work options. The neighborhood's design will celebrate open space, trees, and relationships to public open spaces. The central open space, ridge open space scenic viewpoints, and a linked system of open spaces and trails are key features of the EMU. Residential developments will provide housing for a range of income levels, sustainable building design, and green development practices.

Policy 1.3

Within the Northern Employment Campus sub-district, support the attraction of family wage jobs and connections with Clackamas Community College.

Policy 1.4

Within the Mixed Employment Village and Main Street sub-districts, promote job creation, mixed use and transit oriented development. Adopt minimum densities, limitations on stand-alone residential developments, and other standards that implement this policy.

Policy 1.5

The Main Street sub-district may be located along the extension of Glen Oak Road and not exceed 10 gross acres. The specific configuration of the MS sub-district may be established as part of a master plan.

Policy 1.6

Within the West and East Mixed Use Neighborhoods, require a variety of housing types. Allow lot size averaging and other techniques that help create housing variety while maintaining overall average density.

Policy 1.7

Within the MEV, MS, WMU and EMU sub-districts, require master plans to ensure coordinated planning and excellent design for relatively large areas (e.g. 40 acres per master plan). Master plans are optional in the NEC due to the larger lot and campus industrial nature of the area.

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Goal 2 Model of Sustainable Design

Be a model of sustainable design, development practices, planning, and innovative thinking.

Policy 2.1
Implement the Sustainable Storm Water plan recommended in the Concept Plan. During site specific design, encourage innovative system design and require low impact development practices that manage water at the site, street and neighborhood scales.

Policy 2.2
Storm water facilities will be designed so they are amenities and integrated into the overall community design.

Policy 2.3

Support public and private sector initiatives to promote sustainable design, development practices and programs, including but not limited to:

- Energy efficiency
- Water conservation
- Compact development
- Solar orientation
- Green streets/infrastructure
- Adaptive reuse of existing buildings/infrastructure
- Alternative transportation
- Pedestrian/Cyclist friendly developments
- Natural drainage systems
- Tree preservation and planting to "re-establish" a tree canopy
- Minimizing impervious surfaces
- Sustainability education (builder, residents, businesses and visitors)
- Collaboration with "local" institutional and economic partners, particularly Clackamas Community College and Oregon City High School
- Community based sustainable programs and activities

Policy 2.4
Work with stakeholders and the community to develop LEED or equivalent green building standards and guidelines to apply in the Concept Plan area.

Goal 3 Green Jobs

Attract "green" jobs that pay a living wage.

Policy 3.1
Coordinate with county, regional and state economic development representatives to recruit green industry to the Concept Plan area.

Policy 3.2
Promote the Concept Plan area as a place for green industry.

Policy 3.3
Work with Clackamas Community College to establish programs and education that will promote green development within the Concept Plan area.

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Goal 4 Sustainable Industries

Maximize opportunities for sustainable industries that serve markets beyond the Portland region and are compatible with the site's unique characteristics.

Policy 4.1
As master plans are approved, ensure there is no net loss of land designated North Employment Campus.

Policy 4.2
Coordinate with County, regional and state economic development representatives to recruit sustainable industries that serve markets beyond the Portland region.

Goal 5 Natural Beauty

Incorporate the area's natural beauty into an ecologically compatible built environment.

Policy 5.1
Incorporate significant trees into master plans and site specific designs. Plant new trees to establish an extensive tree canopy as part of the creation of an urban community.

Policy 5.2
Provide scenic viewpoints and public access along the east ridge.

Policy 5.3
Protect views of Mt Hood and locate trails and public areas so Mt Hood can be viewed within the community

Policy 5.4
Establish open space throughout the community consistent with the Open Space Framework Plan. Allow flexibility in site specific design of open space, with no net loss of total open space area.

Policy 5.5
Protect steeply sloped and geologically sensitive areas along the east ridge from development.

Goal 6 Multi-modal Transportation

Provide multi-modal transportation links (such as bus routes, trails, bike-ways, etc.) that are connected within the site as well as to the surrounding areas.

Policy 6.1
Work with Tri-Met and stakeholders to provide bus service and other alternatives to the Concept Plan area.

Policy 6.2
As land use reviews and development occur prior to extension of bus service, ensure that the mix of land uses, density and design help retain transit as an attractive and feasible option in the future.

Policy 6.3
Ensure that local street connectivity and off-street pedestrian routes link together into a highly connected pedestrian system that is safe, direct, convenient, and attractive to walking.

Policy 6.4
The "walkability" of the Concept Plan area will be one of its distinctive qualities. The density of walking routes and connectivity should mirror

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the urban form – the higher the density and larger the building form, the "finer" the network of pedestrian connections.

Policy 6.5
Require trails to be provided consistent with the Concept Plan Circulation Framework.

Policy 6.6
Provide bike lanes on Beavercreek Road and all collector streets, except for Main Street. The City may consider off-street multi-use paths and similar measures in meeting this policy. Bike routes will be coordinated with the trails shown on the Circulation Framework.

Goal 7 Safety Along Beavercreek Road

Implement design solutions along Beavercreek Road that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand.

Policy 7.1
Design Beavercreek Road to be a green street boulevard that maximizes pedestrian safety.

Policy 7.2
Work with the County and State to establish posted speeds that are safe for pedestrians and reinforce the pedestrian-oriented character of the area.

Policy 7.3
Control access along the east side of Beavercreek Road so that full access points are limited to the intersections shown on the Circulation Framework. Right in-Right-out access points may be considered as part of master plans or design review.

Goal 8 Oregon City High School and Clackamas Community College

Promote connections and relationships with Oregon City High School and Clackamas Community College.

Policy 8.1
Coordinate with OCHS and CCC when recruiting businesses and promoting sustainability. Within one year of adoption of the Concept Plan, the City will convene dialogue with OCHS, CCC and other relevant partners to identify target industries and economic development strategies that are compatible with the vision for the Concept Plan. Encourage curricula that are synergistic with employment and sustainability in the Concept Plan area.

Policy 8.2
Prior to application submittal, require applicants to contact OCHS and CCC to inform them and obtain early comment for master plans and design review applications.

Policy 8.3
Improving the level-of-service and investing in the Highway 213 corridor improves the freight mobility along Highway 213, which provides access to Beavercreek Road and the Concept Plan area. Protecting the corridor and intersections for freight furthers the City goal of providing living-wage employment opportunities in the educational, and research opportunities to be created with CCC and OCHS.

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Goal 9 Unique Sense of Place

Have a unique sense of place created by the mix of uses, human scale design, and commitment to sustainability.

Policy 9.1

Utilize master plans and design review to ensure detailed and coordinated design. Allow flexibility in development standards and the configuration of land uses when they are consistent with the comprehensive plan, development code, and vision to create a complete and sustainable community.

Policy 9.2

Implement human scale design through building orientation, attractive streetscapes, building form/architecture that is matched to the purpose of the sub-district, location of parking, and other techniques. The design qualities of the community should mirror the urban form – the higher the density and larger the buildings, the higher the expectation for urban amenities and architectural details.

Policy 9.3

Density should generally transition from highest on the west to lowest in the eastern part of the site.

Policy 9.4

Promote compatibility with existing residential areas at the north and south end of the Concept Plan area. Transition to lower densities, setbacks, buffers and other techniques shall be used.

Goal 10 Ecological Health

Manage water resources on site to eliminate pollution to watersheds and lesson impact on municipal infrastructure by integrating ecological and man-made systems to maximize function, efficiency and health.

Policy 10.1

Utilize low impact development practices and stormwater system designs that mimic natural hydrologic processes, minimize impacts to natural resources and eliminate pollution to watersheds.

Policy 10.2

Prepare the Environmentally Sensitive Resource Area overlay to protect, conserve and enhance natural areas identified on the Concept Plan. Apply low-density base zoning that allows property owners to cluster density outside the ESRA and transfer to other sites.

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Appendix

1. Project Goals
2. Concept Plan Alternatives
3. GIS Analysis Map
4. Job and Housing Estimates

Appendix I

To:	Beavercreek Road Concept Plan Citizens and Technical Advisory Committees
From:	Tony Konkol
Date:	March 13, 2007
Subject:	Project Goals with Objectives

The following project goals and supplemental objectives were prepared using the *Ideas we Like, Principles of Sustainable Development,* and the Advisory Committees' long-term vision for the project area. This update reflects input by the Citizens and Technical Advisory Committees at their March 8th, 2007 meeting.

The Beavercreek Road Concept Plan Area will:

Goal

1. Create a **complete community**, in conjunction with the adjacent land uses, that integrates a diverse mix of uses, including housing, services, and public spaces that are necessary to support a thriving employment center;

Objective 1.1
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Objective 1.2
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Objective 1.3
Continue to coordinate with the Oregon City School District and Clackamas Community College to identify partnerships, land needs and programs that would be beneficial to all parties and contribute to the community.

Objective 1.4
Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services, and housing for local workers and residents of all ages and incomes.

Objective 1.5
Become a model of sustainability that may be implemented throughout the City.

Objective 1.6
Allow the integration of housing and employment uses where practicable.

Objective 1.7
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

2. Be a **model of sustainable design**, development practices, planning, and innovative thinking;

   Objective 2.1
   Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
   Objective 2.2
   Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.
   Objective 2.3
   Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.
   Objective 2.4
   Encourage environmentally responsible developments that are economically feasible, enhance livability of neighborhoods and enhance the natural environment.
   Objective 2.5
   Investigate development standards that offer incentives for developments that exceed energy efficiency standards and meets green development requirements and goals.

3. Attract **"green" jobs** that pay a living wage;
   Objective 3.1
   Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
   Objective 3.2
   Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.
   Objective 3.3
   Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.
   Objective 3.4
   Allow the integration of housing and employment uses where practicable.
   Objective 3.5
   Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.
   Objective 3.6
   Create a "brand" for the area that reflects the desire for sustainable development that will serve as the theme to attract and recruit businesses and developers as well as guide the design standards and build-out of the area.

4. Maximize opportunities for **sustainable industries that serve markets beyond the Portland region** and are compatible with the site's unique characteristics;

   Objective 4.1

Create a "brand" for the area that reflects the desire for sustainable development that will serve as the theme to attract and recruit businesses and developers as well as guide the design standards and build-out of the area.

Objective 4.2
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Objective 4.3
Support locally based and founded employers that provide living wages jobs.

Objective 4.4
Support the development of sustainable industries that utilize green design standards and development practices.

5. Incorporate the area's **natural beauty** into an ecologically compatible built environment;

Objective 5.1
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

Objective 5.2
Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.

Objective 5.3
Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Objective 5.4
Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

6. Provide **multi-modal transportation links** (such as bus routes, trails, bike-ways, etc.) that are connected within the site as well as to the surrounding areas;

Objective 6.1
Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.

Objective 6.2
Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.

Objective 6.3
Explore local and regional transit opportunities that will increase non-single occupancy vehicle travel.

7. Implement **design solutions along Beavercreek Road** that promote pedestrian safety, control traffic speeds and access, and accommodate projected vehicular demand;

   Objective 7.1
   Develop and maintain a multi-modal transportation system that is safe for all users and will minimize conflict points between different modes of travel, especially across Beavercreek Road to the existing neighborhoods, Clackamas Community College, Oregon City High School and the Berry Hill Shopping Center.
   Objective 7.2
   Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

8. Promote connections and relationships with **Oregon City High School and Clackamas Community College;**

   Objective 8.1
   Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
   Objective 8.2
   Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.
   Objective 8.3
   Continue to coordinate with the Oregon City School District and Clackamas Community College to identify partnerships, land needs and programs that would be beneficial to all parties and contribute to the community.

9. Have a **unique sense of place** created by the mix of uses, human scale design, and commitment to sustainability.

   Objective 9.1
   Provide public connectivity routes for bicycles and pedestrians that encourage non-vehicular trips to employment, retail and recreational areas within the study area and to the communities beyond.
   Objective 9.2
   Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.
   Objective 9.3
   Allow a variety of employment uses that may integrate and utilize the surrounding city and rural economies.
   Objective 9.4
   Develop plans that consider the existing rural lands and uses around the Urban Growth Boundary.

Objective 9.5

Encourage neighborhood-oriented and scaled mixed-use centers that provide goods, services and housing for local workers and residents of all ages and incomes.

Objective 9.6

Allow the integration of housing and employment uses where practicable.

Objective 9.7

Work with Metro to ensure that there is enough land available within the Beavercreek Road Study Area to meet the need for employment/industrial development and reduce the jobs to housing imbalance in the sub-region.

Objective 9.8

Create a "brand" for the area that reflects the desire for sustainable development that will serve as the theme to attract and recruit businesses and developers as well as guide the design standards and build-out of the area.

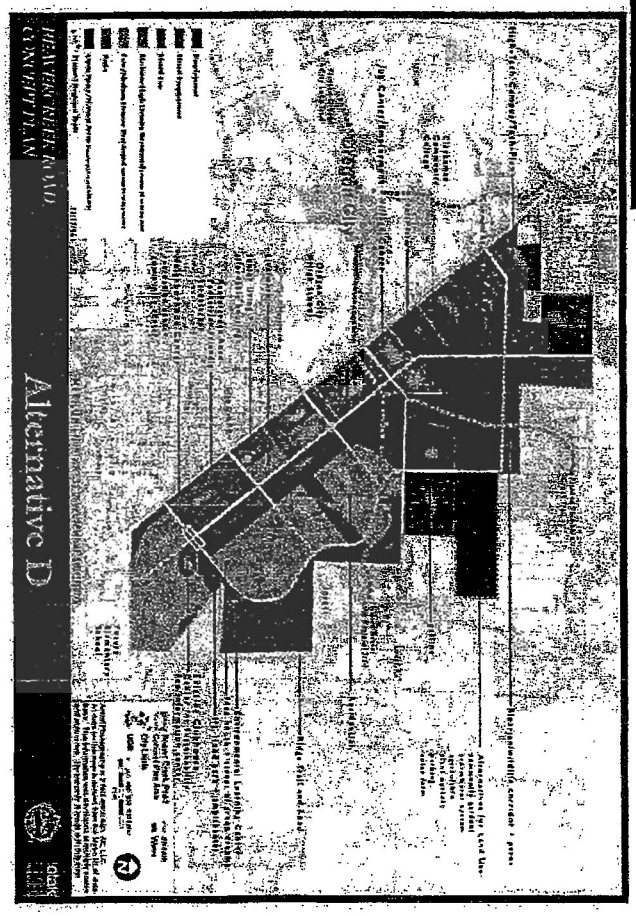
Objective 9.9

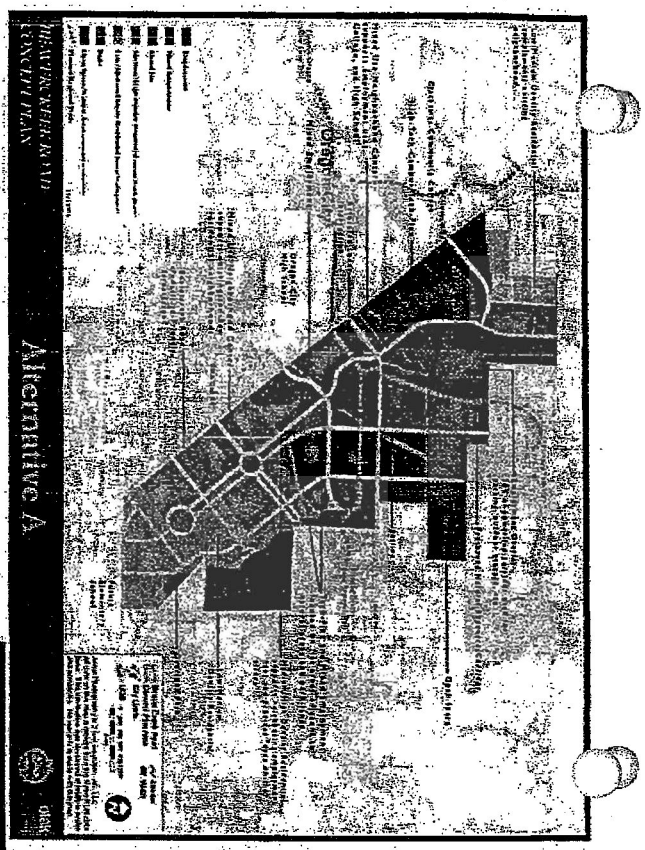
Design the adjacent land-uses to Beavercreek Road in such a manner to ensure that the pedestrian experience is not diminished through the development of fences, parking lots, backs of buildings, or other impediments to pedestrian access and circulation.

10. Ecological Health – Manage water resources on site to eliminate pollution to watersheds and lesson impact on municipal infrastructure by integrating ecological and man-made systems to maximize function, efficiency and health.

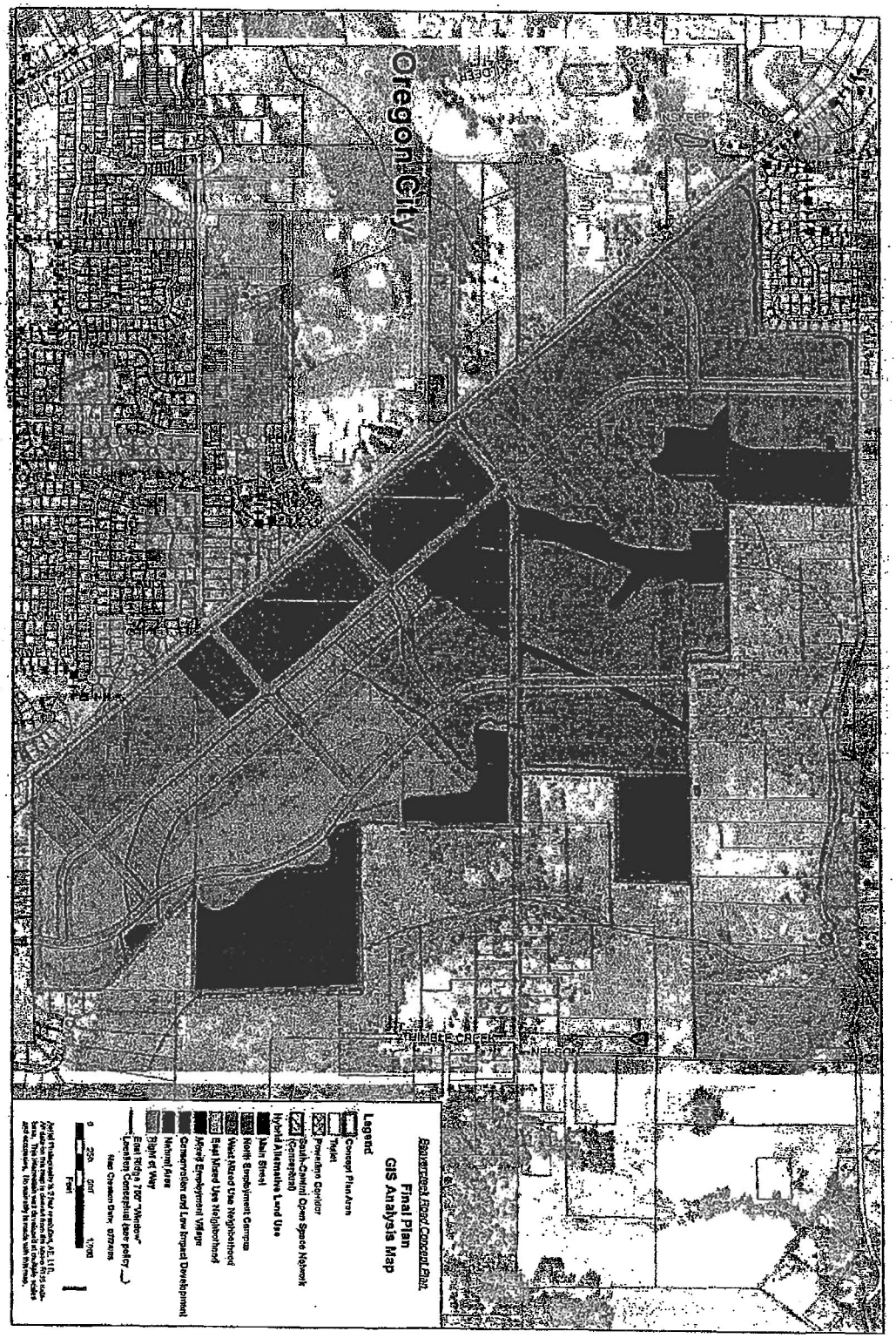
Objective 10.1

Provide an integrated street system that is designed as practicable to minimize the impacts to the environment through the use of green streets, swales and other natural stormwater systems that provide water quality and quantity control and contribute to the natural beauty of the area.





3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor



3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Table 2
Beavercreek Concept Plan Job & Housing Density Assumptions
Revised - 7/10/07

Land Use Category	Hybrid Gross Acres	Hybrid Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
North Employment Campus (adjusted gross acreage)	149	127	0.3	450	3,678		
Mixed Employment Village	26	21	0.44	350	1,139		
Main Street****	10	8	0.44	350	219	25	100
West Mixed Use Neighborhood	22	18			15	22	387
East Mixed Use Neighborhood	77	62			21	8.7	536
Total # of Jobs					5,073		
Total # of Housing Units							1,023
Total Acres of Developed Land++	284	235					
Land Use Category	Plan A Gross Acres	Plan A Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
Employment (adjusted gross acreage)	139	118	0.3	450	3,431		
Mixed Employment	24	20	0.44	350	1,117		
Mixed Use****	10	9	0.44	350	233	25	106
Medium/High Density Residential	50	43			43	25	1,063
Low/Medium Density Residential	53	45			18	10	451
Total # of Jobs					4,841		
Total # of Housing Units							1,619
Total Acres of Developed Land++	276	235					
Land Use Category	Plan D Gross Acres	Plan D Net Acres*	FAR/Acre**	SF/Job**	# of Jobs***	Avg. Units/Acre	# of Units+
Employment (adjusted gross acreage)	84	71	0.3	450	2,073		
Mixed Employment	25	21	0.44	350	1,164		
Mixed Use****	29	25	0.44	350	675	25	308
Medium/High Density Residential	9	8			8	25	191
Low/Medium Density Residential	99	84			34	10	842
Total # of Jobs					3,953		
Total # of Housing Units							1,341
Total Acres of Developed Land+++	246	209					

*For Hybrid - Net acres equals gross acres minus 15% for local roads and easements in Employment, Mixed Employment, Mixed Use, and residential areas assume 20% for local roads and easements

**Based on Metro 2002-2022 Urban Growth Report: An Employment Land Need Analysis. Includes total on site employment (full and part time). Mixed Employment FAR and job density reflects a mix of office, tech/flex, and ground floor retail.

***Number of Jobs in Employment, Mixed Employment, Mixed Use calculated by multiplying total acres by the FAR, Converting to square feet, and dividing by number of jobs/square foot. Jobs in residential areas (Work at Home Jobs) estimated at 4% (potential could be as high as 15%).

**** Mixed Use land use assumes 50% of acreage devoted to commercial uses and the remaining 50% devoted to vertical mixed use.

+Number of units calculated by multiplying total net acres of residential land use by average units per acre

++Includes 50% of useable power line corridor (26 acres total) as part of developed land (included in Employment land area)

+++Does not include powerline corridor acreage as part of developed land

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Appendix IV

Table 3
Land Use Metrics/Assumptions - HYBRID
Revised - 7/10/07

Land Use Category (acres)	Hybrid	Alt. A	Alt. D
North Employment Campus (adjusted gross acreage)*	149	139	84
Mixed Employment Village	26	24	25
Main Street	10	10	29
West Mixed Use Neighborhood	22	50	9
East Mixed Use Neighborhood	77	53	99
Total Acres of "built" land use	**284**	**276**	**246**
Other Land Uses (not built)			
Parks/Open Space/Natural Areas (Total)**	113	132	166
Major ROW+	56	36	30
Existing Uses (unbuildable)	0	7	7
Total Project Area Gross Acres	**453**	**~450**	**~450**

***Adjusted gross acreage** is the sum of 50% of the employment land use shown under the powerline easement plus all other unconstrained employment land use areas. Calculations shown below:

Land Use Category (acres)	Hybrid	Alt. A	Alt. D
Total North Employment Campus	175	166	84
Unconstrained NEC	**123**	**111**	**84**
Employment with powerline overlay	52	55	0
Useable portion of powerline overlay (50%)	**26**	**28**	**na**
North Employment Campus (adjusted gross acreage)*	**149**	**139**	**84**

** Open Space/Natural areas is the sum of all "unbuildable lands" as shown on the *Buildable Lands Map* plus two areas under the powerlines. Calculations shown below.

Open Space/Natural Areas Break-Out	Hybrid	Alt. A	Alt. D
Open Space -Gas Overlay	3	4	4
Open Space - Unbuildable Powerlines***	48	49	0
Environmental Resources/*Buildable Lands Map*	61	61	61
Parks	na	12	na
Other Open Space Areas	18	6	101
Open Space/Natural Areas (Total)	**130**	**132**	**166**

***For Hybrid - Unbuildable Powerlines area includes 12 acres on east edge of site under powerlines plus 50% of employment area under powerlines (~26 acres) and the PGE parcel (10 acres). For Alt. A - Unbuildable Powerlines area includes 12 acres on east edge of site under powerlines and 10 acres of the PGE Parcel and 50% of powerline area (27 acres).

+Major ROW are approximate location & acreage (may be shown as crossing natural resource areas. Actual location and size of ROW will be addressed during development review/master planning). Includes 2 acre adjustment for GIS polygon alignment.

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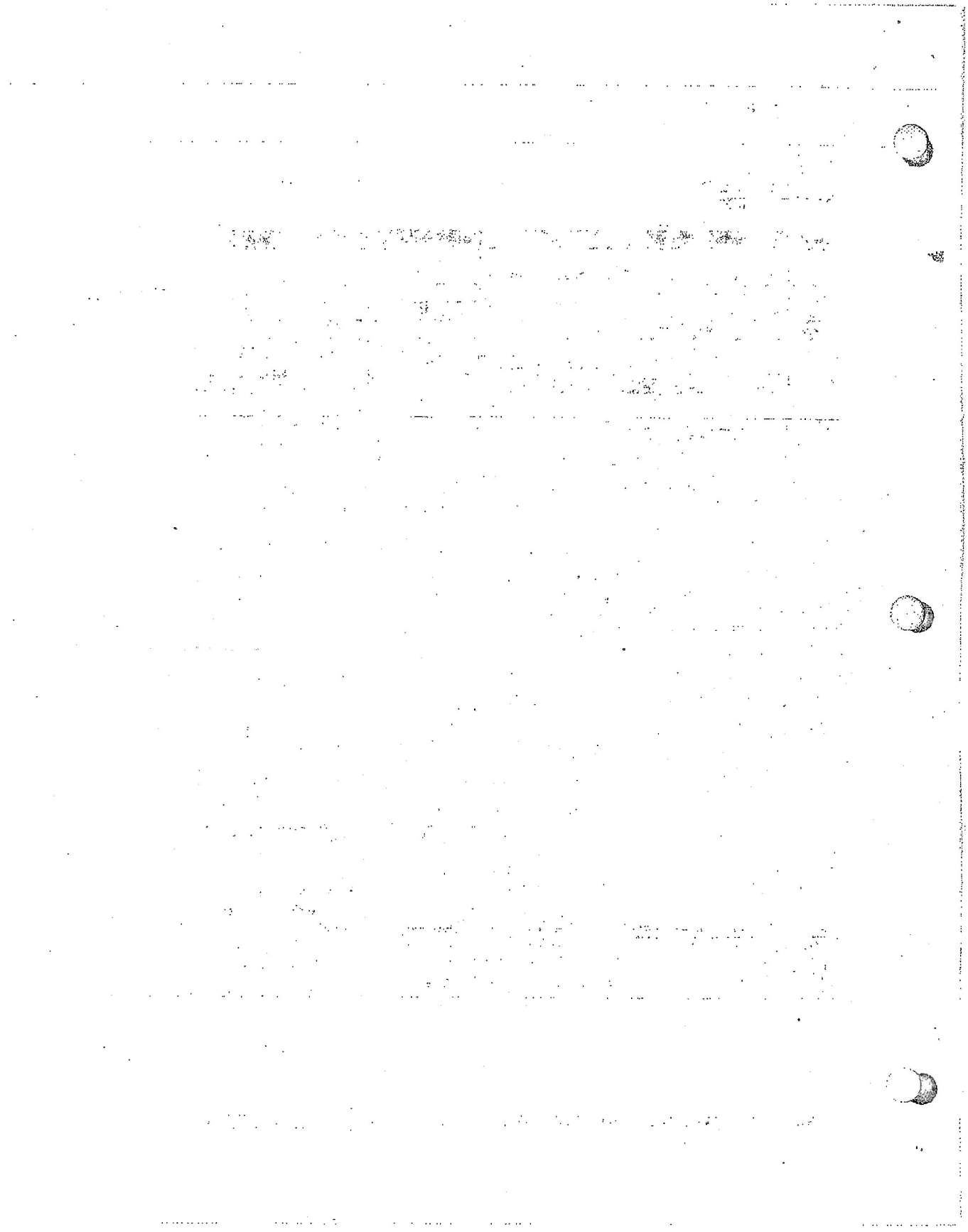


3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

LAND USE APPLICATION

For

ZONE CHANGE AND PLAN AMENDMENT

For

19896 Beavercreek Road, Oregon City

T3S, R2E, Sec. 10, Tax Lot 800

Property Owner:

Maywood,LLC

7128 SW Gonzaga Street

Portland, Oregon 97223

Prepared by:

Theta,llc

PO Box 1345

Lake Oswego, Oregon 97035

Office of the Secretary of State

BILL BRADBURY
Secretary of State

Archives Division
MARY BETH HERKERT
Director

800 Summer St. NE
Salem, Oregon 97310
(503) 373-0701

Facsimile (503) 373-0953

March 27, 2008

Metro
Linda Martin
600 NE Grand Ave
Portland, Oregon 97232-2736

Dear Ms. Martin:

Please be advised that we have received and filed, as of March 27 2008, the following records annexing territory to the following:

Ordinance/Resolution Number(s)	Our File Number
07-1020 (Oregon City)	AN 2008-0067
07-1021 (Oregon City)	AN 2008-0068

For your records please verify the effective date through the application of ORS 199.519.

Our assigned file number(s) are included in the above information.

Sincerely,

Linda Bjornstad
Official Public Documents

cc: County Clerk(s)
Department of Revenue
ODOT
Population Research Center

Phil Gentemann

From: Raymond Valone [valoner@metro.dst.or.us]
Sent: Tuesday, May 01, 2007 8:13 AM
To: phil@centurionhomes.net
Subject: UGB Map

Attachments: taxlot_in_ugb.pdf

taxlot_in_ugb.pdf
(275 KB)

Phil,
The attached map from our Data Resource Center shows the original UGB area along Beavercreek Road, including TL 800 that asked me about, as being within the UGB since 1979. I hope this helps.

Ray Valone
Principal Planner
Metro
600 NE Grand Avenue
Portland, Oregon 97232
Ph 503-797-1808
Fx 503-797-1930
E-mail: valoner@metro.dst.or.us
Web: http://www.metro-region.org/

NOT SUBJECT TO TITLE 11

NO CONCEPT PLAN REQUIREMENT

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Phil Gentemann

From: Dan Drentlaw [ddrentlaw@ci.oregon-city.or.us]
Sent: Thursday, October 22, 2009 12:32 PM
To: phil@centurionhomes.net
Cc: Bill Kabeiseman; Tony Konkol
Subject: RE: 19896 S Beavercreek Road.doc

Phil –

While the property in question is annexed to Oregon City, it is designated Future Urban on our Comprehensive Plan. In order to develop the property one of the major steps would be to apply for a change to the comprehensive plan designation and apply for city zoning. This is a type 4 process and would require public hearings before the Planning Commission and City Commission. One of the major review criteria would be consistency with the Compressive plan and the Beavercreek Rd. concept plan. While we cannot guarantee the outcome of this process, it appears that rezoning to MUE or MUC would be consistent with the Beavercreek Rd. concept plan. These hearings could be combined to save processing time and a decision would have to be issued with 120 days from the submittal of a complete application. If you would like details regarding the application requirements, please contact Tony Konkol.

From: Phil Gentemann [mailto:phil@centurionhomespdx.com]
Sent: Tuesday, October 20, 2009 1:50 PM
To: Dan Drentlaw
Cc: KleinmanJL@aol.com
Subject: 19896 S Beavercreek Road.doc

Dan attached is a summary outline reference zoning our property at 19896 S Beavercreek Road. I could also send you the information i
handed out at the council meeting last week if you need it or think it would be helpful

No virus found in this incoming message.
Checked by AVG - www.avg.com
Version: 8.5.423 / Virus Database: 270.14.24/2449 - Release Date: 10/20/09 18:42:00

Clackamas County Official Records
Sherry Hall, County Clerk

2008-022108

$56.00

03/28/2008 08:44:20 AM

D-ANXCON Cnt=1 Stn=9 DIANNAW
$30.00 $16.00 $10.00

AFTER RECORDING RETURN TO:

City Recorder
City of Oregon City
P. O. Box 3040
Oregon City, Oregon 97045-0304

Map No.: 3-2E-10C
Tax Lot No.: 800
Planning No.: AN 07-02

Grantor(s): MARYLWOOD LLC

ANNEXATION AGREEMENT

This Annexation Agreement ("Agreement") is entered into by and between MARYLWOOD LLC ("Petitioner") and the CITY OF OREGON CITY ("City"), an Oregon municipal corporation on this 19 day of December 2007.

RECITALS

WHEREAS, Petitioner is the record owner of TL 800 (Sec. 10, Twp. 3S, Range 2E, W.M.), approximately 9.7 acres in size, with a street address of 19896 Beavercreek Road, Oregon City, OR 97045 (the "Property"), located in unincorporated Clackamas County and within the City's Urban Growth Boundary (UGB); and described as follows, to wit:

See attached EXHIBIT "A" Legal description and
attached EXHIBIT "B" Sketch for Legal Description; and

WHEREAS, Petitioner has submitted an application to City to annex the Property into the City's corporate limits (City File No. AN 07-02), and the City has accepted and is considering that application; and

WHEREAS, one factor in the City's consideration of Planning File No. AN 07-02 annexation application is whether the City has the capacity or financial resources to provide necessary public services to the Property, most notably law enforcement; and

WHEREAS, City's ability to provide adequate levels of law enforcement to serve the Property is largely dependant upon the availability of funding to pay the cost of these urban services; and

WHEREAS Petitioner recognizes that it is incumbent upon new development to pay the cost of providing urban services and facilities, at sufficient levels, to serve new development, and both parties desire to identify a means by which Petitioner funds the cost of providing law enforcement to the Property if the City consents to annex the Property.

NOW THEREFORE, based on the foregoing Recitals, the mutual covenants provided for in this Agreement, and for valuable consideration, receipt of which is hereby acknowledged, the parties agree as follows:

1. The City agrees to review, process and consider Planning File No. AN 07-02 annexation application in the normal course and apply the customary criteria in that process. Execution of this Agreement by the City shall not be construed in any way to be a promise or guarantee that the annexation, or any other land use approval, will be granted by the City.

2. Petitioner agrees that, in the event that the City gives final approval to annex the Property, Petitioner will pay to City amount specified by attached police funding fee schedule A permitted by City to be constructed on the Property to be used for the provision of law enforcement services. The amount provided for in this paragraph shall be due and payable by Petitioner to the City at the time City issues a building permit for each new dwelling on the Property.

3. The City agrees to use any amount paid to it by Petitioner for law enforcement services as provided in Paragraph 2. The funds provided pursuant to this Agreement are intended as a supplement to the City's current funding of its law enforcement and are not intended to serve as replacement for those funds.

4. The parties agree that this Agreement is not, is not intended to be and shall not be construed as, a "development agreement" under ORS 94.504 to 94.528. In the event any form of legal challenge is brought by any entity not a party to this Agreement challenging the Agreement, the City is under no obligation whatsoever to defend the Agreement.

5. Term, extension and modification: If the Property is not annexed to the City by June 30, 2008, this Agreement shall expire on July 1, 2008 and be of no further force or effect. If the Property is annexed to the City by June 30, 2008, the Agreement shall be valid, binding and enforceable until July 1, 2018, after which it shall expire and be of no further force or effect. This Agreement may be extended or modified at any time prior to expiration upon the mutual written consent of the parties.

6. Agreement runs with the land. The rights and obligations set forth in this Agreement shall be recorded with the title to the Property, and, except as provided in Paragraph 5, shall run with the land and be binding upon the parties to this Agreement, their heirs, successors and assigns.

7. No third party beneficiaries. This Agreement is strictly and solely between the parties signed below, and it shall not create any obligation on the part of either party to perform or pay anything to or on behalf of anyone not a party to this Agreement. This Agreement does not create any rights in favor of or for any person or entity that is not a party to this Agreement.

IT IS SO AGREED:

The City of Oregon City:

Alice Norris

Alice Norris
print name

Date: 03-19-08

MARYLWOOD LLC:

Philip M Gentemann Member
Print Name:

Date: December 19, 2007

Philip M. Gentemann
Print Name:

Date: December 19, 2007

CITY OF OREGON CITY

////

////

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19th day of March 2008 by Alice Norris, the Mayor of Oregon City, who swore or affirmed that he/she was authorized to execute the foregoing Annexation Agreement on behalf of the City of Oregon City.

OFFICIAL SEAL
NANCY S. IDE
NOTARY PUBLIC-OREGON
COMMISSION NO. 400033
MY COMMISSION EXPIRES DEC. 1, 2009

Nancy S. Ide
Notary Public for Oregon,
My Commission Expires 12-01-09

MARYLWOOD LLC

OFFICIAL SEAL
BILL MC CORKLE
NOTARY PUBLIC-OREGON
COMMISSION NO. A405812
MY COMMISSION EXPIRES JULY 6, 2010

STATE OF OREGON)
) ss.
County of Clackamas)

This instrument was personally acknowledged before me on the 19 day of December 2007 by Philip M. Gentemann.

Notary Public for Oregon,
My Commission Expires 7-6-2010

EXHIBIT "A"

LEGAL DESCRIPTION

A tract of land located in the Andrew Hood Donation Land Claim No. 44 in Township 3 South, Range 2 East, of the Willamette Meridian and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said Claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177 on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 1700.16 feet following the South boundary of the said Moehnke Tract to a stone located in the Northeasterly right of way boundary of Clackamas County Market Road No. 11; thence continuing North 89°36' West 36.96 feet to the center line of said Market Road No. 11; thence South 40°37' East 1146.29 feet along the center line of said Market Road No. 11 to a point; thence South 89°35' East 983.34 feet to a point in the East boundary of said Claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said Claim No. 44 to the place of beginning, containing 27.00 acres, more or less, and being a part of the tract of land described in that certain conveyance from J. U. and Anna C. Campbell to Oregon City Golf Club and recorded October 30, 1926 in Book 186 on Pages 232 and 233 Record of Deeds for Clackamas County, Oregon.

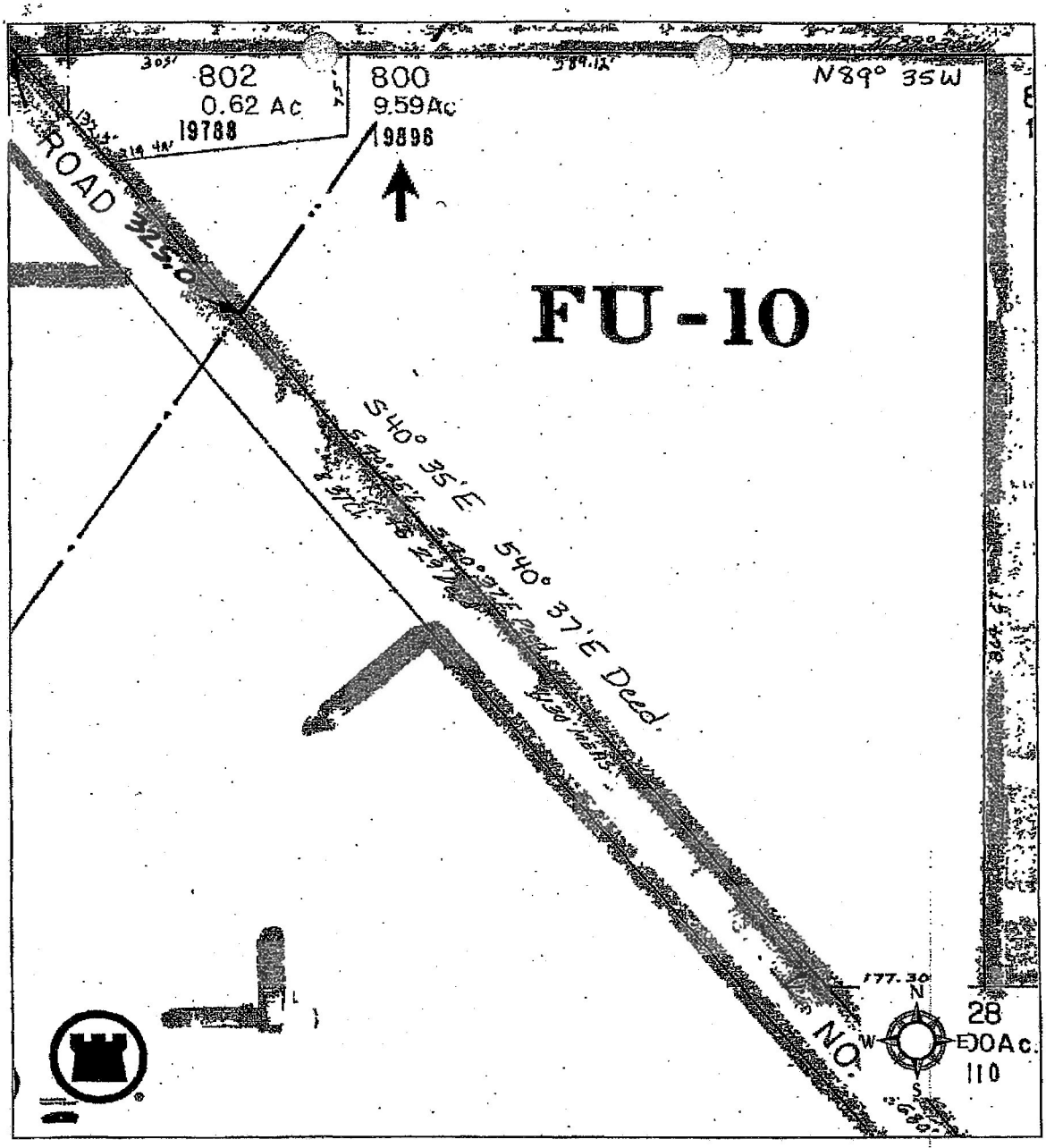
EXCEPTING THEREFROM a tract of land in the Andrew Hood Donation Land Claim No. 44, in Section 10, Township 3 South, Range 2 East, of the Willamette Meridian, in the County of Clackamas and State of Oregon, described as follows:

Beginning at the point of intersection of the North line of that tract of land conveyed to Edward G. Roberts and Lois N. Roberts by Deed recorded July 6, 1945 in Deed Book 347, Page 111, with the Easterly right of way line of Beavercreek Road, from which point a stone marked + bears North 89°35' West 3.76 feet; thence South 89°35' East along the North line of said Roberts Tract 305 feet to a 5/8-inch by 30-inch iron rod; thence Southerly at right angles to said North line, 75 feet to a 5/8-inch by 30-inch iron rod; thence South 83°52'30" West 219.49 feet to a 5/8-inch by 30-inch iron rod in the Easterly right of way line of Beavercreek Road; thence tracing said Easterly line North 40°35' West 132.50 feet to the point of beginning.

FURTHER EXCEPTING THEREFROM a tract of land located in the Andrew Hood Donation Land Claim No. 44, in Township 3 South, Range 2 East, of the Willamette Meridian, and more particularly described as follows, to-wit:

Beginning at a stone located in the East boundary of said claim No. 44 that is South 0°30' West 17.92 chains distant from the Northeast corner of said Donation Land Claim, said stone also being the Southeast corner of the tract of land described in that certain conveyance from David and Ella Moehnke to William and Ada Moehnke and recorded January 28, 1925 in Book 177, on Pages 487 and 488 Record of Deeds for Clackamas County, Oregon; from said beginning point; thence North 89°35' West 806.04 feet following the South boundary of said Moehnke Tract to a point; thence South 0°0' West 864.67 feet parallel with the East boundary of said claim No. 44 to a point on the South boundary of a tract of land described in that certain conveyance from Oregon City Golf Course to Edward G. Roberts, et ux, recorded July 2, 1945 in Book 347, Page 111, record of Deeds for Clackamas County, Oregon; thence South 89°35' East 806.04 feet along the South boundary of said Roberts Tract to a point in the East boundary of said claim No. 44; thence North 0°30' East 864.67 feet along the East boundary of said claim No. 44 to the place of beginning.

4



CHICAGO TITLE

"This plat is for your aid in locating your land with reference to streets and other parcels.
While this plat is believed to be correct, the company assumes no liability for any loss occurring by reason of reliance thereon."

Map No. 32E10C 00800

CHICAGO TITLE INSURANCE COMPANY
10135 S.E. SUNNYSIDE ROAD Suite 200
CLACKAMAS, OREGON 97015

Exhibit "B"
5

Schedule A
Police Funding Fees
AN 07-0002

LAND USE	SERVICE RATING	FEE
Industrial / Employment	Low	$0.10 / sq. ft.
Commercial / Office	Low	$0.10 / sq. ft.
Urgent Care Clinics, Senior Living Facilities, Apartment Buildings, Hotels	High	$0.20 / sq. ft.
Residential	High	$3,500 / unit

(6)

APENDIX

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
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June 21, 2010 Project #: 10608.0

Pete Walter
City of Oregon City
221 Molalla Avenue, Suite 200
Oregon City, OR 97045

RE: Beavercreek Road/Meyers Road Rezone Transportation Planning Rule Analysis – Oregon City, Oregon

Dear Pete,

This letter summarizes the findings of a professional transportation engineering analysis of a proposed property rezone located at 19896 Beavercreek Road in Oregon City, Oregon[1]. Based on the analysis presented herein, the proposed rezone of the 9.73-acre study site from *Future Urban* zoning to City *Mixed-Use Corridor* (MUC-1) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements. The remainder of this memorandum provides further documentation of the study methodology, findings, and recommendations.

INTRODUCTION

This letter was prepared to address requirements identified within Oregon Administrative Rule (OAR) 660-12-0060 (Transportation Planning Rule, TPR), which contains the applicable criteria for a zone change analysis. The intent of the TPR is to ensure the transportation system can accommodate the change of uses to the adopted system plan and that any resultant significant effects can be mitigated.

The land included in the rezone is located east of Beavercreek Road directly across from the Oregon City High School, between S Loder Road and S Glen Oak Road. The property is included within the *Beavercreek Road Concept Plan* area as a future mixed-use center. The overall *Beavercreek Road Concept Plan* is currently subject to remand by the Department of Land Conservation and Development (DLCD) and is not considered an approved plan. The location of the property is generally shown in Figure 1 while Figure 2 illustrates the property location in the context of the Beavercreek Road Concept Plan. No specific development plan or site entitlements are proposed in conjunction with this zone change.

Note that while the overall *Beavercreek Road Concept Plan* is subject to the remand due to non-transportation related issues, the horizon period transportation system development assumptions

[1] Property also identified as T3S-R2E-10C, tax lot 800

and modeling efforts completed as part of the initial Concept Plan remain valid. As discussed herein, the Concept Plan transportation assumptions were developed and approved through a collaboration effort by the City, County, ODOT, and METRO, and as such are consistent with stakeholder direction. Therefore, volume growth assumptions and travel patterns have been retained from the original study.

PROJECT LITERATURE REVIEW

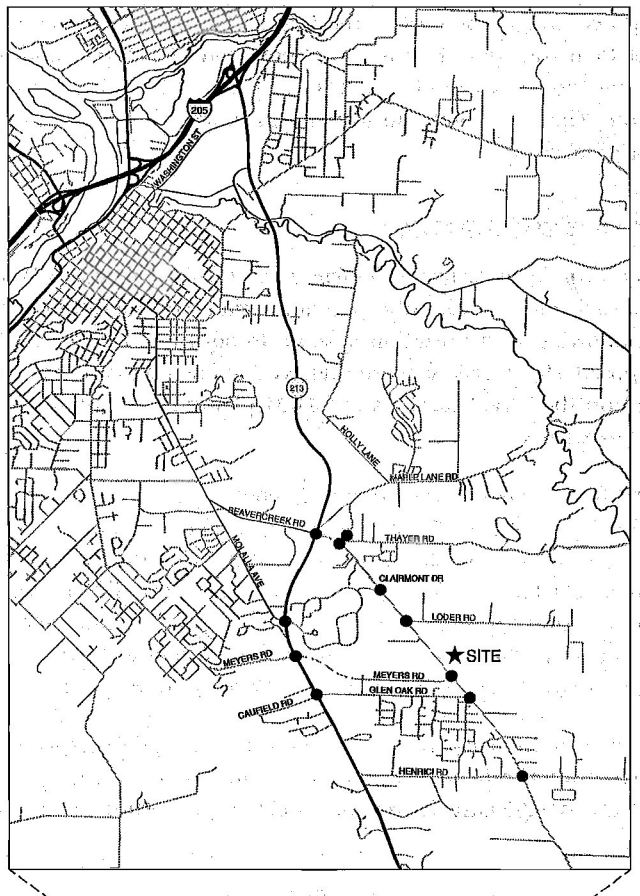
The *City of Oregon City Transportation System Plan* (TSP, Reference 1) and its subsequent amendments were reviewed to identify potential plan considerations affecting the subject property and its supporting transportation system. In addition, due to the history of this area, unadopted but proposed TSP revisions were reviewed to ensure that the proposed rezone project will continue to support the City, County, and ODOT planning efforts should the pending DLCD remand conditions be satisfied.

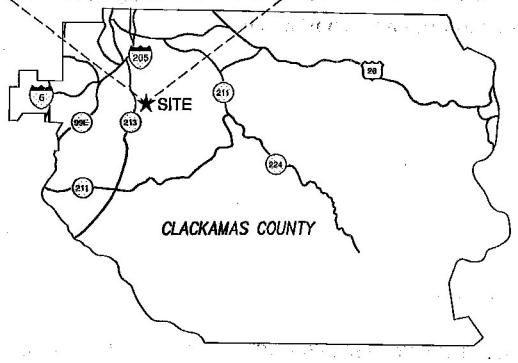
The proposed rezone for this parcel was previously contemplated and locally approved as part of the overall *Beavercreek Road Concept Plan* (Reference 2), which was completed in 2008. This master plan effort encompassed a 453-acre site within the Oregon City urban growth boundary that had retained its previous Clackamas County *Exclusive Farm Use* (EFU) zoning. Plans for the neighborhood include a diverse mix of retail, residential, and employment uses that would be connected with open space, trails, and green streets. The intent of the plan is to link Clackamas Community College, Oregon City High School, and the adjacent neighborhoods.

Subsequent to adoption by the City, the overall *Beavercreek Road Concept Plan* was remanded by DLCD for non-transportation related reasons, preventing plan adoption into the City's TSP and also preventing plans to legislatively rezone affected properties from their current County designations.

The subject parcel (refer to Figure 2), was identified for MUC zoning within the Concept Plan and was included under the Mixed Employment Village designation. As part of the Concept Plan, it was assumed that the overall Mixed Employment Village would contain a Floor Area Ratio (FAR) of 0.44 based on the net acres, which was identified as a reduction from gross acres of 20 percent to account for easements and roadways[2].

[2] It was noted that of the 26 acres identified as part of the overall Mixed Employment Village, the subject 9.73-acre parcel contains both the Meyers Road extension (identified as a *Collector* Roadway) and the natural gas easement, encompassing a higher proportion of the unbuildable area within the *Mixed Employment Village* than that averaged over the full 26 acres.





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LEGEND

● - STUDY INTERSECTIONS

SITE VICINITY MAP
OREGON CITY, OREGON

FIGURE 1

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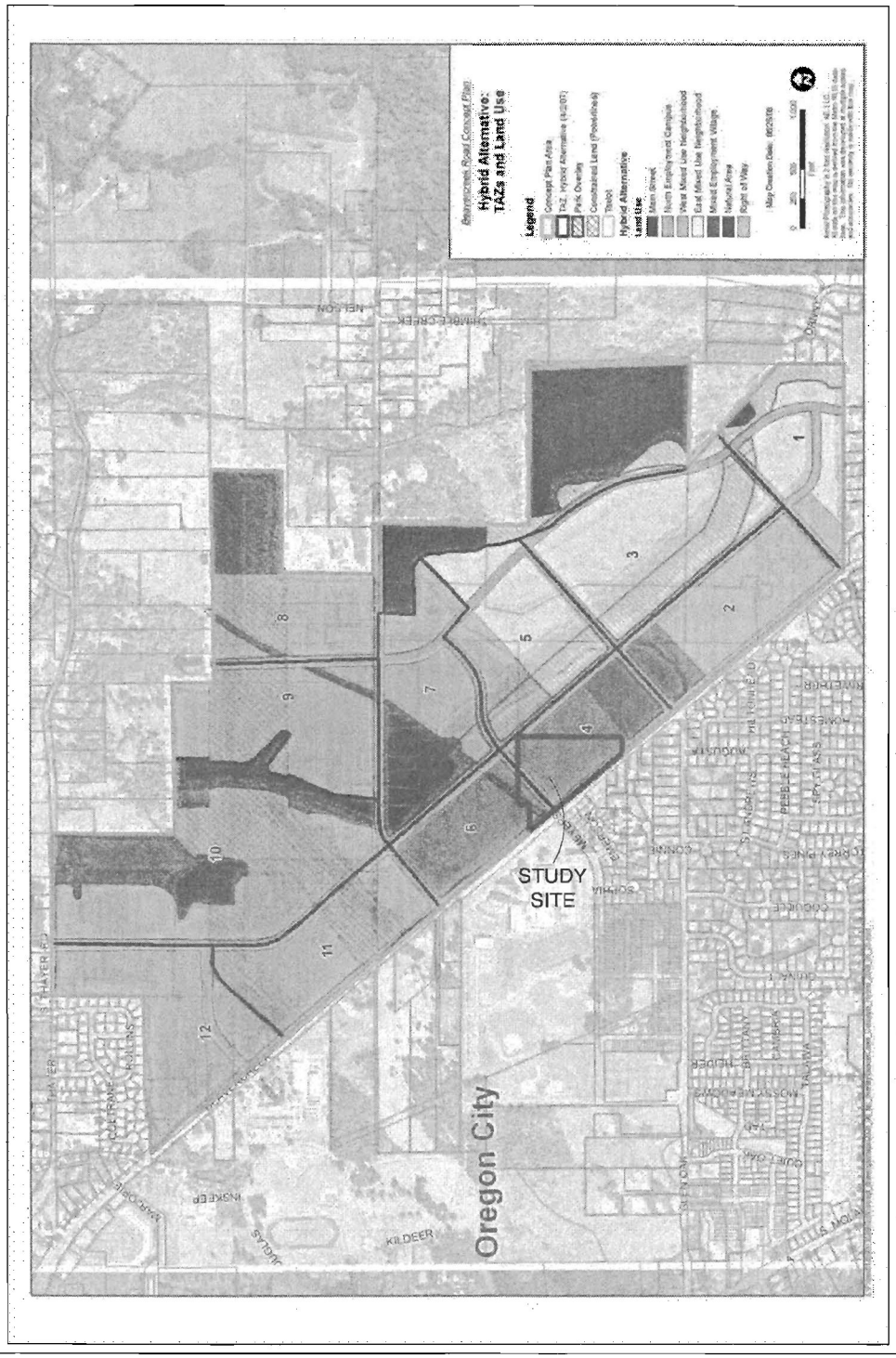
3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor



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BEAVERCREEK CONCEPT PLAN AND PARCEL LOCATION
OREGON CITY, OREGON

FIGURE **2**

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3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Several other land use and transportation studies of the Oregon City area have been prepared that also serve as resources to this proposed plan amendment. Among them are the *Park Place Concept Plan* (Reference 3), the *Highway 213 Urban Corridor Design Study* (Reference 4), and the *OR 213: I-205 - Redland Rd O'Xing* (Reference 5) design study. Of these studies, the *Park Place Concept Plan* is not adopted and the 2020 horizon year of the adopted *Oregon City Transportation System Plan,* while applicable to City facilities, does not meet the required 15-year minimum planning horizon for ODOT facilities. The *OR 213: I-205 - Redland Rd O'Xing* contains the most recent, up-to-date, and endorsed set of traffic volume forecasts that were approved by ODOT, Metro, Clackamas County, and Oregon City for the OR 213 segment between I-205 and Redland Road; however, its study boundaries do not extend south of Redland Road.

Project scoping discussions with City and ODOT staff led to the agreement that the horizon analysis presented in this technical memorandum consider conditions in year 2027, consistent with the *Beavercreek Road Concept Plan*. The 2027 future conditions provide the longest planning period of all of the applicable planning efforts in the study area, and will continue to be consistent with previous planning efforts should the *Beavercreek Road Concept Plan* remand be addressed.

EXISTING TRANSPORTATION INFRASTRUCTURE

The existing transportation infrastructure assessment is provided herein to assist the City with the planning and prioritization of maintenance and infrastructure improvements within the study area. The existing conditions analysis is intended to identify current multi-modal connectivity and provisions affecting the study area roadways and infrastructure.

Roadway Facilities

As illustrated in Figure 2, Beavercreek Road borders the site to the west, and the future eastern extension of Meyers Road will bisect the site. Because a site plan application is not available as part of the zone change application, site access locations and connectivity needs are not known.

Oregon City High School is located to the west on the opposite side of Beavercreek Road, and developed residential neighborhoods are located south of the school. Rural land uses currently exist east of the study site, along with wetland and sensitive lands associated with the Thimble Creek Tributary. Table 1 summarizes the primary roadways within the study area.

Table 1
Existing Transportation Facilities and Roadway Designations

Roadway	Functional Classification	Number of Lanes	Posted Speed (miles per hour)	Sidewalks	Bicycle Lanes	On-Street Parking
Oregon 213	District Highway/ Expressway	3-5 Lanes	45	Partial[1]	Yes	No
Beavercreek Road	Major Arterial	2-5 Lanes	35-45 [2]	Partial[1]	Partial	No
Molalla Avenue	Major Arterial	3-Lanes	35	Yes	Yes	No
Meyers Road	Collector	3-Lanes	30	Yes	Yes	Yes
Henrici Road	Not classified	2-Lanes	40	No	No	No
Glen Oak Road	Collector	2-Lanes	35	Partial[1]	No	No
Loder Road	Not classified	2-Lanes	25	No	No	No

[1] Roadway infrastructure generally exists where frontage improvements have been provided.
[2] Beavercreek Road is posted with a 35 mph speed limit between OR 213 and Clairmont Drive and transitions to 45 mph south of Clairmont Drive. A 20 mph school zone is posted along the roadway near the Oregon City High School.

Pedestrian and Bicycle Facilities

Sidewalks and bicycle lanes are currently provided within the northern portion of the study area where frontage improvements have been completed. There are missing sidewalk and bicycle lane segments along many of the surrounding roadways. Plans for the study area roadways anticipate completion of sidewalk segments as part of private development and roadway enhancement projects, as well as provision of bicycle lanes in conjunction with roadway upgrades to serve the anticipated urban development.

Pedestrian and bicycle facilities are generally not available in the southern portion of the study area. Loder Road and Henrici Road are within the City's Urban Growth Boundary, but at the time of the City's adopted TSP were still under Clackamas County jurisdiction. Accordingly, these facilities are more rural in character and generally allow higher travel speeds.

Within the immediate site vicinity, sidewalks and bicycle lanes are provided on Meyers Road west of Beavercreek Road and along the Oregon City High School site frontage. No sidewalks are provided along the study site frontage or the properties to the north and south of it, though a northbound bicycle lane is provided along Beavercreek Road.

Transit Facilities

No fixed route transit service is currently provided along Beavercreek Road to the site. The nearest transit service is located at Clackamas Community College (CCC) to the north and west of the site. TriMet provides three transit routes to the college (Reference 6). These routes are Route 32: *Oatfield;* Route 33: *McLoughlin;* and, Route 99: *McLoughlin Express,* all of which begin or end their routes at the campus. Each transit line provides service between CCC and downtown Portland, and includes scheduled stops at the Oregon City Transit Center and Milwaukie Transit Center.

APPLICABLE ROADWAY PERFORMANCE STANDARDS

Intersection performance thresholds vary throughout the study area based on the roadway jurisdiction. Oregon City performance requirements are included within the City's TSP, and identify that a Level of Service (LOS) "D" or higher should be maintained at all signalized intersections along with a volume-to-capacity (V/C) ratio less than 1.0, and Level of Service "E" or better be maintained at unsignalized intersections[3]. ODOT mobility standards included within the *Oregon Highway Plan* (Reference 7) require a volume-to-capacity ratio of less than 0.99 along OR 213 during the 30th highest design hour.

Table 2 presents a summary of the study area intersections, roadway jurisdiction, and relevant performance standards.

Table 2 Summary of Intersection Performance Standards

Intersection	Roadway Jurisdiction	Traffic Control	Performance Standard
OR 213/ Beavercreek Road	ODOT	Signalized	V/C < 0.99
OR 213/ Molalla Avenue	ODOT	Signalized	V/C < 0.99
OR 213/ Meyers Road	ODOT	Signalized	V/C < 0.99
OR 213/ Glen Oak Road	ODOT	Signalized	V/C < 0.99
Thayer Road/ Maple Lane Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Maplelane Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Clairmont Drive	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Loder Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Meyers Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0
Beavercreek Road/ Glen Oak Road	City of Oregon City	Two-Way Stop-Control	LOS E
Beavercreek Road/ Henrici Road	City of Oregon City	Signalized	LOS D/ V/C < 1.0

V/C: Volume-to-Capacity Ratio
LOS: level of service

[3] Oregon City standards allow Level of Service "E" or better for the poorest operating approach at unsignalized intersections if no movement serving more than 20 peak hour vehicles is operating at Level of Service "F."

TRANSPORTATION PLANNING RULE COMPLIANCE

The applicable criteria for zone change analyses are found within Oregon Administrative Rule (OAR) 660-12-0060, also known as the Transportation Planning Rule (TPR, Reference 8). The TPR requires that any changes to the adopted and recognized Transportation System Plan show consistency and compliance with the stated goals of the plan, the development and regular updates of which are a mandated requirement for cities. The overall purpose of Division 12 (Transportation Planning) is to coordinate transportation planning and land use planning to serve statewide, regional, and local needs; provide transportation mode choices; provide safe and convenient multi-modal travel; facilitate freight movement; protect facilities for their planned function; accommodate construction of planned facilities; ensure coordination between service providers; and ensure changes to comprehensive plans are supported by adequately planned transportation facilities.

As previously discussed within the Literature Review section of this memorandum, a review of various planning documents was conducted to ensure consistency with adopted plans and planning efforts pending adoption. Based on this review and discussions with jurisdiction staff, this transportation assessment was prepared to review year 2027 transportation system conditions throughout the study area, consistent with the *Beavercreek Road Concept Plan* (Reference 2).

Reasonably Likely Transportation Improvements

TPR analyses allow the inclusion of planned improvements in the horizon analysis period for which a funding mechanism has been identified. The funding mechanism could be an established local Capital Improvement Project, local projects contained within a City's Systems Development Charge (SDC) list, or funded ODOT Statewide Transportation Improvement Program (STIP) projects.

ODOT Statewide Transportation Improvement Program

Review of the approved ODOT STIP (2008 through 2011, as amended May 21, 2010) identified a project along OR 213 between the I-205 ramps and milepost 0.29 to construct a jughandle intersection at Washington Street (STIP #16985, Estimated Cost: $22,000,000).

Oregon City Transportation System Plan

Several projects along the OR 213 corridor were identified as part of the 2001 TSP within Table 5-5. These were identified as near-term (1-5 years), long-term (6-20 years), and include prioritization, as shown below in Table 3.

Table 3 Oregon City Planned Improvements

Project #	Project Description	Cost and Priority
NEAR-TERM IMPROVEMENTS (1-5 YEARS)		
Intersection Capacity and Operational Improvements		
R-4	OR 213/Beavercreek Road: widening and restriping to provide dual left-turn lanes and two through lanes on all intersection approaches, provision of an exclusive westbound right-turn lane, signal modification, redesign pedestrian and bicycle crossings. *Portions of this project have been constructed including the exclusive westbound right-turn lane, some modifications to the traffic signal hardware, dual left-turns on all but the northbound approach, and pedestrian and bicycle improvements on all but the north leg.*	$5,450,000, Priority #1
Upgrade Street Segments to City Street Standards		
R-12	Beavercreek Road: Clackamas Community College to Glen Oak Road – provide curb, gutter, and sidewalk along both sides of the roadway.	$1,000,000, Priority #3
R-17	Glen Oak Road: Hwy 213 to Beavercreek Road – provide curb, gutter, and sidewalk along both sides	$1,200,000, Priority #3
LONG TERM IMPROVEMENTS (6-20 YEARS)		
Roadway Capacity and Operational Improvements		
R-38	Molalla Avenue to Henrici Road (Project R-38): Provide dual northbound and southbound left-turn lanes at the OR 213/Molalla Avenue intersection; signal modification at OR 213/Molalla Avenue, widen to provide an additional travel lane in each direction from Molalla Avenue to Canyon Ridge Drive; widen to provide standard 3-lane cross-section from Canyon Ridge Drive to Henrici Road.	$2,610,000, Priority #3
R-38	OR 213/Molalla Avenue: Provision of dual northbound and southbound left-turn lanes, signal modification.	$835,000, Priority #3
R-55/ R-38	OR 213/Glen Oak-Caufield Road: Realign intersection offset, signalization, provision of exclusive EB and WB LT lanes.	$550,000, Priority #3
R-56/ R-38	OR 213/Henrici Road: Signalization, provision of exclusive WB LT and RT lanes.	$300,000, Priority #3
R-69	Beavercreek Road/Glen Oak Road: Signalization, provision of an exclusive NB RT lane.	$349,000, Priority #3
R-105	OR 213/Beavercreek Road (R-105): Single point diamond grade-separated interchange improvement as described within the OR 213 corridor study.	$20,000,000, Priority "B".
New Roadways based on Growth, Development, Enhanced Connectivity, and Operations		
R-98	Meyers Road from OR 213 to Beavercreek Road (R-98): East-West extension of Meyers Road – Collector	$N/A, Priority "B"

While a range of local improvement needs have been previously identified throughout the study area as part of the City's 2001 TSP (and subsequent plans), funding of the majority of these improvements is not considered "Reasonably Likely" as these projects are located along ODOT facilities and not included on the current STIP list. Based on discussions with City and ODOT Region 1 staff, no other improvements to OR 213 were assumed to be reasonably funded for the purposes of this rezone analysis.

Among the City-maintained study intersections along Beavercreek Road, the long-term analysis assumes signalization of the Glen Oak Road/Beavercreek Road intersection. Figure 3 illustrates the assumed lane configurations and traffic control devices at the study intersections.

3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

Existing Zoning Conditions (Future 2027 Horizon Period)

An analysis was conducted for the year 2027 horizon year. The existing zoning assessment was prepared to identify how the study area's transportation system operates in the horizon year with build-out of the subject parcel as currently zoned (without the impact of the proposed rezone). This analysis provides a basis for comparison to transportation conditions with the proposed zone change.

Future forecast traffic volumes for the *OR 213: I-205 - Redland Rd O'Xing (Oregon City)* were based on modeling data provided by METRO. This modeling was completed in 2008 while both concept planning efforts were underway in Oregon City and regional center developments were being considered in the Clackamette Cove area and on the retired Rossman Landfill site. To ensure an accounting of the Beavercreek Road concept planning, the METRO model projections for growth showed significant mixed-use development (well beyond densities allowed within the EFU zoning) within the Transportation Analysis Zones (TAZ) that include the subject property. Accordingly, a portion of the Beavercreek Road Concept Plan, primarily build-out within the TAZs that include the subject property, was assumed and accounted for within the volume projections used in all recent OR 213 analysis for the highway segment between I-205 and Redland Road.

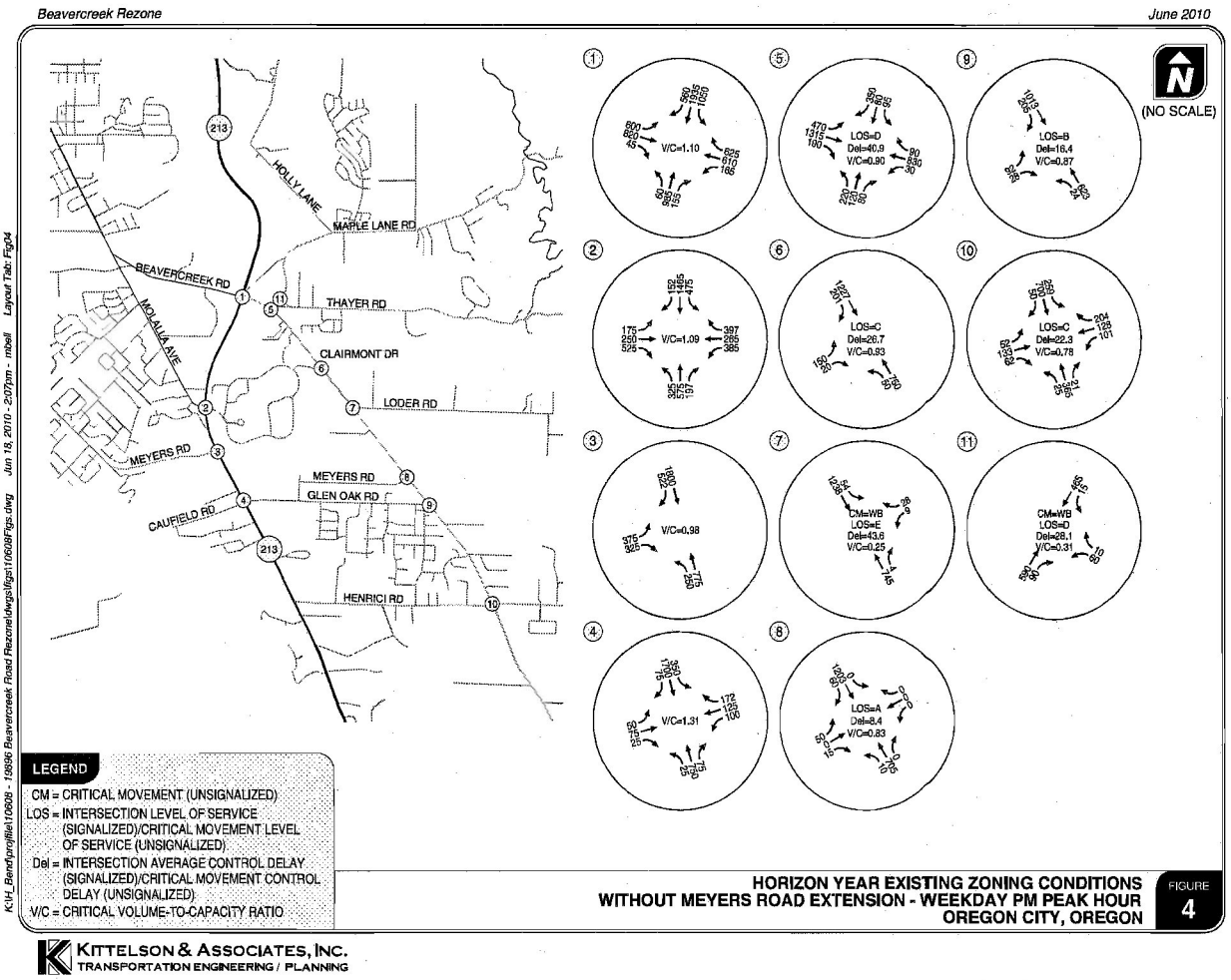
For intersections south of Redland Road, year 2027 volume projections through the *Beavercreek Road Concept Plan* "No-Build" conditions were utilized to provide an accurate assessment of future year 2027 traffic volumes. These forecast volumes were jointly developed with City, ODOT, and METRO staff as part of the previous planning efforts.

The subject property has been annexed into the City of Oregon City and includes a Comprehensive Plan designation of "Future Urban", but with the remand of the *Beavercreek Road Concept Plan,* it was assumed that the current zoning is essentially "capped" based on County provisions. Section 400 of the County's Development Code was obtained to identify the allowable uses within the existing EFU zoning, which indicates that the intent of EFU zoning is to allow low-intensity rural and agricultural uses. Minimum allowable lot sizes within the EFU zoning could allow for only a single residence on the subject parcel. Accordingly, the base scenario for the existing zoning assumes one single family dwelling unit within the overall 9.73-acre parcel.

Intersection Level-of-Service Analysis

Consistent with the *Beavercreek Road Concept Plan,* Figure 4 illustrates the weekday p.m. peak hour traffic volumes inclusive of regional growth and potential site build-out with the existing EFU zoning. These volumes were used to conduct an operational analysis at each of the study intersections to determine the horizon year levels of service.

As shown in Figure 4, intersections along OR 213 between Beavercreek Road and Meyers Road are forecast to exceed ODOT mobility standards in 2027 while all other intersections are shown to operate acceptably. By way of comparison, the *Beavercreek Road Concept Plan* identified these


Beavercreek Rezone
June 2010
(NO SCALE)
HOLLY LANE
MAPLE LANE RD
BEAVERCREEK RD
MOLALLA AVE
THAYER RD
CLAIRMONT DR
LODER RD
MEYERS RD
CAUFIELD RD
GLEN OAK RD
HENRICI RD
213
V/C=1.10
LOS=D
Del=40.9
V/C=0.90
LOS=B
Del=16.4
V/C=0.87
V/C=1.09
LOS=C
Del=26.7
V/C=0.93
LOS=C
Del=22.3
V/C=0.78
V/C=0.98
CM=WB
LOS=E
Del=43.6
V/C=0.25
CM=WB
LOS=D
Del=28.1
V/C=0.31
V/C=1.31
LOS=A
Del=8.4
V/C=0.83
LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
HORIZON YEAR EXISTING ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE 4
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K:\H_Bend\proj\tel\10608 - 19896 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 2:07pm - mbell Layout Tab: Fig04

same system needs. Attachment "A" contains the horizon period existing zoning intersection operations analysis worksheets.

Proposed Zoning Conditions (Future Horizon Period)

The Mixed Use Corridor with Moderate Density Option (MUC-1) zoning category provides for a medium density mix of commercial, office, and residential uses. The purpose of the MUC zoning is to encourage development along selected sections of transportation corridors within Oregon City such as Beavercreek Road. The MUC-1 designation allows buildings up to three-stories in height and requires a minimum landscape area of 20 percent.

Allowable land uses within the MUC zoning include the following:

- Offices, including finance, insurance, real estate and government;
- Residential units, multi-family;
- Restaurants, eating and drinking establishments without a drive through; and
- Retail trade, including grocery, pharmacy, specialty stores, etc. provided the same business does not exceed 60,000 square-feet.

As shown in Figure 2, the subject property is located entirely within the area designated as Mixed Employment Village by the Beavercreek Road Concept Plan. A Floor Area Ratio (FAR) of 0.44 was identified under the Mixed Employment Village land use category within this plan. The 0.44 FAR was applied to the overall Mixed Employment Village Area lands and does not take into account the geometric constraints, 50-foot utility easements, or the planned Meyers Road extension that will uniquely impact the study site parcel, effectively reducing the amount of buildable space by approximately 22 percent. Applying a 22 percent reduction to the overall parcel area, site development could reasonably accommodate approximately 145,500 square-feet of total building space.

While a wide variety of land uses are available within the MUC-1 zoning, the potential building area was proportioned between office, commercial and residential uses consistent with the ratios shown in the *Beavercreek Road Concept Plan*, resulting in a development scenario that includes approximately 30 condominium units, 20,000 square-feet of retail uses, and 80,000 square-feet of office uses. *City MUC zoning provisions are included in Attachment "B."*

Trip Generation

Trip generation estimates were prepared for both the EFU and MUC zoning scenarios to determine the incremental trip generation potential during the critical weekday evening commute period (one hour between 4:00 and 6:00 p.m.). Trip generation estimates were prepared based on data contained within the Institute of Transportation Engineer's (ITE's) standard reference *Trip Generation, 8th Edition* (Reference 9).

The *Beavercreek Road Concept Plan* used data from ITE's *Trip Generation Handbook, 2nd Edition* (Reference 10), to determine the internal trip potential between the various land uses, which was

identified as three percent of the overall trips. This same methodology was applied to the TPR scenario, resulting in a six percent trip reduction. It should be noted that multi-modal and rerouted trips assumed in the Concept Plan were not included as part of this rezone project as it is unlikely these reductions would be experienced with the development of only a single parcel. Table 4 summarizes the trip generation potential of the two scenarios.

Table 4
Development Scenarios Trip Generation Potential

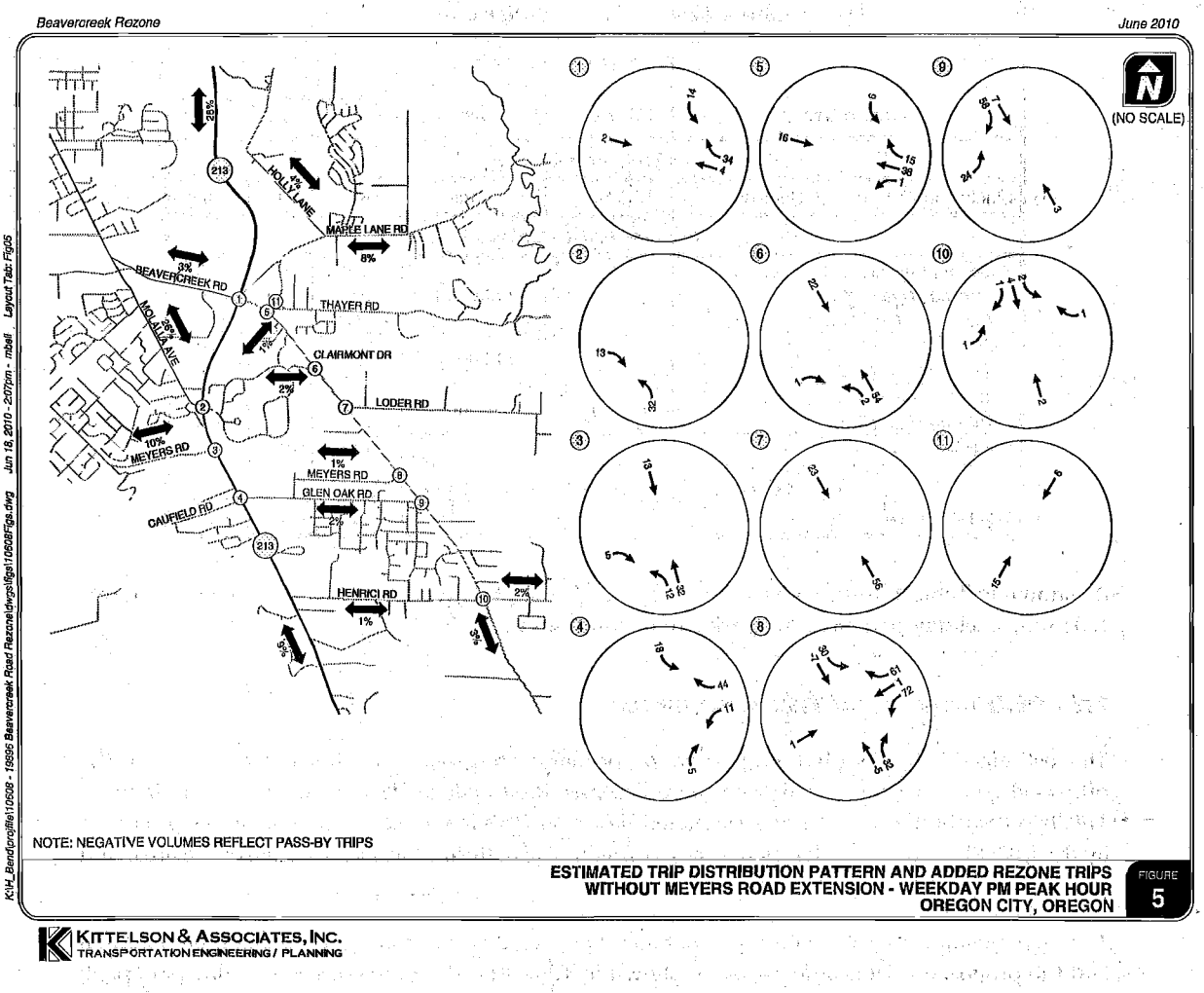
Land Use	ITE Code	Size	Weekday PM Peak Hour		
			Total	In	Out
Existing EFU Zoning					
Single Family Detached Housing	210	1 Unit	1	1	0
Proposed MUC Zoning					
Shopping Center	820	20,000 SF	75	37	38
Internal Tips (6%)			*(4)*	*(2)*	*(2)*
Pass-by Trips (34%)			*(24)*	*(12)*	*(12)*
Office	710	80,000 SF	119	20	99
Internal Tips (6%)			*(7)*	*(1)*	*(6)*
Condos/Townhomes	230	30 Units	16	11	5
Internal Tips (6%)			*(1)*	*(1)*	*(0)*
Net New Trips			174	52	122
Trip Difference (Proposed Zoning – Existing Zoning)					
Trip Difference			173	51	122

As shown in Table 4, future development of the 9.73-acre site with MUC-1 zoning could generate 173 more weekday p.m. peak hour trips than build-out with EFU uses.

Trip Distribution and Trip Assignment

The estimated trip distribution pattern of primary site-generated trips associated with the proposed rezone was obtained from the *Beavercreek Road Concept Plan*, as illustrated in Figure 5. This trip distribution pattern was estimated based on a review of select zone analyses produced by the METRO Sunrise model, as well as existing traffic patterns, local knowledge of the area, and professional judgment.

The incremental increase in site trip generation between the EFU zoning trip generation potential and the proposed MUC zoning trips (as shown in Table 4) during the critical weekday p.m. peak hour was assigned to the roadway network based on the trip distribution patterns and routing, as illustrated in Figure 5. Figure 6 includes a summary of the total additional vehicle trips projected at the study intersections assuming the property is rezoned and developed.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MAPLE LANE RD
THAYER RD
CLAIRMONT DR
LODER RD
MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
213
NOTE: NEGATIVE VOLUMES REFLECT PASS-BY TRIPS
ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE 5
KITTELSON & ASSOCIATES, INC.
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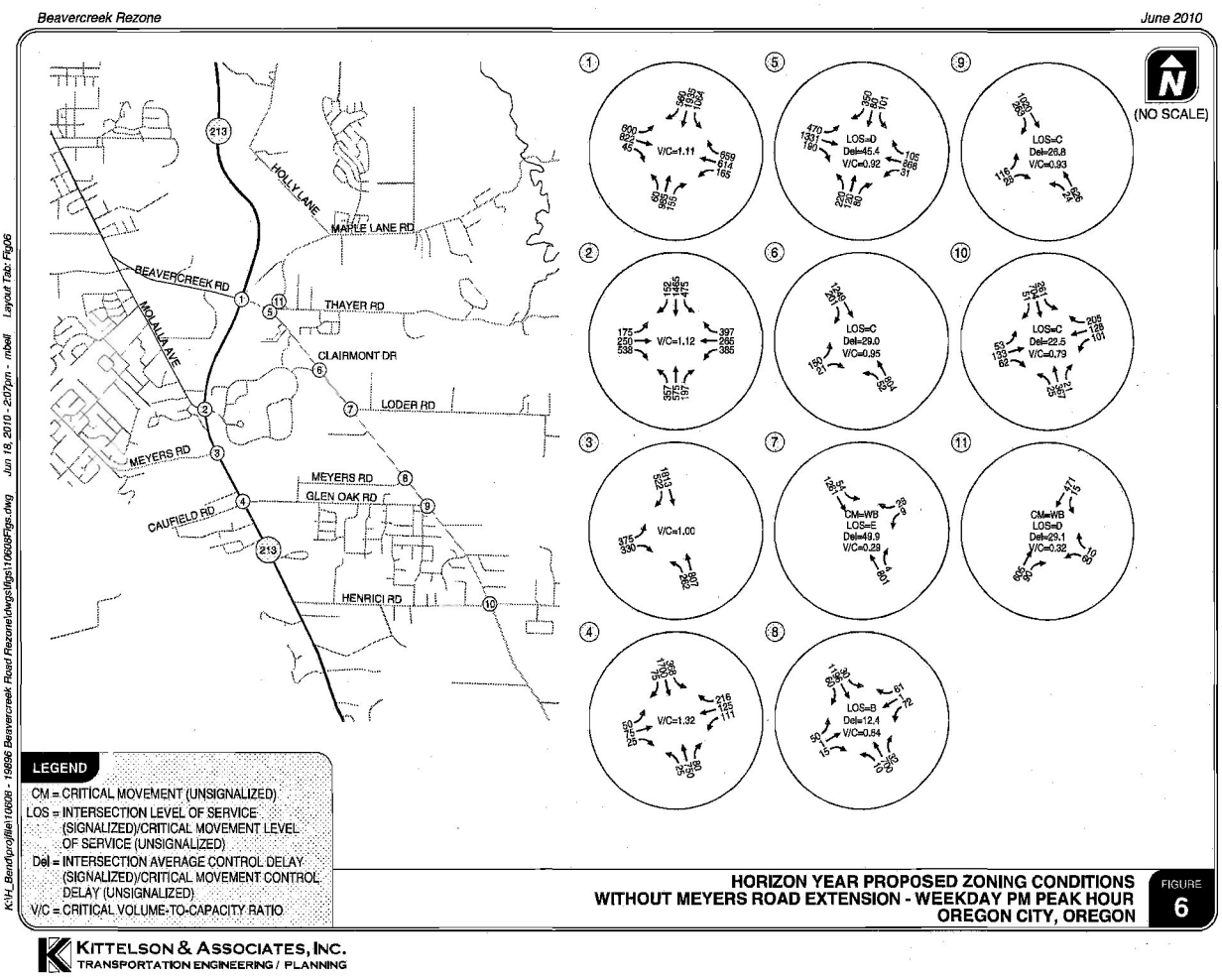
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MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
213
V/C=1.11
LOS=D
Del=45.4
V/C=0.92
LOS=C
Del=26.8
V/C=0.93
V/C=1.12
LOS=C
Del=29.0
V/C=0.95
LOS=C
Del=22.5
V/C=0.79
V/C=1.00
CM=WB
LOS=E
Del=49.9
V/C=0.29
CM=WB
LOS=D
Del=25.1
V/C=0.32
V/C=1.32
LOS=B
Del=12.1
V/C=0.54
LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
K:\H_Bend\proj\file10608 - 19696 Beavercreek Road Rezone\dwgs\figs\10608Figs.dwg Jun 18, 2010 - 2:07pm - nbell Layout Tab: Fig06
HORIZON YEAR PROPOSED ZONING CONDITIONS
WITHOUT MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE 6
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

Intersection Operations Analysis

The weekday p.m. peak hour turning-movement volumes shown in Figure 7 were used to conduct an operational analysis at each study intersection to determine the horizon year levels of service. As shown, all of the study intersections along OR 213 between Beavercreek Road and Glen Oak Road are forecast to continue to exceed ODOT mobility standards in 2027 and all other study intersections are shown to operate acceptably with the additional site trips under the proposed MUC zoning.

Based on direction from ODOT Region 1 staff, the proposed rezone would be determined to significantly impact a study intersection already in failure (defined as having a volume-to-capacity ratio greater than 0.99) if the volume-to-capacity ratio at the intersection increased by more than 0.01. With this threshold in mind, Table 5 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone.

Table 5 Forecast Year 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	2027 Base Conditions	2027 Conditions with Rezone	Incremental Impact
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.12	**+0.03**
OR 213/ Meyers Road	0.99	0.98	1.00	**+0.02**
OR 213/ Glen Oak Road	0.99	1.31	1.32	+0.01

As shown in Table 5, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at both the OR 213/Molalla Avenue intersection and the OR 213/Meyers Road intersection. Thus, the proposed rezone was projected to have a significant affect on two of the four ODOT-maintained study intersections. *Attachment "C" contains the horizon period proposed zoning intersection operations analysis worksheets.*

Assessment of Potential Mitigation Measures

One of the anticipated study area capacity improvements is the extension of Meyers Road between OR 213 and its existing terminus to the east at High School Avenue. Clackamas County Community College is committed to dedicating some of the right-of-way needed for this connection in conjunction with future master plan development. A small number of other property owners control the required right-of-way for the future roadway extension and is expected to extend the future roadway as they further develop land along the roadway.

The future year operations analysis was repeated for the existing and proposed zoning conditions assuming the Meyers Road extension is in place. Figure 7 illustrates the assumed lane

configurations for this scenario, which were developed based on direction from ODOT Region 1 staff. Figure 8 illustrates the corresponding traffic conditions at the study intersections assuming the Meyers Road extension. Figure 9 shows the site-generated trip assignment for the proposed MUC zoning with the Meyers Road extension and Figure 10 illustrates the resultant traffic conditions.

Table 6 summarizes the incremental impact to the Highway 213 study intersections attributable to the proposed rezone with the Meyers Road extension in place.

Table 6 Forecast 2027 OR 213 Intersection Operations

Intersection	Volume-to-Capacity Ratio			
	Performance Standard	**2027 Base Conditions**	**2027 Conditions with Rezone**	**Incremental Impact**
OR 213/ Beavercreek Road	0.99	1.10	1.11	+0.01
OR 213/ Molalla Avenue	0.99	1.09	1.09	–
OR 213/ Meyers Road	0.99	1.13	1.17	**+0.04**
OR 213/ Glen Oak Road	0.99	1.29	1.29	–

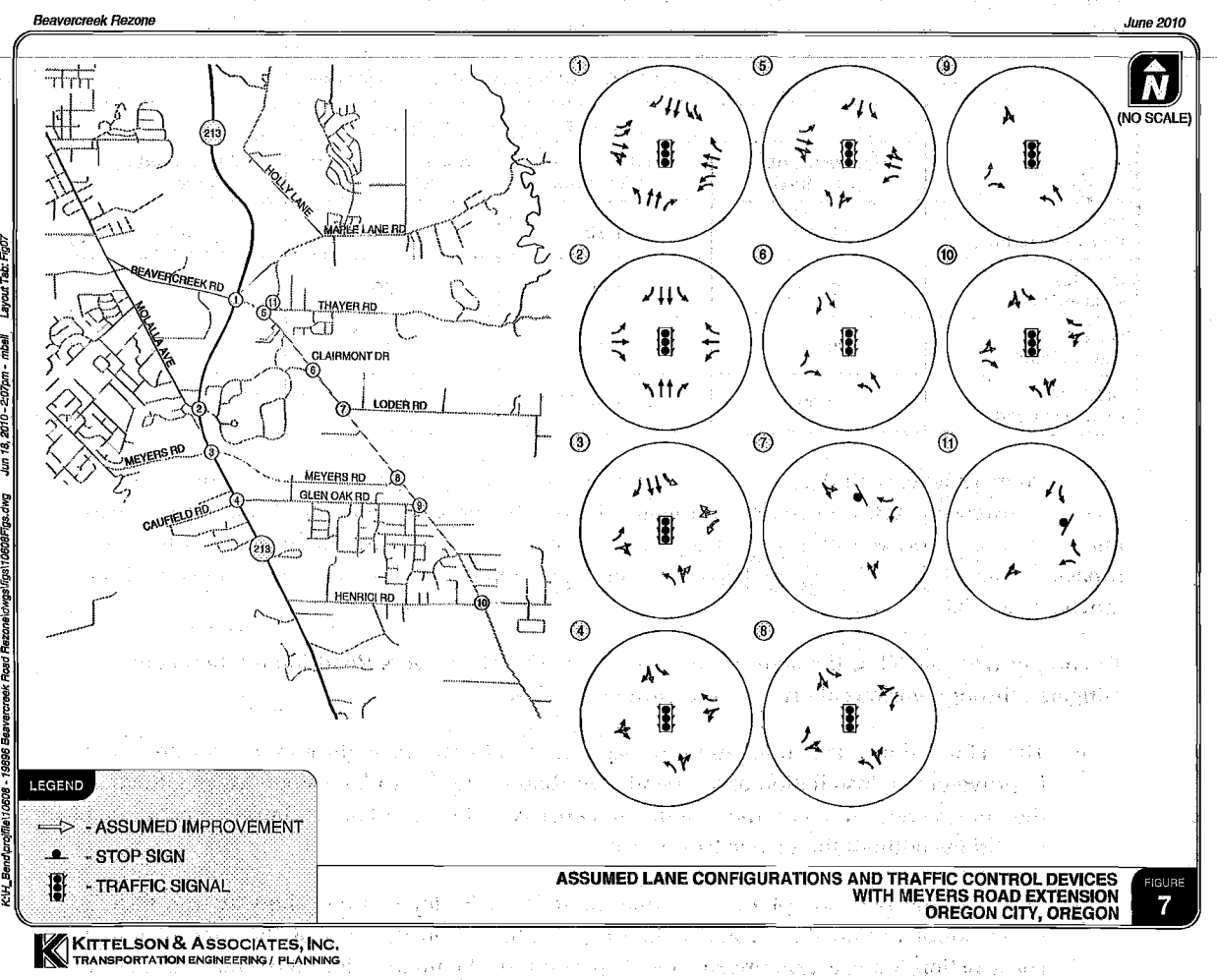
As shown in Table 6, with the Meyers Road extension in place, the proposed rezone resulted in a volume-to-capacity ratio increase of greater than 0.01 at only the OR 213/Meyers Road intersection. Further, the proposed rezone results in no change to the intersection volume-to-capacity ratios at the OR 213/Molalla Avenue and OR 213/Glen Oak Road intersections with the Meyers Road Extension in place.

To comply with the TPR, the significant effect at the OR 213/Meyers Road intersection could be mitigated through various alternatives, as provided below.

- The TPR allows the mitigation of significant effects through minor transportation improvements. Installation of a separate westbound right-turn lane along Meyers Road at the intersection reduces the volume-to-capacity ratio to 1.08; an improvement over conditions without the rezone trips (1.13).

- Based on the poor long-term performance at OR 213/Meyers Road the City and ODOT could adopt a plan that would enhance the intersection capacity at the time of initial construction. Intersection improvements needed for the intersection to operate acceptably in 2027 likely include widening OR 213 to become a five-lane cross-section, as identified in the City's 2003 TSP and within the Beavercreek Road Concept Plan. Construction of this roadway cross-section is partially in place where frontage improvements have been completed.

Attachment "D" contains the intersection operations analysis worksheets assuming the Meyers Road extension is in place during the horizon period.



ASSUMED LANE CONFIGURATIONS AND TRAFFIC CONTROL DEVICES WITH MEYERS ROAD EXTENSION OREGON CITY, OREGON

FIGURE 7

KITTELSON & ASSOCIATES, INC.
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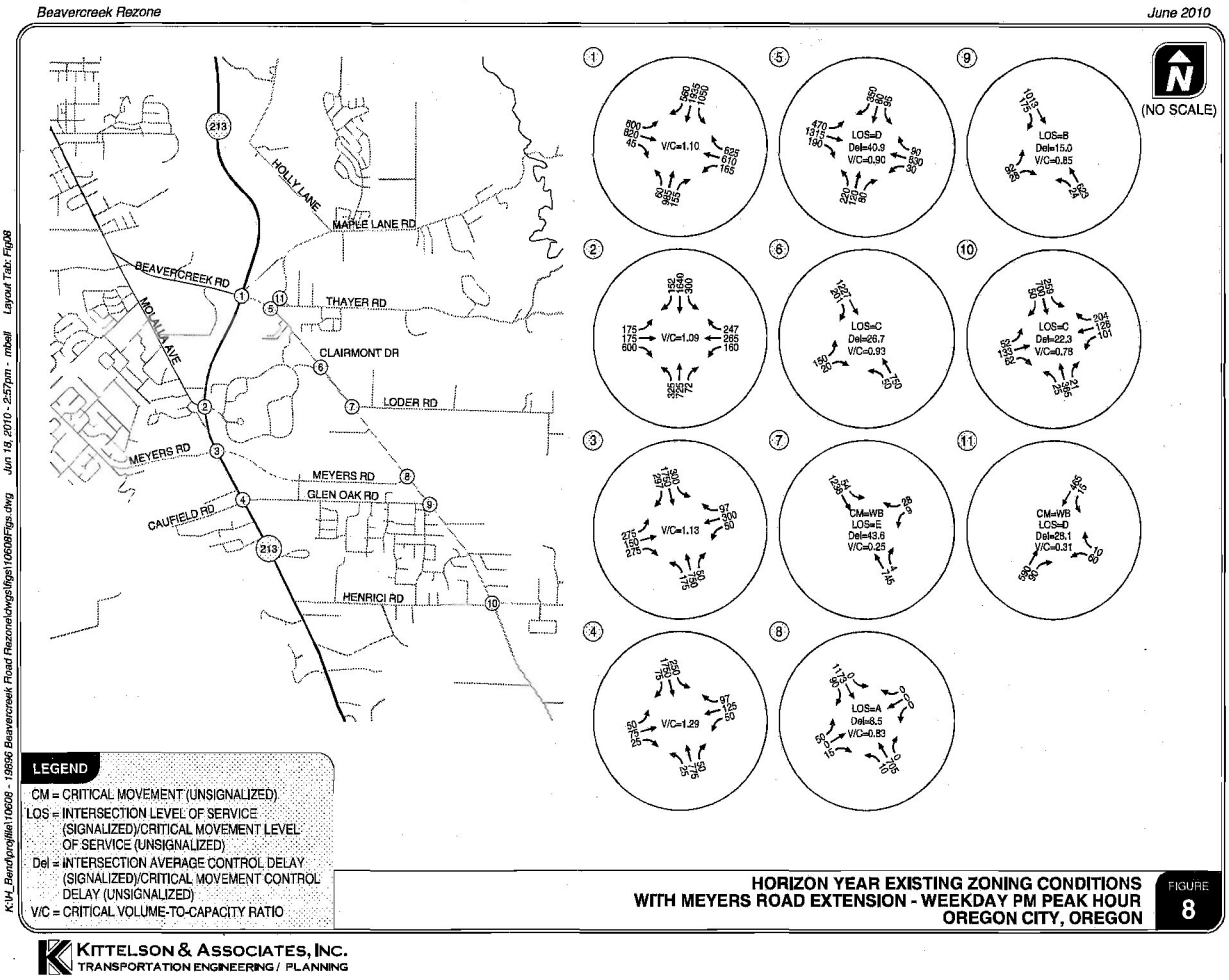
Beavercreek Rezone
June 2010
HOLLY LANE
MAPLE LANE RD
BEAVERCREEK RD
THAYER RD
MOLALLA AVE
CLAIRMONT DR
LODER RD
MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
213
LOS=D
Del=40.9
V/C=0.90
LOS=B
Del=15.0
V/C=0.85
V/C=1.10
LOS=C
Del=26.7
V/C=0.93
LOS=C
Del=22.3
V/C=0.78
V/C=1.09
CM=WB
LOS=E
Del=43.6
V/C=0.25
CM=WB
LOS=D
Del=29.1
V/C=0.31
V/C=1.13
LOS=A
Del=8.5
V/C=0.83
V/C=1.29
(NO SCALE)
LEGEND
CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO
HORIZON YEAR EXISTING ZONING CONDITIONS
WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE 8
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING
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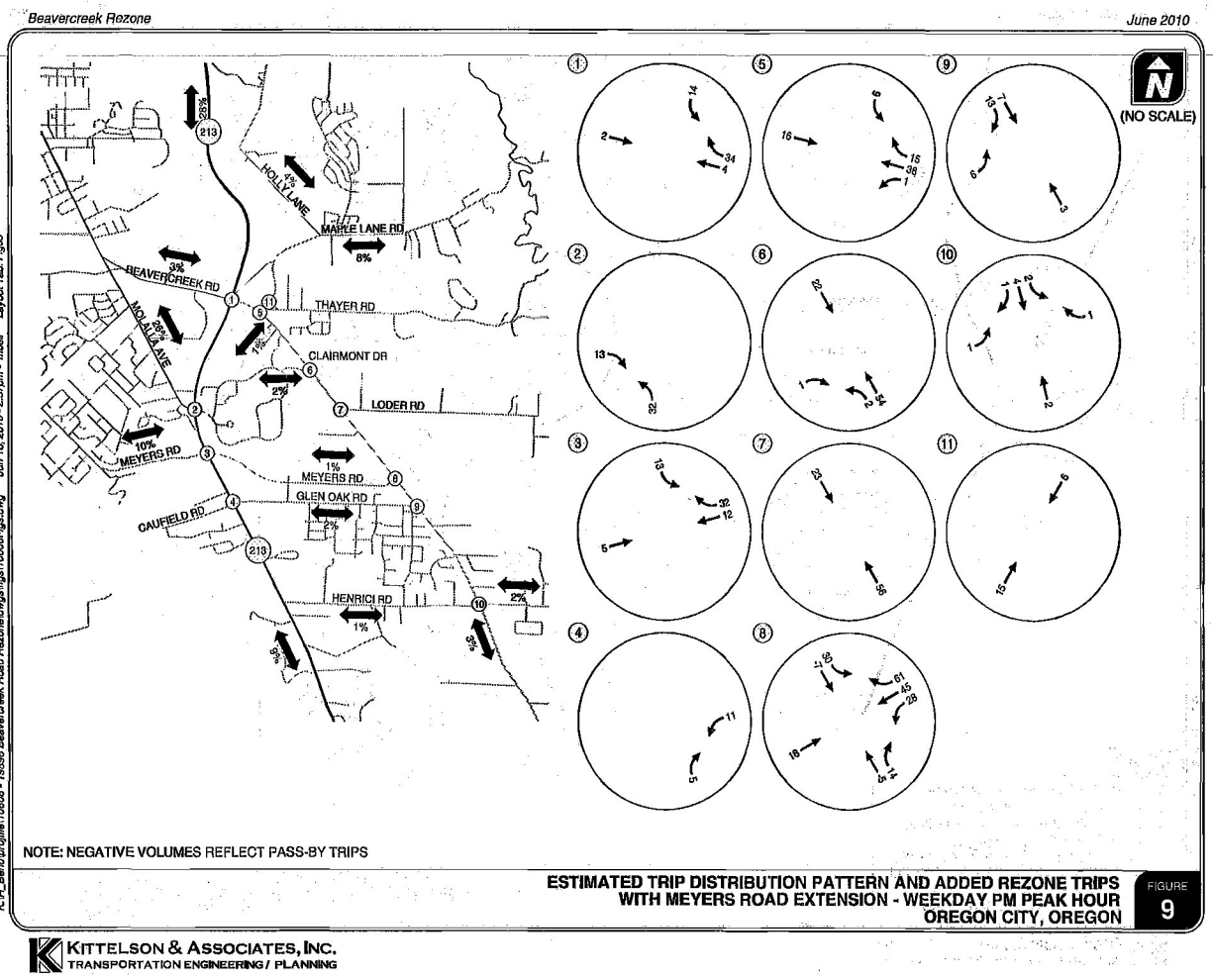
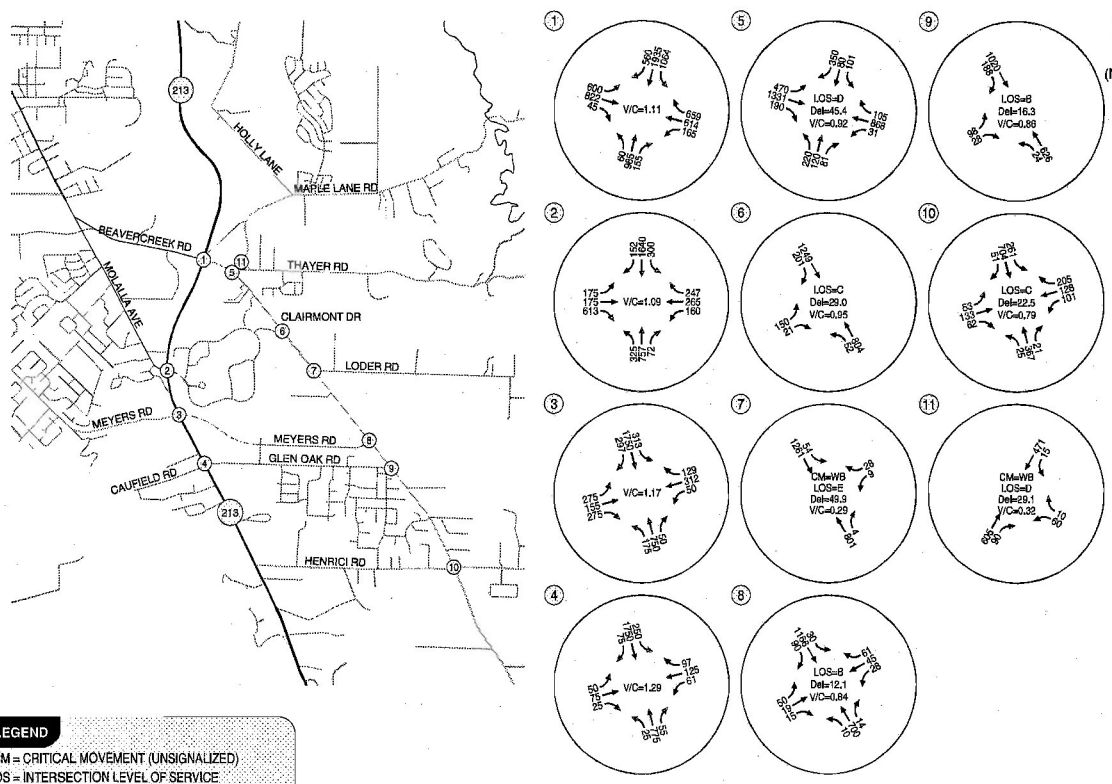

Beavercreek Rezone
June 2010
(NO SCALE)
HOLLY LANE
MAPLE LANE RD
BEAVERCREEK RD
THAYER RD
CLAIRMONT DR
LODER RD
MOLALLA AVE
MEYERS RD
GLEN OAK RD
CAUFIELD RD
HENRICI RD
NOTE: NEGATIVE VOLUMES REFLECT PASS-BY TRIPS
ESTIMATED TRIP DISTRIBUTION PATTERN AND ADDED REZONE TRIPS
WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR
OREGON CITY, OREGON
FIGURE
9
KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING



LEGEND

CM = CRITICAL MOVEMENT (UNSIGNALIZED)
LOS = INTERSECTION LEVEL OF SERVICE (SIGNALIZED)/CRITICAL MOVEMENT LEVEL OF SERVICE (UNSIGNALIZED)
Del = INTERSECTION AVERAGE CONTROL DELAY (SIGNALIZED)/CRITICAL MOVEMENT CONTROL DELAY (UNSIGNALIZED)
V/C = CRITICAL VOLUME-TO-CAPACITY RATIO

HORIZON YEAR PROPOSED ZONING CONDITIONS WITH MEYERS ROAD EXTENSION - WEEKDAY PM PEAK HOUR OREGON CITY, OREGON

FIGURE 10

KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING / PLANNING

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3b. PZ 10-01 and ZC 10-01: The applicant is seeking approval for a Comprehensive Plan Amendment from Future Urban designation to MUC – Mixed Use Corridor

TRANSPORTATION PLANNING RULE COMPLIANCE

OAR Section 660-12-0060 sets forth the relative criteria for evaluating plan and land use regulation amendments. Table 7 summarizes the TPR criteria and their applicability to the proposed rezone application.

Table 7 Summary of Criteria in OAR 660-012-0060

Section	Criteria	Applicable?
1	Describes how to determine if a proposed land use action results in a significant affect on transportation facilities.	Yes *See response below*
2	Describes measures for complying with Criteria #1 where a significant effect is identified.	Yes *See response below*
3	Describes measures for complying with Criteria #1 and #2 without assuring that the allowed land uses are consistent with the function, capacity and performance standards of the facility.	No
4	Determinations under Criteria #1, #2, and #3 are coordinated with other local agencies.	Yes *See response below*
5	Indicates that the presence of a transportation facility shall not be the basis for an exception to allow development on rural lands.	No (Lands are part of a master plan area)
6	Indicates that local agencies should credit developments that provide a reduction in trips.	No (No concurrent site plan)
7	Outlines requirements for a local street plan, access management plan, or future street plan for commercial areas.	No (Commercial lands are not proposed)
8	Defines a mixed-use, pedestrian-friendly neighborhood.	No (No concurrent site plan)

As shown, there are eight criteria that apply to Plan and Land Use Regulation Amendments. Of these, Criteria #1, #2, and #4 are applicable to the proposed land use action. Applicable sections of these criteria are provided below in italics with a corresponding response shown in standard font.

> *OAR 660-12-0060 (1) Where an amendment to a functional plan, an acknowledged comprehensive plan, or a land use regulation would significantly affect an existing or planned transportation facility, the local government shall put in place measures as provided in section (2) of this rule to assure that allowed land uses are consistent with the identified function, capacity, and performance standards (e.g. level of service, volume to capacity ratio, etc.) of the facility. A plan or land use regulation amendment significantly affects a 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 functional 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;

Response: Based on the incremental traffic increase from *EFU* to *MUC-1* zoning, the functional classification of all the adjacent roadways will not be affected with the proposed zone change.

(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

Response: Each of the study intersections along OR 213 performs below the minimum acceptable performance standard in the OHP with the existing zoning.

(C) Worsen the performance of an existing or planned transportation facility that is otherwise projected to perform below the minimum acceptable performance standard identified in the TSP or comprehensive plan.

Response: The performance of two study intersections along OR 213 was forecast to be degraded by a volume-to-capacity ratio increase of more than 0.01 with the incremental trips from the proposed rezone. As a result, the proposed rezone was found to have a significant effect on the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road.

OAR 660-12-0060 (2) Where a local government determines that there would be a significant effect, compliance with section (1) shall be accomplished through one or a combination of the following:

(a) Adopting measures that demonstrate allowed land uses are consistent with the planned function, capacity, and performance standards of the transportation facility.

(b) Amending the TSP or comprehensive plan to provide transportation facilities, improvements or services adequate to support the proposed land uses consistent with the requirements of this division; such amendments shall include a funding plan or mechanism consistent with section (4) or include an amendment to the transportation finance plan so that the facility, improvement, or service will be provided by the end of the planning period.

(c) Altering land use designations, densities, or design requirements to reduce demand for automobile travel and meet travel needs through other modes.

(d) Amending the TSP to modify the planned function, capacity or performance standards of the transportation facility.

(e) Providing other measures as a condition of development or through a development agreement or similar funding method, including transportation system management measures, demand management or minor transportation improvements. Local governments

shall as part of the amendment specify when measures or improvements provided pursuant to this subsection will be provided.

Response: The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.

The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213.

OAR 660-12-0060 (4) Determinations under sections (1)-(3) of this rule shall be coordinated with affected transportation facility and service providers and other affected local governments.

(a) In determining whether an amendment has a significant effect on an existing or planned transportation facility under subsection (1)(c) of this rule, local governments shall rely on existing transportation facilities and services and on the planned transportation facilities, improvements and services set forth in subsections (b) and (c) below.

(b) Outside of interstate interchange areas, the following are considered planned facilities, improvements and services:

(D) Improvements to state highways that are included as planned improvements in a regional or local transportation system plan or comprehensive plan when ODOT provides a written statement that the improvements are reasonably likely to be provided by the end of the planning period.

(e) For purposes of this section, a written statement provided pursuant to paragraphs (b)(D), (b)(E) or (c)(A) provided by ODOT, a local government or transportation facility provider, as appropriate, shall be conclusive in determining whether a transportation facility, improvement or service is a planned transportation facility, improvement or service. In the absence of a written statement, a local government can only rely upon planned transportation facilities, improvements and services identified in paragraphs (b)(A)-(C) to determine whether there is a significant effect that requires application of the remedies in section (2).

Response: The project team has been coordinating assumed transportation improvements and the study scope extensively with ODOT Region 1 and City of Oregon City staff. This coordination has included written documentation as well as joint meetings with the ODOT, City, and project team staff.

FINDINGS

Based on the analysis presented in this report, the proposed rezone of the 9.73-acre study site from *Future Urban* (FU) zoning to *Mixed-Use Corridor* (MUC) zoning can be completed in compliance with the Oregon Transportation Planning Rule and City transportation requirements assuming provision of the recommended mitigations. Key findings and recommendations from the analysis presented in this report are summarized below.

Findings

- The proposed 9.73-acre rezone from the *Future Urban* zoning to the City's *Mixed-Use Corridor (MUC-1)* zoning was estimated to generate an additional 173 net new weekday p.m. peak hour trips.
- All of the City-maintained study area intersections were forecast to operate acceptably with the existing and proposed zoning in the horizon analysis period.
- All of the OR 213 study intersections were forecast to exceed ODOT mobility standards during 2027 future year weekday p.m. peak hour traffic conditions under the existing zoning.
- The additional trips associated with the proposed rezone were forecast to have an incremental impact on the study intersections and that impact was found to constitute a *Significant Effect* at two locations.
    A. City of Oregon City-maintained study intersections were forecast to continue to operate acceptably.
    B. The intersection volume-to-capacity ratio was forecast to increase by more than 0.01 at the intersections of OR 213/Molalla Avenue and OR 213/Meyers Road with the incremental trips from the proposed rezone. This change represents a significant effect per the thresholds established by ODOT Region 1 staff.
    C. Other ODOT-maintained study intersections along OR 213 were forecast to experience a volume-to-capacity ratio increase not greater than 0.01 and thus were not significantly effected.
- The significant effect identified at the intersection of OR 213/Molalla Avenue was found to be mitigated by the planned future extension of Meyers Road between OR 213 and its current terminus at High School Avenue.
- The significant effect identified at the intersection of OR 213/Meyers Road was found to be mitigated by the addition of a separate westbound right-turn lane on Meyers Road at the intersection with OR 213 or with the long-term planned improvement of a five-lane cross section extending south through Meyers Road (*Oregon City TSP*).
- The findings listed above are premised on the assumed site-generated trip generation for the MUC-1 zoning.

- Interconnectivity should be reviewed with the future site plan development application(s) (including within the subject parcel) to provide direct and convenient multimodal access to the site.
- The City of Oregon City could elect to approve the proposed rezone by:
    1. Making an interpretation that the extension of Meyers Road from OR 213 to its existing terminus is reasonably funded and finding that the improvement project identified for the Meyers Road/OR 213 intersection in the City's Transportation System Plan includes separate left-turn, through, and right-turn lanes on the westbound (new) approach to OR 213.
    2. Other options available to the City, as appropriate.

Please contact us if you have any questions regarding this zone change analysis.

We trust this letter adequately addresses the traffic impacts associated with the proposed rezone application. Please contact us if you have any questions or comments regarding the contents of this report or the analysis performed.

Sincerely,
KITTELSON & ASSOCIATES, INC.

CJB for

Joe Bessman, PE, PTOE
Senior Engineer

Chris Brehmer

Chris Brehmer, PE
Principal Engineer

Cc: Dan Drentlaw, City of Oregon City
John Replinger, PE, Replinger & Associates, LLC
Gail Curtis, AICP, Oregon Department of Transportation – Region 1
Martin Jensvold, PE, Oregon Department of Transportation – Region 1
Phil Gentemann, Centurion Homes
Bruce Goldson, PE, PLS

REGISTERED PROFESSIONAL ENGINEER 62636PE OREGON JULY 11, 2000 CHRISTOPHER LYNN BREHMER

Christopher Lynn Brehmer

SIGNED 6-21-10

Expires: 12-31-11

ATTACHMENTS:

A. Horizon Year Existing Zoning Operations Analysis Worksheets

B. City MUC Zoning Code Provisions

C. Horizon Year Proposed Zoning Operations Analysis Worksheets

D. Horizon Year Operations Analysis Worksheets with Meyers Road Extension

REFERENCES:

1. City of Oregon City. *City of Oregon City Transportation System Plan.* 2001.
2. City of Oregon City. *Beavercreek Road Concept Plan.* August 2008.
3. City of Oregon City. *Park Place Concept Plan.* March 12, 2008.
4. Kittelson & Associates, Inc. *Highway 213 Urban Corridor Design Study.* June 2000.
5. Kittelson & Associates, Inc. *OR 213: I-205 - Redland Rd O'Xing.* 2009.
6. TriMet. http://trimet.org/ June 2010.
7. Oregon Department of Transportation. *1999 Oregon Highway Plan.* March 1999.
8. Department of Land Conservation and Development. Oregon Administrative Rule 660-12-0060, http://arcweb.sos.state.or.us/banners/rules.htm.
9. Institute of Transportation Engineers. *Trip Generation: 8th Edition.* 2008.
10. Institute of Transportation Engineers. *Trip Generation Handbook: 2nd Edition.* 2004.

Attachment A
Horizon Year Existing
Zoning Operations
Analysis Worksheets

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	240		0	160		460	405		575	560		560
Storage Lanes	2		0	2		1	1		1	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.95	0.95	0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Ped Bike Factor	0.98	1.00		1.00		0.96	1.00		0.99	1.00		0.98
Frt		0.992				0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	3563	0	3467	3505	1538	1626	3471	1599	3433	3471	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3368	3563	0	3455	3505	1478	1625	3471	1576	3430	3471	1530
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				8			159			563
Link Speed (mph)		35			35			45			55	
Link Distance (ft)		1942			877			3238			1415	
Travel Time (s)		37.8			17.1			49.1			17.5	
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
Shared Lane Traffic (%)												
Lane Group Flow (vph)	632	910	0	174	642	658	63	1037	163	1105	2037	589
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Detector Phase	3	8		7	4	5	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	21.0		14.0	21.0	14.0	14.0	22.0	22.0	14.0	22.0	22.0
Total Split (s)	24.0	34.0	0.0	14.0	24.0	43.0	14.0	44.0	44.0	43.0	73.0	73.0
Total Split (%)	17.8%	25.2%	0.0%	10.4%	17.8%	31.9%	10.4%	32.6%	32.6%	31.9%	54.1%	54.1%
Maximum Green (s)	20.0	29.0		10.0	19.0	39.0	10.0	38.0	38.0	39.0	67.0	67.0
Yellow Time (s)	3.5	4.5		3.5	4.5	3.5	3.5	5.5	5.5	3.5	5.5	5.5
All-Red Time (s)	0.5	0.5		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-2.0	-1.0	-1.0	-2.0	-1.0	-1.0	-3.0	-3.0	-1.0	-3.0	-3.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lag		Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None		None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)		11.0			11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)		0			0			0	0		0	0
v/c Ratio	1.18	1.10		0.63	1.18	0.95	0.53	0.98	0.28	1.09	1.08	0.54
Control Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	148.9	109.7		70.9	146.6	58.1	90.4	54.6	5.9	99.3	78.6	3.9
Queue Length 50th (ft)	~342	~478		77	~353	513	57	265	7	~559	~1089	11
Queue Length 95th (ft)	#463	#613		117	#477	#589	m95	#602	m38	#693	#1224	74
Internal Link Dist (ft)		1862			797			3158			1335	
Turn Bay Length (ft)	240			160		460	405		575	560		560
Base Capacity (vph)	534	827		282	545	690	132	1054	589	1017	1878	1086
Starvation Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.18	1.10		0.62	1.18	0.95	0.48	0.98	0.28	1.09	1.08	0.54

Intersection Summary

Area Type: Other

Cycle Length: 135

Actuated Cycle Length: 135

Offset: 31 (23%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow

Natural Cycle: 150

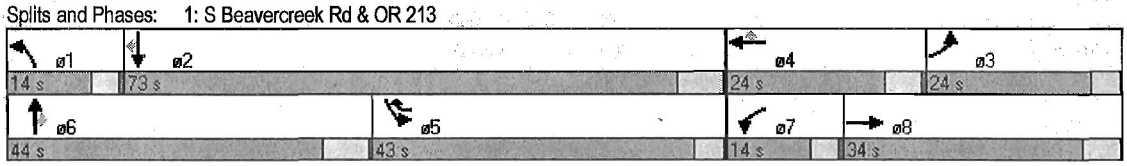
Control Type: Actuated-Coordinated

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 1: S Beavercreek Rd & OR 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	600	820	45	165	610	625	60	985	155	1050	1935	560
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	0.97	0.95		0.97	0.95	1.00	1.00	0.95	1.00	0.97	0.95	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3564		3467	3505	1518	1626	3471	1576	3433	3471	1530
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	632	863	47	174	642	658	63	1037	163	1105	2037	589
RTOR Reduction (vph)	0	3	0	0	0	4	0	0	112	0	0	262
Lane Group Flow (vph)	632	907	0	174	642	654	63	1037	51	1105	2037	327
Confl. Peds. (#/hr)	11		3	3		11	5		1	1		5
Heavy Vehicles (%)	2%	0%	4%	1%	3%	5%	11%	4%	1%	2%	4%	3%
Bus Blockages (#/hr)	0	1	0	0	0	0	0	0	0	0	0	0
Turn Type	Prot			Prot		pm+ov	Prot		Perm	Prot		Perm
Protected Phases	3	8		7	4	5	1	6		5	2	
Permitted Phases						4			6			2
Actuated Green, G (s)	20.0	29.2		9.8	19.0	58.8	7.8	37.2	37.2	39.8	69.2	69.2
Effective Green, g (s)	21.0	31.2		10.8	21.0	60.8	8.8	40.2	40.2	40.8	72.2	72.2
Actuated g/C Ratio	0.16	0.23		0.08	0.16	0.45	0.07	0.30	0.30	0.30	0.53	0.53
Clearance Time (s)	4.0	5.0		4.0	5.0	4.0	4.0	6.0	6.0	4.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	534	824		277	545	717	106	1034	469	1038	1856	818
v/s Ratio Prot	0.18	c0.25		0.05	c0.18	0.28	0.04	c0.30		0.32	c0.59	
v/s Ratio Perm						0.16			0.03			0.21
v/c Ratio	1.18	1.10		0.63	1.18	0.91	0.59	1.00	0.11	1.06	1.10	0.40
Uniform Delay, d1	57.0	51.9		60.2	57.0	34.6	61.4	47.4	34.4	47.1	31.4	18.6
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.29	0.69	0.89	1.00	1.00	1.00
Incremental Delay, d2	100.5	62.6		4.4	98.0	15.8	7.1	25.9	0.4	46.8	52.9	1.5
Delay (s)	157.5	114.5		64.6	155.0	50.4	86.3	58.8	31.0	93.9	84.3	20.0
Level of Service	F	F		E	F	D	F	E	C	F	F	C
Approach Delay (s)		132.1			97.6			56.6			77.0	
Approach LOS		F			F			E			E	

Intersection Summary			
HCM Average Control Delay	88.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.10		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	104.5%	ICU Level of Service	G
Analysis Period (min)	15		

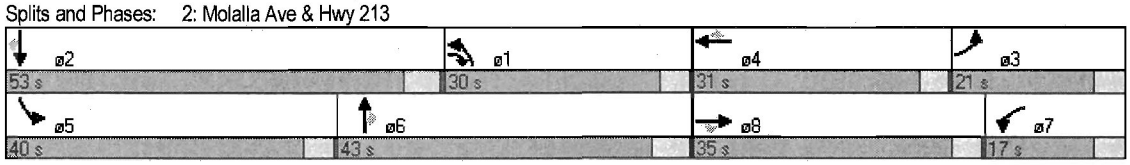
c Critical Lane Group

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		100	300		300	600		70	180		360
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Ped Bike Factor	1.00		0.99	1.00		0.98	1.00		0.97	1.00		0.97
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1792	1599	1752	1863	1553	1770	3505	1583	1736	3471	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1783	1792	1576	1749	1863	1530	1768	3505	1541	1731	3471	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			4			418			94			129
Link Speed (mph)		35			20			45			45	
Link Distance (ft)		625			761			1243			3238	
Travel Time (s)		12.2			25.9			18.8			49.1	
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Shared Lane Traffic (%)												
Lane Group Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Detector Phase	3	8	1	7	4	4	1	6	6	5	2	2
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	14.0	35.0	14.0	14.0	30.0	30.0	14.0	36.0	36.0	14.0	36.0	36.0
Total Split (s)	21.0	35.0	30.0	17.0	31.0	31.0	30.0	43.0	43.0	40.0	53.0	53.0
Total Split (%)	15.6%	25.9%	22.2%	12.6%	23.0%	23.0%	22.2%	31.9%	31.9%	29.6%	39.3%	39.3%
Maximum Green (s)	17.0	31.0	26.0	13.0	27.0	27.0	26.0	38.0	38.0	36.0	48.0	48.0
Yellow Time (s)	4.0	3.5	3.5	4.0	3.5	3.5	3.5	4.5	4.5	3.5	4.5	4.5
All-Red Time (s)	0.0	0.5	0.5	0.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-2.0	-2.0	-1.0	-2.0	-2.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lag	Lead	Lag	Lag	Lead	Lead	Lag	Lag	Lag	Lead	Lead	Lead
Lead-Lag Optimize?			Yes				Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		5.0			5.0	5.0		5.0	5.0		5.0	5.0
Flash Dont Walk (s)		26.0			21.0	21.0		25.0	25.0		25.0	25.0
Pedestrian Calls (#/hr)		0			0	0		0	0		0	0
v/c Ratio	0.68	0.77	0.89	1.53	0.79	0.66	0.97	0.58	0.40	1.05	1.20	0.25
Control Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.0	67.0	53.7	294.7	68.2	9.7	89.4	46.8	25.9	71.7	119.7	4.6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	158	221	425	~501	230	0	308	260	96	~467	~847	12
Queue Length 95th (ft)	#273	305	544	#778	334	97	m#444	m306	m149	m376	m#751	m11
Internal Link Dist (ft)		545			681			1163			3158	
Turn Bay Length (ft)	100		100	300		300	600		70	180		360
Base Capacity (vph)	269	425	621	265	386	649	354	1039	523	476	1286	651
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.62	0.89	1.53	0.72	0.64	0.97	0.58	0.40	1.05	1.20	0.25

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 108 (80%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Molalla Ave & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	250	525	385	265	397	325	575	197	475	1465	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.98	1.00	1.00	0.97	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1787	1792	1588	1752	1863	1530	1770	3505	1541	1736	3471	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	184	263	553	405	279	418	342	605	207	500	1542	160
RTOR Reduction (vph)	0	0	2	0	0	338	0	0	66	0	0	81
Lane Group Flow (vph)	184	263	551	405	279	80	342	605	141	500	1542	79
Confl. Peds. (#/hr)	2		2	2		2	4		3	3		4
Heavy Vehicles (%)	1%	6%	1%	3%	2%	4%	2%	3%	2%	4%	4%	2%
Turn Type	Prot		pm+ov	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	3	8	1	7	4		1	6		5	2	
Permitted Phases			8			4			6			2
Actuated Green, G (s)	19.3	24.6	50.6	19.4	24.7	24.7	26.0	38.0	38.0	36.0	48.0	48.0
Effective Green, g (s)	20.3	25.6	52.6	20.4	25.7	25.7	27.0	40.0	40.0	37.0	50.0	50.0
Actuated g/C Ratio	0.15	0.19	0.39	0.15	0.19	0.19	0.20	0.30	0.30	0.27	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	5.0	5.0	4.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	269	340	654	265	355	291	354	1039	457	476	1286	570
v/s Ratio Prot	0.10	0.15	c0.17	c0.23	0.15		c0.19	0.17		0.29	c0.44	
v/s Ratio Perm			0.18			0.05			0.09			0.05
v/c Ratio	0.68	0.77	0.84	1.53	0.79	0.27	0.97	0.58	0.31	1.05	1.20	0.14
Uniform Delay, d1	54.3	51.9	37.4	57.3	52.0	46.7	53.5	40.4	36.8	49.0	42.5	28.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.09	1.11	1.20	0.91	0.71	0.60
Incremental Delay, d2	7.0	10.5	9.6	256.0	10.9	0.5	30.3	1.6	1.2	28.4	90.3	0.0
Delay (s)	61.3	62.4	47.0	313.3	62.9	47.2	88.8	46.4	45.1	72.9	120.6	17.0
Level of Service	E	E	D	F	E	D	F	D	D	E	F	B
Approach Delay (s)		53.7			149.0			58.7			102.2	
Approach LOS		D			F			E			F	

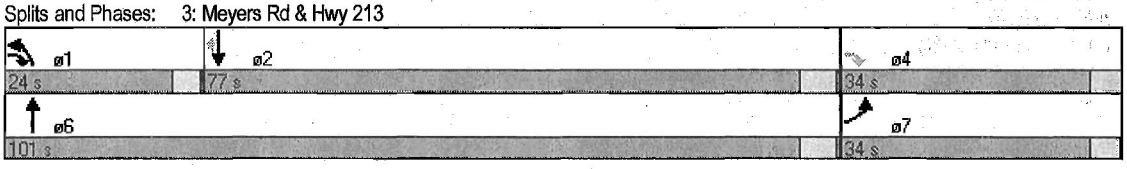
Intersection Summary			
HCM Average Control Delay	93.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	107.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Lane Configurations							
Volume (vph)	375	325	250	775	1800	522	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	150	150	150			225	
Storage Lanes	1	1	1			1	
Taper Length (ft)	25	25	25			25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00	
Ped Bike Factor	0.99	0.98	1.00			0.97	
Frt		0.850				0.850	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	1770	1583	1752	1845	3471	1553	
Flt Permitted	0.950		0.950				
Satd. Flow (perm)	1759	1556	1752	1845	3471	1514	
Right Turn on Red		Yes				Yes	
Satd. Flow (RTOR)		9				325	
Link Speed (mph)	40			45	45		
Link Distance (ft)	583			428	1243		
Travel Time (s)	9.9			6.5	18.8		
Confl. Peds. (#/hr)	3	2	2			2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%	
Adj. Flow (vph)	395	342	263	816	1895	549	
Shared Lane Traffic (%)							
Lane Group Flow (vph)	395	342	263	816	1895	549	
Turn Type		custom	Prot			Perm	
Protected Phases	7	1	1	6	2		4
Permitted Phases		4				2	
Detector Phase	7	1	1	6	2	2	
Switch Phase							
Minimum Initial (s)	4.0	4.0	4.0	3.0	4.0	4.0	4.0
Minimum Split (s)	24.0	14.0	14.0	22.0	31.0	31.0	20.0
Total Split (s)	34.0	24.0	24.0	101.0	77.0	77.0	34.0
Total Split (%)	25.2%	17.8%	17.8%	74.8%	57.0%	57.0%	25%
Maximum Green (s)	30.0	20.0	20.0	96.0	72.0	72.0	30.0
Yellow Time (s)	3.5	3.5	3.5	4.5	4.5	4.5	4.0
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5	0.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-2.0	-2.0	-2.0	
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	
Lead/Lag		Lead	Lead		Lag	Lag	
Lead-Lag Optimize?		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	C-Max	C-Max	C-Max	None
Walk Time (s)	5.0				5.0	5.0	5.0
Flash Dont Walk (s)	15.0				20.0	20.0	11.0
Pedestrian Calls (#/hr)	0				0	0	0
v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	
Control Delay	89.9	33.9	102.3	11.5	22.9	0.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	89.9	33.9	102.3	11.5	22.9	0.5	

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø4
Queue Length 50th (ft)	346	218	232	315	911	3	
Queue Length 95th (ft)	#555	315	#409	425	m344	m0	
Internal Link Dist (ft)	503			348	1163		
Turn Bay Length (ft)	150	150	150			225	
Base Capacity (vph)	406	609	273	1339	1903	977	
Starvation Cap Reductn	0	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	0	
Reduced v/c Ratio	0.97	0.56	0.96	0.61	1.00	0.56	

Intersection Summary
Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 135
Offset: 0 (0%), Referenced to phase 2:SBT and 6:NBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: Meyers Rd & Hwy 213



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	375	325	250	775	1800	522
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	1.00
Frpb, ped/bikes	1.00	0.99	1.00	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770	1567	1752	1845	3471	1514
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1770	1567	1752	1845	3471	1514
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	395	342	263	816	1895	549
RTOR Reduction (vph)	0	6	0	0	0	147
Lane Group Flow (vph)	395	336	263	816	1895	402
Confl. Peds. (#/hr)	3	2	2			2
Heavy Vehicles (%)	2%	2%	3%	3%	4%	4%
Turn Type		custom	Prot			Perm
Protected Phases	7	1	1	6	2	
Permitted Phases		4				2
Actuated Green, G (s)	30.0	50.0	20.0	96.0	72.0	72.0
Effective Green, g (s)	31.0	52.0	21.0	98.0	74.0	74.0
Actuated g/C Ratio	0.23	0.39	0.16	0.73	0.55	0.55
Clearance Time (s)	4.0	4.0	4.0	5.0	5.0	5.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	638	273	1339	1903	830
v/s Ratio Prot	c0.22	0.08	c0.15	0.44	c0.55	
v/s Ratio Perm		0.13				0.27
v/c Ratio	0.97	0.53	0.96	0.61	1.00	0.48
Uniform Delay, d1	51.6	32.0	56.6	9.1	30.3	18.8
Progression Factor	1.00	1.00	1.00	1.00	0.54	0.04
Incremental Delay, d2	37.3	0.8	44.1	2.1	5.3	0.2
Delay (s)	88.9	32.8	100.8	11.2	21.8	0.9
Level of Service	F	C	F	B	C	A
Approach Delay (s)	62.9			33.0	17.1	
Approach LOS	E			C	B	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	135.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

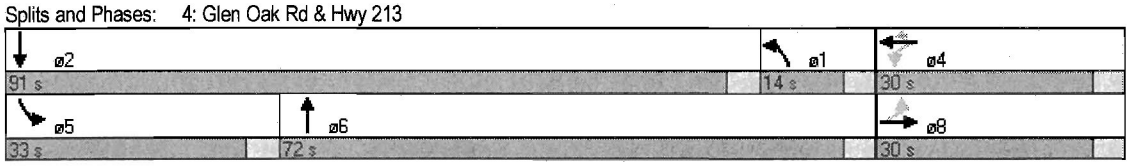
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		170	100		0	150		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor		1.00				0.98						
Frt		0.978				0.850		0.986			0.994	
Flt Protected		0.984			0.978		0.950			0.950		
Satd. Flow (prot)	0	1828	0	0	1858	1615	1787	1824	0	1805	1836	0
Flt Permitted		0.544			0.690		0.950			0.950		
Satd. Flow (perm)	0	1010	0	0	1311	1576	1787	1824	0	1805	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7				179		5			3	
Link Speed (mph)		40			40			45			45	
Link Distance (ft)		699			5194			3108			1091	
Travel Time (s)		11.9			88.5			47.1			16.5	
Confl. Peds. (#/hr)	1					1						
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	156	0	0	234	179	26	859	0	365	1849	0
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Detector Phase	8	8		4	4	4	1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0	20.0	14.0	20.0		14.0	20.0	
Total Split (s)	30.0	30.0	0.0	30.0	30.0	30.0	14.0	72.0	0.0	33.0	91.0	0.0
Total Split (%)	22.2%	22.2%	0.0%	22.2%	22.2%	22.2%	10.4%	53.3%	0.0%	24.4%	67.4%	0.0%
Maximum Green (s)	26.0	26.0		26.0	26.0	26.0	10.0	68.0		29.0	87.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag							Lag	Lag		Lead	Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	5.0	5.0		5.0	5.0	5.0		5.0			5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
v/c Ratio		0.76			0.91	0.39	0.20	0.92		0.92	1.45	
Control Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		71.9			88.3	9.0	62.1	45.1		78.7	228.6	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)		125			202	0	22	673		315	~2292	
Queue Length 95th (ft)		#236			#358	64	53	#964		#498	#2558	
Internal Link Dist (ft)		619			5114			3028			1011	
Turn Bay Length (ft)						170	100			150		
Base Capacity (vph)		216			273	470	152	973		418	1276	
Starvation Cap Reductn		0			0	0	0	0		0	0	
Spillback Cap Reductn		0			0	0	0	0		0	0	
Storage Cap Reductn		0			0	0	0	0		0	0	
Reduced v/c Ratio		0.72			0.86	0.38	0.17	0.88		0.87	1.45	

Intersection Summary

Area Type: Other
Cycle Length: 135
Actuated Cycle Length: 130.2
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 4: Glen Oak Rd & Hwy 213



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	75	25	100	125	172	25	750	75	350	1700	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Util. Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes		1.00			1.00	0.98	1.00	1.00		1.00	1.00	
Flpb, ped/bikes		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frt		0.98			1.00	0.85	1.00	0.99		1.00	0.99	
Flt Protected		0.98			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1826			1859	1576	1787	1824		1805	1835	
Flt Permitted		0.54			0.69	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1011			1311	1576	1787	1824		1805	1835	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	78	26	104	130	179	26	781	78	365	1771	78
RTOR Reduction (vph)	0	6	0	0	0	144	0	2	0	0	1	0
Lane Group Flow (vph)	0	150	0	0	234	35	26	857	0	365	1848	0
Confl. Peds. (#/hr)	1					1						
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	1%	3%	0%	0%	3%	0%
Turn Type	Perm			Perm		Perm	Prot			Prot		
Protected Phases		8			4		1	6		5	2	
Permitted Phases	8			4		4						
Actuated Green, G (s)		24.6			24.6	24.6	5.8	67.5		27.7	89.4	
Effective Green, g (s)		25.6			25.6	25.6	6.8	68.5		28.7	90.4	
Actuated g/C Ratio		0.19			0.19	0.19	0.05	0.52		0.22	0.69	
Clearance Time (s)		4.0			4.0	4.0	4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		196			255	306	92	948		393	1259	
v/s Ratio Prot							0.01	c0.47		0.20	c1.01	
v/s Ratio Perm		0.15			c0.18	0.02						
v/c Ratio		0.77			0.92	0.11	0.28	0.90		0.93	1.47	
Uniform Delay, d1		50.3			52.1	43.8	60.2	28.7		50.5	20.7	
Progression Factor		1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2		16.3			34.7	0.2	1.7	11.8		27.9	214.9	
Delay (s)		66.6			86.8	43.9	61.8	40.4		78.4	235.6	
Level of Service		E			F	D	E	D		E	F	
Approach Delay (s)		66.6			68.2			41.0			209.7	
Approach LOS		E			E			D			F	

Intersection Summary			
HCM Average Control Delay	147.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.31		
Actuated Cycle Length (s)	131.8	Sum of lost time (s)	6.0
Intersection Capacity Utilization	131.1%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	60	10	590	90	15	465
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	50		0	80	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25	25		25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor						
Frt		0.850	0.982			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	1583	1829	0	1770	1863
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	1583	1829	0	1770	1863
Link Speed (mph)	25		45			45
Link Distance (ft)	435		394			150
Travel Time (s)	11.9		6.0			2.3
Confl. Peds. (#/hr)				2	2	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	63	11	621	95	16	489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	63	11	716	0	16	489
Sign Control	Stop		Free			Free

Intersection Summary	
Area Type:	Other

Control Type: Unsignalized

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	60	10	590	90	15	465
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Hourly flow rate (vph)	63	11	621	95	16	489
Pedestrians	2					
Lane Width (ft)	12.0					
Walking Speed (ft/s)	4.0					
Percent Blockage	0					
Right turn flare (veh)		2				
Median type			None			None
Median storage veh)						
Upstream signal (ft)			394			
pX, platoon unblocked						
vC, conflicting volume	1191	670			718	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1191	670			718	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	69	98			98	
cM capacity (veh/h)	203	456			882	

Direction, Lane #	WB 1	NB 1	SB 1	SB 2
Volume Total	74	716	16	489
Volume Left	63	0	16	0
Volume Right	11	95	0	0
cSH	237	1700	882	1700
Volume to Capacity	0.31	0.42	0.02	0.29
Queue Length 95th (ft)	32	0	1	0
Control Delay (s)	28.1	0.0	9.2	0.0
Lane LOS	D		A	
Approach Delay (s)	28.1	0.0	0.3	
Approach LOS	D			

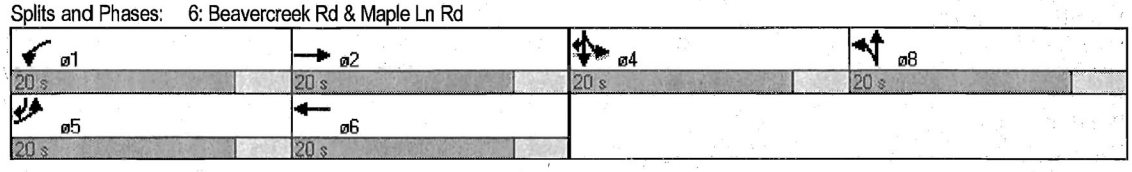
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	430		0	175		550	120		0	140		140
Storage Lanes	1		0	1		0	1		1	1		1
Taper Length (ft)	25		25	25		100	25		25	25		25
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor							1.00					
Frt		0.981			0.985			0.940				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3541	0	1805	3549	0	1805	1717	0	1787	1881	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3541	0	1805	3549	0	1800	1717	0	1787	1881	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		26			13			38				138
Link Speed (mph)		35			35			45			45	
Link Distance (ft)		877			648			255			394	
Travel Time (s)		17.1			12.6			3.9			6.0	
Confl. Peds. (#/hr)							2					2
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	1552	0	31	949	0	227	206	0	98	82	361
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4	4 5
Permitted Phases		4										
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		20.0	20.0		20.0	20.0	
Total Split (s)	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	20.0	40.0
Total Split (%)	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	0.0%	25.0%	25.0%	50.0%
Maximum Green (s)	16.0	16.0		16.0	16.0		16.0	16.0		16.0	16.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	Min		None	None		Min	Min		None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
v/c Ratio	1.15	0.66		0.16	1.11		0.64	0.56		0.35	0.28	0.51
Control Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	121.6	11.1		32.7	94.5		35.9	27.9		30.9	29.4	7.8

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~260	148		13	~258		91	66		40	33	31
Queue Length 95th (ft)	#493	386		39	#435		174	140		82	71	59
Internal Link Dist (ft)		797			568			175			314	
Turn Bay Length (ft)	430			175			120			140		140
Base Capacity (vph)	422	2334		430	855		430	438		426	448	819
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	1.15	0.66		0.07	1.11		0.53	0.47		0.23	0.18	0.44

Intersection Summary
Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
! Phase conflict between lane groups.

Splits and Phases: 6: Beavercreek Rd & Maple Ln Rd



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	470	1315	190	30	830	90	220	120	80	95	80	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	0.94		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1770	3542		1805	3550		1805	1718		1787	1881	1568
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	485	1356	196	31	856	93	227	124	82	98	82	361
RTOR Reduction (vph)	0	11	0	0	10	0	0	31	0	0	0	85
Lane Group Flow (vph)	485	1541	0	31	939	0	227	175	0	98	82	276
Confl. Peds. (#/hr)							2					2
Heavy Vehicles (%)	2%	0%	0%	0%	0%	2%	0%	2%	7%	1%	1%	3%
Turn Type	Prot			Prot			Split			Split		pt+ov
Protected Phases	5	2		1	6		8	8		4	4!	4 5
Permitted Phases		4!										
Actuated Green, G (s)	16.1	42.2		3.0	18.7		13.2	13.2		10.4	10.4	26.5
Effective Green, g (s)	17.1	44.2		4.0	19.7		14.2	14.2		11.4	11.4	28.5
Actuated g/C Ratio	0.23	0.59		0.05	0.26		0.19	0.19		0.15	0.15	0.38
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	2247		97	940		345	328		274	288	601
v/s Ratio Prot	c0.27	c0.30		0.02	c0.26		c0.13	0.10		0.05	0.04	0.18
v/s Ratio Perm		0.13										
v/c Ratio	1.19	0.69		0.32	1.00		0.66	0.53		0.36	0.28	0.46
Uniform Delay, d1	28.7	10.3		33.9	27.3		27.9	27.1		28.2	27.9	17.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	108.2	0.9		1.9	29.0		4.5	1.7		0.8	0.5	0.6
Delay (s)	136.8	11.2		35.8	56.3		32.3	28.8		29.0	28.4	17.7
Level of Service	F	B		D	E		C	C		C	C	B
Approach Delay (s)		41.1			55.7			30.7			21.4	
Approach LOS		D			E			C			C	

Intersection Summary			
HCM Average Control Delay	40.9	HCM Level of Service	D
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	74.4	Sum of lost time (s)	9.0
Intersection Capacity Utilization	82.2%	ICU Level of Service	E
Analysis Period (min)	15		

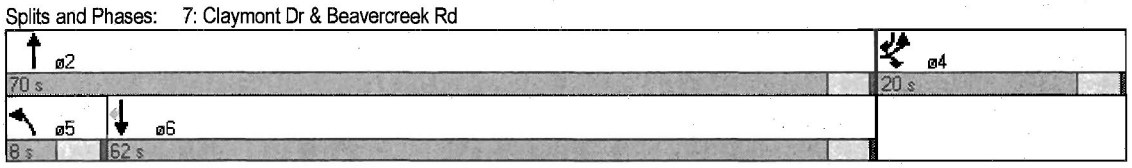
! Phase conflict between lane groups.
c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	150	160			0
Storage Lanes	1	1	1			1
Taper Length (ft)	25	25	25			25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor	1.00					
Frt		0.850				0.850
Flt Protected	0.950		0.950			
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.950		0.950			
Satd. Flow (perm)	1782	1599	1787	1881	1881	1599
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		21				212
Link Speed (mph)	45			20	35	
Link Distance (ft)	859			1391	1467	
Travel Time (s)	13.0			47.4	28.6	
Confl. Peds. (#/hr)	1					
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	158	21	53	789	1292	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	158	21	53	789	1292	212
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Detector Phase	4	4	5	2	6	4
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	20.0	20.0	8.0	20.0	20.0	20.0
Total Split (s)	20.0	20.0	8.0	70.0	62.0	20.0
Total Split (%)	22.2%	22.2%	8.9%	77.8%	68.9%	22.2%
Maximum Green (s)	16.0	16.0	4.0	66.0	58.0	16.0
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	0.5	0.5	0.5	0.5	0.5	0.5
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	Max	Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0	0
v/c Ratio	0.62	0.09	0.65	0.55	0.99	0.15
Control Delay	45.9	14.2	78.5	6.3	39.7	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.9	14.2	78.5	6.3	39.7	0.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Queue Length 50th (ft)	82	0	29	141	~765	0
Queue Length 95th (ft)	144	20	#91	252	#1067	5
Internal Link Dist (ft)	779			1311	1387	
Turn Bay Length (ft)		150	160			
Base Capacity (vph)	325	308	81	1441	1304	1477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.07	0.65	0.55	0.99	0.14

Intersection Summary
Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 88
Natural Cycle: 90
Control Type: Semi Act-Uncoord
~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 7: Claymont Dr & Beavercreek Rd



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	150	20	50	750	1227	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787	1599	1787	1881	1881	1599
Flt Permitted	0.95	1.00	0.95	1.00	1.00	1.00
Satd. Flow (perm)	1787	1599	1787	1881	1881	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	158	21	53	789	1292	212
RTOR Reduction (vph)	0	18	0	0	0	36
Lane Group Flow (vph)	158	3	53	789	1292	176
Confl. Peds. (#/hr)	1					
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Turn Type		Prot	Prot			pm+ov
Protected Phases	4	4	5	2	6	4
Permitted Phases						6
Actuated Green, G (s)	12.6	12.6	3.2	68.2	61.0	73.6
Effective Green, g (s)	12.6	12.6	3.2	68.2	61.0	73.6
Actuated g/C Ratio	0.14	0.14	0.04	0.77	0.69	0.83
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	254	227	64	1445	1292	1397
v/s Ratio Prot	c0.09	0.00	c0.03	0.42	c0.69	0.02
v/s Ratio Perm						0.09
v/c Ratio	0.62	0.01	0.83	0.55	1.00	0.13
Uniform Delay, d1	35.9	32.8	42.5	4.1	13.9	1.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.7	0.0	56.0	1.5	25.0	0.0
Delay (s)	40.5	32.8	98.5	5.6	38.9	1.5
Level of Service	D	C	F	A	D	A
Approach Delay (s)	39.6			11.5	33.7	
Approach LOS	D			B	C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			