Oregon
Kate Brown, Governor

Department of Land Conservation and Development
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NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

Date: July 24, 2015

Jurisdiction: City of Coburg

Local file no.:

DLCD file no.: 001-14

The Department of Land Conservation and Development (DLCD) received the attached notice of adopted amendment to a comprehensive plan or land use regulation on 07/21/2015. A copy of the adopted amendment is available for review at the DLCD office in Salem and the local government office.

Notice of the proposed amendment was submitted to DLCD 37 days prior to the first evidentiary hearing.

Appeal Procedures

Eligibility to appeal this amendment is governed by ORS 197.612, ORS 197.620, and ORS 197.830. Under ORS 197.830(9), a notice of intent to appeal a land use decision to LUBA must be filed no later than 21 days after the date the decision sought to be reviewed became final. If you have questions about the date the decision became final, please contact the jurisdiction that adopted the amendment.

A 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).

If the amendment is not appealed, it will be deemed acknowledged as set forth in ORS 197.625(1)(a). Please call LUBA at 503-373-1265, if you have questions about appeal procedures.

DLCD Contact

If you have questions about this notice, please contact DLCD's Plan Amendment Specialist at 503-934-0017 or plan.amendments@state.or.us

DLCD FORM 2

NOTICE OF ADOPTED CHANGE TO A COMPREHENSIVE PLAN OR LAND USE REGULATION

FOR DLCD USE
File No.: 001-14 {19952}
Received: 7/21/2015

Local governments are required to send notice of an adopted change to a comprehensive plan or land use regulation **no more than 20 days after the adoption**. (*See* OAR 660-018-0040). The rules require that the notice include a completed copy of this form. **This notice form is not for submittal of a completed periodic review task or a plan amendment reviewed in the manner of periodic review.** Use Form 4 for an adopted urban growth boundary including over 50 acres by a city with a population greater than 2,500 within the UGB or an urban growth boundary amendment over 100 acres adopted by a metropolitan service district. Use Form 5 for an adopted urban reserve designation, or amendment to add over 50 acres, by a city with a population greater than 2,500 within the UGB. Use Form 6 with submittal of an adopted periodic review task.

Jurisdiction: City of Coburg

Local file no.: **Ordinance A–199E**

Date of adoption: 7/14/15 Date sent: 7/21/2015

Was Notice of a Proposed Change (Form 1) submitted to DLCD?
Yes: Date (use the date of last revision if a revised Form 1was submitted): 6/8/15
No

Is the adopted change different from what was described in the Notice of Proposed Change? Yes No
If yes, describe how the adoption differs from the proposal:

No.

Local contact (name and title): Petra Schuetz, City Administrator

Phone: 541–682–7871 E-mail: petra.schuetz@ci.coburg.or.us

Street address: P.O. Box 8316 City: Coburg Zip: 97408-

PLEASE COMPLETE ALL OF THE FOLLOWING SECTIONS THAT APPLY

For a change to comprehensive plan text:
Identify the sections of the plan that were added or amended and which statewide planning goals those sections implement, if any:

Implementation of the Coburg Urbanization Study by amending the Coburg UGB to include an additional 153 acres of residential land and 106 acres of regional employment land to meet the city's houisng needs for the next 20 years and to meet ten percent of the regional economic development needs.

For a change to a comprehensive plan map:
Identify the former and new map designations and the area affected:

Change from to acres. A goal exception was required for this change.

Change from to acres. A goal exception was required for this change.

Change from to acres. A goal exception was required for this change.

Change from to acres. A goal exception was required for this change.

Location of affected property (T, R, Sec., TL and address):

The subject property is entirely within an urban growth boundary

The subject property is partially within an urban growth boundary

If the comprehensive plan map change is a UGB amendment including less than 50 acres and/or by a city with a population less than 2,500 in the urban area, indicate the number of acres of the former rural plan designation, by type, included in the boundary.

Exclusive Farm Use – Acres: 168.5	Non-resource – Acres:
Forest – Acres:	Marginal Lands – Acres:
Rural Residential – Acres: 88.9	Natural Resource/Coastal/Open Space – Acres:
Rural Commercial or Industrial – Acres:	Other: – Acres:

If the comprehensive plan map change is an urban reserve amendment including less than 50 acres, or establishment or amendment of an urban reserve by a city with a population less than 2,500 in the urban area, indicate the number of acres, by plan designation, included in the boundary.

Exclusive Farm Use – Acres:	Non-resource – Acres:
Forest – Acres:	Marginal Lands – Acres:
Rural Residential – Acres:	Natural Resource/Coastal/Open Space – Acres:
Rural Commercial or Industrial – Acres:	Other: – Acres:

For a change to the text of an ordinance or code:
Identify the sections of the ordinance or code that were added or amended by title and number:

The Coburg Comprehensive Plan is amended to add a Policy #28 to Goal 9 that reads:
"In order to meet a regional industrial need, properties with a Light Industrial designation located on the east side of Interstate 5 shall not be partitioned into parcels smaller than 20 acres."

For a change to a zoning map:
Identify the former and new base zone designations and the area affected:

Change from	to	Acres:
Change from	to	Acres:
Change from	to	Acres:
Change from	to	Acres:

Identify additions to or removal from an overlay zone designation and the area affected:

Overlay zone designation:	Acres added:	Acres removed:

Location of affected property (T, R, Sec., TL and address):

List affected state or federal agencies, local governments and special districts: Lane County

Identify supplemental information that is included because it may be useful to inform DLCD or members of the public of the effect of the actual change that has been submitted with this Notice of Adopted Change, if any. If the submittal, including supplementary materials, exceeds 100 pages, include a summary of the amendment briefly describing its purpose and requirements.

The 2010 Coburg Urbanization Study Update and 2014 Addendum are in the DLCD files for this Plan Amendment.

ORDINANCE A-199-E

AN ORDINANCE EXPANDING THE COBURG URBAN GROWTH BOUNDARY, CREATING MEDIUM AND HIGH DENSITY RESIDENTIAL AND MIXED USE PLAN DESIGNATIONS, AND REQUIRING THE DEVELOPMENT OF TAX LOT 105, LANE COUNTY ASSESSOR'S MAP 16-03-33-00 TO BE SUBJECT TO CHAPTER XV OF THE COBURG ZONING CODE

WHEREAS, the City of Coburg wishes to update its Comprehensive Plan to reflect current and future needs for land, housing and economic opportunities and to justify the expansion of the urban growth boundary to accommodate these needs; and

WHEREAS, an Urbanization Study Update was created in April of 2010 that reflected a planning period from 2010 to 2030 but the update had not yet been adopted by the Coburg City
Council; and

WHEREAS, the urbanization study update was modified in 2014 to reflect a planning period from 2014 to 2034 to satisfy requirements of Statewide Planning Goals #2 and #14; and

WHEREAS, the City Council wishes to implement recommendations made by the Coburg Urbanization Study regarding expansion of the Coburg Urban Growth Boundary and for land uses on tax lot 105, Lane County Assessor's Map 16--03-33-00.

WHEREAS, additional findings to substantiate the importance of selecting appropriate properties to include within the boundaries of the Coburg Urban Growth Boundary are necessary to respond to questions, and to demonstrate the viability of compact urban growth.

THE CITY OF COBURG ORDAINS AS FOLLOWS:

Section 1. The City Council wishes to encourage the development of tax lot 105, Lane County Assessor's Map 16-03-33-00 by designating this property for mixed use. At least eight acres of this parcel may be developed for medium density residential at an average density of ten units per acre. Development must be implemented through a Master Planning process that allows for a gradual transition of Medium Density Residential east to Traditional Residential densities west and. the creation of a new access road for the property along Pearl Street at the west. Until a Mixed-Use Zoning District is adopted development within the Mixed Use Designation shall be subject to the Master Planned Developments requirements of Chapter XV of the Coburg Zoning Ordinance.

Section 2. In addition to the properties identified herein, the properties listed in Exhibit A to this Ordinance are hereby added to the Coburg Urban Growth Boundary.

Section 3. The Coburg Comprehensive Plan is hereby amended by adding the following three policies to its Goal 2: Land Use Planning section:

"Policy 18: **Medium Density Residential**- The Medium Density Residential designation is intended to guide the development of new, livable neighborhoods located outside the historic and traditional core of the Coburg at an average residential density of 10 units per acre.

Policy 19: **High Density Residential**- The High Density Residential designation is intended to guide the development of new, livable neighborhoods located outside the historic and traditional core of the Coburg at an average residential density of 14 units per acre.

Policy 20: **Mixed Use** - The Mixed Use designation allows commercial and residential development with density ranges of the latter being above 12 dwelling units per acre with an average overall density of 15 dwelling units per acre."

Section 4. The Coburg Comprehensive Plan Diagram is hereby amended to add two acres of property designated as High Density Residential near the southwest corner of Tax Lot 500, Lane County Assessor's Map 16-03-28-00, adjacent to North Coburg Road on the East and adjacent to the City Limits on the South.

Section 5. The Coburg Comprehensive Plan Diagram is hereby amended to add up to 15 acres of property designated as Medium Density Residential near the southwest corner of Tax Lot 500, Lane County Assessor's Map 16-03-28-00, adjacent to the north and west of the High Density Residential land described in Section 4, above.

Section 6. Properties added to the Coburg Urban Growth Boundary by this Ordinance but not otherwise specifically assigned a plan designation by this Ordinance shall be designated as Traditional Residential.

Section 7. Tax Lot 202, Assessor's Map 16-03-34-00 shall be added to the Coburg Urban Growth Boundary and shall be designated Light Industrial on the Comprehensive Plan Diagram. The Coburg Comprehensive Plan is hereby amended to add a Policy 28 to Goal 9: Economy of the City that reads:

"Policy 28: In order to meet a regional industrial need, properties with a Light Industrial designation located on the east side of Interstate 5 shall not be partitioned into parcels smaller than 20 acres."

Section 8. A revised Comprehensive Plan Diagram, attached to by reference as Exhibit B, is hereby adopted.

Section 9. The Coburg Urbanization Study Update (April 2010) and Addendum (2014), attached to this Ordinance as Exhibits C and D, are hereby adopted and made a part of this Ordinance.

Section 10. Findings of fact in support of the expansion of the Coburg Urban Growth Boundary, attached to this Ordinance as Exhibit E, are hereby adopted and made a part of this Ordinance.

Section 11. Severability. The sections and subsections of this ordinance are severable. The invalidity of any section or subsection shall not affect the validity of the remaining sections and subsections.

Section 12. Conflicts. In the event that sections or provisions of this ordinance conflicts with other ordinances, then the standards established by this ordinance shall take priority.

After public notice and reading pursuant to the Coburg City Charter and after Council deliberations followed by councilor motion and second, this ordinance was put to a vote, the results of which were;

ADOPTED by the **City Council** of the **City of Coburg** this 14th day of July, 2015, by a vote of 5 for and 0 against.

APPROVED by the Mayor of the City of Coburg this 14th day of July, 2015.

Jae Dudewell, Mayor

ATTEST:

Sammy L. Egbert, City Recorder

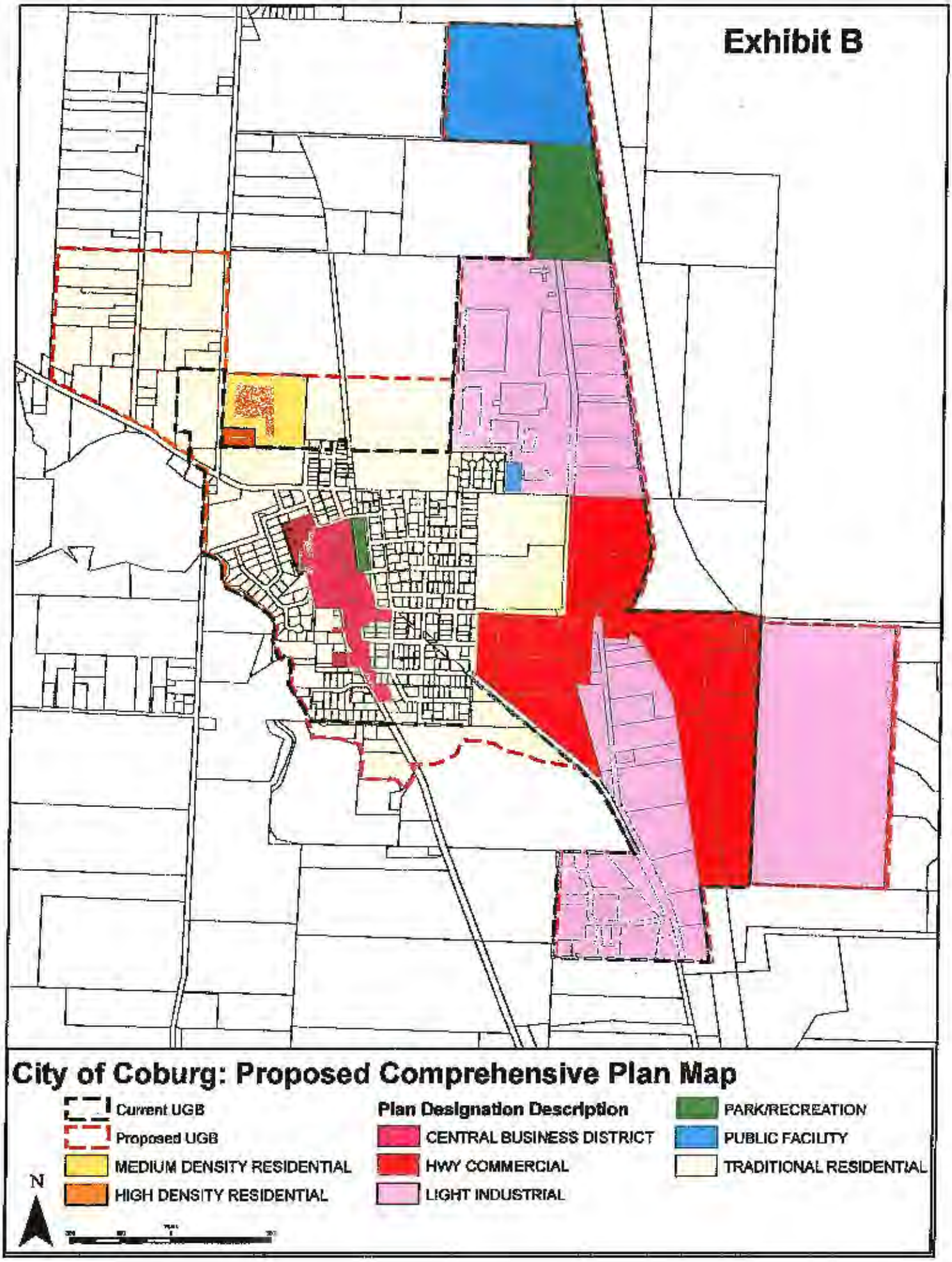
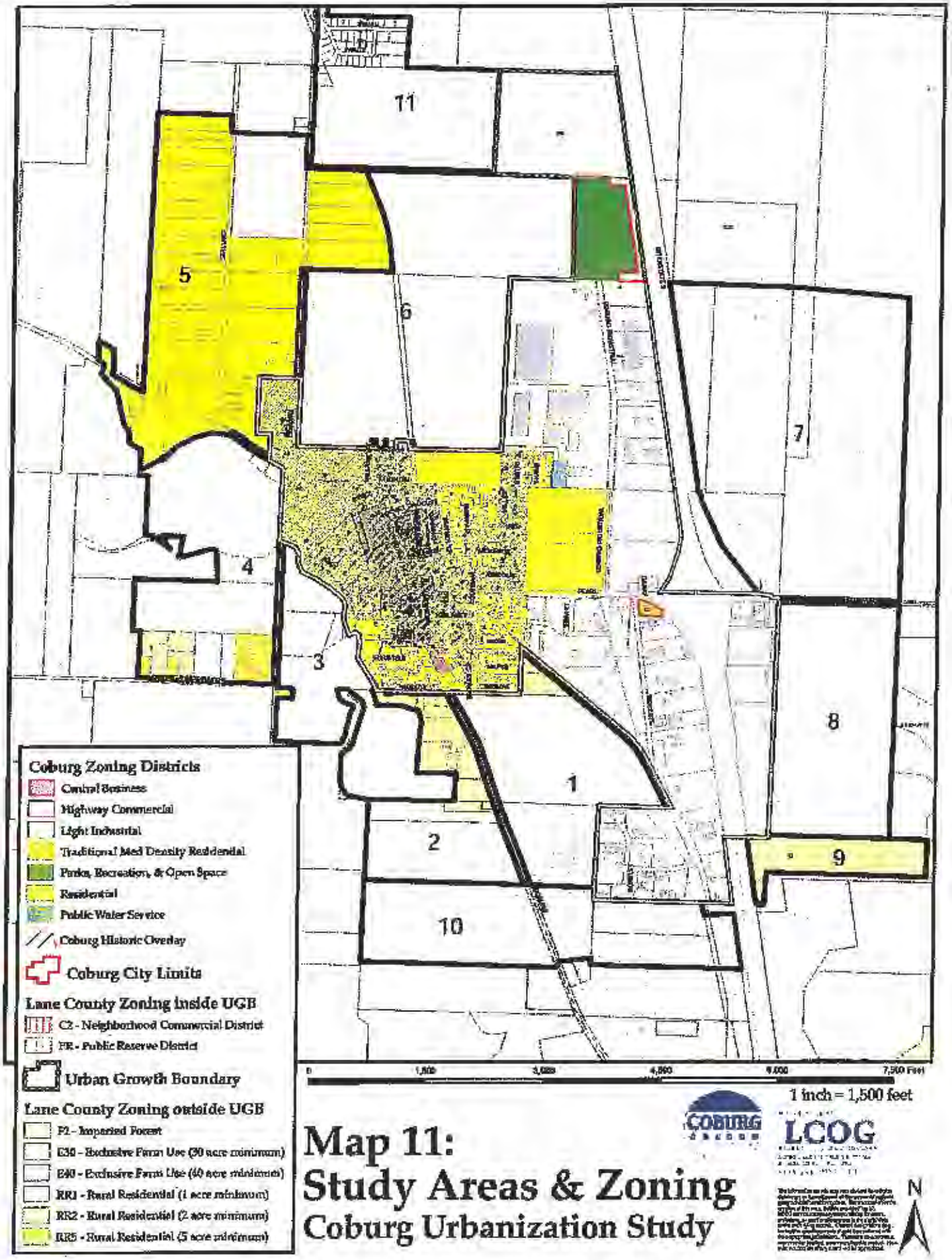


Exhibit B
City of Coburg: Proposed Comprehensive Plan Map
Current UGB
Proposed UGB
MEDIUM DENSITY RESIDENTIAL
HIGH DENSITY RESIDENTIAL
Plan Designation Description
CENTRAL BUSINESS DISTRICT
HWY COMMERCIAL
LIGHT INDUSTRIAL
PARK/RECREATION
PUBLIC FACILITY
TRADITIONAL RESIDENTIAL
N



Map 11:
Study Areas & Zoning
Coburg Urbanization Study

EXHIBIT E

Findings in Support of Ordinance A–199–E

The 2010 Urbanization Study Update, as modified in 2014, recommends that 149.36 acres be added to the Coburg Urban Growth Boundary to meet a 20–year forecasted need for residential land. These acres are proposed to be obtained from Study Areas 1, 2, 5 and 6. The Urbanization Study Update also supports the conclusion of the 2004 Urbanization Study that one or two 20–acre, or larger parcels are necessary for economic opportunity needs. The Update proposes that this land be provided by the inclusion of Study Area 8 in the Coburg Urban Growth Boundary. Study Area 8 is a single parcel, larger than the minimum necessary. To avoid parcelization and, in a manner consistent with state law, the entirety of the parcel has been included.

LOCAL EXPANSION CRITERIA

Coburg has undertaken a number of expansion–related planning processes in the last decade. These include the Coburg Crossroads visioning process of 2003, the 2004 Urbanization study and periodic review effort, the 2005 update of the Comprehensive Plan and the 2010 Update of the Urbanization Study. The policies that were incorporated into the 2005 comprehensive plan update are a reflection of extensive efforts to summarize the City's ideals, including those related to the City's growth. Below are listed a few of these guiding policies of the Coburg Comprehensive Plan that are specifically related to outward expansion:

Economy Policies

Policy 2: Lands for the expansion within the City of business (commercial and industrial activities), will be provided to the extent necessary to meet local employment needs, to accommodate the identified regional needs, to provide an adequate tax base, and to support future population growth.

The Economic Opportunities Analysis provided in the 2010 Urbanization Study Update, and the Regional Economic Analysis recognized by the 2014 Addendum identified the lands needed for expansion to accommodate local and identified regional employment needs. The economic growth these lands will facilitate will support future population growth.

Policy 6: An adequate amount of level, buildable land which has good access to arterial streets shall be provided within existing city limits to meet local and regional industrial needs.

This policy was considered in the selection of properties identified as potential industrial sites suitable for meeting economic growth needs.

Policy 7: Industrial uses shall be grouped together within well-designated industrial parks or subdivision so as to promote:

- **A pollution free environment;**
- **The highest aesthetic standards possible;**
- **Minimum impact on adjacent lands;**
- **Development within the constraints of the natural environment; and**
- **Compliance with LCDC Goals and Guidelines**

The maintenance of a compact urban growth form has been one of the more significant factors in determining those properties identified as potential sites and recommended for inclusion into the urban growth boundary.

Urbanization Goal Policies

Policy 1: The City shall preserve urbanizable land and provide for orderly, efficient development by controlling densities through provision of the Zoning and Subdivision Ordinances, thereby preventing the need for overly extensive public services and restricting urbanization to that commensurate with the carrying capacity of the land.

Policy 17: The City shall promote the efficient use of land within the urban growth boundary and sequential development that expands in an orderly way outward from the existing city center.

Within the context of ORS 197.298 and Statewide Planning Goal 14, the City has attempted to maintain a compact urban growth form by including adjacent exception areas and resource lands that are contiguous to the existing urban growth boundary. Growth in the extreme distant areas of exception lands in Study Area 5 will be directly contradictory to this policy and to the goals that support it. Inclusion of portions of Study Area 6 that are already surrounded by the City on three sides will promote compact urban growth.

Policy 18: The City shall provide a sufficient supply of developable land within the urban growth boundary to meet the needs of the existing and projected population for residential, commercial, industrial, and recreational uses over the next 20 – 50 years, while preserving the small town character of the community.

The 2010 Urbanization Study Update, as modified in 2014, includes a housing needs analysis and a buildable lands inventory that identifies the City's land use needs for the next 20 years.

Policy 19: The City shall accommodate projected growth, expand the urban growth boundary in a manner that balances the need to protect high quality farm and forest resource lands with the needs of the existing and future population and with efficient public facility and service delivery.

This policy has been address through the 2010 Urbanization Study Update by addressing the priorities of ORS 197.298 and the factors of Statewide Planning Goal 14. Extending services for a considerable distance to the furthest exception area of Study Area 5 will cost the City more in operational costs, and will have a significant cost impact on any potential for development in that area. Extensive growth distant from the City center will have an adverse impact on some intersections that are already threatened with failure. The efficient use of facilities limits the areas within the existing urban growth boundary that new industrial uses can be placed.

Policy 40: The City shall promote land use and development patterns that sustain and improve quality of life, are compatible with mass transit, maintain the community's identity, protect significant natural and historic resources, and meet the needs of existing and future residents for housing, employment, and parks and open spaces.

The issues contained in this policy have been addressed in the 2010 Urbanization Study Update.

Transportation Goal Policies

Policy 1: Develop a street network system that evenly distributes traffic throughout the community, lessening traffic impacts on residential streets, and identifying a system of arterials for moving people, goods, and services safely and efficiently.
Policy 46: Provide a transportation system that is safe, convenient, accessible, environmentally responsible, efficient, responsive to community needs, and considerate of neighborhood impacts, particularly in the National Historic District.
Policy 47: Develop and maintain a street network that is inter-connected.

These policies have been implemented through the recent adoption of the City's Transportation System Plan, which utilized the land use needs of the city identified in the 2010 Urbanization Study Update. Further, the proposed bypass, which is a part of the adopted TSP will significantly lessen the traffic impacts on residential streets. Projections show that, without the bypass, the major intersections of Coburg will likely fail within the planning period, which will drive vehicles onto the residential streets to avoid the failing intersections. The bypass forms a basic part of the City's transportation plan and will play an important part in meeting these policies.
To promote efficiency and safety in the use of City streets and the I-5 interchange, the City and the Oregon Department of Transportation have entered into an Interchange Area Management Plan (IAMP). One of the relevant provisions concerns the level of use of the intersection of Industrial Way and Pearl. The plan limits uses of undeveloped properties within the designated area of the IAMP and limits any expanded access of properties within the IAMP area.

Public Facility and Services Goal Policies

Policy 15: ***The city shall expand the urban growth boundary and city limits and provide sanitary sewer service, when available, to existing exception areas and other appropriate areas when such expansion is appropriate to meet city needs.***

The preferred recommendations of the 2010 Urbanization Study Update has identified existing exception areas and other areas that should be added to the existing urban growth boundary. The availability of public services was considered during the analysis of the second locational factor of Statewide Planning Goal 14 in the 2010 Urbanization Study Update.

Some exception areas are not proposed for inclusion within the expanded urban growth boundary. Among the reasons for not including these areas is the evidence of the very high costs of extending sanitary sewer service the great distance that would be necessary if all of the exception areas were included. At approximately $34 a foot for the collection system, extending wastewater connections to the most distant exception areas would cost each of the six most distant properties in these most distant portions of the exception area more than $25,000 per property. The small number of additional residential properties that can be developed from the exception area properties, combined with the cost of infrastructure development would make any additional residential development on these properties very expensive. Such extensive costs for a single element of the public improvements necessary to develop these properties demonstrate that it is impractical to plan on inclusion of these exception areas. Especially when compared with areas available much closer to the existing wastewater infrastructure, the distant exception areas were ruled inappropriate.
Water service is also not available to the majority of the exception area of Study Area 5, and cannot be extended from existing services because that would involve condemnation of private lands. Water service extensions are roughly equivalent to the cost of wastewater extensions. Together these costs would be a tremendous burden on a small number of potential new residences.
There are several other reasons that argue against the inclusion of these distant exception lands. It will detract rather than enhance the compact nature of Coburg urban growth area. The properties are not likely to develop any additional residential homes within the planning period, so inclusion would detract rather than improve the City's potential for accommodation of its future housing needs. The nature of the properties and the distance from the city center makes the development of housing densities such as are required for Coburg to develop appropriately unlikely.

Housing Goal Policies

Policy 28: ***The City shall encourage new housing to radiate out from the city center and discourage leapfrog development in order to promote connectivity and community interaction.***

The maintenance of a compact urban growth form has been one of the more significant factors in determining those properties recommended for inclusion into the urban growth

boundary. To comply with this Policy the expanded urban growth boundary must include some agricultural land. To exclude that portion of the agricultural properties that is surrounded on three sides by the city would create a distorted city, with unworkable lengthy extensions of exceptions land completely contrary to the goals of connectivity and community interaction.

Natural Resources Goal Policies

Policy 20: ***The City shall protect, restore, manage, and enhance important natural resources; maintain high quality air, water, land and historic resources; and provide green spaces in and around the community.***
Policy 21: ***The City shall protect or mitigate, whenever possible, fish and wildlife habitats including rivers, wetlands, and forests, and significant natural areas and habitats of rare or endangered species.***
Policy 17: ***Areas containing any other unique ecological, scenic, aesthetic, scientific or educational values shall be considered in the planning process.***

These policies have been implemented through the application third locational factor of Statewide Planning Goal 14 in the 2010 Urbanization Study Update.

Agricultural Lands Goal Policies

Policy 2: ***To the extent to which it has influence, the City shall promote the retention of lands outside its Urban Growth Boundary for agriculture use by encouraging Lane County to maintain current agricultural zoning within the City's area of influence as defined in the Intergovernmental Agreement with Lane County.***
Policy 5: ***The City supports, and may require, measures to promote compatibility and transition between urban development at the edge of the Urban Growth Boundary and adjacent agricultural areas.***
Policy 7: ***The City supports, and shall pursue, establishment of a southern greenbelt that ensures a permanent open character for the area between Coburg and the McKenzie River.***
Policy 8: ***The City shall protect high quality farmland surrounding the community from premature development.***

These policies have been implemented through the application of ORS 197.298 and the fourth locational factor of Statewide Planning Goal 14 in the 2010 Urbanization Study Update.

The 2010 Urbanization Study Update includes a list of local expansion criteria or "local criteria" from the above listed guiding policies. They are as follows:

Local Criteria 1: *Expansion should be limited to areas and tax lots which promote the greatest order and efficiency.*
Local Criteria 2: *Expansion should be limited to areas and tax lots that are appropriate to meet city needs.*

Local Criteria 3: *Expansion should be limited to areas and tax lots that would promote sequential development that expands in an orderly way outward from the existing city center, and promote a street network that is interconnected in order to promote connectivity and community interaction.*
Local Criteria 4: *Expansion should be limited to areas and tax lots that promote livability*
Local Criteria 5: *Expansion should be limited to areas and tax lots that discourage premature development of agricultural lands and compatibility and transition between urban development and agricultural areas.*

Expansion of the proposed urban growth boundary into the more distant portions of the adjacent exception areas will not promote order and efficiency. Providing public facilities in the form of water and wastewater services to these distant areas will cost significantly more than would the cost of expansion into areas closer to the city center, will create greater and more adverse transportation impacts, because they would require longer trips to obtain city services, and will undermine rather than promote the development of an interconnected street network and the development of walkable neighborhoods. Inclusion of the distant exception areas would weaken rather than promote the livability of the City.

STATEWIDE PLANNING GOAL 14

Statewide Planning Goal 14 provides that the establishment and change of urban growth boundaries shall be based on the following:

(1) Demonstrated need to accommodate long range urban population, consistent with a 20-year population forecast coordinated with affected local governments; and

- The Coburg Urbanization Study (2010) used Lane County's Coordinated Population Forecast to estimate a twenty-year planning period.
- The Lane County Coordinated Population Forecast provided a population forecast for Coburg in five-year increments.
- The population forecast anticipated growth due to the construction of Coburg's first wastewater system. Due to the 2008 recession and a de facto growth moratorium because of a lack of a community wastewater system the City's actual population (based upon the 2010 Census and PSU's estimate for 2013) fell well below the Lane County Coordinated Population Forecast for the period between 2010 and 2015. (Table A.3, Urbanization Study – Revised)
- The City's wastewater system has been completed. In the final months prior to completion, and since that time, Coburg has begun to experience significant commercial development and residential development consistent with the growth rate forecast to occur.

- After adjusting for the lower than average growth rate that begins around the time the wastewater system is completed (now 2015 instead of 2010), the anticipated growth rate appears to be consistent with that of the coordinated population forecast except that it begins five years later. Thus, the expected growth rate of 7.88 percent that was supposed to occur between 2015 and 2020 will now occur between 2020 and 2025, and so forth.

(2) ***Demonstrated need for housing, employment opportunities, livability or uses such as public facilities, streets and roads, schools, parks or open space, or any combination of the need categories in this subsection (2).***

Prior to expanding an urban growth boundary, local governments shall demonstrate that needs cannot reasonably be accommodated on land already inside the urban growth boundary.

Residential Land Needs

- The 2010 Urbanization Study's buildable lands inventory is still valid as very little development has occurred in Coburg during the period of 2010 – 2014. For instance, only three additional residential units, consuming 0.5 acres of land, have occurred during this period. The inventory has been adjusted, however, to address the reduced growth rate caused by the 2008 recession and the late development of the wastewater system.

- For the reason explained above, the basic assumptions of Coburg's housing needs analysis have not changed. The average household size and housing mix have not changed and the extension of the planning period has only slightly changed the number of new housing units needed. (See Table A.8, 2010 Urbanization Study – Revised)

- The assumptions regarding public infrastructure needs have not changed and neither has the amount of total residential buildable lands.

- The use of the new 20–year planning period has only increased the amount of total new needed acres for residential use by 2.3 acres. The total amount of land needed for residential development, including supporting streets and parkland, is 148.8 acres.

- The 2010 Urbanization Study Update, as modified slightly in 2014, has identified the amount of land needed for medium and high density residential development. The preferred residential recommendation identifies Study Area 6 as the location for this type of housing.

Employment Opportunities

- The Economic Opportunities Analysis of the 2010 Urbanization Study states that Coburg's local employment land need is for one or two parcels

of at least 20 acres and the Regional Economic Analysis states a regional need for 20 acre or larger sites. All of the exception lands within the 11 study areas are already divided into parcels significantly smaller than 20 acres in size. Therefore, they are all inappropriate, and would not accommodate employment land need pursuant to ORS 197.298(3)(a), because the specific types of identified employment land needs cannot be reasonably accommodated on the exception land parcels.

- The soil classifications on Study Area 9 and Study Area 8 are similar, the next step in the required analysis under Goal 14 is to weigh the four locational factors within the Goal language, and determine which Study Area is more suitable for inclusion in the UGB. Table 7.6 summarizes the analysis of these four factors. Based upon the analysis, Study Area 8 scores 12 points, while Subarea 9 scores only seven points.

- The analysis leading to the selection of Study Area 8 has since been validated by the expression of interest in the development of a portion of the property. This expanded employment opportunity is exactly the kind of regional need that the analysis is designed to capture.

Goal 14 also requires that the location of the urban growth boundary and changes to the boundary shall be determined by evaluating alternative boundary locations consistent with ORS 197.298 and with consideration of four factors.

ORS 197.298

Priority of land to be included within urban growth boundary.

(1) In addition to any requirements established by rule addressing urbanization, land may not be included within an urban growth boundary except under the following priorities:

(a) First priority is land that is designated urban reserve land under ORS 195.145, rule or metropolitan service district action plan.

The Coburg Comprehensive Plan does not designate any lands as urban reserve.

(b) If land under paragraph (a) of this subsection is inadequate to accommodate the amount of land needed, second priority is land adjacent to an urban growth boundary that is identified in an acknowledged comprehensive plan as an exception area or nonresource land. Second priority may include resource land that is completely surrounded by exception areas unless such resource land is high-value farmland as described in ORS 215.710.

Residential Land Needs

Map 11 of the 2010 Urbanization Study shows "built upon and developed" exception areas (designated as Rural Residential) and natural resource areas ((zoned either exclusive farm use or impacted forest) located adjacent to the Coburg Urban Growth Boundary. For purposes of analyzing the potential for expanding the Coburg Urban Growth Boundary, all of the exception areas are located within one of the 11 study areas. The majority of the exception lands are located adjacent and northwest of the Coburg Urban Growth Boundary, in the Stallings Lane area.

The 2010 Urbanization Study recommends that 169 acres of land be added to the Coburg Urban Growth Boundary to meet the city's 20–year need for residential land. The city has decided at this time to add only 148 acres to address its need for residential land; and option that is available to cities smaller than 25,000. Land to meet this need is proposed to be provided by portions of Study Areas 1, 2, 5 and 6.

Study Area 1: Study Area 1 includes lands south of the existing UGB, east of Coburg Road and West of Roberts Road. The eastern edge of the study area is bounded by the Southern Pacific Railroad right-of-way. The area is contiguous with the existing UGB on three sides. The area consists of approximately 95 acres in five parcels.

More than 90 acres of the site is zoned for agricultural uses (E–40), with 4.4. acres designated RR–2 (an exception area). Three dwelling units exist on the site as well as a few farm-related structures. The land is largely in active farm uses. Topographically, the site is largely flat. While no identified wetlands exist on the site, about 16 acres of the site are in flood zone A (the 100-year floodplain).

The preferred residential alternative includes the 4.4 acres of exception lands. This alternative also includes 13.6 acres of resource land that is out of the flood plain. The resource land is separated from actively managed agricultural land to the south by a creek. In addition, it is occupied by several out buildings.

Study Area 2: This study area is 65 acres in size and contains 21 acres of exception lands. Nine of these exception acres, located immediately adjacent to the city limits are proposed to be added to the urban growth boundary. The remaining exception acres 12 acres are not proposed for addition to the boundary because they are inadequate to accommodate the residential land need. Eight of these acres are located within the 100-year floodplain, which is an environmental consequence pursuant to Factor 3 of Goal 14. In addition this land is bounded on three sides by agricultural land with Class II soils, and development with urban uses would pose compatibility issues with these agriculture activities pursuant to Factor 4 of Goal 14. For these reasons, inclusion of this exception land into the

urban growth boundary is inappropriate and would not accommodate the residential need.

Twelve acres of exception area lands in this study area, located immediately adjacent to the Coburg Urban Growth Boundary on the north and Coburg Road on the east, are included in the preferred residential alternative.

The recommended expansion of the urban growth boundary includes all of the exception areas located within Study Area 1 and most of the exception areas located within Study Area 2 plus an additional 18.3 acres of resource land located in Study Area 1. This equates to a total of 27.3 developable land to be added to the urban growth boundary.

Study Area 3: Study Area 3 includes lands south and west of the existing UGB, west of Coburg Road. The area is contiguous with the existing UGB on the northeast side. The study area includes approximately 74 acres in 8 parcels. The majority of the study area (73.3 acres) is zoned for agricultural uses (E-30), with only one lot for rural residential uses. The rural residential lot is separated from the Coburg UGB by the agricultural lands within this study area. Agricultural lands in the study area are in orchards and other crops. Only two dwelling units exist in the study area, one of which is located in the exceptions area. Topographically, the site is largely flat. However, the site is several feet lower than the remainder of Coburg and is separated from the UGB by a vegetative buffer. The majority of the site (81%) is in flood zone A (the 100-year floodplain). Between the elevation difference and areas in the floodplain, this study area presents significant development constraints. All of the 73.3 acres zoned for agricultural uses in this study area are identified as Class II soil types. For these reasons, Study Area 3 was not included in the residential land expansion recommendation .

Study Area 4: The 17 acres of exception land within this subarea are not proposed to be added to the urban growth boundary because they are located at the southern end of the study area; separated from the existing Coburg Urban Growth Boundary by agricultural land with Class II soils, which would also have to be brought into the boundary as part of including this exception area. This exception area is surrounded by agricultural land with Class II soils. Inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 3, the economic and social consequences of removing the intervening agricultural land from agricultural use, and Factor 4, the impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

Study Area 5. Study Area 5 includes lands north and west of the existing UGB. The area is contiguous with the existing UGB on part of the east side. The study area includes approximately 200 acres in 56 parcels. The majority of the study area (172.3 acres) is in exception areas (RR-5 zoning). Only one tax lot of about 28 acres is in agricultural zoning (E-40), but many of the properties are in agricultural production, with only one residence and intensive agricultural use. A total of 43 dwelling units exist in the study area; 39 of which are located in exceptions areas. Topographically, the site is largely flat. Of the 28.1 acres in this study area zoned for agricultural uses, 18.1 acres are in Class I soil types and 9.4 acres are identified as Class II soil types. The residential preferred alternative includes 75 acres of these lands, and excludes 97 acres; 20 acres at the southern end of the exception area on the south side of Van Duyn Road, and 77 acres at the northern end of the exception area.

The southern 20–acre area, located south of Van Duyn Road, is bounded on three sides by agricultural lands with Class II soils – exclusion of this area would place the urban growth boundary along Van Duyn Road, which would provide an appropriate transition between urban and agricultural uses. Inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 4, the impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

The northern 77–acre area is farthest from the existing urban growth boundary among exception lands in Study Area 5. As such, it would be more expensive to serve with public facilities such as water, sewer, and transportation facilities. The extraordinary cost of providing water and sewer services to this distant area would preclude development, even if the residents were interested in development. The existing division into moderate sized parcels would prevent the development of housing densities such as has been determined to be needed to accommodate the population growth. The extreme distances between these exception areas and the central portions of Coburg are contrary to the policy provisions supporting compact growth. The extreme distance between these exception areas and the central portions of Coburg would increase the use of vehicle travel in Coburg, perhaps hastening the need for construction of a new northern connector roadway (see Map 17). It is also adjacent to agricultural lands with Class I and II soils to the north, east, and west and is itself in agricultural use despite being in an exception area. Existing residents of this area were split in terms of wishing incorporation into the Coburg Urban Growth Boundary. Therefore, inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 3, the economic (facilities costs) and social (resident opposition) impacts, and Factor 4, the

impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

The preferred residential alternative includes 75 acres of exception acres located north of Van Duyn Road; which provide 64 acres of developable residential land.

While the discussion and findings appended herein demonstrate compliance with Goal 14, the strictest interpretation of the provisions of the Goal suggest that an exception to portions of Goal 14 might be appropriate as well. The City has done an exceptions analysis , as set forth in the attached Exceptions Appendix and which is incorporated in full into these findings. For the reasons set forth there, it is the City's findings that with regard to Study Area 5, and other study area there are valid reasons to take an exception to the requirements of Goal 14 to show overall compliance with statutes and with the statewide goals.

Study Area 6: Study Area 6 includes lands directly north of the existing UGB. The area is contiguous with the existing UGB on the north side and part of the east and west sides. The study area includes approximately 209 acres in 4 parcels (one parcel contains over 100 acres) and the majority of the area is in a common ownership. Most of the study area (208 acres) is zoned for agricultural uses (E- 40). Less than 1 acre is zoned for rural residential uses (RR-5) and this parcel is separated from the Coburg UGB by the agriculturally zoned land. A total of 6 dwelling units exist in the study area. Topographically, the site is largely flat.

Forty–nine acres (48.9) of this study area, all of it developable resource land, are included in the preferred residential alternative. Expansion in this area is preferred because it is immediately adjacent to the Urban Growth Boundary and its northern boundary is slated by the adopted Transportation System Plan to be the location of a new east–west connector. This project is necessary to provide redundant east–west connectivity as Pearl Street is the only through east–west route in the city. The proposed collector is also necessary to mitigate the significant deterioration of traffic conditions on Willamette and Pearl Streets and to serve the proposed build–out of the Stallings Lane area. (Pg. 22 of the TSP and supplemental traffic study).

This property also represents the greatest potential for higher density residential development as it not adjacent to property located within the Coburg Historic District or any developed neighborhoods. This property is already partially inside the UGB. While currently undeveloped, when these already included portions of the properties are developed, they will increase the committed character of these parcels, and may well have the effect of limiting or curtailing agricultural use of the parcels, whether or not they are included in the UGB.

Study Area 7: Study Area 7 includes lands east of the existing UGB and across I-5 and contains no built upon or committed exception lands. The area is not contiguous with the existing UGB. Inclusion of this area would require additional expansion of the UGB across I-5. The study area includes approximately 240 acres in 3 very large parcels. The entire study area (239.9 acres) is zoned for agricultural uses (E-40). Agricultural lands in the study area are used primarily for grazing. No development exists in this study area. Topographically, the site is largely flat. The study area has (23 acres) is in flood zone A (the 100-year floodplain) or in identified wetland area. The major development constraint in this study area is extending municipal services across I-5.

Study Area 8: Study Area 8 includes lands east of the existing UGB and across I–5 and contains no built upon or committed exception areas. Unlike Study Area 7, Study Area 8 shares a significant border with the existing UGB. A portion of the original Study Area 8, identified in the 2004 Urbanization Study, was brought into the UGB in 2006. Study Area 8 now consists of the remaining acreage that was not included in that expansion.

Study Area 9: Study Area 9 includes lands east of the existing UGB and across Interstate 5 and contains no built upon or committed exception areas. The northwest corner of the area is contiguous with the existing UGB.

Inclusion of this area would require additional expansion of the UGB across I–5. The study area includes one parcel of approximately 26 acres. This parcel is designated by Lane County as resource (Forest) land. Half of the site is significantly wooded and the eastern most portion is nestled against the foothills of the Coburg Hills. As a result Study Area 9 contains the most significant slopes of any of the 11 study areas, although it is noted, the slopes are relatively insignificant.

Study Area 10: Study Area 10 includes lands south of the existing UGB, both east and west of Coburg Road and south of Study Areas 1 and 2. The eastern edge of the study area is bounded by Interstate 5 and includes a parcel between I–5 and the Southern Pacific Railroad right-of-way. The eastern portion of the study area is contiguous with the southernmost arm of the existing UGB. The study area is long and narrow running east and west and consisting of four parcels and two residences. The area straddles the southern gateway to the City of Coburg from Eugene along Coburg Road.

The entire area is zoned for agricultural use, much of it largely in active farm uses, and contains no built upon or committed exception areas. Topographically, the site is largely flat.

Study Area 11. The exception land within this subarea is not proposed to be added to the urban growth boundary. The 18 acres of rural residential land is located at the northern end of the study area, and is separated from the existing Coburg Urban Growth Boundary by agricultural land with Class I and Class II soils, which would also have to be brought into the boundary as part of including this exception area. This exception area is surrounded by agricultural land with Class I, II, and III soils. Inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 3, the economic and social consequences of removing the intervening agricultural land from agricultural use, and Factor 4, the impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

Economic Opportunity Needs

The Economic Opportunities Analysis of the Urbanization Study has found that Coburg's local employment land need is for one or two parcels of at least 20 acres in size and the Regional Employment Analysis found a need for 51.4 net acres in 20+ acre parcel sizes to capture ten percent (10%) of the regional large site industrial need. Therefore, none of the exception lands within the study areas are suitable for industrial development as they are already divided into parcels significantly smaller than 20 acres.

Further, no properties currently within the Coburg UGB are suitable. The only parcels that come ear to approaching the need are the properties north of Pearl that are zoned highway commercial. These properties barely come up to the minimum needed size. The lack of flexibility in size may well eliminate some of the potential uses. Further access to these parcels is limited and development as industrial uses is currently contrary to the Coburg- ODOT Interchange Area Management Plan. Development as industrial parcels would have an adverse effect on adjacent properties, specifically including the newly developed Serenity Lane facility across Industrial Way

Study Areas 1, 6, 7, 8, 9 and 10 are located immediately adjacent to existing lands designated and zoned for highway commercial and industrial use. Of these study areas only Study Area 1 contains an exception area and this small area is projected to be brought into the urban growth boundary to help satisfy the need for residential land. Study Area 8 is the only other study area within this group that is contiguous to an exception area. The City has received inquiries about developing a portion of Study Area 8 if it is included in the UGB.

(c) If land under paragraphs (a) and (b) of this subsection is inadequate to

accommodate the amount of land needed, third priority is land designated as marginal land pursuant to ORS 197.247 (1991 Edition).

There is no land adjacent to the Coburg Urban Growth Boundary that has been designated as marginal land.

(d) If land under paragraphs (a) to (c) of this subsection is inadequate to accommodate the amount of land needed, fourth priority is land designated in an acknowledged comprehensive plan for agriculture or forestry, or both.

(2) Higher priority shall be given to land of lower capability as measured by the capability classification system or by cubic foot site class, whichever is appropriate for the current use.

(3) Land of lower priority under subsection (1) of this section may be included in an urban growth boundary if land of higher priority is found to be inadequate to accommodate the amount of land estimated in subsection (1) of this section for one or more of the following reasons:

(a) Specific types of identified land needs cannot be reasonably accommodated on higher priority lands;

(b) Future urban services could not reasonably be provided to the higher priority lands due to topographical or other physical constraints; or

(c) Maximum efficiency of land uses within a proposed urban growth boundary requires inclusion of lower priority lands in order to include or to provide services to higher priority lands.

Residential Land Needs

For Coburg to adopt the preferred residential land alternative, it must make appropriate findings pursuant to ORS 197.298 that justify this alternative in contrast to Expansion Alternative #1. Expansion Alternative #1 proposed UGB additions for residential development (178 acres, 151 developable) that consisted entirely of exceptions lands, while the city's preferred residential land alternative adds 169 acres (143 developable), 88 acres of exceptions land and 81 acres of resource land. Discussions with the property owners and other interested parties resulted in a modification, so the final acreage of residential land to be included is 149.36 acres.

Existing residential development in Coburg is located on the west side of I–5 and the City wishes to continue this urban form. With the exception of the property located west of I–5, the Coburg Urban Growth Boundary is totally surrounded by Class I–III agricultural soils. ORS 197.298(2) provides that a higher priority shall be given to land of lower capability as measured by the capability classification system or by cubic foot site class, whichever is appropriate for the current use.

With a few exceptions, most of the Class I agricultural soils adjacent to the

Coburg Urban Growth Boundary on the west side of I–5 are built upon or committed to urban development. The remainder of the immediately adjacent soils are Class II. Thus, because the immediately adjacent exception areas cannot totally meet the forecasted need for residential land, some land with Class II soils must be included in the expansion of the urban growth boundary. The resource land that is added has been taken from Study Area's 1 and 6 as these areas are contiguous to the existing urban growth boundary and, as proposed, will preserve a compact urban form for purposes of the efficient provision of urban services and transportation access.

The residential preferred alternative does not include higher priority exception lands in Study Areas 2, 4, 5, and 11. Note that it also does not include exception lands in subareas 3 and 6 – however the amount of exception lands in these subareas is negligible and the negligible exception lands in these subareas are separated from the existing Coburg urban growth boundary by agricultural land. It also does not include higher priority agricultural and forest lands with lower soils classifications (Class III, Class IV, and Class VI) that are within Study Areas 7, 8, and 9. The city makes the following findings justifying lowering the priority for inclusion of these lands in the urban growth boundary, and adding lower priority lands in their place:

EXCEPTION LANDS

Study Area 2: 12 acres of exception land, located south of nine acres of exception land that is proposed for addition to the urban growth boundary, is not proposed for addition to the boundary because it is inadequate to accommodate the residential land need. Eight of the 12 acres is located within the 100-year floodplain, which is an environmental consequence pursuant to Factor 3 of Goal 14. In addition this land is bounded on three sides by agricultural land with Class II soils, and development with urban uses would pose compatibility issues with these agriculture activities pursuant to Factor 4 of Goal 14. For these reasons, inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential need.

Study Area 4: Seventeen acres of exception land within this subarea is not proposed to be added to the urban growth boundary. The 17 acres is located at the southern end of the study area, and is separated from the existing Coburg Urban Growth Boundary by agricultural land with Class II soils, which would also have to be brought into the boundary as part of including this exception area. This exception area is surrounded by agricultural land with Class II soils. Inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 3, the economic and social

consequences of removing the intervening agricultural land from agricultural use, and Factor 4, the impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

Study Area 5: This study area contains 172 acres of exception lands. The residential preferred alternative includes 75 acres of these lands, and excludes 97 acres; 20 acres at the southern end of the exception area on the south side of Van Duyn Road, and 77 acres at the northern end of the exception area.

The southern 20–acre area is bounded on three sides by agricultural lands with Class II soils – exclusion of this area would place the urban growth boundary along Van Duyn Road, which would provide an appropriate transition between urban and agricultural uses. Inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 4, the impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

The northern 77 acre area is farthest from the existing urban growth boundary among exception lands in Study Area 5. This northern area is distant from the central area of the City and is a distance between 2400 and 5500 feet from the nearest available connection point for water and sewer connections. Using the comparable costs of construction of a water line to another distant exception area 5,000 feet from the Coburg water system, providing water service would require an initial capital investment of at least $250,000. (Supplemental information; Statement of Damien Gilbert) This does not include the cost of the local delivery system, which would be included as a cost of any development. In addition to the costs of construction, such long distance services areas are most expensive to serve, requiring an increase in water service costs to such areas. (Supplemental information; Statement of Robert Butler)

In addition, the cost of construction of a new wastewater line would impose a high burden on the development of properties. Based on the experience of the just completed City wastewater system, the cost of constructing an new wastewater line to the full extent of this exception area would cost $168,300 ($33.66 a foot for 5,000 feet) (Supplemental information: email from Benjamin Bosse).

Because of the distance to the amenities of Coburg, such as city government, schools and commercial activities, any development in the distant areas of the exception area would necessarily lead to more vehicular travel, all of which would increase use of Coburg streets and hasten the failure of the critical intersections in Coburg. (Supplemental Information: memo form Susan Payne)

For all of the above included reasons this portion of the study area would be more expensive to serve with public facilities such as water, sewer, and transportation facilities. The extraordinary cost of providing water and sewer services to this distant area would preclude development, even if the residents were interested in development. The existing division into moderate sized parcels would prevent the development of housing densities such as has been determined to be needed to accommodate the population growth. The extreme distances between these exception areas and the central portions of Coburg are contrary to the policy provisions supporting compact growth. The extreme distance between these exception areas and the central portions of Coburg would increase the use of vehicle travel in Coburg, perhaps hastening the need for construction of a new northern connector roadway (see Map 17). It is also adjacent to agricultural lands with Class I and II soils to the north, east, and west and is itself in agricultural use despite being in an exception area. Existing residents of this area were split in terms of wishing incorporation into the Coburg Urban Growth Boundary. Therefore, inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 3, the economic (facilities costs) and social (resident opposition) impacts, and Factor 4, the impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

The proposed inclusion of agricultural areas immediately adjacent to the existing developed portions of the City does not suffer from the same significantly increased cost of infrastructure service. The areas proposed to be included are adjacent to several available water and wastewater services, and would therefore not face any significant infrastructure development costs.

Study Area 11: The exception land within this subarea is not proposed to be added to the urban growth boundary. The 18 acres of rural residential land is located at the northern end of the study area, and is separated from the existing Coburg Urban Growth Boundary by agricultural land with Class I and Class II soils, which would also have to be brought into the boundary as part of including this exception area. This exception area is surrounded by agricultural land with Class I, II, and III soils. Inclusion of this exception land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 3, the economic and social consequences of removing the intervening agricultural land from agricultural use, and Factor 4, the impact of potential urban uses on this exception land upon agricultural land surrounding the exception area.

Economic Opportunity Needs

For Coburg to adopt the preferred employment land alternative, it must also make appropriate findings pursuant to ORS 197.298 that justify the alternative in contrast to inclusion of higher priority exception lands to meet the employment land need. The preferred employment land alternative would add 106 acres of agricultural land, and no exception lands.

As stated above, Study Areas 1, 6, 7, 8, 9 and 10 are located immediately adjacent to existing lands designated and zoned for highway commercial and industrial use and these are the most logical locations for expansion of these uses in order to be consistent with the current urban form. However, Study Areas 1, 6 and 10, located on the west side of I–5, are largely occupied by Class I and III agricultural soils. ORS 197.298(2) states, "Higher priority shall be given to land of lower capability as measured by the capability classification system or by cubic foot site class, whichever is appropriate for the current use." For this reason, they are not considered as prime candidates to expand the urban growth boundary to address forecasted economic opportunity needs.

The soils on the east side of I–5 are lower class agricultural soils than those on the west side. Study Area 7 is composed largely of Class IV and Study Areas 8 and 9 are composed of Class IV and VI soils.

EMPLOYMENT LAND ALTERNATIVES

For Coburg to adopt the preferred employment land alternative, it must make appropriate findings pursuant to ORS 197.298 that justify this alternative instead of incorporating alternative exception lands into the urban growth boundary to satisfy the need for employment land. Among resource lands, Study Area 8 has worse soils (Class IV and Class VI) than all other agricultural and forest lands except for Study Area 9, which has a predominance of class IV soils and approximately equal areas of Class III and VI soils.

Regarding employment lands, Coburg finds that all exception lands within the Study Areas are unsuitable for industrial development for the following reasons:

- The Economic Opportunities Analysis states that Coburg's employment land need is for one or two parcels of at least 20 acres and the Regional Economic Analysis indicate that regional-scale industrial opportunities exist for parcels of 20 acres or greater in size. All of the exception lands within the 11 study areas are already divided into parcels significantly smaller than 20 acres in size. Therefore, they are all inappropriate, and would not accommodate employment land need pursuant to ORS

197.298(3)(a), because the specific types of identified employment land needs cannot be reasonably accommodated on the exception land parcels.

- Regarding Study Area 9, since the soil classifications on this Study Area and Study Area 8 are largely similar, the next step in the required analysis under Goal 14 is to weigh the four locational factors within the Goal language, and determine which Study Area is more suitable for inclusion in the UGB. Table 7.6 from the 2010 Urbanization Study Update summarizes the analysis of the four factors discussed earlier in this chapter. Based upon the analysis, Study Area 8 scores 12 points, while Subarea 9 scores only seven points. Further discussion of the Goal 14 locational factors is included below.

HIGHER PRIORITY RESOURCE LANDS

Study Areas 7, 8 and 9: These three study areas contain a total of 373 acres. Most of these three subareas have Class IV soil types, with smaller areas of Class VI and Class III. They are located to the east of the Interstate 5 freeway. Study Area 8 is proposed to be added to the urban growth boundary for employment land purposes (see discussion below), so it is not available to satisfy residential land need. Study Areas 7 and 9 would be most difficult and expensive to serve with public facilities, due to the need for interchange improvements to provide transportation and extension of water, sewer, storm drainage, and electricity lines under Interstate 5. In addition, extension of the urban growth boundary to the east side of Interstate 5 has been a source of significant opposition from rural property owners to the east. Additionally, Study Areas 7 and 9 both contain mapped wetlands, and Study Area 7 also contains land within the 100 year floodplain. Inclusion of this higher priority agricultural and forest land into the urban growth boundary is inappropriate and would not accommodate the residential land need pursuant to Factor 3, the economic consequences of providing expensive and difficult public facilities to these parcels, the environmental consequences of development within the 100 year floodplain and impacts to mapped wetlands, and the social consequences of residential and community opposition to expanding the urban growth boundary east of the Interstate 5 freeway.

FOUR LOCATIONAL FACTORS OF GOAL 14

Once higher priority exception lands and agricultural lands with lower soil classifications are excluded, the next step in the required analysis under Goal 14 is to weigh the four locational factors within the Goal 14 text, and then determine which Study Area is more suitable for inclusion in the UGB.

The analysis above has resulted in a deficit of 76 developable residential acres that must come from the remaining Study Areas and agricultural land with Class I or II soils. Table 7.6 summarizes the analysis of the four factors discussed earlier in this chapter. Study Area 6, with 17 points, and Study Area 2, with 13 points, score higher than any of the other Study Areas other than Study Area 5, which consists of exception lands except for one parcel in the northern portion of the study area owned by the Eugene School District, and suffering from issues similar to those that resulted in the exclusion of the northern portion of Subarea 5 from the Coburg urban growth boundary.

The analysis above has resulted in a deficit of 91.7 net developable industrial acres that must come from the Study Areas. Table 7.6 summarizes the analysis of the four factors discussed earlier in this chapter. Study Area 8 scored 12 points and Study Area 9 scored 7 points.

Further discussion of the Goal 14 locational factors is included below.

The following are the four Goal 14 factors that must be considered to modify an existing urban growth boundary:

(1) Efficient accommodation of identified land needs;

This factor is generally interpreted to equate "efficiency" with being "contiguous or adjacent" to existing development." Following the priorities analysis required by statute and Goal 14, and mirroring the process followed in the 2004 Urbanization Study, the Coburg urbanization study team developed 11 study areas. The actual expansion alternatives may include portions of one or more study area as deemed appropriate.

Coburg's Urban Growth Boundary has a perimeter of approximately 7.5 miles. The study areas constitute almost all lands adjacent to the current UGB (see Map 10). The study areas are generally numbered in a clockwise direction, beginning with Study Area 1, located along the southern portion of the current Coburg Urban Growth Boundary and continuing around its perimeter. The study areas utilized for this expansion analysis are identical, for the most part, to the study areas utilized in the 2004 Urbanization Study. The only difference is the addition of Study Areas 9, 10 and 11, and the reconfiguration of Study Area 8 to account for lands which have been added to Coburg's UGB since 2004.

The following considerations were considered in developing logical study area boundaries:

- Property lines/ownership patterns, based upon Lane County Assessor Map records of the tax lot boundaries.
- Natural Features, such as wetlands, streams, and 100-year floodplains
- Streets and roads
- Tax lots reported by the County Assessor records as "Unimproved."

- Fundamental understanding of water and sanitary sewer service infrastructure.

Not all of the area adjacent to the existing UGB is included in the study areas. An initial review of the land surrounding the UGB identified areas adjacent to the UGB that could be excluded from consideration for expansion. State OAR (660-024-0060(5) provides local governments the authority to guide the selection of expansion alternatives through City policies specifying certain land characteristics as necessary for land to be suitable for expansion.

The identification of study areas included considerations of both ORS Priorities as well as locally specified characteristics or "local criteria" (as they are referred to throughout the 2010 Urbanization Study). Lands to the northeast of Coburg are the only lands excluded entirely from consideration within a study area. These areas were not included based on a local priority for expansion that *"provides the best opportunity for developing an efficient urban form."* The isolated nature of the lands adjacent to the northeast corner of Coburg was viewed as sufficient justification for disregarding their inclusion within a study area.

Residential Land Needs

Study Areas 1 and 6 have the greatest ability to meet the intent of this factor due to their proximity to the existing urban growth boundary and existing development therein. Lands within Study Areas 2 and 5 are included because they are the exception areas with the greatest contiguity to the existing urban growth boundary.

Economic Opportunity Needs

Coburg's existing highway commercial and industrial land is located adjacent to I-5 and this location remains the most efficient and logical area to meet future economic opportunity needs. Study Areas 1, 6, 7, 8, 9 and 10 are located immediately adjacent to existing lands designated and zoned for highway commercial and industrial use. Study Areas 1, 6, and 7 are excluded from consideration because of their high value agricultural soils and, except for Study Area 7, are being considered necessary to meet residential land needs. Study Area 8 represents the most "efficient" accommodation of identified land needs because of its sharing of a major property boundary with the existing urban growth boundary.

(2) Orderly and economic provision of public facilities and services;

Residential Land Needs

While a detailed cost study has not been conducted, a generalized estimate of general service extension costs was provided by the Coburg Public Works Department and city engineers familiar with the cost of extending water and

sewer services in Coburg. This estimate indicated that in terms of property immediately adjacent to the current compact urban form, sewer and water service can most inexpensively be extended to Study Areas 5 and 6, followed by Study Areas 1 and 2. Study Area's 10 and 11 also have the lowest cost for service extension but they are located farthest away from the urban core of the city and generally contain the best agricultural soils.

Economic Opportunity Needs

The major development constraint regarding properties located east of I–5 (Study Areas 7–9) is extending municipal services across I–5. Water, sewer, electricity, and storm drainage would all probably require boring under the Interstate. A pump station might be required to move sewage from the area to the treatment plant on the north end of Coburg. Transportation access to the site would come from Van Duyn Road—a County Road. Development in these areas may be constrained until the I–5 interchange improvements are completed. It is noted that Study Area 8 is adjacent to lands already within the UGB (east of I–5), and for which the City has an obligation to provide service to, and is adjacent to Van Duyn Road and a proposed wastewater sewer connection.

*(3) **Comparative environmental, energy, economic and social consequences; and***

Residential Land Needs: Study Area 1

Economic consequences. Study Area 1 has limited opportunities in the area for commercial or even industrial uses, however, public sentiment favors residential use for the area. Impacts to existing economic conditions would include the removal of farmland acreage that is currently producing a commercial crop.

Social consequences. This area abuts industrial uses off of Roberts Court, and conflicting uses could create limited impacts or limitations (obvious or subtle) to their operation.is adjacent to sections of Coburg's city limits that are developed with a residential neighborhood (to the north) and industrial uses (to the east). The area also includes existing residences, which occur on both County designated exceptions land (two homes) and non-exceptions land (one home). To the west and across from Coburg Road is a significant area of exceptions land as well. This dynamic has potential for both positive and negative social consequences. The lifestyle of current residents in this area will be altered; however the livability of the area will be relatively high for new residents moving in. Expansion in this area will also have significant potential to redefine the southern gateway to the City along Coburg Road. There has been some interest expressed from property owners in this area about future annexation into the City as part of long-term plans for the property.

Environmental consequences. The environmental consequences of adding this study area to the urban growth boundary are primarily determined by the existence of the floodplain as the area contains significant acreage within 100–

year floodplain. Although floodplain does not prohibit development, it does present an environmental conflict that does not exist in all study areas. Development within these floodplain areas would introduce an increased risk of hazard to housing stock within Coburg. In addition, Muddy Creek flows through the western portions of Study Area 1.

Energy consequences. The energy consequences of expanding the urban growth boundary into Study Area 1 are generally positive. Water and sewer lines already extend up to several areas adjacent to Study Area 1 and would provide a relatively efficient conversion to urban use. Access to Study Area 1 would be very good as the area could be served by Coburg Road, other local streets and perhaps Roberts Road to the east.

Residential Land Needs: Study Area 2

Economic consequences. Like Study Area 1, Study Area 2 would be neither the least expensive area to service nor the most. The area contains acreage that would be removed from active farming if developed.

Social consequences. Study Area 2 contains a significant amount of exceptions land (35%). There are about eight residences in Study Area 2, most of which are within the exceptions land. Although there may be resistance to expansion in this area amongst current property owners, livability in the area, excepting floodplain dynamics, would be very high given its proximity to downtown and Coburg Road. Also because many Coburg residents work in the Eugene-Springfield Area, expansion on this end of town will ease traffic through Downtown Coburg on Willamette Street. There has been some interest expressed from property owners in this area about future annexation into the City.

Environmental consequences. This study area contains significant acreage within the 100-year floodplain (21%). Most of the floodplain areas are located on the exceptions land. The remaining resource acreage is Class II soils, most of which is being actively farmed. There is also a small wetland identified in the National Wetlands Inventory located in the northwest corner of Study area.

Energy consequences. The area would be relatively easy to service due to its flat topography. Water service would be relatively easy to extend to the site, as would electrical. Coburg Road provides access into the area. The overall energy consequences are generally positive.

Residential Land Needs: Study Area 5

Economic consequences. Study Area 5 is one of the least expensive areas to extend City water and stormwater service into. This is due to the fact that much of the area is currently served by water along North Coburg Road North. An important consideration in expansion into Study Area 5 is the sewer service obligation to existing residents that will be immediately effective if all or any

portion of area 5 is included. This obligation is more significant in Study Area 5 than other areas, and is an important cost related issue for the City to consider. The more northern portions of Study Area 5 would be progressively more expensive to provide services to because of the increased distance from existing city facilities to the south, and would accelerate the need to construct an expensive northern connector road.

Study Area 5 is not identified as an area for employment expansion and expansion would provide no benefit in that regard. The area contains a number of small farms and mid-sized farms. Economic impacts will be more substantial for the relatively few operating--mid-sized farms. The only resource land in Study Area 5 is the 28 acre piece owned by Eugene 4J School District. The overall economic consequences of expansion into Study Area 5 are not seen as leaning significantly either way.

Social consequences. Study Area 5 contains many existing residents (43 dwelling units). Expansion impacts will affect many more people in Study Area 5 than in most other areas. It can, however, be argued that the individual impacts will be relatively less to residents in Study Area 5 than in some other areas since the area is currently residentially zoned, of a certain residential character, and already has a relatively significant population. The area contains many rural residences, which, if included in the UGB will receive significant development pressure. Previous efforts have suggested the residents in Study Area 5 are split in their support of expansion in their direction. The area is in very close proximity to Coburg Elementary School, a potential future school site, and the southern portions of this study area are relatively near Coburg's downtown, all of which promote high livability.

Environmental consequences. The environmental consequences of expansion into Study Area 5 are seen as minimal for about half of the exceptions lands. Although the area consists of Class I and II soils, the area contains significant existing development. The limited resource land within Study Area 5 is predominantly Class I soils. By directing growth to this area, areas of greater environmental significance and with greater potential can be avoided. However, the portion of this study area south of Van Duyn Road is bounded on three sides by agricultural land with Class II soils. Urban development of this area would have significant consequences to adjacent agricultural lands. The northern half of this study area is a "peninsula" of rural residential development surrounded on three sides by agricultural land, and urban development on these lands would have significant consequences to adjacent agricultural lands. For this reason, the northern and southern portion of this Study Area are not proposed to be included within the expanded urban growth boundary.

Energy consequences. Study Area 5 appears relatively easy to service due to its proximity to the proposed sewage treatment plant. As noted, much of Study Area 5 is already served with both water and stormwater. Expansions on the north end of town will place greater traffic pressure on arterials that carry traffic through

Coburg to reach Eugene-Springfield (Willamette Street and Pearl), and might require the construction of an expensive new northern connector road. With existing facilities in place, and high livability potential, the overall energy consequences are generally positive.

Residential Land Needs: Study Area 6

Economic consequences. Study Area 6 is the least expensive area to provide water and stormwater service to. The area is adjacent to the proposed sewer treatment plant and therefore provides greater efficiency in that regard as well. Study Area 6 is currently made up of two residential lots and two large active farms.

Study Area 6 is not identified as an area for employment expansion; however industrial opportunities seem possible in the northeastern portions of the area, due to its proximity to existing Industrial uses, and its proximity to the water treatment plant.

Because inclusion of the northern portion of this subarea into the UGB would likely require construction of the expensive northern connector road, this portion of the study area is not proposed to be included within the expanded urban growth boundary.

Social consequences. Study Area 6 has potential for creating a high livability standard for expansion. The area presents many options for connectivity to existing neighborhoods and street networks. Expansion into the area supports local policy encouraging "sequential development that expands in an orderly way outward from the existing city center." Study Area 6 provides opportunities for excellent access to facilities such as schools and downtown. Expansion in this area involves a limited number of property owners, which minimizes the complexity of realizing expansion/planning objectives. It is also noted that the owners of the property adjacent to the current UGB have expressed interest in urbanization.

Environmental consequences. Only 7 of the 209 acres in Study Area 6 are in flood zone A (the 100-year floodplain). Areas in flood zone A are mostly in a canal that transects the study area. Of the 208 acres in this study area zoned for agricultural uses, 63.6 acres are in Class I soil types and 138.5 acres are identified as Class II soil types, and 5.9 acres are in Class IV soil types. The area is prime farmland. Although Area 6 consists of Class I and II soils, the area contains significant development. By directing growth to Area 6, areas of greater environmental significance can be avoided.

Energy consequences. Study Area 6 appears relatively easy to service due to its proximity to the proposed sewage treatment plant. Although Area 6 is not already served with both water and stormwater, an abundance of connection points make it a very serviceable option. As noted earlier, expansions on the north end of town

will place greater traffic pressure on arterials that carry traffic through Coburg to reach Eugene-Springfield (Willamette Street and Pearl).

Economic Opportunity Needs: Study Area 8

Economic consequences. Like Study Area 7, Study Area 8 is among the most difficult to service due to its location east of I- 5. It is also among the most expensive alternatives because water, sewer, electricity, and storm drainage would all probably require boring under the Interstate. In addition, improvements to the interchange may be necessary to address development not included in the IAMP review.

It should be noted that Study Area 8 is directly adjacent to the only portions of Coburg's existing UGB east of I–5. The entire site consists of one parcel with one use (a cattle ranch). The acreage belongs to the same ranch operation occupying Study Area 7. Study Area 8 is viewed by the City as having prime employment potential. The economic consequences of the reduction of the ranching activities would likely be outweighed by potential economic gains of utilizing the land for industrial purposes. Additionally, the economic opportunities for areas east of I–5 have the potential to outweigh the negative economic consequence of expansion into the area (cost of extending service, etc.).

Social consequences. Because Study Area 8 is separated from the other ranch properties to the north by Van Duyn, and is surrounded by other uses, the owners may be more amenable to its inclusion than Study Area 7. However, as noted, there has been public resistance in the past to expansion of Coburg's UGB east of I-5. Study Area 8 is directly adjacent to a number of properties under various ownership and uses, including a few residents in the rural areas east of the interstate. Again, correspondence with property owners has suggested a willingness on their part to entertain ideas about expansion on their property. Expansion east into Study Area 8 will allow for both the growth of the community, and the preservation of appropriate separation and buffers between the City's industrial and residential uses.

Environmental consequences. Of all of the acreage in Study Area 8, 98% is Class V or VI soils. These soils are of the lowest values that are typically mapped. The study area has the lowest value soils overall of any other study area. Area 8 also contains no mapped wetlands, or floodplain areas while Study Areas 7 and 9 both have mapped wetlands.

Energy consequences. Transportation access to the site would come from Van Duyn Road—a County owned extension of Pearl Street. Economic activity is undertaken more efficiently in areas nearest to transportation corridors such as I–5. In this manner expansion into this study area has positive energy consequences. This study area was favored over lands north of Van Duyn (Study Area 7) largely due to the fact that a frontage road is already planned to be constructed to serve sites south and east of the interchange and because it is already separated from

other like uses (Area 7) to the north by Van Duyn. Areas north of Van Duyn do have the benefit of greater separation from existing residential uses east of the interstate, and freeway frontage (exposure), but in the end Study Area 8 seemed better suited to the need overall. It is also noted that the 2004 Urbanization Study recommended that the City consider Study Areas 7 and 8 for employment growth and to take steps to preserve these areas for future employment growth.

Economic Opportunity Needs: Study Area 9

Economic Consequences. Study Area 9 joins Areas 7 and 8 in being the most expensive areas to extend services due to its location east of I-5. Most significant to Study Area 9's profile is that the area abuts a rare crossing and connection to areas of Coburg east of I-5. It is also noted, however, that the condition of the bridge is not immediately known. Expensive repairs may be necessary if the bridge is not in proper condition, or does not meet required specifications.

Although Study Area 9 does not share the access advantages of Study Areas 7 and 8, it is in very close proximity to I-5 and is connected to sections of existing industrial land within Coburg via Reed Road/Selby Way. Reduction of or discontinuance of activities currently on the site is not viewed as having negative economic consequences when balanced with the potential positive economic consequences of employment growth on the site.

Social Consequences. There is one owner of Study Area 9 and one existing residence. As noted with previous areas, this can reduce the complexity of the expansion process and the potential for reaching planning objectives. It also may result in significant impacts (positive and/or negative) to the individual property owner.

The area would be most appropriately used for employment purposes. It is noted that one advantage for consideration of Study Area 9, is the existing access to the site over I- 5 via Selby Way. Access via Selby Way would necessitate a relatively lengthy and circuitous route for commercial and industrial traffic, contributing to noise, pollution and traffic in the area. As compared to Study Areas 7 and 8, Study Area 9 appears to present greater negative social consequences.

Environmental consequences. Study Area 9 includes the only forest designated land within all study areas. It is not prime forest land. Study Area 9's soil profile is largely Class IV and VI, with smaller portions of Class III. The site includes several small water features; however none are located on either the National or Local Wetlands Inventory. Study Area 9 presents the only expansion alternative that encroaches onto the Urban-Wildland interface (foothills of the Coburg Hills). It is not immediately understood what impacts such expansion might have.

Energy consequences. Study Area 9 will require the extension of all services. If

residential uses are directed to the area, it is noted that the area does not have a school site or an existing school within several miles of its boundaries. Transportation access to the site would come from Selby Way—a County Road. The condition of the existing bridge across I-5 is not completely understood. Development on the site may be constrained if the bridge is not in proper condition, or does not meet required specifications.

Expansion into Study Area 9 does not as clearly meet the efficiency related policy of expansion that is "sequential development that expands in an orderly way outward from the existing city center.

*(4) **Compatibility of the proposed urban uses with nearby agricultural and forest activities occurring on farm and forest land outside the UGB.***

Residential Land Needs

Areas with more land contiguous to existing development, such as study areas 1 and 6 are probably most compatible with nearby agricultural activities. However, any land that is adjacent to agricultural activities will have an impact with respect to this factor. The 2004 Urbanization Study's evaluation of this factor suggested that the compatibility impacts do not appear to be much different between the UGB study areas.

Economic Opportunity Needs

Because of the higher class agricultural soils located on the west side of I–5, and the attendant active agricultural uses, expansion to meet economic opportunity needs has been focused on the west side of the freeway. The worst agricultural soils are located in Study Area 8 and the agricultural uses on this and adjacent properties is not intensive; essentially consisting of the grazing of cattle. The types of industries identified as targets for economic growth by the 2010 Urbanization Study Update and the Regional Economic Analysis are inherently compatible with existing and agricultural and forest activities in the area.

EXCEPTIONS ANALYSIS

The provisions of Goal 14 allow for the inclusion of agricultural lands when the specified criteria are met. The findings presented here demonstrate compliance with the requirements of ORS 197.298. These requirements are incorporated into Goal 14, but the additional discussion of these requirements, as they are stated in Goal 14, and as they are applied to the conditions in the City of Coburg suggest that an exception to the Goal 14 requirements, as they relate to the inclusion of lower priority land instead of inclusion of some of the potentially available higher priority land is appropriate.

Reasons justify why the state policy embodied in the applicable goals should not apply

The relevant policy in Goal 14 is the requirement that all of the exception lands available for potential expansion of the UGB be included prior to the inclusion of any lower priority lands. In Coburg's case there are ample reasons why the policy of inclusion of all exception lands prior to the consideration of any farm land should not apply.

The residential land need is clear for Coburg over the next twenty years. Coburg needs 148.8 acres of additional residential land. There are exception lands, higher priority lands, adjacent to Coburg that, under different circumstances might be able to accommodate the needed growth over the next twenty years. There are exceptional circumstances, however, that together demonstrate that the choice to include sufficient exception lands to accommodate the need will not actually result in the land being available for residential development over the next twenty years. Further, inclusion of portions of the potentially available exception lands would create conditions that would violate numerous policies of the adopted Coburg Comprehensive Pan and would be contrary to the intent of Goal 14. For the reasons set forth here and more comprehensively in the attached Exceptions Appendix, the City finds that an exception is justified and adopts the Exceptions Appendix as sufficient justification for that exception.

The potentially available exception lands for the city of Coburg extend for such a distance north of Coburg that the north-south length of the City would be more than doubled, creating a long extension that would change Coburg from a reasonably compact city into an ungainly and unworkable structure. New residents of this area of Coburg would be an unacceptably great distance from Coburg and the rest of the residents of Coburg. Coburg's goal of walkable neighborhoods would be lost, as these distant residents would inevitably be forced to drive to Coburg, or most probably, to more distant urban areas for urban services. Since the original Coburg urban growth boundary, there has been a large, agriculturally zoned property that has intruded into the city. As a part of the original Coburg Urban Growth Boundary a portion of this agricultural land was included within the Coburg Urban growth boundary. This agricultural land is surrounded on three sides by the City. Inclusion of an additional portion of this large property will allow for compact and contiguous growth of the City.

Expansion to the most distant portions of the exception areas near Coburg, which would be necessary to meet Coburg's needs will not actually accomplish the object of providing additional land for residential development of the type Coburg needs:

- Coburg needs residential land that will accommodate housing growth of increased density. The exception lands adjacent to Coburg are composed of multiple small lots that would not be able to accommodate the higher density housing identified as a need. Thus, inclusion of a portion of area 6 – agricultural zoned land – is more practical than including all of Study Area 5 exception land.
- Many of the residents of the exception lands that would need to be included to meet Coburg's twenty year residential needs are opposed to the idea of dividing their lots to accommodate additional residential growth. No residents of the exceptions areas testified in favor of the expansion, several appeared specifically to oppose the concept, and expressed their refusal to help meet Coburg's future

residential needs. On the other hand, the owner of the agricultural land adjacent to Coburg, which would be included in the proposed UGB expansion – Study area 6 – is anxious to develop additional portions of the lot that is already partially within the urban growth boundary.

- Infrastructure development for the extensive area of the exception lands of Study Area 5 would be burdensome for the properties and would further discourage development, even if the owners were interested in such residential development. Water and sewer lines extended to include all of the exception lands within Study Area 5 would significantly increase the per lot price of any residential development in that area, defeating the policies of the Coburg Comprehensive Plan designed to make Coburg an affordable place to live, and undermining the intent of Goal 14 and Goal 10 to encourage affordable and adequate residential housing.
- The intersection of Van Duyn Street and Coburg Road is a threatened intersection, that analysis shows may become a failing intersection if traffic through the intersection increases without some palliative measures, such as the planned Coburg cut off. The planned cutoff would bisect the agricultural land of Study Area 6. Inclusion of larger areas of Study Area 5, the exception lands north west of Coburg would exacerbate vehicle traffic through the Van Duyn / Coburg Road intersection and would hasten the failure of the intersection. On the other hand, inclusion of a portion of Study Area 6 would have no adverse effect on the Van Duyn / Coburg Road intersection.
- The exception lands of Study Area 5 are now mostly used for agricultural purposes, with the same type of residences that are common in agricultural areas. The agricultural land of Study Area 6 is currently surrounded on three sides by urban areas and, if the exception lands of Study area 5 are included, the area of Study Area 6 would be nearly completely surrounded by urbanizable land. While the land of Study Area 6 is currently in agricultural production, the encroachment of urban areas has already impacted agricultural uses. Over time, especially because portions of the property that make up Study Area 6 is already in the city and the owner is planning development of this portion of the property, actual use of this property for agricultural purposes is likely to decline.

Similar reasons also support the inclusion of agricultural lands to meet regional economic opportunity needs.

- The regional need is clear, and Coburg is required by the statewide rules to consider whether Coburg can contribute to meeting the regional need. Coburg has limited its share of the regional need to a small amount, to allow other areas of the region to consider meeting the regional need.
- There are no properties in the present UGB that would meet even the small portion of the regional need that Coburg is taking up. While Coburg has properties – zoned highway commercial – that are nearly the minimum sized parcel needed to accommodate the regional need, this property is constrained and could not possibly be rezoned to accommodate the kind of use that makes up the regional need. The vacant highway commercial properties have limited access,

especially confined by the Interchange Area Management Plan that Coburg and the state Department of Transportation have signed. The vacant highway commercial properties are also across a street from a new development in Coburg, the regional facilities of Serenity Lane a substance abuse treatment facility. Inclusion of industrial development on these properties, even if possible under an amended IAMP, would have an adverse effect of existing development in Coburg. Coburg has experienced the difficulties of industrial uses in close proximity to residential uses. The policy of separating residential uses from industrial uses by placing new industrial uses on the opposite side of the freeway will help make Coburg as a whole a more viable place to live and work.

- The Coburg / ODOT IAMP requires the development of an access lane to the east of I-5. This new facility is designed to give existing properties in Coburg east of the freeway a safe means of access to Van Duyn and the freeway. This new facility will necessarily include a portion of Study Area 8, the property to be included to meet the regional employment need. Bringing this property inside the UGB will facilitate this development.
- The property of Study Area 8 is the lowest quality agricultural land capable of only being used as grazing, and not used for that for most of the year. Transitioning a portion of this low quality agricultural land to employment land will not adversely affect Lane County's supply of resource lands. This change is the only way that Coburg will be able to meet its obligation to provide an economic opportunity for the Lane county region.

There are no areas outside the current Urban Growth Boundary that are not already included within the proposed UGB expansion that could reasonably accommodate the needed uses.

- The potential exception areas not included are either within the flood plain, or are so distant from the present city that, as shown above, it is impractical to assume that these properties will ever develop in time to meet Coburg's residential growth needs.
- There are no properties within the current UGB that could accommodate the types of uses that are included within the regional economic development need.

The long term environmental, economic, social and energy consequences resulting from the use of the proposed sites are less adverse than the inclusion of any other areas, including other resource land and the excluded exception lands.

- The EESE analysis has already been done on the proposed inclusion of properties into the UGB. The same analysis can be used to support an exception to Goal 14.
- The proposed UGB will create a compact city, with residential development located in rough proximity to other residential properties. Residents of Coburg will not be required to drive to attend Coburg events, as they would if more distant exception areas were included in the UGB. When compared with any alternative, this will enhance the social connections of the community, save

energy, and improve the character of the City. Economically the proposed UGB will do more for Coburg than any other alternative. Including more of the exception areas would freeze Coburg where it is, because the exception areas will not develop at any speed that will actually meet Coburg's needs. If Coburg fails to include the needed employment lands, Coburg's economy will not improve, and all of Lane County will be deprived of the economic opportunity.

The proposed uses of the agricultural land are compatible with other adjacent uses. A portion of the agricultural land to be included in the residential inventory of Coburg is already in the City and scheduled for residential development. This property abuts on two sides with already developed urban uses of the City. On the third side of the property, the City of Coburg extends nearly half way up the west side of the agricultural property. The exception area of Study Area 5 extends further north and east, so that only a portion of the northern side of the property is not already surrounded by non-resource zoned properties. Many of the exception lands are also in active farm use, especially the areas in the north of Study Area 5 – the area proposed to not be included in the expanded UGB. These agricultural areas in the exception lands are less impacted by surrounding urban uses than is the agricultural land of Study Area 6 to be included in the expanded UGB.

The agricultural land of Study Area 8 is of the lowest quality agricultural land (of the highest priority among agricultural lands to be included within the UGB, and it is only occasionally used for agricultural purposes. It abuts developed land within the City and is likely to be impacted by the development of an access road on the property.

For the reasons set forth here, and supported by the analysis of all the findings and evidence supporting the findings, it is appropriate to take an exception to that portion of Goal 14 which requires all higher priority land be included in a UGB before lower priority land is included. In this case including portions of the higher priority land will be contrary to other goals and to the other provisions of Goal 14.

These findings, including the attached appendix, are based on all the evidence in the record accumulated during the urbanization study. Without reducing the importance of any element, certain attachments are specifically included to facilitate the process of understanding these findings.

Attachment 1 Maps showing the study areas and the areas selected for inclusion in the UGB

Attachment 2 Engineering statements regarding the costs of infrastructure installation, and the traffic impacts of the proposed bypass

Attachment 3 Email from DLCD representatives supporting the analysis in the Urbanization Study.

Exceptions Appendix

City of Coburg UGB Expansion
Reasons Exception to Goal 14

I. INTRODUCTION

This memorandum provides the analysis required for the City of Coburg to take a Goal 2 exception to the boundary location requirements of Statewide Planning Goal 14 as part of the city's urban growth boundary (UGB) expansion. The purpose for taking the exception is to include land designated in the Lane County Comprehensive Plan as resource land instead of land identified as exception area to meet a portion of the city's demonstrated housing needs.

The evidence in the record leads the city to conclude that, among other reasons, the degree of parcelization on adjacent rural residential areas, the historic slow rate of infill development on underdeveloped residential parcels, and the cost of extending public services to exception lands will preclude the city meeting its residential land needs within the planning period should the city attempt to meet that need solely by including exception areas with the city's UGB expansion. Consequently, the city is taking this exception to allow it to address a portion of its residential land needs within the planning period by including land designated for agriculture uses, which can be developed in a more timely and efficient manner. Unlike the industrial land need, the residential need cannot meet the statutory exception to the priorities requirements provided for under ORS 197.298(3).

This exception draws extensively from the existing record for this proceeding to include, but not limited to, the Coburg Urbanization Study and its amendments, technical memoranda regarding public facilities and services, and written and oral testimony provided throughout the city's UGB expansion proceedings. The analysis below reflects the policy choices developed during the Coburg Crossroads community visioning project, as incorporated into the City of Coburg Comprehensive Plan. The exception also includes an area maps and an economic, social, environmental and energy (ESEE) analysis prepared specifically for this exception.

OAR 660-004-0020, ORS 197.732(2)(c) and Goal II, Part 2 use identical reasons exception language. Because the rule provides additional inquiries addressed here, the reasons exception analysis is organized below under the rule, with corresponding Goal and statutory provisions identified within brackets.

II. REASONS EXCEPTION JUSTIFICATION

OAR 660 Division 24 governs urban growth boundaries. OAR 660-024-0020 provides, in relevant part:

"(1) All statewide goals and related administrative rules are applicable when establishing or amending a UGB, except as follows:

"(a) The exceptions process in Goal 2 and OAR chapter 660, division 4, is not applicable *unless a local government chooses to take an exception to a particular goal requirement, for example, as provided in OAR 660-004-0010(1)*;

"(b) Goals 3 and 4 are not applicable[.]" (Emphasis Supplied)

OAR 660-004-0010(1)(c) provides:

"When a local government changes an established urban growth boundary applying Goal 14 as amended April 28, 2005, *a goal exception is not required unless the local government seeks an exception to any of the requirements of Goal 14 or other applicable goals.*" (Emphasis Supplied).

OAR 660-004-0022(1) provides, in relevant part:

(1) For uses not specifically provided for in this division, or in OAR 660 011-0060, 660-012-0070, 660-014-0030 or 660-014-0040, the reasons shall justify why the state policy embodied in the applicable goals should not apply.

Analysis: Consistent with OAR 660-024-0010(1)(c) and OAR 660-004-0020(1)(a) the City of Coburg is taking an exception to the boundary location requirements of Statewide Planning Goal 14 to include land designated in the Lane County Comprehensive Plan for agriculture instead of land identified as exception area to meet part of the city's demonstrated housing needs. Pursuant to OAR 660-0024-0020(1)(b), the city does not need to take an exception to Goal 3 to expand its urban growth boundary.

OAR chapter 660 division 004 does not specifically provide requirements for urban growth boundary expansions and the provisions noted under OAR 660-004-0022(1) are not applicable, consequently the standard reasons exception provisions apply to this exception.

OAR 660-004-0020(2) provides:

(2) The four standards in Goal 2 Part II(c) required to be addressed when taking an exception to a goal are described in subsections (a) through (d) of this section, including general requirements applicable to each of the factors:

Analysis: Each of the four standards of Goal 2 part II(c) is addressed separately below in the responses to OAR 660-004-0020(2)(a) through (d).

OAR 660-004-0020(2)(a) [Goal 2, Part II (c)(1); ORS 197.732(2)(c)(A)] provides:

> *(a) "Reasons justify why the state policy embodied in the applicable goals should not apply." The exception shall set forth the facts and assumptions used as the basis for determining that a state policy embodied in a goal should not apply to specific properties or situations, including the amount of land for the use being planned and why the use requires a location on resource land;*

Analysis: The primary reason for this exception is that the city has concluded that if the entire of the city's demonstrated residential land need is "met" with surrounding existing rural residential exception land, then the need will not in fact, be met within the 20-year planning horizon. In plain terms, for the reasons provided here the city does not believe that rural residential areas will develop to the densities and at the pace necessary for the city to meet it housing needs. Strict adherence to the statutory priority scheme referenced in Goal 14 will be insufficient to meet the demonstrated need that Goal 14 requires the city to meet. While the city should and does plan to meet much of the residential land need through inclusion of exception areas, for the reasons provided below, the city concludes that at least a portion of the demonstrated need must be met through lower priority resource lands, which can be developed in larger blocks and therefore more densely, efficiently and timely than can already developed rural residential parcels. The city does not believe the statewide planning goals require strict adherence to a framework the city knows will not solve the problems it requires be fixed. Thus the city is taking this exception, which is intended to afford an avenue to successful implementation of the intent of the statewide planning goals.

The rationale for the city's conclusion comes from the 2010 Coburg Urbanization Study and update, as well from several technical memoranda that address a range of public services and facilities. It involves two reasons for taking the exception – achieving the residential density necessary to meet the demonstrated need within the mandated planning period, and the provision of public facilities and services to residential lands brought into the UGB.

Anecdotal evidence about the difficulty of efficiently transforming rural residential land to more dense, urban residential uses in a timely manner led the city to examine whether evidence supports that position. The buildable lands analysis provided in the Urbanization Study provides information that supports the conclusion that Coburg area residents are reluctant to develop oversized parcels to higher density residential use. That analysis looked at oversized and undeveloped parcels and evaluated the infill potential of residential uses within the existing UGB. *See*, e.g., 2010 Coburg Urbanization Study Map 4: Residential Infill Potential; Map 7: Parcel Classification. Excluding totally vacant land, particularly the large parcels that could not practically be developed until the relatively recent completion of the new city sewer plant, that analysis identified 83 residential parcels outside of the central business district as underdeveloped.

The Coburg Crossroads visioning process and the UGB expansion proceedings revealed a range of reasons for this high number of underdeveloped residential parcels. Those reasons ranged from it is too cost prohibitive to develop to "We love it the way it is!" Whatever the reasons, the buildable lands analysis concluded that the city could only expect that approximately ten percent (10%) of the underdeveloped parcels within the existing UGB would further develop to more appropriate residential densities within the planning period. Given the high cost of extending public facilities and services discussed in more detail below, and the public statements made by residents from rural residential areas under consideration that they would not develop or sell their properties if brought into the UGB, it is reasonable to assume that a fair number of oversized/underdeveloped parcels would exist in these exception areas once they are brought into the UGB and that they would not develop to the densities or at the rate necessary for the city to meet its residential need.

The other reason involves the practicality of providing public facilities and services to exception areas. As the technical memoranda document, extending public facilities and services to land outside the UGB is an expensive proposition, more so for property owners and developers who must, as the comprehensive plan provides, cover their share of the costs of expansion that results from their development. This includes the cost of extending these services, which reinforces the importance of growth that results in a compact urban form. For properties in the north of Coburg, necessary infrastructure improvements include development of the East – West Connector. The transportation system analysis prepared for the city indicates that residential growth in the north of the city will cause failure of the city's transportation system. Those adverse impacts will be mitigated if the connector is built.

Large infrastructure costs are best absorbed by larger development projects that can better spread the costs of development among a large number of residential units. The existing development patterns on rural residential properties make it difficult to aggregate sufficiently large blocks of land to accommodate and fund urban levels of development. Smaller units of land present further design restraints that will likely result in lower densities that will further increase the per-dwelling cost of infrastructure improvements and that will be insufficient for the city to meet its residential needs during the planning horizon. The higher infrastructure costs to provide public facilities to smaller parcels can become so constraining that it makes residential development of an area cost-prohibitive and prevent development altogether.

The city's solution to these issues is to ensure that there are properties that can be developed in large blocks at the necessary densities and able to off-set much of the major public facilities extension costs in areas that are also in close proximity to exception areas included in the proposal. That way the exception areas will benefit from the shared facilities extension costs, which will mitigate against one major constraint on development for the exceptions area. This requires a location on lower priority resource land at the locations included in the UGB expansion proposal. The city has already reduced the amount of land to be taken as an exception throughout the review process, reducing the amount of land requested by 23.1 acres as part of the city's most recent

review of how best to meet the city's residential land needs. The current total acreage of land requested in the exception is 62.5 acres. Of that, 48.9 acres is located in Study Area 6 to the north of the city and 13.6 acres are located to the south in Study area 1. By comparison, 88.9 acres of exception land is proposed for meeting the city's residential land needs.

The proposed solution, particularly in the north, is consistent with several guiding comprehensive plan policies. It will allow the city to grow with a compact urban form radiating from the city center, within walking distance of both the public school and downtown. It will also expand necessary public facilities and services at the developers' expense and will facilitate establishment of the East – West Connector, which will improve downtown traffic conditions, promote the separation between local and through traffic, and enable compliance with Goal 12. The exception area in the south will promote a more compact urban form, help offset the cost of extending public services and help minimize conflicts with rural uses.

The proposal complies with OAR 660-004-0020(2)(a).

OAR 660-004-0020(2)(b) [Goal 2, Part II (c)(2); ORS 197.732(2)(c)(B)] provides:

(b) "Areas that do not require a new exception cannot reasonably accommodate the use". The exception must meet the following requirements:

(A) The exception shall indicate on a map or otherwise describe the location of possible alternative areas considered for the use that do not require a new exception. The area for which the exception is taken shall be identified;

(B) To show why the particular site is justified, it is necessary to discuss why other areas that do not require a new exception cannot reasonably accommodate the proposed use. Economic factors may be considered along with other relevant factors in determining that the use cannot reasonably be accommodated in other areas. Under this test the following questions shall be addressed:

(i) Can the proposed use be reasonably accommodated on nonresource land that would not require an exception, including increasing the density of uses on nonresource land? If not, why not?

(ii) Can the proposed use be reasonably accommodated on resource land that is already irrevocably committed to nonresource uses not allowed by the applicable Goal, including resource land in existing unincorporated communities, or by increasing the density of uses on committed lands? If not, why not?

(iii) Can the proposed use be reasonably accommodated inside an urban growth boundary? If not, why not?

(iv) Can the proposed use be reasonably accommodated without the provision of a proposed public facility or service? If not, why not?

(C) The "alternative areas" standard in paragraph B may be met by a broad review of similar types of areas rather than a review of specific alternative sites. Initially, a local government adopting an exception need assess only whether those similar types of areas in the vicinity could not reasonably accommodate the proposed use. Site specific comparisons are not required of a local government taking an exception unless another party to the local proceeding describes specific sites that can more reasonably accommodate the proposed use. A detailed evaluation of specific alternative sites is thus not required unless such sites are specifically described, with facts to support the assertion that the sites are more reasonable, by another party during the local exceptions proceeding.

Analysis: The Urbanization Study, as updated, contains several maps that show the UGB expansion areas considered for the city's proposal as well as the UGB expansion recommendation and a constraints map, especially showing the areas subject to flood limitations. Those maps include possible alternative areas considered for residential lands expansion that do not require a new exception. The proposal includes all the exception land from Study Area 1 and portions of the exception lands from Study Areas 2 and 5. The excluded exception lands are discussed by study area.

Study Area 2 includes approximately 21 acres of exception land, only a portion of which is proposed for inclusion into the UGB. The majority of the remaining exception land lies within the floodplain, which is an environmental constraint to development. Additionally, the excluded Study Area 2 exception areas extend into resource land in active resource use and would result in a small area of urban residential development that is surrounded on three sides by active agricultural uses, thus increasing the potential for conflicts between uses. This situation also exists for the extreme southern portion of Study Area 5, which is similarly avoided. It is not reasonable to accommodate urban levels of residential uses in small peninsular areas surrounded by agricultural uses given the inevitable use conflicts that would ensue and is contrary to comprehensive plan policies to minimize land use conflicts through effective planning. Exclusion of a portion of the exception land will also promote comprehensive plan policies that promote a compact urban form and to establish a southern buffer between the city and the McKenzie River that promotes separation between the cities of Coburg and Eugene (Goal 14, Policy 44).

Study Area 4 includes approximately 17 acres of exception land not proposed for inclusion into the UGB. That exception area is not located adjacent to the existing UGB, and is separated from the UGB by extensive areas of agricultural lands with Class II soils

Inclusion of the exception area would likely require removing those lands from agricultural use. Without inclusion of the adjacent agricultural lands, the costs of extending and paying for public facilities and services would be cost prohibitive given the existing development pattern would make it difficult to aggregate sufficiently large blocks of land to finance the extension of services, which comprehensive plan polices require. Additionally, this area, like much of the land to the west of the current UGB, is within the floodplain, which inhibits development of the type necessary to meet the city's residential land needs. Given the costs associated with extending services to the area and its general location within the floodplain area, Study Area 4 cannot reasonably accommodate the demonstrated residential land need.

The residential land proposal includes a portion of the exception lands in Study Area 5 but not others. The southernmost portion of Study Area 5, south of Van Duyn Road is surrounded on three sides by agricultural lands with Class II soils. Similar to Study Area 2, this creates a high potential for conflicts for this relatively small area and makes it unable to reasonably accommodate the city's residential need. The far northern portions of Study Area 5 cannot reasonably accommodate the needed residential uses because of the extraordinary cost of providing public facilities and services to those areas given the existing development pattern of multiple parcels under different ownerships and the increased infrastructure costs resulting from the distances involved. Furthermore, unlike several other rural residential areas, most of these properties remain in active farm use by the residents. Testimony from several residents in this study area made clear they had no intention of ceasing farm production within the planning horizon or to subdivide their property to urban densities; others sought inclusion into the UGB. Inclusion of the farthest portions of the study area would increase transportation and energy impacts and is inconsistent with the city's policies to develop a compact urban form that promotes pedestrian access to the city center. Given the costs of providing services to the northernmost properties, the current configuration of parcels and unwillingness to develop expressed by some property owners it is unlikely that this area would reasonably accommodate the proposed use at the densities necessary to meet the city's residential land needs within the planning horizon.

Study Area 11 contains 18 acres of rural residential exception land located on the northernmost portion of the study area. That exception area is surrounded by agricultural lands in class I and II soils and is the remotest area from the existing public services and facilities. It is therefore the most difficult and costliest to serve. It is also mostly developed with very few oversized lots that could be further developed. Inclusion of this exception area, without the remainder of the study area's agricultural land would do little to off-set the demonstrated residential land need while doing so at the greatest facilities cost. Inclusion of this area would also run contrary to plan policies that promote a compact urban form and the establishment of neighborhoods that allow for pedestrian access to the city center. This exception area cannot reasonably accommodate the proposed use.

None of the exception areas around the City of Coburg that are not already included in the city's UGB expansion proposal can reasonably accommodate the demonstrated residential land need.

Responding directly to the questions presented in OAR 660-004-0020(b)(B), there are no nonresource lands that would not require an exception and could accommodate the demonstrated residential land needs that are within the vicinity of the City of Coburg. OAR 660-004-0020(b)(B)(i). The areas already committed to nonresource use are discussed immediately above. OAR 660-004-0020(b)(B)(ii). The buildable lands inventory section of the Urbanization Study demonstrates that there is insufficient land inside the existing urban growth boundary to accommodate the demonstrated residential land need. OAR 660-004-0020(b)(B)(iii). Development of residential land at urban densities cannot be accommodated without the provisions of key public services and facilities. Urban residential uses require public services and the comprehensive plan requires the city to provide public services. OAR 660-004-0020(b)(B)(iv).

None of the exception areas not already included in the UGB expansion proposal can reasonably accommodate the proposed use. Most are remote from the city center and existing UGB, which greatly increases the cost of public facilities and services, and inclusion of these areas is not consistent with comprehensive plan policies that promote a compact urban form and neighborhoods with pedestrian connections to downtown. Given the existing parcelized development patterns of those areas, it is not reasonable to assume that the large blocks of land that could allow for a subdivision to pay for expensive public infrastructure extension costs, as comprehensive plan policy requires. Thus the cost of providing public services to these areas would become a major inhibitor to development and to the city meeting its residential land demand within the planning period. Most of these areas are surrounded on multiple sides by agricultural lands, which would increase the potential for urban-rural conflicts if developed with intense residential use as needed for the city to meet its residential land needs. As noted above, inclusion of these remote lands is inconsistent with plan policies that govern residential uses, public facilities and services and urbanization. Consequently, these areas cannot reasonably accommodate the proposed use.

The proposal complies with OAR 660-004-0020(2)(b).

OAR 660-004-0020(2)(c) [Goal 2, Part II (c)(3); ORS 197.732(2)(c)(C)] provides:

> *(c) "The long-term environmental, economic, social and energy consequences resulting from the use at the proposed site with measures designed to reduce adverse impacts are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site." The exception shall describe: the characteristics of each alternative area considered by the jurisdiction in which an exception might be taken, the typical advantages and disadvantages of using the area for a use not allowed by the Goal, and the typical positive and negative consequences resulting*

from the use at the proposed site with measures designed to reduce adverse impacts. A detailed evaluation of specific alternative sites is not required unless such sites are specifically described with facts to support the assertion that the sites have significantly fewer adverse impacts during the local exceptions proceeding. The exception shall include the reasons why the consequences of the use at the chosen site are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site. Such reasons shall include but are not limited to a description of: the facts used to determine which resource land is least productive, the ability to sustain resource uses near the proposed use, and the long-term economic impact on the general area caused by irreversible removal of the land from the resource base. Other possible impacts to be addressed include the effects of the proposed use on the water table, on the costs of improving roads and on the costs to special service districts;

This ESEE analysis draws from and builds upon the ESEE analysis conducted for the 2010 Coburg Urbanization Study. Unlike that ESEE, this analysis will examine the resource lands more generally by geographic location. In addition to the resource lands proposed for inclusion into the UGB, the analysis will address impacts to resource land in the north that includes land from Study Areas 6 and 11, the west from Study Areas 3 and 4, the south from Study areas 1, 2 and 10, and the east, from Study Areas 7 and 9. Detailed descriptions of each of the study areas are provided in the 2010 Coburg Urbanization Study. Study Area 8, although consisting of resource land, is not considered in this analysis because it has been designated to meet the city's employment land needs and meets the statutory exception criteria provided under ORS 197.298(3).

The resource land in all of these areas is generally in active agricultural use. Each is zoned for farm use with the exception of Study Area 9, which is zoned for forestry use, but has agricultural activity taking place on it. That is where the similarities end. Lands to the north are generally flat and interrupted only by the occasional road or irrigation channel. Land to the west is at lower elevations, with much of it within the 100-year flood plain. A sizeable portion of Study Area 4 is part of a hazelnut orchard. To the south are large agricultural fields, a portion of which is also within the floodplain. To the east, across I-5, are areas used as a cattle ranch (Study Area 7) and, in part, for agricultural use (Study Area 9).

Economic Consequences

The economic consequences for the subject site are perhaps the most favorable overall of the potential expansion areas. Like each of the geographic areas, there will be an economic loss of agricultural lands generally in active commercial use. That is the case for the portion of Study Area 6, but not so for the small acreage of Study Area 1. Each of the two areas are considered among the least expensive to serve with public services and facilities given their location adjacent to residential developments and existing public facilities, which minimizes the cost of extending these services. The area

is generally flat with no constraints that would increase the cost of development. Each of the areas is adjacent to developed industrial or commercial uses to the east, and has potential residential – economic use conflicts that could affect those economic uses if not considered during development. However, for each, the residential – employment boundary is along the narrow side of the expansion area.

To the north, with the remaining large portion of Study Area 6 and Study Area 11, there would be a loss of agricultural activity identical to that of the subject site. The costs of providing public facilities and services will increase the further away from the city center and existing infrastructure an area for consideration is located. Otherwise the area is similar to the southern portion of Study Area 6 with nothing that would seriously add to development costs. These areas also would face the same potential residential-industrial conflict issues that are present with Study Area 6. This area is also was examined as a potential employment lands area given its proximity to existing industrial development for both Study Areas. Given the public interest in locating more impactful employment uses to the east of I-5, this potential economic loss should be considered minor.

The agricultural activities to the west are the most diverse and represent the greatest potential loss of commercial agricultural activity of all of the geographic areas. The loss of the hazelnut orchard in Study Area 4 would represent the removal of a significant player in the areas agricultural economy. Except for the northernmost portions of Study Area 4, the areas to the west of the city are among the most expensive to service given the distances involved from key facilities and the geography of the area. In addition, the fact that much of the area lies within the 100-year floodplain would have potential severe economic and social impacts resulting from a significant flood event. There are no potential residential – existing economic use conflicts, other than the residential – agricultural interactions that are common among all of the study areas.

To the south, outside of the exception area portion of Study Area 2, development of residential uses will result in the loss of moderate sized farms in active use. The northern and eastern portions of this geographic area should be relatively inexpensive to serve, the areas farther west and southwest would see increased costs for extending public facilities and services. Also, portions of the area are within the floodplain, which could increase development costs and potential adverse economic impacts if a storm event occurs. In addition to potential residential – light industrial conflicts on the eastern portion of the geographic area, there are potential residential – rural industrial conflicts with the mining activity to the immediate south. This geographic area poses the greatest potential of conflicts with existing uses of all the geographic areas.

Across I-5 to the east, the loss of agricultural uses would primarily be in cattle ranching to the north, or in farming in the far south, but poses no significant differences compared to the majority of the other areas. However, this would be the most expensive geographic area to serve given the necessity of extending public facilities and services under I-5, a cost that would be difficult for residential development to finance on its own. Significant residential development on the east of I-5 would also create densities and

traffic loads that are inconsistent with the Interstate 5 Interchange Area Management Plan (IAMP) and would require modification of the I-5 interchange at potentially significant additional cost. Furthermore, access to the southern area, Subject Area 9, is across a bridge that has not been evaluated for adequacy, raising the potential for further transportation-related costs. This geographic area does not present any significant potential conflicts with existing uses that would flow from residential development. However, this area would represent a divergence from the public's stated interest in keeping residential development to the west of I-5.

Social Consequences

The preferred option for residential growth optimizes the adopted city policy to promote "sequential development that expands in an orderly way outward from the existing city center." It best implements policies that promote interconnected neighborhoods that will have pedestrian access to downtown and, in the northern preferred option area, to schools. This option also involves a relatively low number of property owners and would therefore minimize the social disruption caused by the transition from rural to urban densities. The southern preferred option area would present an altered lifestyle for the existing rural residential parcels in the western areas, but overall should maintain a very livable environment. This area of the preferred option also holds the potential to redefine the gateway to the City of Coburg.

The geographic area to the north would also generally minimize the social disruption caused by urbanization because of the low number of property owners, at least within Study Area 6. The farthest north area also has a well-developed residential area that could integrate with a new residential community. But while a portion of this geographic area is in close proximity to the school, it would not represent orderly, sequential development from the city center if development of the north leap-frogs the preferred site. Such development would isolate the new neighborhoods from the downtown area and run contrary to adopted comprehensive plan policies for residential development.

The western geographic area faces geographic obstacles in the form of waterways, a vegetative buffer and elevation changes that separate it from existing development in the city. Connectivity is likely to be poor given that the existing road patterns connect with the city by going north or south, and it will be difficult for any residential neighborhoods to become part of an integrated whole. Also the loss of the hazelnut orchard would likely have a greater adverse social consequence that the loss of other agricultural lands in the area and the fact that much of this area lies within the floodplain presents the potential for social disruption resulting from flood events. Residents have generally been resistant to talk of annexation and have expressed concerns about urbanization of the area. However, the relatively fewer land owners impacted by an expansion would be a positive and the area presents opportunities to develop neighborhoods that have a high degree of livability.

The southern geographic area presents a mixed bag regarding social consequences. On the one hand, livability is likely to be very high for much of the southern area and development could be used to establish a clear gateway to the city. Additionally, many residents from the south have expressed an interest in annexing into the city and development in this area could lessen traffic impacts on downtown that result from residents commuting to Eugene for employment. On the other hand, much of the area is subject to floodplain dynamics, the furthest south areas are adjacent to existing sand and gravel activity, which raises livability concerns, and expansion of the city southward runs contrary to the city policy that promotes the "establishment of a southern greenbelt that ensures a permanent open character for the area between Coburg and the McKenzie River." Additionally, residential development in the southern area would quickly become quite remote from the city center and lose the sense of neighborhood connectivity the city desires and the comprehensive plan mandates.

While the property owners to the east of I-5 have expressed an interest in being annexed into the city, the general public has expressed resistance to locating residential uses in that geographic area. Residential growth eastward does not follow the sequential development pattern that results in pedestrian-oriented neighborhoods connected with downtown that envisioned by the comprehensive plan. Residential neighborhoods east of I-5 will be remote from the city center. Such growth runs contrary to the development pattern expressed by the city's residents during the Coburg Crossroads visioning project to locate residential development to the west of I-5, and larger scale, more intense employment-related development to the east of I-5.

Environmental Consequences

The adverse environmental consequences resulting from the preferred option flow largely from the removal of high value soils from productive agricultural use. Again, this is an aspect of each of the potential sites on the west side of I-5. There are no significant natural environmental features within either of the two preferred option areas, with an irrigation canal that is technically within the floodplain that lies to the north, and a mix of disturbed vegetation in the area to the south. As the Urbanization Study notes for Subject Area 6, the environmental advantage to looking at that area is that development there will help to avoid impacting other areas of greater environmental significance.

The resource land areas to the north are similarly lacking in significant natural areas. Here too, the primary adverse environmental consequence would be that residential development would take place on land that consists of predominantly Class I and II soils. The canal from the preferred option also runs through this farmland area, but is not an environmentally significant water feature.

The impacts to the environment from residential development in the western geographic region paint a very different picture than those discussed above. As noted previously, extensive areas within this region lie within the 100-year floodplain. Furthermore, this area includes the most significant wetlands located on the local wetland inventory of all of the potential sites. Additionally, the extension of public services and

facilities to the western area would likely adversely impact these wetland sites. The western geographic area represents the greatest potential negative environmental impacts of all of the areas examined.

The southern geographic area is similarly includes land within the 100-year floodplain, although not to the same degree as to the west. Still, the presence of the floodplain, while not prohibiting development, raises an increased potential for adverse environmental affects resulting from a flood event. A stark difference between the two areas is that the southern area does not have any areas on the national wetland inventory despite the floodplain areas. However the land in the majority of this area consists of Class I and II soils that would be adversely impacted by residential development.

The eastern geographic area contains the lowest soils classifications of any of the surrounding areas, with Study Area 7 having 98% Class IV and VI soils and only 2% Class I. However, that area also contains significant areas of inventoried wetlands along the west and north, as well as a small percentage of the area within the floodplain. However, given their location, development of that area could likely avoid the environmental resources, which cannot be said for development in the western or southern geographic areas. Study Area 9 contains the only forested area under consideration, although it is not considered prime forestland. There are water features in that area, but they are not inventoried as wetlands. However, Study Area 9 is the only area that encroaches onto the urban-wildlands interface of the Coburg foothills and development will likely impact the environmental benefits of the wooded portions of the property.

Energy Consequences

The energy consequences for developing the preferred option are generally positive. The energy costs of providing public services and facilities to the two preferred option areas are minimal given they are adjacent to existing infrastructure. The southern area has multiple transportation access points, which allow for efficient access to I-5 or south directly to Eugene without going through the city center. The northern area provides for development of the East-West County Connector, which will facilitate access to I-5 that bypasses downtown and will ensure compliance with Goal 12 as the city grows. The close proximity to downtown will also encourage walking and biking to downtown, thereby lessening transportation energy expenditures.

Areas further to the north present a mixed bag of energy consequences. While the energy costs of providing some services and facilities will be minimal because they already exist, other services will require extensive energy expenditures and from a practical matter are only reasonable once Study Areas 5 and 6 are developed. Additionally, there will be greater longer-term transportation costs than the preferred option because the greater distances to get to downtown and the school make travel on foot or bicycle unlikely. Furthermore, development of these areas will require construction of the East-West Connector in order to comply with Goal 12.

The western geographic area has poor transportation access to the city's downtown area, requiring travel along Coburg Loop Road north or south, then to the city. There is no direct transportation access to the city and none is likely to be built given the intervening waterway. Thus longer-term transportation energy expenditures are higher than for most other areas. The northern portion of Study Area 4 is in close proximity to most public facilities and services, so the energy costs of extending those resources are relatively low, so long as they would be extended incrementally. Again, development within this area will require construction of the East-West Connector to provide access to I-5 that bypasses central downtown in order to comply with Goal 12.

The southern geographic area has generally positive energy consequences. Much of that area has multiple transportation access routes, which facilitates access to I-5 without going through downtown or directly south to Eugene. The energy costs of developing this area would also be lower given the generally flat topography of the area and the fact that services are developed in close proximity to the north and east of the area. However, for the southernmost portions of this geographic area to see minimal energy expenditures for public infrastructure extension, Study Areas 1 and 2 would first need to be developed fully.

Another geographic area that presents a mixed bag on the energy front is the eastern area. On the northern portion, Study Area 7, its proximity to I-5 makes it the most energy efficient from a transportation perspective. It provides the most immediate access to I-5 for commuters heading to other cities, particularly Springfield or Eugene. However, as noted above, residential development at higher densities may involve revisiting the IAMP. The same transportation efficiencies cannot be said for the southern area, Study Area 9, which has one of the most circuitous routes to either the highway or the city's downtown, and thus the greatest transportation expenditures. Neither area is within close proximity to schools, so would pose increased transportation energy costs for educational purposes. And while Study Area 7 is relatively flat and wouldn't require excessive costs to develop infrastructure for that site, the extension of public facilities and services to the east of I-5 would incur greater energy costs than the other geographic areas, although this would likely be off-set somewhat by shared funding for such extensions by employment lands planned to be brought into the city.

Conclusion

The ESEE analysis above demonstrates that the economic, social, environmental and energy consequences of developing residential uses at the preferred alternative are not significantly more adverse than would occur from similar development at any of the other possible locations around the City of Coburg that would require a goal exception, and in most instances would result in less adverse impacts than the other locations. Under no circumstances does the preferred alternative represent the location that results in the greatest adverse consequences. From an overall perspective the preferred alternative plainly represents the best sections of the study areas that results in the fewest adverse ESEE consequences. This analysis concludes that the long-term environmental, economic, social and energy consequences resulting from residential uses at the proposed

site are not significantly more adverse than would typically result from the same proposal being located in areas requiring a goal exception other than the proposed site.

The proposed UGB expansion complies with OAR 660-004-0020(2)(c).

OAR 660-004-0020(2)(d) [Goal 2, Part II (c)(4); ORS 197.732(2)(c)(D)] provides:

> *(d) "The proposed uses are compatible with other adjacent uses or will be so rendered through measures designed to reduce adverse impacts." The exception shall describe how the proposed use will be rendered compatible with adjacent land uses. The exception shall demonstrate that the proposed use is situated in such a manner as to be compatible with surrounding natural resources and resource management or production practices. "Compatible" is not intended as an absolute term meaning no interference or adverse impacts of any type with adjacent uses.*

Analysis: The configuration of the areas proposed for inclusion for residential uses, to include the exception areas, as well as the development code will help reduce potential adverse impacts between the residential uses and adjacent agricultural and urban uses, and render them compatible.

The proposal for Study Area 6 simply moves a common urban residential – agricultural designation boundary northward. The northward movement is limited to the northernmost portion of an existing school, to the west of the area and will share the eastern boundary with light industrial uses. Comprehensive plan policies (*see*, e.g., Goal 3 Policy 5) and the local development code will ensure that the design for residential uses within Study Area 6 include mitigating measures that will render the residential uses compatible with the adjacent agricultural, industrial and public uses. The southern boundary will be shared with other residential uses that are, by definition, compatible.

The proposed portion of Study Area 1 lies north of the 100-year floodplain and, when combined with the portion of Study Area 2 included in the proposal, forms as linear a boundary as possible for this southern part of the City's core. Implementation of the plan and code will establish buffers between the proposed residential use and Highway Commercial uses that will lie to the east, as well as mitigate potential adverse impacts to the continued agricultural use to the south. Given that, like Study Area 6 to the north of the city, there is already an existing residential – agricultural use boundary and that boundary is only on one side of the area, the uses should be compatible. The inclusion of this portion of Study Area 1 will also minimize potential conflicts that could have arisen for the Study Area 2 exception land by reducing adjacent agricultural uses from three sides of that area to two sides, thus making the overall UGB expansion to the south more compatible with adjacent land uses.

The proposal satisfies the requirements of OAR 660-004-0020(2)(d).

III. CONCLUSION

For the reasons provided above, the proposed UGB expansion complies with the requirements for a reasons exception to Goal 14.

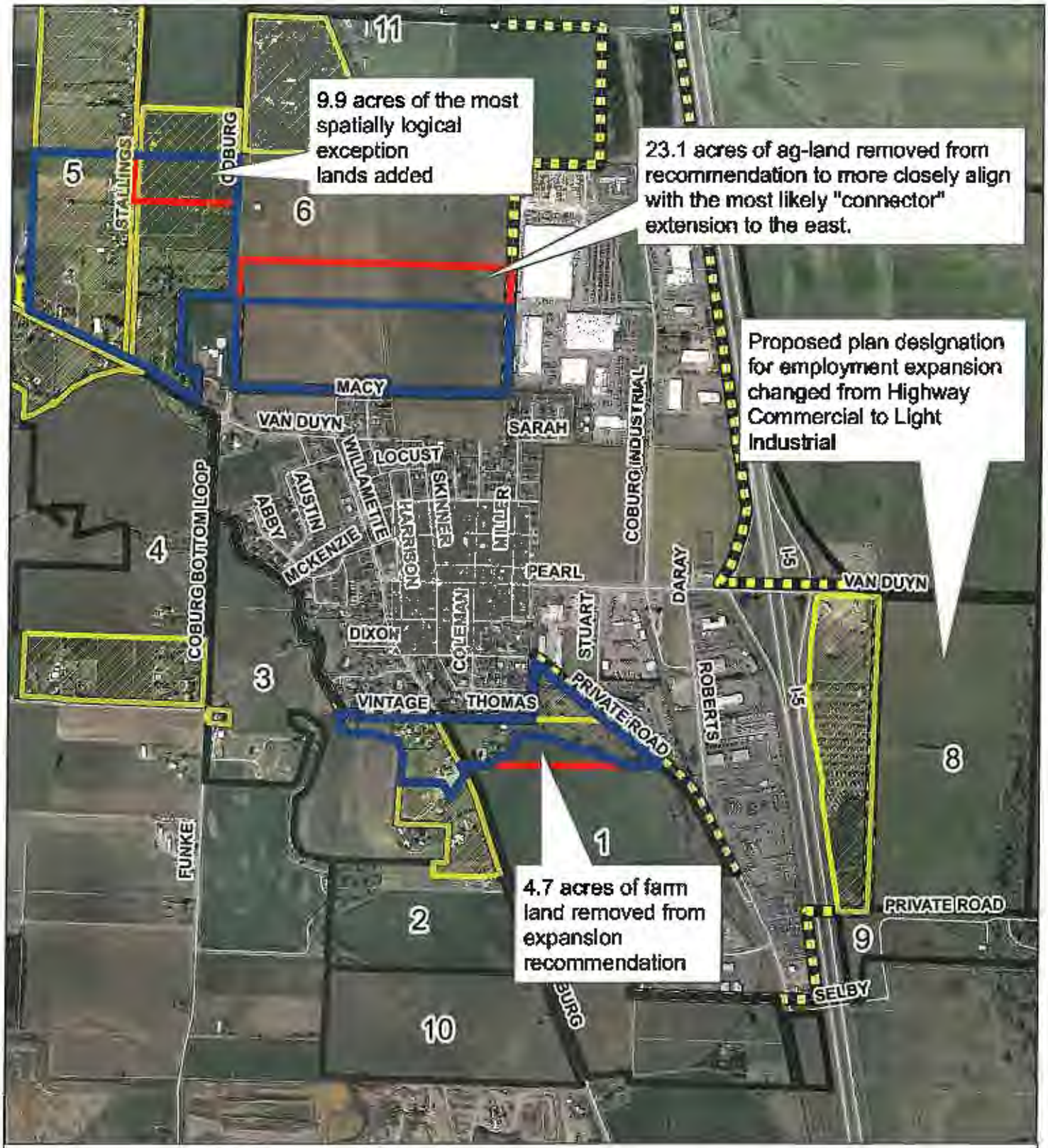
Attachment 1

1 inch = 1,500 feet

Map 10:
Study Areas
Coburg Urbanization Study

LCOG

N



Comparison of Previous and Revised Expansion Recommendations

Revised (Current) Residential Expansion Alternative

Previous Residential Expansion Alternative

Exceptions Land

Study Areas

N

June 30, 2014

Context Map

Expansion Alternative 2: Revised
151 Acres
2014 Recommendation

Residential Need: 148 Acres

Study Area	Acres	Developable Acres	Exception Land	Resource Land
1 & 2	27.3	9.1	13.8	13.6
5	75.1	64	75.1	0
6	48.9	48.9	0	48.9
Total	151.3	122	88.9	62.5

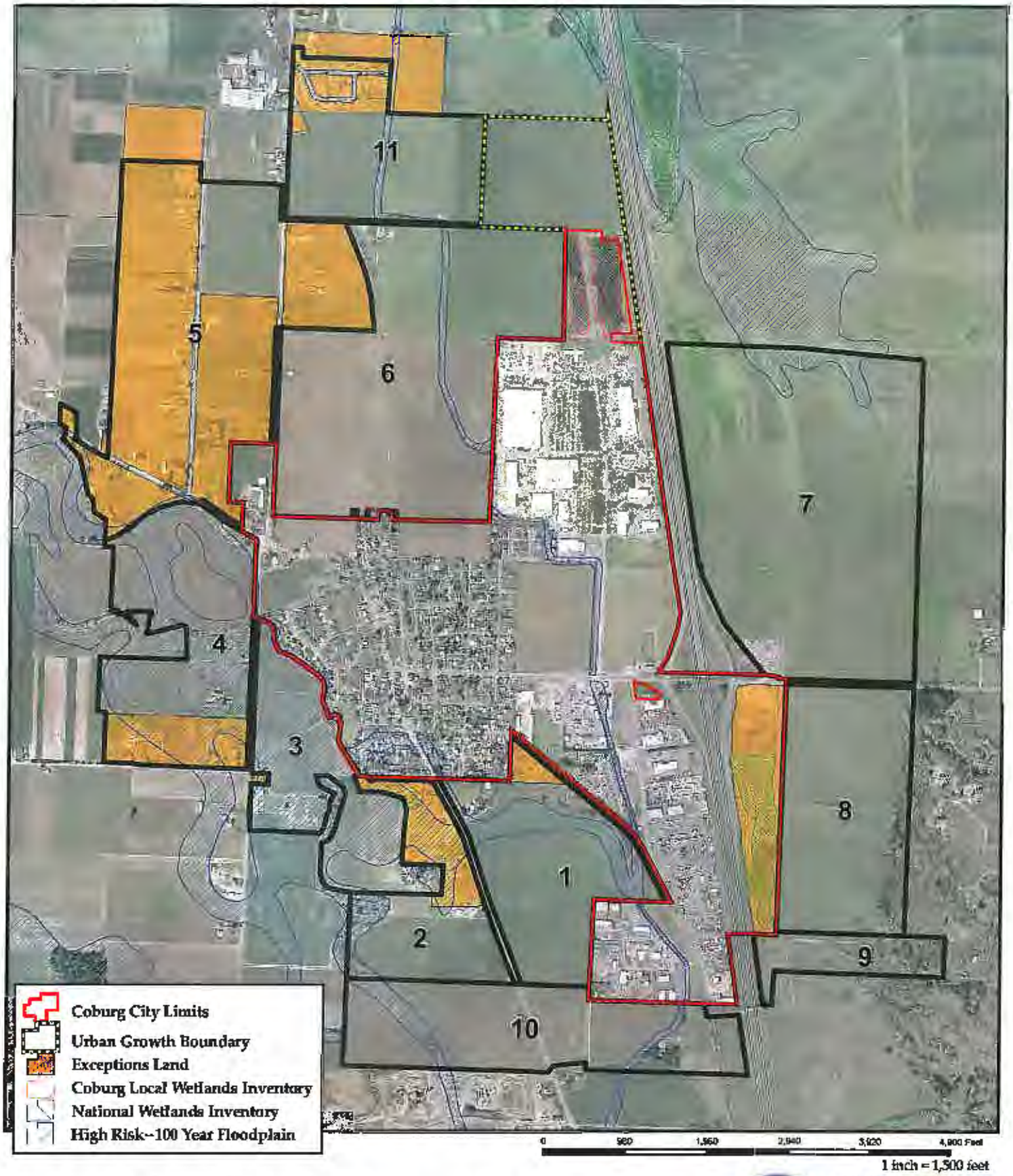
ExpansionAlternative2Revised

UGB

Exceptions Land

June 30, 2014

N



Map 12: Study Areas with Exception & Constrained Lands

Coburg Urbanization Study

LCOG

Attachment 2

Statement of Damien Gilbert

1. My name is Damien Gilbert. I am an Oregon Licensed Professional Engineer and am especially qualified in Civil Engineering. I am a Principal Engineer at Branch Engineering, which serves as the City of Coburg's Engineer. My duties at Branch Engineering include serving as the first point of contact for the City on general engineering questions, assisting the City with engineering work when requested by the City, and overseeing the work of other engineers at Branch Engineering who may be requested to do work for the City of Coburg.

2. I am familiar with PVE as a part of the Coburg water system. Branch Engineering designed the 3800 foot line that runs from the City of Coburg to PVE. In addition to the original design of the pipe to PVE, Branch Engineering is involved in engineering discussions related to PVE. These discussions include planning with the City for continued management of the PVE system. I estimate that over the past two years, roughly forty percent of the engineering time in meetings with the City that were related to the City's water system involved PVE. This would be a cost of $400 which when divided among the 35 service connections in PVE comes to $0.48 per month. Additionally, capital project forecasting engineering work has been performed by Branch Engineering during this same period of time. This engineering planning work is estimated at a cost of $4,000.00 which when divided among the 35 service connections in PVE comes to $4.76 per month.

3. There are additional concerns that will lead to future costs to the City for the PVE system.

a. The meters in PVE have exceeded their useful life and need to be replaced. Replacing meters in PVE may be difficult because, it is necessary to turn off water service to everyone in PVE to replace a single meter in some cases. It is my understanding that maintenance has been deferred in PVE because the system is difficult to maintain and meters/services have been replaced less frequently than the rest of the city. My estimate of the cost of replacing meters and the associated water service for PVE will cost approximately $120,000 at 2013 prices. This results in roughly $57 a month from each of PVE's 35 service connections should they pay the cost of these repairs over the next five years. (Cost divided by 2100 [12 months times 35 users times 5 years])

b. The water system in PVE is assumed to be the original system that was constructed in the 1960s. The pipe is believed to be glue joint PVC pipe which is generally considered to be more breakage prone than other common pipe materials of that era. We are aware of at least two major breakages to the piping in the last decade. Until replacement, the City will likely face the regular costs of repairs in the PVE system. I estimate that, at 2013 dollars the cost to replace the system is approximately $200,000. This results in approximately $95 a month from each of PVE's 35 service connections to pay the cost of these repairs over the next five years. (Cost divided by 2100 [12 months times 35 users times 5 years])

c. The line from the City to PVE is estimated to have approximately a 50 year life expectancy. At a 2013 estimated dollar cost of $50 per foot, the cost to replace the line would be roughly $225,000. Without including increase in costs for inflation or changed installation

standards, this $225,000 results in the need to raise $5,600 a year for the next 40 years. This equates to an approximate annual cost of $160 for each of the 35 service connections in PVE, or a cost of approximately $13 per month per service connection to provide for the eventual replacement cost of the connecting line.

Signed: Damien Gilbert
Damien Gilbert

STATE OF OREGON)
) ss.
COUNTY OF LANE)

On this 6th day of September, 2013, I hereby certify that I know or have satisfactory evidence that Damien Gilbert appeared before me, and said person acknowledged that he made the statement voluntarily and that it represented a complete and accurate statement of facts as he knew them at the time of signing this instrument.

Notary Public in and for the State of OR
My commission expires: Dec 21 2014

Statement of Robert Butler

1. My name is Robert Butler. I am the director of the Coburg Public Works Department, a position which I have held for more than one year.

2. Since my start at Coburg Public Works I have observed the following factors related to the City's operation of the water system in Pioneer Valley Estates:

a. The City is required to make daily readings of the residual chlorine level at PVE. This involves a utility worker, who bills at $45 an hour traveling to PVE to take a chlorine sample. State law requires that a chlorine reading be taken at the most distant service point from the location of the chlorine introduction. This requirement would be more efficiently done but for the distance involved in travel to PVE. I estimate that at least sixty percent of the annual cost of chlorine monitoring of $9.675 or $5,805 is attributable to the extra distance of PVE. When this cost is divided among the 35 users in PVE, it represents a cost per user of $13.82 a month.

b. There are more water main breaks in PVE than in the City. This is due to the initial lower quality of pipe installed in PVE and the deferred maintenance that has been practiced. During the past year there have been no main breaks in the City, but there has been one in PVE. A main break requires three operators for 12 hours to repair. At a cost of $52, $45 and $38 an hour, a single main break costs the City $1,620 in labor. The material and equipment use is an additional $600 or more for each line break. When divided among the 35 users in PVE, this represents a $5.28 a month cost. This does not include the cost of the water lost during the line break. Given the age of the pipes in PVE, it is quite possible that there will be line breaks every year until the system is upgraded.

c. Collecting water bills in PVE is more expensive. Like the chlorine monitoring, there is a cost to travel the extra distance outside the City to read the meters every month. It is my estimate that, including the travel time to and from PVE, it takes at least an additional half hour to read the PVE meters over reading 35 meters in Coburg. Since the cost of the meter reader is billed at $38 an hour, this means an added $0.54 a month for PVE customers.

3. It is my conclusion that PVE costs the City at least $19.64 more a month in operational costs.

Signed: 
Robert Butler

STATE OF OREGON)
) ss.
COUNTY OF LANE)

On this 5th day of September, 2013, I hereby certify that I know or have satisfactory evidence that Robert Butler appeared before me, and said person acknowledged that he made the statement voluntarily and that it represented a complete and accurate statement of facts as he knew them at the time of signing this instrument.

OFFICIAL SEAL
SAMMY L EGBERT
NOTARY PUBLIC - OREGON
COMMISSION NO. 456721
MY COMMISSION EXPIRES MARCH 10, 2015


Notary Public in and for the State of OR
My commission expires: March 10, 2015

MECHAM Milo R

From: Benjamin Bosse <BenjaminBosse@KennedyJenks.com>
Sent: Tuesday, January 06, 2015 12:37 PM
To: MECHAM Milo R; Ron Walz
Subject: RE: cost per foot of collection system
Attachments: Coburg sewer extension costs.xlsx

Hi Milo, attached are some basic costs for mainline construction, escalated from Phase 2 at 3% per year. In the first column are costs associated with trenching in open areas, ahead of construction, streets etc. If there needs to be a connection underlying an existing street, then I've included a second column that includes costs for imported fill, pavement saw cutting and trench patch.

To figure the cost for service laterals, the 2" line size cost is approximately correct. Figure the average lateral is 30', the average cost per each in open ground would be $30 x $15 = $450. The service connection box is $350 EA, so the total lateral cost would be $800/EA.

The tank figure of $5,000 looks OK. Hard to gauge from Phase 4 as the developer wouldn't be paying prevailing wage. The un-marked up material costs though were about ~$1,200 for the tank and ~$1,200 for the pump and controls. Material and installation for the private side lateral was $2,200, again that's with prevailing wage, tanks in back yards, and includes issues associated with existing sites/utilities, etc. Figure $500 for an open site.

No contingency is included with these figures. The typical stated range of accuracy for conceptual level cost estimating is -%30 to +%50 of each figure.

Hope this helps, and that you had a nice holiday season.

Ben

-----Original Message-----
From: MECHAM Milo R [mailto:MMECHAM@lcog.org]
Sent: Tuesday, January 06, 2015 8:59 AM
To: Ron Walz; Benjamin Bosse
Subject: cost per foot of collection system

We are trying to figure out the cost of extending the wastewater system to new areas that might come into Coburg. Do you know the average cost per foot of the collection system? I am figuring that the average cost of a new or refurbished tank was around $5000.
If you don't have an average cost, just let me know what you have on the total footage of the phase I and phase II parts of the project, I can do the math from there.

Thanks for what you can get me.

Milo Mecham
LCOG
859 Willamette St, Suite 500
Eugene, OR 97401-2910
541-682-4023
mmecham@lcog.org

Mainline Cost per LF (Phase 2 bid form)

Size	Open area, native fill	Paved area, imported fill
2"	$15.32	$29.22
4"	$18.32	$31.59
6"	$25.86	$33.66
8"	$25.92	$34.66
10"	$30.61	$48.37
Average	$23.21	$35.50

Memo

From:	Susan Payne, LCOG
To:	Petra Schuetz, City of Coburg
Date:	22 Jan 2015
Subject:	Evaluation of Coburg 2035 Scenarios

Analysis Approach

The Regional Travel Demand Model is maintained by LCOG and is used for long range estimation of future traffic volumes within the Central Lane MPO area. These forecasts are then used to evaluate future system conditions and to ascertain whether the results are in accord with the desired outcomes of the planners.

The model has been updated over the past three years in coordination with the various TSP update projects of Eugene, Springfield and Coburg. The base year (that is, the scenario that uses all known data to create a representation within the model structure of current conditions) is 2010. The future horizon year is 2035. Different future scenarios have been constructed as needed by each City but in all cases the 2035 coordinated populations and employment totals for each UGB are held constant. That is, regional control totals are maintained.

The travel model requires a land use pattern that describes the population, households, residences by structure type (eg single family, apartment), and employees in each area of the region. The model also requires the definition of the travel networks – roads, transit, bike and pedestrian. Various combinations of these attributes create scenarios which the model can then analyse. Because the model is 'regional', the impacts of growth of employment in Springfield on the roads within Coburg, for example, can be evaluated. The impact of UGB expansion area location on travel volumes can also be evaluated.

Traffic flowing through and into the region from outside the MPO area are included in the estimated vehicle volumes on the roads.

The travel model thus integrates land use and transportation, and provides information on travel flows from one area of the region to the other. It is not a simulation engineering model – results from the model are typically used by engineers to forecast growth rates which can be used in simulation models or in processes that forecast intersection performance. Single point results from the model should not be relied upon. However, change or differences between scenarios is an appropriate use. If intersection performance is required, an engineer needs to be called upon to do the evaluation, using the travel model results.

For the City of Coburg, four future scenarios were investigated to understand how the location of the north residential UGB expansion area would affect future traffic volumes inside the UGB, and to investigate the effects of the proposed east-west collector. The four scenarios are described below.

Scenarios

Four 2035 scenarios were described. In all cases, only residential UGB expansion areas were included in the future land use patterns.

Scenario 95120 – Preferred Scenario:

- Residential UGB expansion area north of Coburg includes land directly north of central Coburg as well as the area northwest of Coburg in the Stallings Rd/N. Coburg Rd area.
- The project list includes an east-west collector road located to the north of Coburg inside the UGB expansion area and running from Coburg Rd west of Stallings Rd to Industrial Way
- Local roads connect the E-W Collector into central Coburg

Scenario 96120 – Preferred land use, Excludes E-W Collector

- Same as 95120 but excludes E-W Collector project and the local connecting roads from the collector to central Coburg.

Scenario 97120 – Alternate land use expansion area; Excludes E-W Collector

- Residential UGB expansion area northwest of Coburg includes land in Stallings Rd/N. Coburg Rd area only. There is no expansion area directly north of Coburg.
- The project list excludes E-W Collector Project and all local connecting roads to the Collector
- About 50% of the trips originating in the UGB expansion area are allocated to Stallings Rd and 50% to N. Coburg Rd.

Scenario 98120 – Alternate land use expansion area; Includes E-W Collector

- Same as 97120 but includes E-W Collector. However, no local connecting roads from the collector to central Coburg are included.

Conclusions

This section of the memo summarizes the findings of the analysis. See the Appendix for more details.

Four 'themes' are revealed in the analysis.

These are

a) **Impact of traffic growth on Willamette St, through the heart of the Coburg downtown area** – increasing auto and truck traffic along Willamette is shown to occur in all scenarios due to population and employment growth. The Preferred Scenario shows less congestion on Willamette St than any of the other scenarios. Scenario 98120 has slightly larger volumes, but is likely as acceptable as the Preferred Scenario in this respect.

b) **Impact of traffic growth at the Willamette/Pearl St intersection** – The same conclusion can be drawn as in (a) above.

c) **Impact of traffic growth within the residential neighborhoods** With the E-W Collector in place, less traffic diverts through the residential neighborhoods. The Preferred Scenario performs the best in this respect. Scenario 98120 is next best.

d) **Impact of traffic growth at the North Coburg/Coburg Rd intersection** – this location is particularly sensitive to traffic due to the location of the Coburg Community School and the Fire department/Emergency services. Again, the Preferred Scenario results in the least amount of growth in traffic around this area, with Scenario 98120 as the next best. In both scenarios 97120 and 96120 without the E-W Collector, traffic volumes in this area are expected to increase significantly.

The modeling results indicate that the transportation system within Coburg will functions better with the building of the E-W Collector, no matter whether the UGB expansion area is located in the NW area around Stallings Rd or the area directly north of Coburg. This roadway has the added advantage of being able to act as the freight route through Coburg so as to reduce the presence of heavy vehicles in the heart of the city and particularly around the school on Coburg Rd. With the recent relocation of the Rexius Forest Products landscape supply yards to N. Coburg Rd, north of the City of Coburg, truck traffic heading toward Eugene from this location could reasonably be expected to use the E-W Collector if it was in place, and thereby bypass the Coburg school area and the Coburg downtown.

If the UGB expansion area is located entirely to the NW of Coburg rather than across the northern edge of Coburg, the analysis shows that there would be additional traffic volume in the vicinity of the school even with the building of the E-W Collector. This is caused by the lack of connections from the E-W Collector south into Coburg and the necessity to use N. Coburg Rd and Stallings Rd for access. Regardless of whether safety is a consideration, this dependence on a single link (Coburg Rd) can result in poor system performance due to non-recurrent congestion such as incidents, work zones, weather-induced road conditions, as well as recurrent congestion due to growth in demand. This situation introduces unreliability which in turn increases traveler time and dissatisfaction.

APPENDIX

More detail is provided in this appendix to justify the conclusions made in the memo.

Traffic conditions for the PM Peak 1 hour period were examined for each scenario. Note that the discussion below includes all vehicles and does not discriminate between autos and trucks. Classification counts taken in 2010 indicate that on Willamette St north of Pearl St, approximately 20% of the vehicles are trucks.

In the 2011 base year scenario, little to no congestion exists in the PM Peak 1 hour period. All roads are well within the level of service standard designated by a 0.85 volume to capacity (v/c) ratio (Fig. 1). Traffic through the residential central Coburg neighborhoods is quite low (Fig. 2). Highest volumes are found on Willamette St, Coburg Rd, Pearl St, and on Industrial Way.

In 2035, all four scenarios show that Willamette St is expected to suffer congested conditions in the northbound direction in the PM. The modeled results suggest that the Willamette St/Pearl St intersection will need improvements. The physical extent of the increased congestion and the degree to which it occurs is affected by the location of the UGB expansion area and the presence/absence of the E-W collector.

1. The Preferred Scenario (95120) shows the best transportation system performance:
    a. It is the least congested of the four scenarios. The Willamette/Pearl intersection is the area of highest concern. (Fig. 3)
    b. The E-W collector provides an alternate route for travel from east to north-west Coburg in the PM peak period. Traffic on Pearl St heading west from the I-5 interchange splits at Industrial Way in response to the congested conditions at the Willamette/Pearl intersection – about half the vehicles take the new collector route while the rest stay on Pearl. The collector thus performs to allow diversion of traffic from the Willamette St area, reducing the degree of congestion on that facility, and in particular lessening the impact at the Willamette/Pearl St intersection. Little diversion through the northwest Coburg residential neighborhood is shown.(Fig. 4).
    c. The east-west section of Coburg Rd within the existing UGB between N. Coburg Rd/Stallings Rd and Willamette remains within standards.(Fig. 3)
    d. VMT/day/capita for travel by Coburg households is reduced by 21% when compared with the base year of 2010.

2. Scenario 97120 has the most impacted transportation system.
    a. This scenario has the highest congestion of the four scenarios. Model results suggest that a good portion of the length of northbound Willamette St/Coburg Rd within the existing Coburg UGB will have a level of service below the County standard, and will approach a level of service of F (Fig. 5). In comparison to the preferred scenario, the Willamette/Pearl St intersection will experience about a 15% increase in traffic entering the intersection, resulting in more lengthy delays and thereby encouraging traffic to divert through the neighborhoods of north-

central Coburg. In comparison with Scenario 95120, it is estimated that an additional 200 vehicles will use these local residential-area roads during the PM peak hour period, approximately a four-fold increase (Fig. 4 and 7).

b. Congestion will increase on portions of westbound Pearl St to approach the standard v/c of 0.85. (Fig. 5).

c. The east-west section of Coburg Rd between Stallings Rd and N. Coburg Rd is particularly affected. Without the E-W collector and without other routes to access the new UGB expansion area, this road section will become more of a choke point in the system, and difficult travel conditions will ensue with slow speeds and lengthy delays.(Fig. 5)

d. The intersection at N. Coburg Rd/Coburg Rd is expected to see an approximately 80% increase in volume compared with the preferred scenario 95120. (Figs 4 and 7).

e. Key Coburg institutions - the Coburg Community School and the Fire/Emergency Units, are located at N. Coburg Rd/Coburg Rd intersection. Adverse traffic conditions at this intersection will likely impact response times and safety.

3. Scenario 98120

a. Shows similar performance as the Preferred Scenario (95120) along Willamette St. (Fig. 8). While the UGB expansion areas differ, both of these scenarios include the E-W Collector. The results show that the building of the E-W Collector has a positive impact on the system performance in Coburg.

b. At the N. Coburg Rd and Coburg Rd intersection, traffic volumes into the intersection increase by about 22% above that of the Preferred Scenario (Fig. 9 and Fig. 4), but intersection performance is likely to remain adequate.

c. Total two way traffic along N. Coburg Rd increases by about 190 vehicles/hour in the PM peak hour period, compared with the Preferred Scenario (Fig. 10). This, along with the two-way increase of about 165 vehicles/hour along Coburg Rd east of N. Coburg Rd emphasizes the challenges that potentially exist in this area to safe passage of children at the Coburg Community School.

4. Scenarios 96120

a. This scenario lacks the E-W Collector with access to the UGB expansion areas being provided only by local roads from north central Coburg and from Coburg Rd. The result is increased traffic along Willamette and Coburg Rds, with congestion reducing performance to near LOS F (Fig. 11). Traffic also increases through the residential neighborhoods due to the diversion caused by increased congestion on Willamette and due to the need to access the north central UGB expansion area from the south. Fig. 12 shows the volume differences between Scenario 96120 and the Preferred Scenario.

b. Traffic volumes in the Willamette/Pearl intersection are about 13% higher than in scenario 95120. Traffic volumes into the N.Coburg/Coburg Rd intersection are about 35% above that of the Preferred Scenario.

TECHNICAL MEMORANDUM

Branch ENGINEERING INC
Since 1977
civil transportation structural geotechnical SURVEYING

DATE: March 16, 2015

PROJECT: Coburg TSP Update Support
Branch Project No. 15-004A

TO: Susan Payne
Lane Council of Governments (LCOG)

CC: Perta Schuetz, City Administrator
City of Coburg

FROM: Damien Gilbert, P.E., City Engineer
Dan Haga, P.E.

REGISTERED PROFESSIONAL ENGINEER #62780PE OREGON JULY 13, 2004 DAMIEN GILBERT

EXPIRES: JUNE 30, 2015

RE: Transportation System Plan Alternatives Analysis

In an effort to assist the City of Coburg and the Lane Council of Governments (LCOG) in the evaluation of the transportation system at key intersections for potential future land use and street connectivity scenarios to be included in the update of the City of Coburg's Transportation System Plan, I am supplying this memorandum.

Background

The City of Coburg is currently in the process of updating its transportation system plan, and is evaluating several land use and transportation network scenarios for improving its system capacity to address projected growth in planning horizon year 2035 design hour conditions. With the continuation of historic growth trends in the Coburg area, the design hour traffic volumes associated with the year 2035 planning horizon are forecast to degrade operational conditions through town from E. Pearl Street at Industrial Way through W. Van Duyn Street at N. Coburg Road, and intersections between throughout the City of Coburg.

Currently the Pearl-Willamette-West Van Duyn Street corridor is the main through fare from the interstate through town, either to Willamette Street (Coburg Road) that stretches to the City of Eugene to the south, or through W. Van Duyn (also Coburg Road) that ends in Harrisburg to the northwest. The corridor users include local and non-local commuters and Coburg area residents as well as commercial and industrial vehicles that include large delivery trucks utilized to transport freight and construction materials and equipment to/from destinations along the I-5 corridor and throughout the state. Local and commuter traffic includes all modes of transportation, including pedestrian and motorized and non-motorized vehicles.

The potential land use development and street connection scenarios analyzed in this memorandum include a new east-west collector street connection to be constructed between

Industrial Way and Coburg Road northwest of the intersection at N. Coburg Road and W. Van Duyn Street that may serve to divert trucks from the downtown area through a more suitable route better equipped for truck traffic, with improved separation of large vehicles from pedestrians and lessening the congestion and other impacts associated with trucks in the growing downtown Coburg area. The analysis of the transportation system conditions include land use and transportation system scenarios provided by the Lane Council of Governments (LCOG), including:

- Existing Conditions: The existing year 2015 30th highest hour design hour traffic conditions were analyzed as a reference to compare future year scenarios to.
- Land Use and Transportation Scenario 95120: The design hour traffic conditions during the 30th highest hour of the year 2035 planning horizon year were analyzed based on land use and transportation conditions associated with LCOG's model scenario 95120. LCOG supplied EMME/2 model data for scenario 95120 included forecast turning movement traffic volumes during the transportation system's PM peak 1-hour period (design hour) for the year 2035 planning horizon. Scenario 95120 is referred to as the "preferred land use" scenario and includes a future east-west collector street connection between N. Coburg Industrial Way and Coburg Road to the northwest of the intersection of Stallings Road. The LCOG models simulate traffic growth by analyzing land uses, development patterns and transportation infrastructure in Transportation Analysis Zones (TAZs).
- Land Use and Transportation Scenario 96120: The design hour traffic conditions during the 30th highest hour of the year 2035 planning horizon year were analyzed based on land use and transportation conditions associated with LCOG's land use and transportation scenario 96120. Scenario 96120 is referred to as the "preferred land use", and does not include a future street connection between N. Coburg Industrial Way and Coburg Road.
- Land Use and Transportation Scenario 97120: The design hour traffic conditions during the 30th highest hour of the year 2035 planning horizon year were analyzed based on land use and transportation conditions associated with LCOG's land use and transportation scenario 97120. Scenario 97120 is referred to as "alternate land use", and does not include a future street connection between N. Coburg Industrial Way and Coburg Road.
- Land Use and Transportation Scenario 98120: The design hour traffic conditions during the 30th highest hour of the year 2035 planning horizon were analyzed based on land use and transportation conditions associated with LCOG's land use and transportation scenario 98120. Scenario 98120 is referred to as "alternate land use", and includes a future street connection between N. Coburg Industrial Way and Coburg Road.

Analysis Area

To provide a representative analysis of the transportation system, the following key intersections were selected to be analyzed under the five previously described land use and transportation scenarios:

- W. Van Duyn Street/Coburg Road at Coburg Bottom Loop/N. Coburg Road: LCOG modeling scenarios refer to this intersection as node 1826. This intersection features two-way stop controls on the north and southbound approaches, with N. Coburg Road on the North leg, Coburg Bottom Loop at the south leg, Coburg Road on the west leg and W. Van Duyn Road at the east leg. A construction project occurring around the year 2000 realigned this intersection to include Coburg Bottom Loop Road at the south leg, which previously intersected Coburg Road to the west of the current intersection at N. Coburg Road.

  W. Van Duyn Street is considered an urban minor arterial street between Willamette Street and N. Coburg Road. Coburg Road (west leg) and N. Coburg Road are considered rural major collector streets, while Coburg Bottom Loop Road is considered a rural local street. All intersecting streets at this intersection are owned and maintained by Lane County.

- Willamette Street at Van Duyn Street: LCOG modeling scenarios referred to this intersection as node 1802. This intersection features stop controls on the eastbound through and left movements (W. Van Duyn Street), westbound (E. Van Duyn Street) and southbound (N. Willamette Street), while the eastbound right and northbound (Willamette Street) approach movements are free. W. Van Duyn Street and Willamette Street are urban minor arterial streets (also known as Coburg Road) under Lane County jurisdiction on the west and south legs, while E. Van Duyn Street at the east leg and N. Willamette Street north of the intersection are City of Coburg local streets.

- E. Pearl Street at Willamette Street: LCOG scenarios referred to this intersection as node 1804. E. Pearl Street at Willamette Street is a signalized intersection with E. Pearl Street at the east leg, a private driveway at the west leg, and Willamette on the north and south approaches. Willamette Street and E. Pearl Streets currently create the main through fare through town and are Lane County owned minor arterial streets. E. Pearl Street is a direct link to Interstate 5 to the east. Willamette Street (Coburg Road) provides connectivity between the City of Eugene and the City of Harrisburg through Coburg.

- E. Pearl Street at Coburg Industrial Way. LCOG scenarios referred to this intersection as node 1806. This intersection is a signalized intersection that features E. Pearl Street on the east and west approaches and Coburg Industrial Way on the north and south approaches. The intersection was realigned with the implementation and of an ODOT Interchange Area Management Plan (IAMP) construction project between years 2012 and 2013 to consolidate the previous intersection of Roberts Road to the east with the new south leg of Coburg Industrial Way. E.

  Pearl Street is a Lane County owned minor arterial street. Coburg Industrial Way is an urban collector street owned by Lane County north of the intersection and owned by City of Coburg to the south. The south leg of this intersection was re-aligned in year 2013, when Roberts Road to the east was closed and access was consolidated at the south leg of the intersection. Coburg Industrial Way north and south current

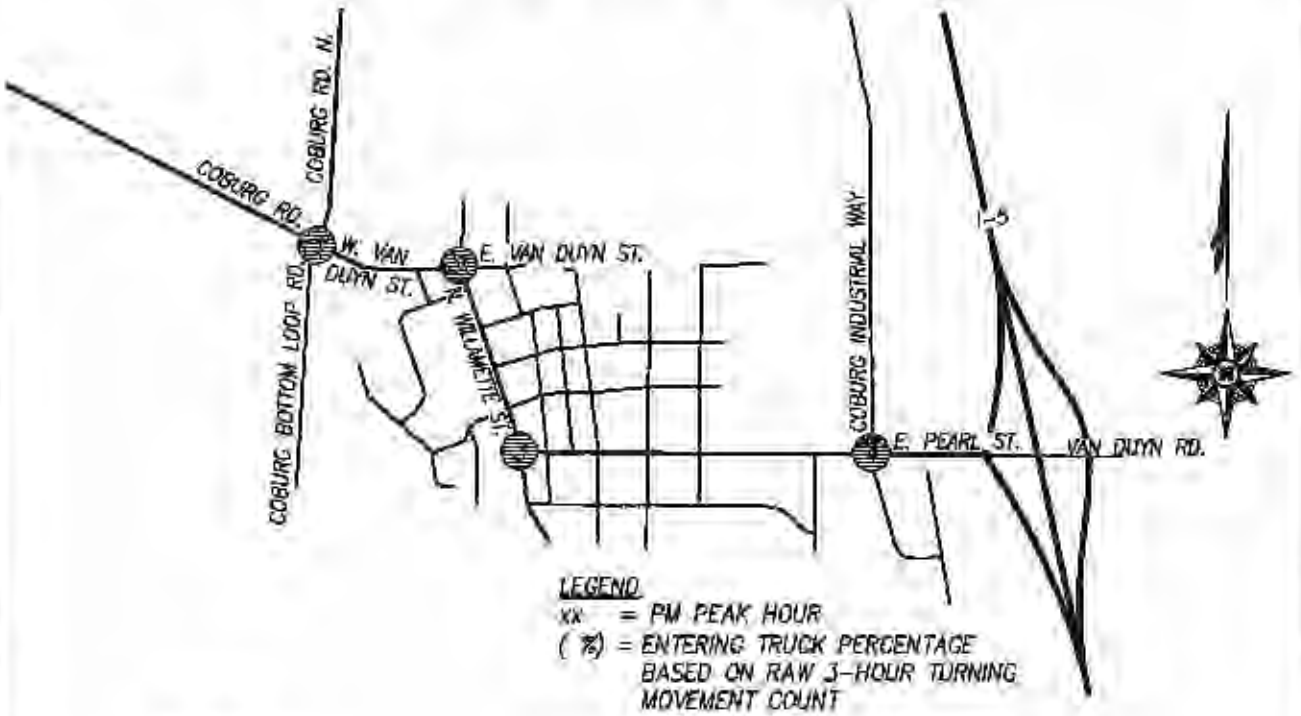
serves significant industrial and commercial uses and has been subject to significant growth over the past 5 years.

Traffic Volumes

Three hour intersection turning movement traffic count data were collected in February, 2015 for the previously listed intersections in Coburg. The traffic counts were collected on typical Tuesdays, Wednesdays and/or Thursdays between 3:00 PM and 6:00 PM on weeks without holidays or weather conditions that could produce unusual traffic trends. Collected traffic count data and adjustments are included in Attachment A.

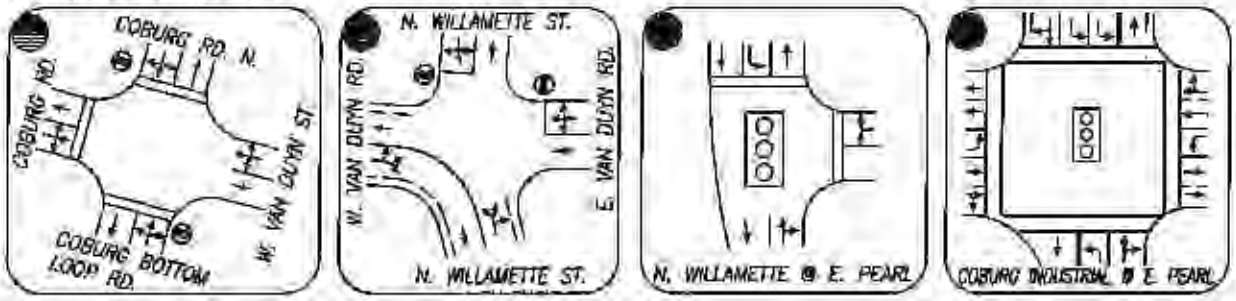
As described previously, four intersections were studied for this analysis. A comprehensive CH2M Hill transportation system analysis that included 11 intersection traffic counts indicated that the transportation system peak hour occurred between 3:15 PM and 4:15 PM, therefore, traffic data collected in February 2015 for this analysis was based on the intersection turning movement volumes occurring during this one-hour period. Existing Year 2015 Raw traffic Count Volumes are displayed on Figure 1 on the following page.

EXISTING YEAR 2015 RAW TRAFFIC COUNT VOLUMES

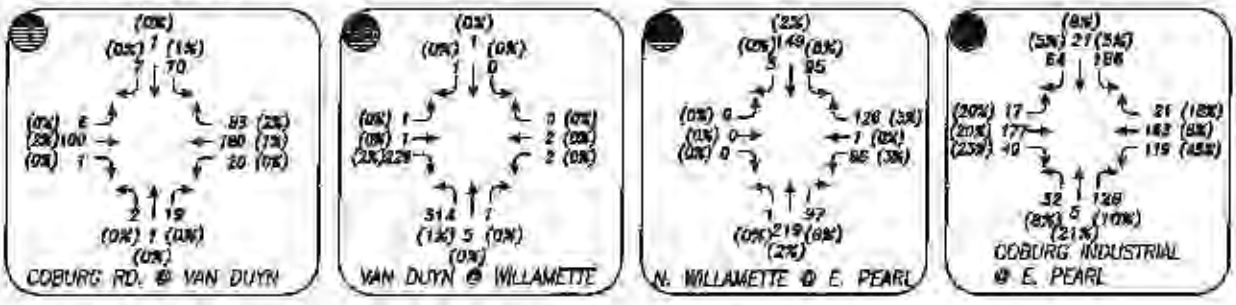


LEGEND
XX = PM PEAK HOUR
(%) = ENTERING TRUCK PERCENTAGE BASED ON RAW 3-HOUR TURNING MOVEMENT COUNT

LANE CONFIGURATION



PM COUNT



SCALE: NTS

FIGURE 1

CITY OF COBURG

TRANSPORTATION SYSTEM PLAN ALTERNATIVES ANALYSIS

MARCH 16, 2015

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Project No: 15-004a

Seasonal Adjustment

The collected intersection turning movement traffic count volume data were seasonally adjusted to be consistent with the CH2M Hill methodology that assumed a commuter traffic trend on Coburg area transportation system roadways. The calculated average seasonal adjustment factor for a count date in early February was 1.125. This factor was applied to the collected traffic count volumes to produce peak hour turning movement volumes, since data collection did not occur during what is considered the peak season for the commuter traffic trend. The seasonally adjusted traffic volumes were rounded up to the nearest 5 entering vehicle trips/movement to produce design hour traffic conditions to be input to SYNCHRO modeling software, as will be described later. ODOT's current (year 2014) Seasonal Trend Table and seasonal adjustment factor calculations are included in Attachment B. The seasonally adjusted Existing Year 2015 Traffic Volumes are included on Figure 2 on the page 8.

Traffic Growth

As described previously, LCOG supplied forecast EMME/2 model scenario traffic volumes for base year 2010 and future year 2035 planning horizon conditions based on growth and transportation trends that include "preferred" and "alternate" land use scenarios both with and without the addition of a future east-west collector street connection constructed between N. Coburg Industrial Way and Coburg Road northwest of the Stallings Street intersection. The new collector street connection would allow through fare traffic to by-pass the downtown area and provide traffic relief with a more direct route to Interstate 5. The provided LCOG base year conditions did not account for a previous realignment of Coburg Bottom Loop Road to the south leg of W. Van Duyn Street at N. Coburg Road that occurred around the year 2000. The LCOG models also did not include the realignment of Roberts Road, where direct access to E. Pearl Street was relocated to the south leg of the signalized intersection of Coburg Industrial way in 2012. Because base year EMME/2 modeling did not include these realignment scenarios, turning movement traffic volumes that were collected and included in the year 2010/2011 traffic analysis by CH2M Hill for the Update to the Transportation System Plan were used in combination with the forecast year 2035 EMME/2 model runs provided by LCOG to calculate a linear average annual growth rate that was applied seasonally adjusted year 2015 turning movement traffic volumes collected by Branch Engineering in February 2015 at each intersection for each future year 2035 analysis scenario. Calculated growth rates at each approach turning movement differed by each land use and transportation alternative. Since the intersection of Roberts Road was relocated to the south leg of Industrial Way at E. Pearl Street after the 2010 traffic counts collected with the CH2M Hill analysis, the Roberts Road and existing year 2010 south leg approach turning movement traffic volumes were consolidated in base year scenarios to calculate growth.

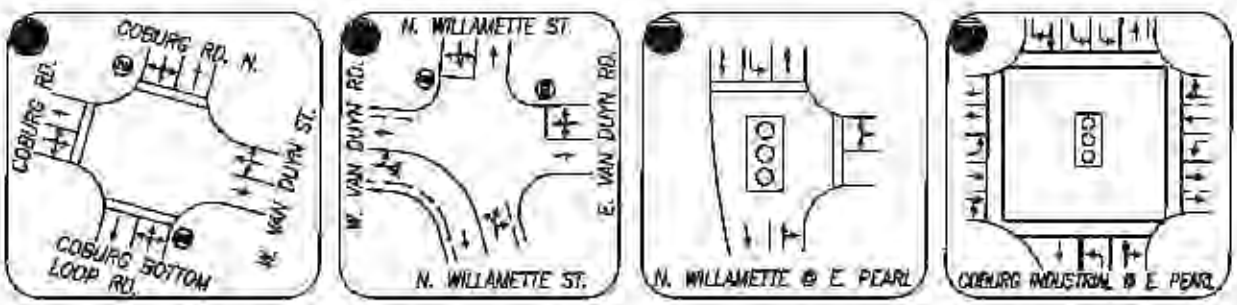
Due to the number of street intersections and the distance between intersections analyzed along the subject through fare corridor, balancing was only performed between the intersections of W. Van Duyn Street at Willamette Street and W. Van Duyn Street at N. Coburg Road. There is a street connection on W. Van Duyn Street between these intersections (Water Street) that could provide an additional by-pass connection to Willamette Street south of W. Van Duyn Street at Bruce Way. At least two of the EMME/2 model scenarios showed traffic increases on these two links for future volume forecasts that appeared to be a result of surpassing a predetermined model threshold traffic volume at the intersection of W. Van Duyn Street and

Willamette Street. Utilization of this route would increase travel time and distance on the through fare of the street network and would introduce at least one additional stop on the route, therefore, traffic volumes were balanced between the intersections of W. Van Duyn Street at Willamette Street and W. Van Duyn Street/Coburg Road at N. Coburg Road/Coburg Bottom Loop Road to provide a conservative analysis.

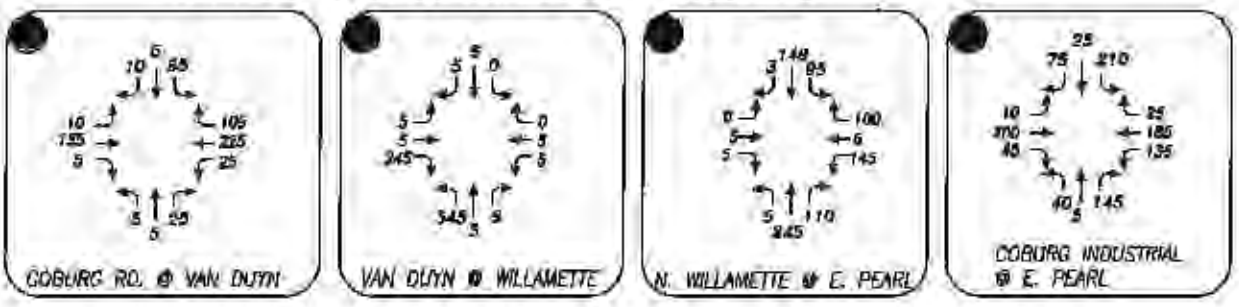
The LCOG provided EMME/2 model run scenario screen shots, a summary of the CH2M Hill seasonally adjusted turning movement traffic volumes and the calculated and applied AAGRs that were applied to year 2015 traffic counts collected by Branch Engineering are provided as Attachment C. Figure 3a -3d on pages 9-12 show the projected future design hour traffic conditions associated with each of the land use and transportation alternatives.

EXISTING YEAR 2015
DESIGN HOUR TRAFFIC VOLUMES

LANE CONFIGURATIONS



DESIGN HOUR TRAFFIC VOLUMES



SCALE: NTS

FIGURE 2

CITY OF COBURG

TRANSPORTATION SYSTEM PLAN ALTERNATIVES ANALYSIS

MARCH 16, 2015

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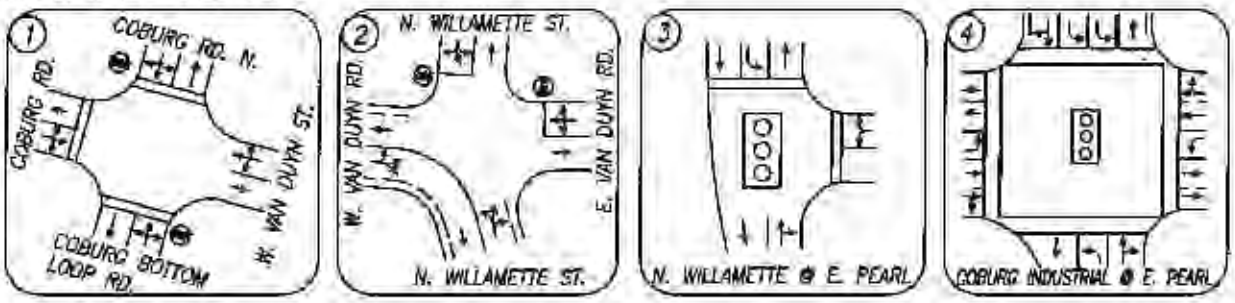
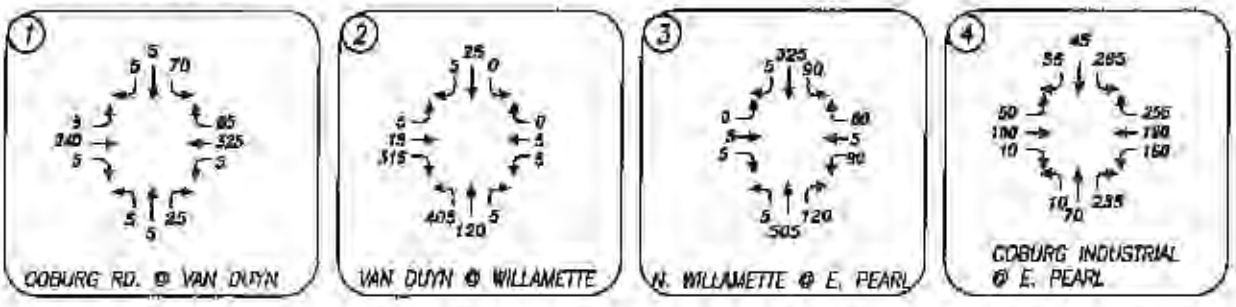
Project No: 15-004a

TRANSPORTATION SYSTEM PLAN HORIZON YEAR 2035
DESIGN HOUR TRAFFIC VOLUMES WITH LAND USE SCENARIO 95120 AND NEW EAST–WEST COLLECTOR

LANE CONFIGURATION



PM COUNT



SCALE: NTS

FIGURE 3a

CITY OF COBURG

TRANSPORTATION SYSTEM PLAN ALTERNATIVES ANALYSES

MARCH 16, 2015

Branch ENGINEERING

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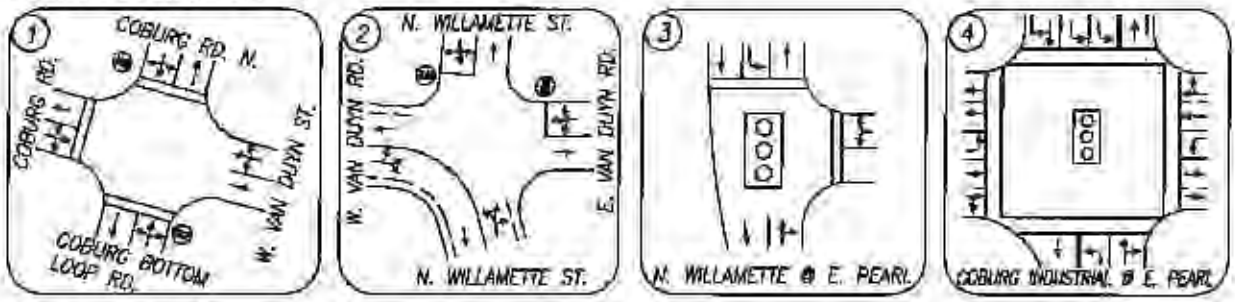
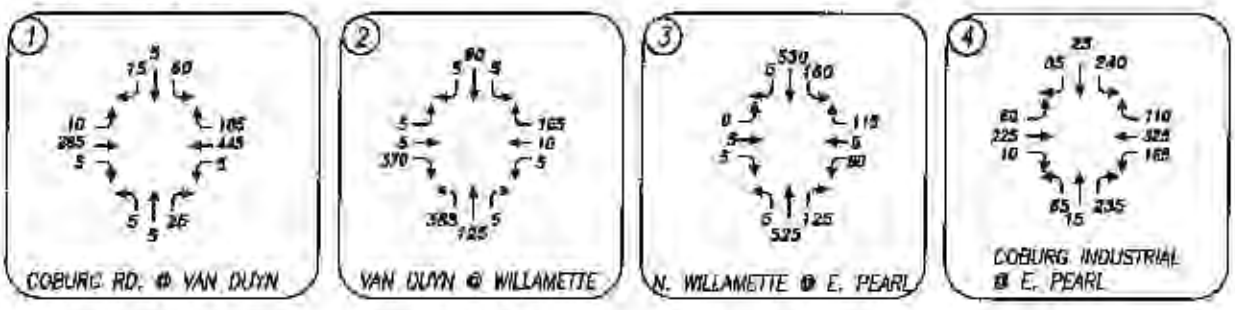
Project No: 15-004a

TRANSPORTATION SYSTEM PLAN HORIZON YEAR 2035
DESIGN HOUR TRAFFIC VOLUMES WITH LAND USE SCENARIO 96120 AND NO NEW EAST–WEST COLLECTOR

LANE CONFIGURATION



PM COUNT



SCALE: NTS

FIGURE 3b

CITY OF COBURG

TRANSPORTATION SYSTEM PLAN ALTERNATIVES ANALYSIS

MARCH 16, 2015

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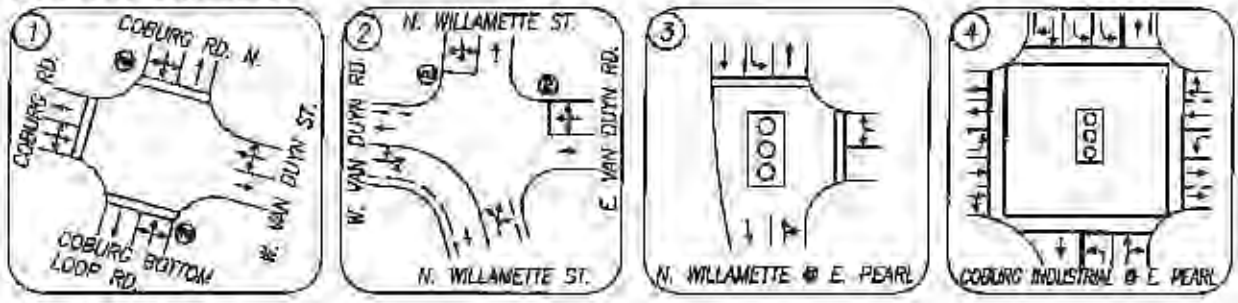
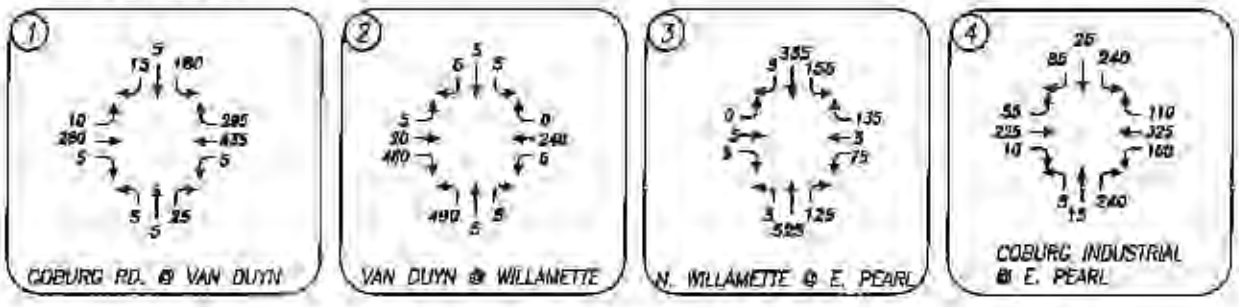
Project No: 15-004a

TRANSPORTATION SYSTEM PLAN HORIZON YEAR 2035
DESIGN HOUR TRAFFIC VOLUMES WITH LAND USE SCENARIO 97120 AND NO NEW EAST-WEST COLLECTOR

LANE CONFIGURATION



PM COUNT



SCALE: NTS

FIGURE 3c

CITY OF COBURG

TRANSPORTATION SYSTEM PLAN ALTERNATIVES ANALYSIS

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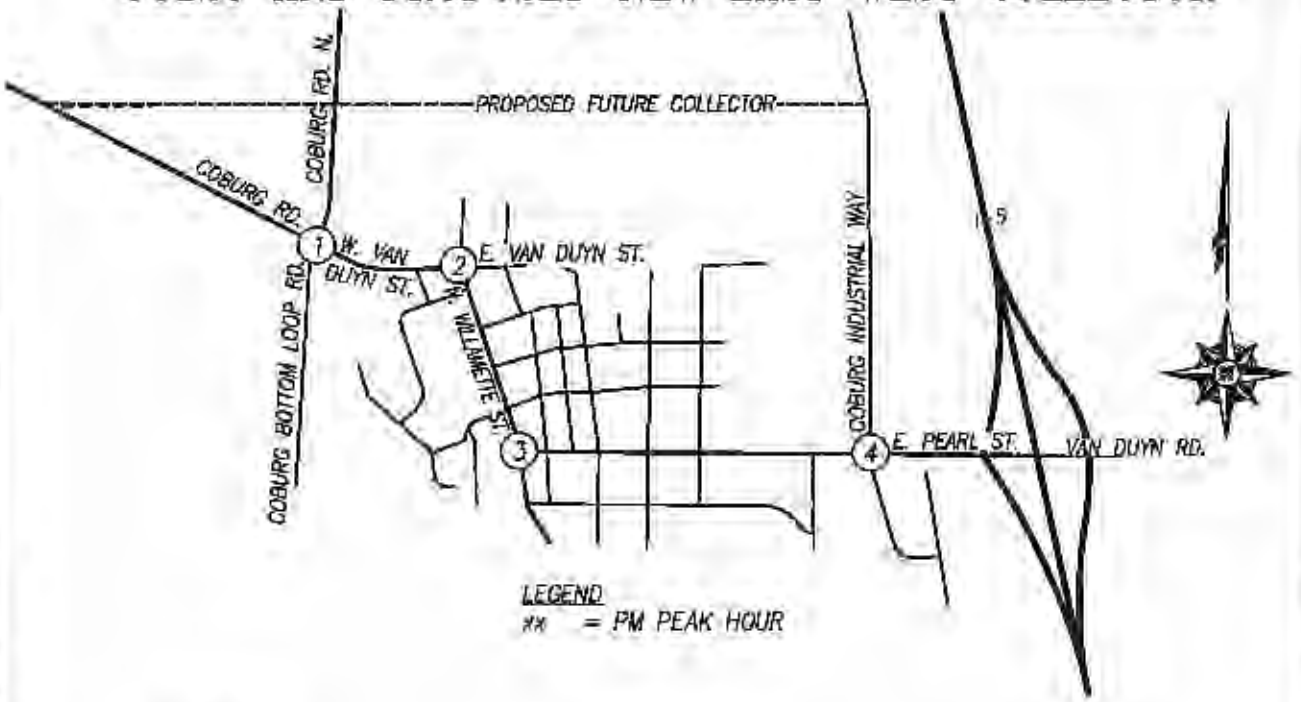
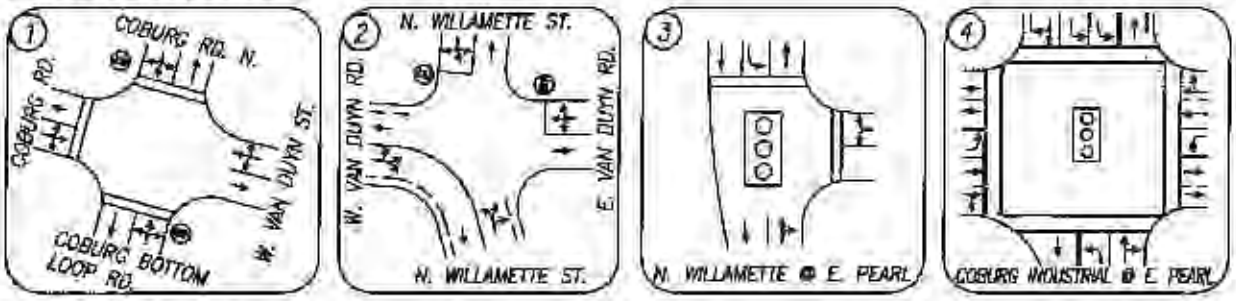
Project No: 15-004a

Z:\2015\15-004A Coburg TSP Traffic Study\15-0040 TRAFFIC FIGURES.dwg FIG 3c 3/17/2015 11:50 AM DANH 19.0s (LMS Tech)

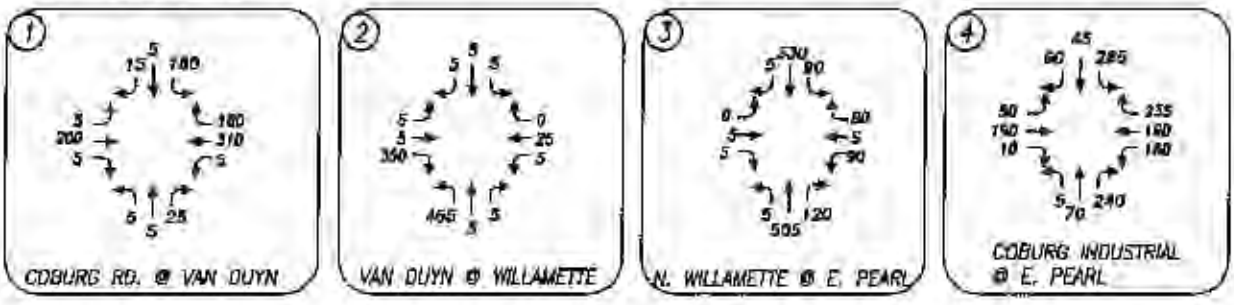
TRANSPORTATION SYSTEM PLAN HORIZON YEAR 2035
DESIGN HOUR TRAFFIC VOLUMES WITH LAND USE SCENARIO 98120 AND PROPOSED NEW EAST–WEST COLLECTOR



LANE CONFIGURATION



PM COUNT



SCALE: NTS

FIGURE 3d

CITY OF COBURG

TRANSPORTATION SYSTEM PLAN ALTERNATIVES ANALYSIS

MARCH 16, 2015

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Project No: 15-004a

Traffic Analysis

Studied analysis corridor intersections were evaluated to determine average calculated delay, Level of Service (LOS) based on average delay, and volume-to-capacity ratio. Calculations for the signalized and unsignalized intersections were performed based on the Highway Capacity Analysis (HCM) methodology with the computer program SYNCHRO 7® by Trafficware.

Level of service, based on vehicle delay, is classified by a letter scale from 'A' to 'F'. LOS 'A' represents optimum operating conditions and minimal delay. LOS 'F' indicates over capacity conditions causing unacceptable delay. The City of Coburg refers to Lane County roadway performance standards on roadways owned by Lane County, such as those on the analysis corridor herein. Based on the current (2004) Lane County Transportation System Plan and the Lane County Code (LC), Chapter 15.696, LOS 'D' is considered the minimum acceptable level of service standard for stop controlled approaches at unsignalized intersections and for overall level of service at signalized intersections on Lane County owned facilities located inside the UGB and within the MPO area.

A	≤ 10 sec	≤ 10 sec
B	>10 and ≤ 15 sec	>10 and ≤ 20 sec
C	>15 and ≤ 25 sec	>20 and ≤ 35 sec
D	>25 and ≤ 35 sec	>35 and ≤ 55 sec

In addition to the LOS standard previously described, the 2004 Lane County Transportation System Plan and LC 15.696, also specify that the minimum standard V/C ratio of 0.85 shall be maintained at approaches that are not stopped at unsignalized intersections and road approaches with two-way stop controls (TWSC) for county facilities located inside the UGB and within the MPO area. For two-way stop controlled intersections, approaches that are required to stop have a standard V/C ratio of 0.95. Volume-to-capacity ratio (V/C) is a measure of congestion calculated by dividing the number of vehicles utilizing a transportation facility by the calculated capacity of the facility. A copy of Lane County's roadway performance standards is included as Attachment D.

To provide an analysis compatible with the HCM methodology to evaluate the intersection of W. Van Duyn Street at Willamette Street, the intersection had to be reconfigured in SYNCHRO and SimTraffic Analysis software, with the existing eastbound W. Van Duyn Street approach modeled as the southbound approach and with the existing southbound N. Willamette Street approach modeled as the eastbound approach, since the existing intersection controls feature a right-turn permitted without stopping condition from eastbound to southbound in the field.

The eastbound right-turn movement provides the primary arterial-arterial through fare traffic volume traveling through town from the W. Van Duyn Street intersection at N. Coburg Road to the E. Pearl Street intersection on Willamette Street.

Table 2 below shows the results of the performance analysis, including calculated delays. SYNCHRO output files with inputs and calculations are provided as Attachment E. The W. Van Duyn Street at Willamette Street intersection operational performance shown below has been corrected to represent actual intersection geometry.

Table 2: 30th Highest Hour Operational Performance

Intersection/ Movement	Performance Measure	Existing 2015	LOS Scenario 95120	2035 Scenario 95120	2035 Scenario W-120	2035 Scenario 95120
1802*/ W. Van Duyn at N. Willamette (westbound)	Delay (Sec)	13.3	20.6	18.1	20.4	13.7
	Level of Service (LOS)	LOS B	LOS C	LOS C	LOS C	LOS B
	Volume to Capacity (v/c)	0.04	0.05	0.44	0.56	0.08
1804/ Pearl at Willamette	Delay	9.9	8.8	8.9	9.1	8.8
	Level of Service (LOS)	LOS A	LOS A	LOS A	LOS A	LOS A
	Volume to Capacity (v/c)	0.48	0.57	0.58	0.57	0.57
1806/ Pearl at Industrial	Delay	23.0	32.0	22.8	22.6	32.4
	Level of Service (LOS)	LOS C	LOS C	LOS C	LOS C	LOS C
	Volume to Capacity (v/c)	0.47	0.65	0.50	0.49	0.66
1826/W. Van Duyn at N. Coburg (southbound)	Delay	18.9	20.6	32.4	163.6	27.9
	Level of Service (LOS)	LOS C	LOS C	LOS D	LOS F	LOS D
	Volume to Capacity (v/c)	0.37	0.29	0.48	>1.00	0.53

Stopped movement reported at unsignalized intersections, average conditions reported at signalized intersections.
*Intersection of W. Van Duyn and N. Willamette Street was modeled with the west leg of W. Van Duyn as the north leg and with the north leg of N. Willamette Street as the west leg because the HCM methodology for analysis does not allow the right-turn without stopping condition that is currently utilized from W. Van Duyn onto N. Willamette Street.

As shown above, the preferred land use and transportation scenario associated with LCOG's scenario 95120 with the new collector street connection between Coburg Industrial Way and Coburg Road northwest of the intersection at Stallings Street (west of N. Coburg Road/Bottom Loop at Coburg Road/W. Van Duyn Street) for the planning horizon year 2035 conditions is the only scenario with all calculated levels of service above LOS D. Generally all of the scenarios are

considered acceptable with LOS and V/C within the County's performance standard except scenario 97120, which does not include the new street connection described previously.

Vehicle Queuing

Although there is not a tangible performance standard for vehicle queuing on approach lanes, excessive vehicle queue lengths on intersection approach lanes can be an indication of congested conditions. There are typically two vehicle queue lengths analyzed for intersections. The 50th percentile (average) queue length is the maximum back of queue length calculated with an average number of arrivals during the analysis period. The average queue is the queue length that would be expected at a given approach lane at any time during the analysis period. The 95th percentile queue is the queue length that has only a five percent probability of being exceeded during the analysis period and is not necessarily representative of complete design hour traffic conditions.

To analyze vehicle queuing, SimTraffic 7® by Trafficware was utilized to calculate vehicle queue lengths. SimTraffic utilizes random number seeding to generate approaching traffic volume and peak hour factor application scenarios and simulate resulting traffic conditions. Five runs were simulated at each intersection for each scenario with the queue lengths calculated from the average of the five runs, as directed by the analysis procedures manual. It should be noted that the random number seeding may not produce identical results each time five runs are averaged. Calculated queue lengths vary on separate five run averages and depend on the seeding. The following tables summarize the projected intersection queuing rounded up to the nearest 25 foot increment where appropriate from SimTraffic Reports. SimTraffic Output files documenting vehicle queue length calculations are included as Attachment F. The following Table shows the calculated vehicle queue lengths for each of the analysis scenarios.

Node/ Intersection	Movement	[illegible]		[illegible]		2015 Existing PM		2035 No-Build PM		2035 Alternative PM	
		[illegible]		[illegible]		Average	95th	[illegible]		[illegible]	
1802*/ W. Van Duyn at N. Willamette	EBLTR	25	25	25	50	50	75	25	50	50	75
	WBLTR	25	25	25	50	50	100	75	175	50	100
	NBLTR	25	25	50	125	50	125	25	25	50	125
	SBLTR	25	25	25	50	25	75	25	75	25	75
1804/Pearl at Willamette	EBLTR	25	25	25	25	25	25	25	25	25	25
	WBL	50	125	50	100	50	100	50	100	50	100
	WBR	25	75	25	75	50	75	50	100	50	75
	NBLTR	100	150	125	275	150	275	150	300	150	275
	SBL	50	125	50	100	100	200	100	175	100	200
	SBTR	50	100	75	150	100	225	75	175	100	275
1806/ Pearl at Industrial	EBL	25	50	50	100	50	100	50	100	50	100
	EBT	50	125	75	125	75	125	75	150	75	125
	EBTR	75	150	75	125	75	125	75	125	75	125
	WBL	100	150	100	200	125	200	100	200	125	200
	WBT	50	125	75	175	125	225	125	225	125	225
	WBTR	25	75	75	150	75	150	75	150	75	150
	NBL	50	75	25	25	50	100	25	25	50	100
	NBTR	75	125	150	250	100	200	100	175	100	200
	SBL	75	125	100	150	75	125	75	125	75	125
	SBTR	50	125	50	125	50	100	50	100	50	100
1826/ W. Van Duyn at N. Coburg	EBLTR	50	75	50	75	50	100	125	275	50	100
	WBLTR	25	50	25	25	25	25	25	50	25	25
	NBLTR	25	50	25	50	25	50	25	50	25	50
	SBLTR	25	25	25	25	25	25	25	50	25	25

*Intersection of W. Van Duyn and N. Willamette Street was modeled with the west leg of W. Van Duyn as the north leg and with the north leg of N. Willamette Street as the west leg because the HCM methodology for analysis does not allow the right-turn without stopping condition that is currently utilized from W. Van Duyn onto N. Willamette Street. For the queuing simulation results reported above, the west leg is W. Van Duyn Road and the north leg is N. Willamette Street.

New Collector Street Connection

As described above, the potential new street connection would shift some through fare traffic between the interstate and origins/destinations north of Coburg to an alternate route currently north of town, preferable truck traffic that currently utilizes W. Van Duyn, Willamette, and E. Pearl Streets. The new collector street connection would provide relief from truck traffic in the downtown area and would provide a more direct route to/from the interstate with a straight alignment and higher potential speed zone that could work to reduce travel time, system wide delays, and time spent stopped. The new street cloonnection could also provide a grid system with potential street connections made to existing City of Coburg residential streets located north of E. Pearl Street between Willamette Street to the west and Coburg Industrial Way to the east. A grid system would benefit the Coburg residents by providing congestion relief and additional secondary benefits, such as emergency response time improvements.

Safety Analysis

Intersection and segment crash data was requested and received from the Oregon Department of Transportation for the most recent three years of available complete data, which was the period from January 1, 2009 through December 31, 2013. The available crash data did not identify any discernable crash patterns within the analysis corridor. All of the studied intersections had three or fewer crashes, which was not considered abnormal. Intersection and segment crash data is included as Attachment G.

The forecast future conditions show increases in approach traffic volumes and a steady flow of vehicular traffic from the northwest through downtown to the Interstate and from the Interstate through Coburg to the northwest. Steady vehicular traffic flows do not support pedestrian activities in downtown areas, since the number and duration of gaps in the traffic stream that are necessary for safe pedestrian crossings of E. Pearl and Willamette Streets are reduced with increased traffic volumes. An east-west collector street connection that by-passes downtown would improve pedestrian safety by reducing through town traffic volumes and creating more frequent and longer gaps in the traffic stream to facilitate pedestrian crossings. The new east-west collector street connection would also improve pedestrian safety by relocating truck traffic out of the downtown business area.

Although there were zero crashes reported at the intersection of W. Van Duyn Street at Willamette Street, during traffic volume data collection at the intersection, large delivery vehicles turning from Willamette Street northbound onto W. Van Duyn Street westbound and from W. Van Duyn Street eastbound onto Willamette Street southbound were observed to overlap oncoming traffic lanes to execute left and right turning maneuvers to avoid off-tracking rear trailer axles from overlapping into unpaved shoulder areas. To evaluate the truck turning conditions, AutoTurn 8® and AutoCad were utilized to simulate turning maneuvers. Figure 4 on the following page shows the results of the turning simulations at W. Van Duyn Street at Willamette Street and at E. Pearl Street and Willamette Street.

EXISTING INTERSECTION MOVEMENTS AT W. DUYN ST. & N. WILLAMETTE ST.

25
0 50

EXISTING INTERSECTION MOVEMENTS AT N. WILLAMETTE ST. & E. PEARL ST.

SCALE: 1"=50'

FIGURE 4

CITY OF COBURG

TRANSPORTATION SYSTEM PLAN ALTERNATIVES ANALYSIS

MARCH 16, 2015

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Project No: 15-004a

As shown in Figure 4, the larger delivery vehicles struggle to execute certain vehicle maneuvers within the paving and lane striping at the intersections discussed previously. The count data revealed that truck percentages were between 2 and 5 percent at these approach movements. Although there was no history of crashes reported during the available 5 years of crash data, the increase in traffic with growth could create unfavorable future conditions. Unfavorable future conditions associated with the large vehicle turning maneuvers at these intersections would include excessive delays resulting in lengthened vehicle queues and degraded levels of service resulting from drivers awaiting a needed gap in oncoming traffic to over steer right or left-turn maneuvers, or drivers taking unnecessary risks by taking a shortened gap to execute a turn waiting for a gap in traffic to over steer right or left-turn maneuvers.

Conclusion

In summary, a new collector street connection would provide relief to forecasted conditions on the roadway network in the downtown area of Coburg by providing a secondary through fare for trucks and other commute vehicle traffic traveling through the City of Coburg to origin/destination pairs that includes accessibility to the interstate highway system and areas surrounding the City of Coburg. The new collector street would allow separation of trucks from the downtown area, resulting in improved safety for all modes of transportation. With forecasted growth, the new collector street connection would provide a system wide improvement by providing the framework for a grid system to be developed on existing streets north of E. Pearl Street, specifically between Willamette Street and Coburg Industrial Way, resulting in improved north and south street connectivity and an additional level of redundancy to emergency vehicle access, as well as improving secondary access for residences on existing streets.

ATTACHMENT A
RAW TRAFFIC COUNTS

Branch ENGINEERING

civil · transportation
surveying

File Name : Coburg Rd at Bottom Loop
Site Code : 1826
Start Date : 2/3/2015
Page No : 1

Groups Printed- PASSENGER VEHICLES - TRUCKS - BICYCLES

	N COBURG ROAD SOUTHBOUND					W VAN DUYN WESTBOUND					COBURG BOTTOM LOOP NORTHBOUND					COBURG ROAD EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
02:30 PM	9	0	0	0	9	4	28	42	0	74	0	0	4	0	4	1	30	0	0	31	118
02:45 PM	35	0	2	0	37	4	30	49	1	84	0	0	2	0	2	2	43	1	0	46	169
Total	44	0	2	0	46	8	58	91	1	158	0	0	6	0	6	3	73	1	0	77	287
03:00 PM	36	0	0	0	36	10	29	35	2	76	0	0	4	0	4	3	54	1	0	58	174
03:15 PM	15	0	1	0	16	6	40	17	0	63	2	0	5	0	7	1	29	0	0	30	116
03:30 PM	23	0	4	0	27	7	54	24	0	85	0	0	6	0	6	1	22	0	0	23	141
03:45 PM	12	0	1	1	14	4	40	22	0	66	0	1	4	0	5	2	22	0	1	25	110
Total	86	0	6	1	93	27	163	98	2	290	2	1	19	0	22	7	127	1	1	136	541
04:00 PM	20	1	1	0	22	3	46	20	0	69	0	0	4	0	4	2	27	1	0	30	125
04:15 PM	13	0	0	0	13	9	34	23	1	67	1	1	5	0	7	0	31	0	0	31	118
04:30 PM	12	0	0	0	12	7	39	24	0	70	0	0	4	0	4	1	25	1	0	27	113
04:45 PM	16	1	1	0	18	9	56	14	0	79	0	0	6	0	6	0	25	0	0	25	128
Total	61	2	2	0	65	28	175	81	1	285	1	1	19	0	21	3	108	2	0	113	484
05:00 PM	11	1	0	0	12	3	56	21	0	80	0	1	3	0	4	0	27	2	0	29	125
05:15 PM	15	0	0	0	15	13	49	28	0	90	0	0	1	2	3	0	29	1	0	30	138
05:30 PM	18	0	1	0	19	6	44	25	0	75	1	0	2	0	3	1	22	0	0	23	120
05:45 PM	11	0	1	0	12	5	33	22	0	60	0	0	3	2	5	0	20	0	0	20	97
Total	55	1	2	0	58	27	182	96	0	305	1	1	9	4	15	1	98	3	0	102	480
Grand Total	246	3	12	1	262	90	578	366	4	1038	4	3	53	4	64	14	406	7	1	428	1792
Approch %	93.9	1.1	4.6	0.4		8.7	55.7	35.3	0.4		6.2	4.7	82.8	6.2		3.3	94.9	1.6	0.2		
Total %	13.7	0.2	0.7	0.1	14.6	5	32.3	20.4	0.2	57.9	0.2	0.2	3	0.2	3.6	0.8	22.7	0.4	0.1	23.9	
[illegible]	243	3	12	1	259	90	574	360	4	1028	4	3	53	4	64	14	396	7	1	418	1769
[illegible] TRUCKS	98.8	100	100	100	98.9	100	99.3	98.4	100	99	100	100	100	100	100	100	97.5	100	100	97.7	98.7
TRUCKS	3	0	0	0	3	0	4	6	0	10	0	0	0	0	0	0	10	0	0	10	23
% TRUCKS																					
BICYCLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% BICYCLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	N COBURG ROAD SOUTHBOUND					W VAN DUYN WESTBOUND					COBURG BOTTOM LOOP NORTHBOUND					COBURG ROAD EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 02:30 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 02:45 PM																					
02:45 PM	35	0	2	0	37	4	30	49	1	84	0	0	2	0	2	2	43	1	0	46	169
03:00 PM	36	0	0	0	36	10	29	35	2	76	0	0	4	0	4	3	54	1	0	58	174
03:15 PM	15	0	1	0	16	6	40	17	0	63	2	0	5	0	7	1	29	0	0	30	116
03:30 PM	23	0	4	0	27	7	54	24	0	85	0	0	6	0	6	1	22	0	0	23	141
Total Volume	109	0	7	0	116	27	153	125	3	308	2	0	17	0	19	7	148	2	0	157	600
% App. Total	94	0	6	0		8.8	49.7	40.6	1		10.5	0	89.5	0		4.5	94.3	1.3	0		
PHF	.757	.000	.438	.000	.784	.675	.708	.638	.375	.906	.250	.000	.708	.000	.679	.583	.686	.500	.000	.677	.862

Branch ENGINEERING

File Name : Willamette at W. Van Duyn
Site Code : 1802
Start Date : 2/5/2015
Page No : 1

Groups Printed- PASSENGER VEHICLES - TRUCKS - BICYCLES

	WILLAMETTE SOUTHBOUND					W VAN DUYN WESTBOUND					WILLAMETTE NORTHBOUND					W VAN DUYN EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:00 PM	0	0	0	2	2	1	0	0	2	3	75	2	0	0	77	0	1	109	0	110	192
03:15 PM	0	0	1	0	1	1	1	0	0	2	70	2	0	0	72	0	0	51	0	51	126
03:30 PM	0	0	0	0	0	0	0	0	0	0	76	0	0	0	76	0	0	55	0	55	131
03:45 PM	0	1	0	0	1	1	0	0	1	2	88	2	1	1	92	0	0	66	0	66	161
Total	0	1	1	2	4	3	1	0	3	7	309	6	1	1	317	0	1	281	0	282	610
04:00 PM	0	0	0	0	0	0	1	0	0	1	80	1	0	0	81	1	1	60	0	62	144
04:15 PM	0	0	1	0	1	0	0	0	1	1	85	0	1	1	87	0	0	54	0	54	143
04:30 PM	0	0	0	0	0	3	0	0	0	3	80	0	1	0	81	0	0	68	0	68	152
04:45 PM	0	0	0	0	0	0	0	0	0	0	83	0	0	1	84	0	0	52	0	52	136
Total	0	0	1	0	1	3	1	0	1	5	328	1	2	2	333	1	1	234	0	236	575
05:00 PM	0	0	0	0	0	0	1	0	1	2	73	0	1	1	75	0	0	31	0	31	108
05:15 PM	0	1	0	0	1	0	1	0	0	1	56	3	1	0	60	0	0	51	0	51	122
05:30 PM	0	1	0	0	1	1	1	0	0	2	71	0	2	0	73	0	1	31	0	32	108
05:45 PM	0	0	0	0	0	0	0	0	1	1	60	1	1	1	63	0	0	35	1	36	100
Total	0	2	0	0	2	1	3	0	2	6	289	4	5	2	300	0	1	148	1	150	439
Grand Total	0	3	2	2	7	7	5	0	6	18	906	11	8	5	930	1	3	663	1	668	1623
Apprch %	0	42.9	28.6	28.6		38.9	27.8	0	33.3		97.4	1.2	0.9	0.5		0.1	0.4	99.3	0.1		
Total %	0	0.2	0.1	0.1	0.4	0.4	0.3	0	0.4	1.1	55.8	0.7	0.5	0.3	57.5	0.1	0.2	40.9	0.1	41.2	
PASSENGER VEHICLES	0	3	2	2	7	7	5	0	6	18	892	11	8	5	916	1	3	646	1	651	1592
% PASSENGER VEHICLES	0	100	100	100	100	100	100	0	100	100	98.5	100	100	100	98.5	100	100	97.4	100	97.5	98.1
TRUCKS	0	0	0	0	0	0	0	0	0	0	13	0	0	0	13	0	0	14	0	14	27
% TRUCKS																					
BICYCLES	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3	0	3	4
% BICYCLES	0	0	0	0	0	0	0	0	0	0	0.1	0	0	0	0.1	0	0	0.5	0	0.4	0.2

	WILLAMETTE SOUTHBOUND					W VAN DUYN WESTBOUND					WILLAMETTE NORTHBOUND					W VAN DUYN EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:00 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:00 PM																					
03:00 PM	0	0	0	2	2	1	0	0	2	3	75	2	0	0	77	0	1	109	0	110	192
03:15 PM	0	0	1	0	1	1	1	0	0	2	70	2	0	0	72	0	0	51	0	51	126
03:30 PM	0	0	0	0	0	0	0	0	0	0	76	0	0	0	76	0	0	55	0	55	131
03:45 PM	0	1	0	0	1	1	0	0	1	2	88	2	1	1	92	0	0	66	0	66	161
Total Volume	0	1	1	2	4	3	1	0	3	7	309	6	1	1	317	0	1	281	0	282	610
% App. Total	0	25	25	50		42.9	14.3	0	42.9		97.5	1.9	0.3	0.3		0	0.4	99.6	0		
PHF	.000	.250	.250	.250	.500	.750	.250	.000	.375	.583	.878	.750	.250	.250	.861	.000	.250	.644	.000	.641	.794

Branch ENGINEERING

File Name : willamette at pearl
Site Code : 1804
Start Date : 2/5/2015
Page No : 1

Groups Printed- PASSENGER VEHICLES - TRUCKS - BICYCLES

	WILLAMETTE SOUTHBOUND					PEARL WESTBOUND					WILLAMETTE NORTHBOUND					PEARL EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:00 PM	29	73	1	0	103	21	3	29	0	53	1	54	12	0	67	0	0	0	0	0	223
03:15 PM	24	36	0	0	60	14	1	29	1	45	0	44	15	1	60	0	0	0	0	0	165
03:30 PM	21	45	1	0	67	18	0	24	0	42	0	61	23	0	84	0	0	0	0	0	193
03:45 PM	19	35	2	0	56	31	0	43	0	74	1	61	29	0	91	0	0	0	0	0	221
Total	93	189	4	0	286	84	4	125	1	214	2	220	79	1	302	0	0	0	0	0	802
04:00 PM	31	33	0	0	64	23	0	30	0	53	0	53	30	0	83	0	0	0	0	0	200
04:15 PM	23	36	0	0	59	18	1	33	1	53	0	64	17	0	81	0	0	0	0	0	193
04:30 PM	35	44	1	0	80	29	0	30	2	61	0	54	18	0	72	0	0	0	0	0	213
04:45 PM	21	38	2	0	62	28	0	47	0	75	0	60	20	0	80	0	0	0	0	0	217
Total	110	152	3	0	265	98	1	140	3	242	0	231	85	0	316	0	0	0	0	0	823
05:00 PM	21	24	0	0	45	27	1	40	0	68	0	51	17	1	69	0	0	0	1	1	183
05:15 PM	36	39	0	0	75	21	0	35	0	56	0	55	14	0	69	0	0	1	0	1	201
05:30 PM	12	27	1	0	40	20	0	26	0	46	1	56	13	0	70	0	0	0	1	1	157
05:45 PM	8	27	0	0	35	9	1	28	0	38	0	55	13	0	68	0	0	0	0	0	141
Total	77	117	1	0	195	77	2	129	0	208	1	217	57	1	276	0	0	1	2	3	682
Grand Total	280	458	8	0	746	259	7	394	4	664	3	668	221	2	894	0	0	1	2	3	2307
Apprch %	37.5	61.4	1.1	0		39	1.1	59.3	0.6		0.3	74.7	24.7	0.2		0	0	33.3	66.7		
Total %	12.1	19.9	0.3	0	32.3	11.2	0.3	17.1	0.2	28.8	0.1	29	9.6	0.1	38.8	0	0	0	0.1	0.1	
[illegible]	259	450	8	0	717	250	7	381	4	642	3	654	208	2	867	0	0	1	2	3	2229
[illegible]	92.5	98.3	100	0	96.1	96.5	100	96.7	100	96.7	100	97.9	94.1	100	97	0	0	100	100	100	96.6
TRUCKS	21	8	0	0	29	9	0	13	0	22	0	14	13	0	27	0	0	0	0	0	78
% TRUCKS																					
BICYCLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% BICYCLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	WILLAMETTE SOUTHBOUND					PEARL WESTBOUND					WILLAMETTE NORTHBOUND					PEARL EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:45 PM																					
03:45 PM	19	35	2	0	56	31	0	43	0	74	1	61	29	0	91	0	0	0	0	0	221
04:00 PM	31	33	0	0	64	23	0	30	0	53	0	53	30	0	83	0	0	0	0	0	200
04:15 PM	23	36	0	0	59	18	1	33	1	53	0	64	17	0	81	0	0	0	0	0	193
04:30 PM	35	44	1	0	80	29	0	30	2	61	0	54	18	0	72	0	0	0	0	0	213
Total Volume	108	148	3	0	259	101	1	136	3	241	1	232	94	0	327	0	0	0	0	0	827
% App. Total	41.7	57.1	1.2	0		41.9	0.4	56.4	1.2		0.3	70.9	28.7	0		0	0	0	0		
PHF	.771	.841	.375	.000	.809	.815	.250	.791	.375	.814	.250	.906	.783	.000	.898	.000	.000	.000	.000	.000	.936

Branch ENGINEERING

File Name : Industrial at pearl street
Site Code : 1806
Start Date : 2/3/2015
Page No : 1

Groups Printed- PASSENGER VEHICLES - TRUCKS - BICYCLES

	INDUSTRIAL SOUTHBOUND					PEARL WESTBOUND					INDUSTRIAL NORTHBOUND					PEARL EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:00 PM	33	5	9	0	47	28	31	5	0	65	7	5	32	0	44	3	42	7	0	52	208
03:15 PM	23	1	5	0	29	23	39	5	0	67	8	2	20	0	30	1	33	9	0	43	169
03:30 PM	36	6	11	0	53	38	46	4	2	90	10	2	40	0	52	4	57	9	0	70	265
03:45 PM	80	8	25	0	113	33	37	5	0	75	7	1	34	0	42	1	48	12	0	61	291
Total	172	20	50	0	242	125	153	19	2	297	32	10	126	0	168	9	180	37	0	226	933
04:00 PM	47	6	23	0	76	25	41	7	2	75	7	0	32	1	40	1	39	10	0	50	241
04:15 PM	23	0	4	0	27	38	38	1	0	77	9	1	30	0	40	2	47	12	2	63	207
04:30 PM	30	8	12	0	48	32	32	2	0	66	11	4	42	0	57	2	41	5	2	50	221
04:45 PM	19	0	6	0	25	36	40	4	0	80	13	1	38	0	52	1	36	7	0	44	201
Total	119	12	45	0	176	131	151	14	2	298	40	6	142	1	189	6	163	34	4	207	870
05:00 PM	28	0	13	1	42	27	31	2	1	61	11	2	55	0	68	3	34	7	0	44	215
05:15 PM	20	0	7	0	27	35	53	3	0	91	16	0	33	0	49	2	38	7	0	47	214
05:30 PM	12	1	6	0	19	21	45	3	0	69	8	0	33	0	41	0	48	6	1	55	184
05:45 PM	16	3	1	0	20	32	30	3	0	65	11	1	20	0	32	0	17	11	0	28	145
Total	76	4	27	1	108	115	159	11	1	286	46	3	141	0	190	5	137	31	1	174	758
Grand Total	367	36	122	1	526	369	463	44	5	881	118	19	409	1	547	20	480	102	5	607	2561
Apprch %	69.8	6.8	23.2	0.2		41.9	52.6	5	0.6		21.6	3.5	74.8	0.2		3.3	79.1	16.8	0.8		
Total %	14.3	1.4	4.8	0	20.5	14.4	18.1	1.7	0.2	34.4	4.6	0.7	16	0	21.4	0.8	18.7	4	0.2	23.7	
PASSENGER VEHICLES	349	33	116	1	499	203	424	36	5	668	109	15	368	1	493	16	366	79	5	466	2'146
% PASSENGER VEHICLES	95.1	91.7	95.1	100	94.9	55	91.6	81.8	100	75.8	92.4	78.9	90	100	90.1	80	80.4	77.5	100	80.1	83.8
TRUCKS	18	3	6	0	27	166	39	8	0	213	9	4	41	0	54	4	94	23	0	121	415
% TRUCKS																					
BICYCLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% BICYCLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

	INDUSTRIAL SOUTHBOUND					PEARL WESTBOUND					INDUSTRIAL NORTHBOUND					PEARL EASTBOUND					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 03:30 PM																					
03:30 PM	36	6	11	0	53	38	46	4	2	90	10	2	40	0	52	4	57	9	0	70	265
03:45 PM	80	8	25	0	113	33	37	5	0	75	7	1	34	0	42	1	48	12	0	61	291
04:00 PM	47	6	23	0	76	25	41	7	2	75	7	0	32	1	40	1	39	10	0	50	241
04:15 PM	23	0	4	0	27	38	38	1	0	77	9	1	30	0	40	2	47	12	2	63	207
Total Volume	186	20	63	0	269	134	162	17	4	317	33	4	136	1	174	8	191	43	2	244	1004
% App. Total	69.1	7.4	23.4	0		42.3	51.1	5.4	1.3		19	2.3	78.2	0.6		3.3	78.3	17.6	0.8		
PHF	.581	.625	.630	.000	.595	.882	.880	.607	.500	.881	.825	.500	.850	.250	.837	.500	.836	.896	.250	.871	.863

ATTACHMENT B
SEASONAL ADJUSTMENT

TREND	1-Jan	15-Jan	1-Feb	15-Feb	1-Mar	15-Mar	1-Apr	15-Apr	1-May	15-May	1-Jun	15-Jun	1-Jul	15-Jul	1-Aug	15-Aug	1-Sep	15-Sep	1-Oct	15-Oct	1-Nov	15-Nov	1-Dec	15-Dec	Peak Period Correction
SEASONAL TREND TABLE (Printed: [illegible])																									
INTERSTATE URBANIZED	1.0543	1.0460	1.0280	0.9559	0.9820	0.9681	0.9778	0.9874	0.9522	0.9592	0.9461	0.9172	0.9136	0.9149	0.9146	0.9116	0.9308	0.9058	0.9271	0.9596	0.9606	0.9862	1.0047	1.0212	0.9156
INTERSTATE NONURBANIZED	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.2026	1.0458	1.0086	1.0124	0.8961	0.8811	0.8091	0.8703	0.8863	0.8385	0.8403	0.8386	0.8668	0.8483	1.0033	1.0542	[illegible]	[illegible]	[illegible]	0.8369
COMMUTER	1.0572	1.0501	1.0220	0.9860	0.9783	0.9461	0.9481	0.9292	0.9306	0.9520	0.8777	0.9084	0.9052	0.9047	0.9011	0.9021	0.9536	0.9241	0.9751	0.9251	0.9865	0.9688	1.0012	1.0125	0.9000
COASTAL DESTINATION	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.0581	1.0624	1.0188	0.9652	0.8959	0.8246	0.8283	0.8352	0.8728	0.9446	0.8961	1.0440	[illegible]	[illegible]	[illegible]	[illegible]	0.8785
COASTAL DESTINATION ROUTE	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.2949	1.1048	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.7870	0.8085	0.8843	0.8661	0.7382	0.8604	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.8381
AGRICULTURE	[illegible]	1.0779	[illegible]	[illegible]	1.2298	1.1373	1.1098	1.0498	0.9888	0.9231	0.8697	0.8413	0.8412	0.8230	0.8154	0.8095	0.8255	0.8071	0.8544	0.8129	1.0531	1.1180	1.1497	1.1864	0.8174
RECREATIONAL SUMMER	1.1793	1.1786	1.1883	[illegible]	1.3173	1.2948	1.3145	1.1079	[illegible]	1.0894	0.9549	0.7807	0.7230	0.6660	0.6846	0.6768	0.7350	0.8015	[illegible]	[illegible]	[illegible]	1.2775	1.2477	[illegible]	0.6600
RECREATIONAL SUMMER WINTER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.2865	[illegible]	[illegible]	1.0002	1.1803	[illegible]	[illegible]	0.8052	0.6848	0.7027	0.7266	0.8763	[illegible]	1.1371	1.2121	1.2398	1.4683	1.3088	1.1142	0.6848
RECREATIONAL WINTER	0.8013	0.9508	0.9264	0.8260	0.7116	1.0982	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.2074	1.4830	1.0160	0.9623
SUMMER	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	1.0757	1.0598	1.0742	0.9999	0.9956	0.9314	0.8970	0.8673	0.8376	0.8401	0.8452	0.8386	0.9128	0.8571	0.9627	1.0076	1.0889	1.1158	[illegible]	0.8376
SUMMER < 2000	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.9980	0.9677	0.9631	0.8934	0.9665	0.8389	0.8049	0.8291	0.8114	0.8422	0.8630	0.8689	0.9458	1.0132	[illegible]	[illegible]	[illegible]	0.8089

*Seasonal Trend Table factors are based on previous year ATR data. The table is updated yearly.
*Gray shading indicates months were seasonal factor is greater than 30%

Count Date:	COUNT Date	Count Date Seasonal Factor
1 Coburg RD at Bottom Loop	3-Feb	1.127755
2 W. Van Duyn at Willamette	5 Feb	1.071998
3 Willamette at Pearl	5-Feb	1.121908
7 Coburg Industrial at Pearl	3-Feb	1.127755
		1.11x / Use 1.12

ATTACHMENT C

EMME/2 MODEL SCREEN SHOTS AND GROWTH RATE CALCULATIONS

Preferred LU Build Collector 1 Movement Coburg at Bottom Loop INT # 1825

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2010	60	1	4	36	228	89	1	1	18	8	101	0
Count	2015	79	1	8	29	303	93	2	1	21	7	113	1
95120	2035	50	1	0	4	369	75	0	0	2	0	257	0
25 YR Growth		-17.04%	-3.75%	-100.00%	-85.00%	65.37%	-16.07%	-100.00%	-100.00%	-88.68%	-100.00%	81.86%	0.00%
AAGR		-0.68%	-0.15%	-4.00%	-3.56%	2.61%	-0.64%	-4.00%	-4.00%	-3.55%	-4.00%	3.27%	0.00%
20 yr Growth Factor		0.86	0.97	0.20	0.29	1.52	0.87	0.20	0.20	0.29	0.20	1.65	1.00
2035 Volumes		68	1	2	7	309	81	0	0	6	1	187	1

Preferred LU Build Collector 2 Movement W. Van Duyn at Willamette INT # 1802

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	0	2	1	1	0	0	345	4	8	0	0	213
Count	2015	0	1	1	2	2	0	353	6	1	1	1	258
95120	2035	7	35	0	0	13	9	401	97	0	0	16	270
25 YR Growth		0.00%	2546.52%	-100.00%	-100.00%	0.00%	0.00%	16.24%	2233.75%	-100.00%	0.00%	0.00%	26.75%
AAGR		0.00%	101.86%	-4.00%	-4.00%	0.00%	0.00%	0.65%	89.35%	-4.00%	0.00%	0.00%	1.07%
20 yr Growth Factor		1.00	21.37	0.20	0.20	1.00	1.00	1.13	18.87	0.20	1.00	1.00	1.21
2035 Volumes		0	21	0	0	2	0	399	113	0	1	1	313

Preferred LU Build Collector 3 Movement Pearl at Willamette INT # 1504

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	118	155	2	136	1	188	2	228	62	0	1	2
Count	2015	107	168	3	97	1	142	1	246	109	0	0	0
95120	2035	92	338	0	124	0	86	0	525	70	0	0	0
25 YR Growth		-22.33%	118.85%	-100.00%	-8.91%	-100.00%	-54.27%	-100.00%	130.71%	12.28%	0.00%	-100.00%	-100.00%
AAGR		-0.86%	4.67%	-4.00%	-0.36%	-4.00%	-2.17%	-4.00%	5.23%	0.49%	0.00%	-4.00%	-4.00%
20 yr Growth Factor		0.82	1.93	0.20	0.93	0.20	0.57	0.20	2.05	1.10	1.00	0.20	0.20
2035 Volumes		88	325	1	90	0	80	0	503	120	0	0	0

Preferred LU Build Collector 7 Movement Pearl at Industrial INT # 1306

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	348	18	149	45	155	32	31	0	75	10	229	29
Count	2015	209	24	72	134	383	28	36	6	142	8	199	45
95120	2035	458	38	101	101	302	364	0	69	286	73	216	0
25 YR Growth		31.57%	86.61%	-32.03%	21.50%	3.77%	1030.01%	-100.00%	0.00%	215.44%	602.53%	-5.51%	-100.00%
AAGR		1.26%	3.47%	-1.28%	0.86%	0.15%	41.20%	-4.00%	0.00%	8.62%	24.10%	-0.22%	-4.00%
20 yr Growth Factor		1.25	1.69	0.74	1.17	1.05	9.24	0.20	1.00	3.72	5.82	0.96	0.20
2035 Volumes		262	41	54	157	189	222	7	6	387	47	190	9

Preferred LU W/O Collector 1 Movement Coburg at Bottom Loop INT # 1828

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	60	1	4	36	223	39	1	1	18	8	141	0
Count	2015	79	1	8	22	203	93	2	1	21	7	113	1
96120	2035	58	0	8	5	541	100	0	0	2	10	298	0
25 YR Growth		-3.75%	-100.00%	92.47%	-86.25%	142.16%	16.32%	-100.00%	-100.00%	-88.69%	20.30%	110.87%	0.00%
AAGR		-0.15%	-4.00%	3.70%	-3.45%	5.69%	0.66%	-4.00%	-4.00%	-3.55%	0.81%	4.43%	0.00%
20 yr Growth Factor		0.97	0.20	1.74	0.31	2.14	1.13	0.20	0.20	0.29	1.16	1.89	1.00
2035 Volumes		77	0	14	7	434	105	0	0	6	8	213	1

Preferred LU W/O Collector 2 Movement W. Van Duyn at Willamette INT # 1802

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	0	2	1	1	0	0	345	4	8	0	0	213
Count	2015	0	1	1	2	2	0	353	6	1	1	1	258
96120	2035	7	91	0	4	166	11	366	108	0	9	16	328
25 YR Growth		0.00%	4278.79%	-100.00%	284.95%	0.00%	0.00%	6.09%	2498.40%	-100.00%	0.00%	0.00%	53.98%
AAGR		0.00%	171.15%	-4.00%	11.40%	0.00%	0.00%	0.24%	99.94%	-4.00%	0.00%	0.00%	2.16%
20 yr Growth Factor		1.00	35.23	0.20	3.28	1.00	1.00	1.05	20.99	0.20	1.00	1.00	1.43
2035 Volumes		0	35	0	7	2	0	370	126	0	1	1	369

Preferred LU W/O Collector 3 Movement Pearl at Willamette INT # 1804

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	118	156	2	136	1	168	2	228	62	0	1	2
Count	2015	107	168	3	97	1	142	1	246	109	0	0	0
96120	2035	186	343	0	100	0	144	0	550	72	0	0	0
25 YR Growth		57.02%	120.06%	-100.00%	-26.54%	-100.00%	-23.44%	-100.00%	141.69%	15.48%	0.00%	-100.00%	-100.00%
AAGR		2.28%	4.80%	-4.00%	-1.06%	-4.00%	-0.94%	-4.00%	5.67%	0.62%	0.00%	-4.00%	-4.00%
20 yr Growth Factor		1.46	1.96	0.20	0.79	0.20	0.81	0.20	2.13	1.12	1.00	0.20	0.20
2035 Volumes		156	329	1	76	0	115	0	525	123	0	0	0

Preferred LU W/O Collector 7 Movement Pearl at Industrial INT # 1806

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	348	18	149	83	195	32	31	0	75	10	229	29
Count	2015	209	24	72	134	183	24	36	6	142	8	199	45
96120	2035	409	15	183	104	381	175	0	16	240	89	262	0
25 YR Growth		17.50%	-15.08%	23.16%	25.11%	95.73%	443.27%	-100.00%	0.00%	220.79%	756.51%	14.61%	-100.00%
AAGR		0.70%	-0.60%	0.93%	1.00%	3.83%	17.73%	-4.00%	0.00%	8.83%	30.26%	0.58%	-4.00%
20 yr Growth Factor		1.14	0.88	1.19	1.20	1.77	4.55	0.20	1.00	2.77	7.05	1.12	0.20
2035 Volumes		238	21	85	161	323	109	7	6	393	56	222	9

Alternate LU W/O Collector 1 Movement Coburg at Bottom Loop INT # 1826

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	60	1	4	36	223	88	1	1	18	8	141	0
Count	2015	79	1	8	23	203	93	2	1	21	7	113	1
97120	2035	156	0	8	5	541	331	0	0	2	10	298	0
25 YR Growth		158.84%	-100.00%	92.47%	-86.25%	142.16%	270.40%	-100.00%	-100.00%	-88.68%	20.30%	110.87%	0.00%
AAGR		6.35%	-4.00%	3.70%	-3.45%	5.69%	10.82%	-4.00%	-4.00%	-3.55%	0.81%	4.43%	0.00%
20 yr Growth Factor		2.27	0.20	1.74	0.31	2.14	3.16	0.20	0.20	0.29	1.16	1.89	1.00
2035 Volumes		179	0	14	7	434	294	0	0	6	8	213	1

Alternate LU W/O Collector 2 Movement W. Van Guyn at Willamette INT # 1802

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	0	2	1	1	0	0	345	4	8	0	0	313
Count	2015	0	1	1	2	2	0	353	6	1	1	1	298
97120	2035	0	0	0	5	241	0	406	0	0	0	23	419
25 YR Growth		0.00%	-100.00%	-100.00%	381.19%	0.00%	0.00%	17.69%	-100.00%	-100.00%	0.00%	0.00%	46.70%
AAGR		0.00%	-4.00%	-4.00%	15.25%	0.00%	0.00%	0.71%	-4.00%	-4.00%	0.00%	0.00%	3.87%
20 yr Growth Factor		1.00	0.20	0.20	4.05	1.00	1.00	1.14	0.20	0.20	1.00	1.00	1.77
2035 Volumes		0	0	0	8	2	0	403	1	0	1	1	456

Alternate LU W/O Collector 3 Movement Pearl at Willamette INT # 1804

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	118	156	2	136	1	188	2	228	62	0	1	2
Count	2015	107	168	3	97	1	142	1	245	109	0	0	0
97120	2035	183	346	0	98	0	177	0	550	71	0	0	0
25 YR Growth		54.49%	121.99%	-100.00%	-28.01%	-100.00%	-5.85%	-100.00%	141.69%	13.88%	0.00%	-100.00%	-100.00%
AAGR		2.18%	4.88%	-4.00%	-1.12%	-4.00%	-0.24%	-4.00%	5.67%	0.56%	0.00%	-4.00%	-4.00%
20 yr Growth Factor		1.54	1.98	0.20	0.78	0.20	0.95	0.20	2.13	1.11	1.00	0.20	0.20
2035 Volumes		154	332	1	75	0	135	0	525	121	0	0	0

Alternate LU W/O Collector 7 Movement Pearl at Industrial INT # 1805

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	348	18	149	83	195	32	31	0	75	10	229	29
Count	2015	209	24	72	134	183	28	36	5	142	8	199	45
97120	2035	411	15	181	103	382	176	0	16	241	37	259	0
25 YR Growth		18.07%	-15.08%	21.81%	23.91%	96.24%	446.38%	-100.00%	0.00%	223.46%	737.28%	13.30%	-100.00%
AAGR		0.72%	-0.60%	0.87%	0.96%	3.85%	17.86%	-4.00%	0.00%	8.94%	29.49%	0.53%	-4.00%
20 yr Growth Factor		1.14	0.88	1.17	1.19	1.77	4.57	0.20	1.00	2.79	6.90	1.11	0.20
2035 Volumes		239	21	65	160	324	110	7	6	386	55	220	9

Alternate LU With Collector 1 Movement Coburg at Bottom Loop INT # 1826

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	60	1	4	36	223	89	1	1	18	8	141	0
Count	2015	79	1	8	23	203	93	2	1	21	7	113	1
98120	2035	112	1	0	4	365	183	0	0	2	0	257	0
25 YR Growth		86.84%	-3.76%	-100.00%	-89.00%	63.38%	104.78%	-100.00%	-100.00%	-88.68%	-100.00%	81.86%	0.00%
AAGR		3.43%	-0.15%	-4.00%	-3.56%	2.54%	4.19%	-4.00%	-4.00%	-3.55%	-4.00%	3.27%	0.00%
20 yr Growth Factor		1.69	0.97	0.20	0.29	1.51	1.84	0.20	0.20	0.29	0.20	1.65	1.00
2035 Volumes		133	1	2	7	306	171	0	0	6	1	187	1

Alternate LU With Collector 2 Movement W. Van Duyn at Willamette INT # 1802

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	0	2	1	1	0	0	345	4	8	0	0	213
Count	2015	0	1	1	2	2	0	353	6	1	1	1	258
98120	2035	0	0	0	0	28	0	468	0	0	0	23	326
25 YR Growth		0.00%	-100.00%	-100.00%	-100.00%	0.00%	0.00%	35.65%	-100.00%	-100.00%	0.00%	0.00%	53.04%
AAGR		0.00%	-4.00%	-4.00%	-4.00%	0.00%	0.00%	1.43%	-4.00%	-4.00%	0.00%	0.00%	2.12%
20 yr Growth Factor		1.00	0.20	0.20	0.20	1.00	1.00	1.29	0.20	0.20	1.00	1.00	1.42
2035 Volumes		0	0	0	0	2	0	454	1	0	1	1	367

Alternate LU With Collector 3 Movement Pearl at Willamette INT # 1804

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	118	156	2	136	1	168	2	228	62	0	1	2
Count	2015	107	168	3	97	1	142	1	246	109	0	0	0
98120	2035	91	339	0	117	0	83	0	325	70	0	0	0
25 YR Growth		-22.33%	117.50%	-100.00%	-14.05%	-100.00%	-55.87%	-100.00%	130.71%	12.28%	0.00%	-100.00%	-100.00%
AAGR		-0.89%	4.70%	-4.00%	-0.56%	-4.00%	-2.23%	-4.00%	5.23%	0.49%	0.00%	-4.00%	-4.00%
20 yr Growth Factor		0.82	1.94	0.20	0.89	0.20	0.55	0.20	2.05	1.10	1.00	0.20	0.20
2035 Volumes		88	326	1	86	0	79	0	503	120	0	0	0

Alternate LU With Collector 7 Movement Pearl at Industrial INT # 1806

Scenario		SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
CH2M	2011	348	18	103	83	195	32	31	0	75	10	229	29
Count	2015	209	24	72	134	183	24	36	6	142	8	199	45
98120	2035	459	33	111	101	199	367	0	69	236	79	216	0
25 YR Growth		31.86%	86.81%	-25.50%	21.50%	2.23%	1039.32%	-100.00%	0.00%	215.44%	660.27%	-5.51%	-100.00%
AAGR		1.27%	3.47%	-1.01%	0.86%	0.09%	41.57%	-4.00%	0.00%	8.62%	26.41%	-0.22%	-4.00%
20 yr Growth Factor		1.25	1.69	0.80	1.17	1.02	9.31	0.20	1.00	2.72	6.28	0.96	0.20
2035 Volumes		262	41	57	157	186	224	7	6	387	50	190	9

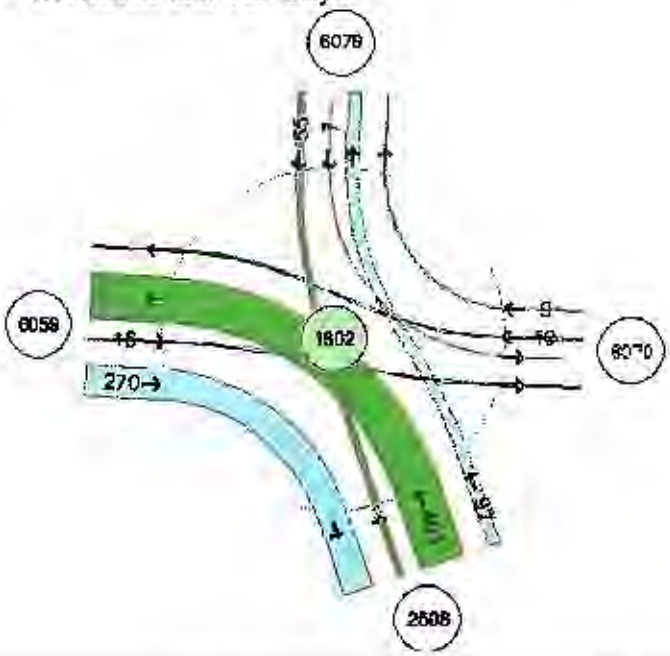
The volumes displayed below represent seasonally adjusted peak hour volumes for 2010 counts in Coburg, OR. The system peak hour shown is for 3:15-4:15 PM

CH2M HILL COUNT DATA SUMMARY

Intersection	Eastbound Approach			Southbound Approach			Northbound Approach			Westbound Approach		
	EBL	EBT	EBR	SBL	SBT	SBR	NBL	NBT	NBR	WBL	WBT	WBR
1 Coburg Bottom Loop Road & W Van Duyn St.	8	141	0	60	1	4	1	1	18	36	223	89
2 N Willamette St & W Van Duyn St	0	0	213	0	2	1	345	4	8	1	0	0
3 Willamette St & Pearl St	0	1	2	118	156	2	2	228	62	136	1	188
4 Pearl St & Skinner St	1	192	3	1	2	1	1	1	3	2	331	0
5 Pearl St & Coleman St	1	194	2	4	0	1	2	5	3	5	331	4
6 Pearl St & Stuart Way	0	197	10	0	0	0	4	0	38	18	337	0
7 Pearl St & Coburg Industrial Way	10	208	23	348	18	149	16	0	30	45	186	32
8 Pearl St & Roberts Rd	0	607	6	0	0	0	15	0	45	38	272	1
9 Pearl St & I-5 SB Ramps	0	116	537	3	0	68	0	0	0	112	241	0
10 Pearl St & I-5 NB Ramps	86	34	0	0	0	0	309	1	49	0	42	16
11 Willamette St & Dixon St	1	2	2	7	297	1	1	791	9	7	1	4

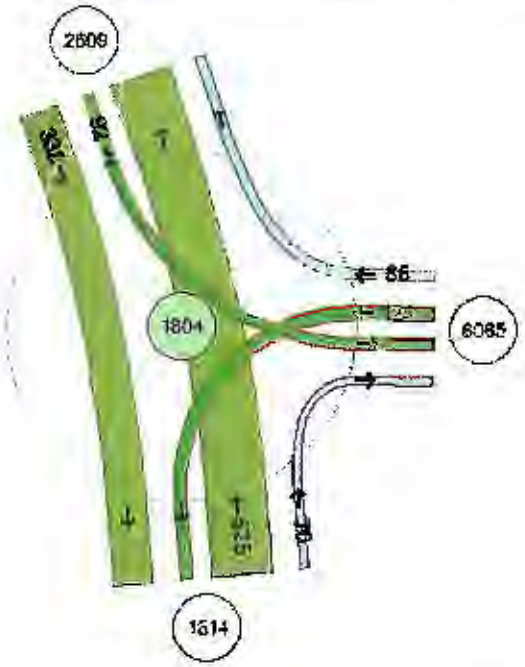
Scenario 95120 – 2035, Preferred Scenario, PM Pk 1 hr

Intersection 1802 – Willamette and Van Duyn



At	From	To	Angle	Penalty	Time	Approach	Approach	Total(s)	Approach	Approach	Total
1802	2508	6059	-88		0.00	401	0	401	0.00	0.00	0.00
1802	2508	6070	111		0.00	0	0	0	0.00	0.00	0.00
1802	2508	6079	0		0.00	87	0	87	0.00	0.00	0.00
1802	6059	2508	88		0.00	270	0	270	0.00	0.00	0.00
1802	6059	6070	0		0.00	16	0	16	0.00	0.00	0.00
1802	6059	6079	-92		0.00	0	0	0	0.00	0.00	0.00
1802	6070	2508	-111		0.00	0	0	0	0.00	0.00	0.00
1802	6070	6059	0		0.00	16	0	16	0.00	0.00	0.00
1802	6070	6079	53		0.00	9	0	9	0.00	0.00	0.00
1802	6079	2508	-20		0.00	55	0	55	0.00	0.00	0.00
1802	6079	6059	52		0.00	0	0	0	0.00	0.00	0.00
1802	6079	6070	-68		0.00	7	0	7	0.00	0.00	0.00

Intersection 1804 – Willamette and Pearl



Turn filter: [all movements except volume] node:(Turn)

Intersection node filter: [all intersection nodes] Intersection Node: 1804

At	From	To	Angle	PenRt	Time	AddVol	AddVol	TotVol	Add Hrs	Add Hrs	Tot Hrs
1804	1814	2509	-73	-	0.00	535	0	535	0.00	0.00	0.00
1804	1814	6065	96	-	0.00	70	0	70	0.00	0.00	0.00
1804	2509	1814	73	-	0.00	339	0	339	0.00	0.00	0.00
1804	2509	6065	-79	-	0.00	92	0	92	0.00	0.00	0.00
1804	6065	1814	-96	-	0.00	124	0	124	0.00	0.00	0.00
1804	6065	2509	79	-	0.00	86	0	86	0.00	0.00	0.00

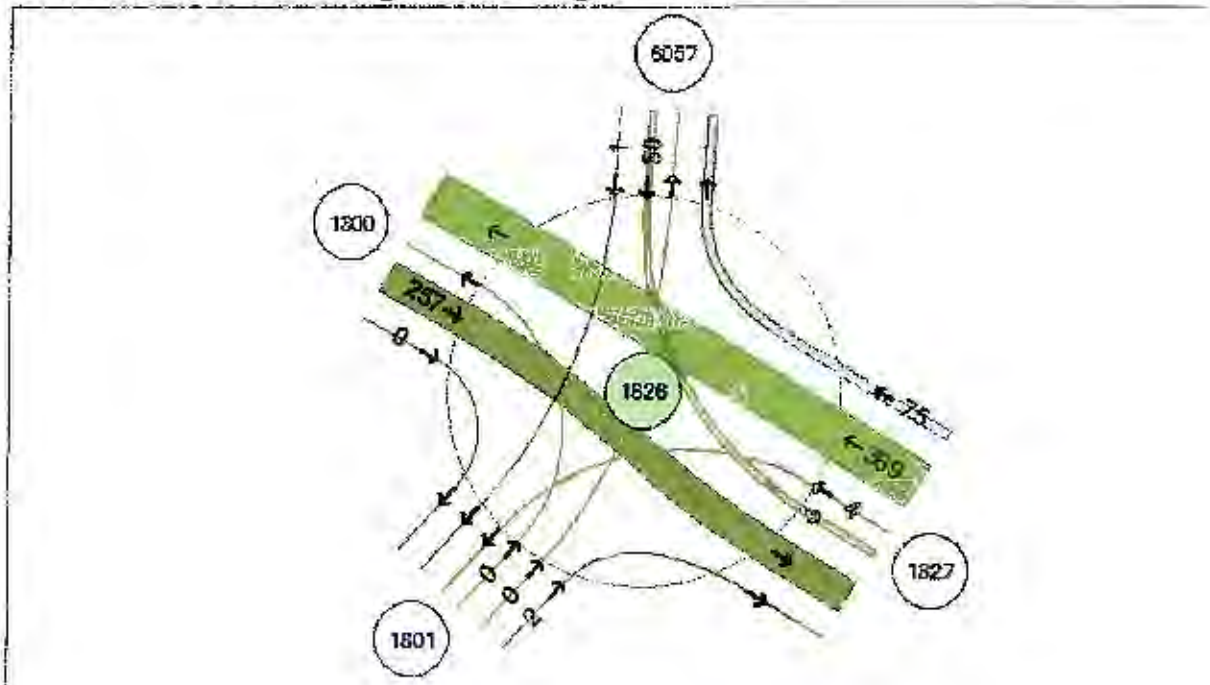
Intersection 1806 Industrial Way and Pearl

Turn filter: [all movements except u-turns] not(sUTurn)

Intersection node filter: [all intersection nodes] a intersection | Node: 1806

A	From	To	Angle	PenFac	Time	Ass(Vol	Ass(Vol)	Tot(Vol	Auto\Hr	Add\Hr	Tot\Hr
1806	1807	2511	89	-	0.00	354	0	354	0.00	0.00	0.00
1806	1807	4690	-2	-	0.00	202	0	202	0.00	0.00	0.00
1806	1807	6081	-105	-	0.00	101	0	101	0.00	0.00	0.00
1806	2511	1807	-89	-	0.00	458	0	458	0.00	0.00	0.00
1806	2511	4690	89	-	0.00	101	0	101	0.00	0.00	0.00
1806	2511	6081	-14	-	0.00	33	0	33	0.00	0.00	0.00
1806	4690	1807	2	-	0.00	216	0	216	0.00	0.00	0.00
1806	4690	2511	-89	-	0.00	73	0	73	0.00	0.00	0.00
1806	4690	6081	77	-	0.00	0	0	0	0.00	0.00	0.00
1806	6081	1807	105	-	0.00	236	0	236	0.00	0.00	0.00
1806	6081	2511	14	-	0.00	99	0	99	0.00	0.00	0.00
1806	6081	4690	-77	-	0.00	0	0	0	0.00	0.00	0.00

Intersection 1826 -- N. Coburg Rd and Coburg Rd.



Turn filter: [all movements except U-turns] (default Turns)

Intersection node filter: [all intersection nodes] all intersections Node: 1826

At	From	To	Angle	PenRat	Time	AutoVol	AddVol	TotVol	AutoHrs	AddHrs	TotHrs
1826	1800	1801	163	-	0.00	0	0	0	0.00	0.00	0.00
1826	1800	1827	3	-	0.00	257	0	257	0.00	0.00	0.00
1826	1800	6057	-115	-	0.00	0	0	0	0.00	0.00	0.00
1826	1801	1800	-163	-	0.00	0	0	0	0.00	0.00	0.00
1826	1801	1827	79	-	0.00	2	0	2	0.00	0.00	0.00
1826	1801	6057	-38	-	0.00	0	0	0	0.00	0.00	0.00
1826	1827	1800	-3	-	0.00	359	0	359	0.00	0.00	0.00
1826	1827	1801	-79	-	0.00	4	0	4	0.00	0.00	0.00
1826	1827	6057	82	-	0.00	75	0	75	0.00	0.00	0.00
1826	6057	1800	115	-	0.00	0	0	0	0.00	0.00	0.00
1826	6057	1801	38	-	0.00	1	0	1	0.00	0.00	0.00
1826	6057	1827	-82	-	0.00	50	0	50	0.00	0.00	0.00

Scenario 96120 – 2035, Preferred Land Use, No E-W Collector, PM Pk 1 hr

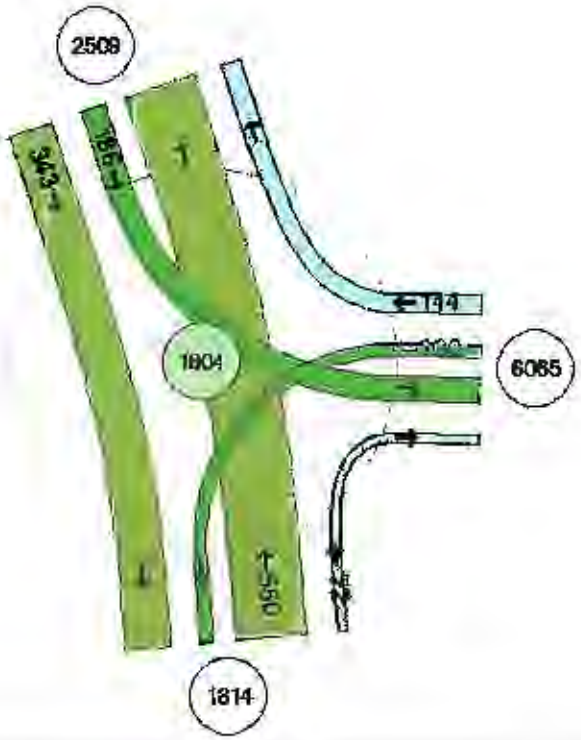
Intersection 1802 – Willamette and Van Duyn

Turn filter: [all movements except u-turns] not(isUTurn)

Intersection node filter: [all intersection nodes] isIntersection Node: 1802

At	From	To	Angle	PenFac	Time	AutoVol	AddVol	TotVol	AutoPHF	AddPHF	TotPHF
1802	2508	6059	-88	-	0.00	359	0	359	0.00	0.00	0.00
1802	2508	6070	111	-	0.00	0	0	0	0.00	0.00	0.00
1802	2508	6079	20	-	0.00	108	0	108	0.00	0.00	0.00
1802	6059	2508	68	-	0.00	328	0	328	0.00	0.00	0.00
1802	6059	6070	-0	-	0.00	16	0	16	0.00	0.00	0.00
1802	6059	6079	-52	-	0.00	9	0	9	0.00	0.00	0.00
1802	6070	2508	-111	-	0.00	4	0	4	0.00	0.00	0.00
1802	6070	6059	0	-	0.00	166	0	166	0.00	0.00	0.00
1802	6070	6079	88	-	0.00	11	0	11	0.00	0.00	0.00
1802	6079	2508	-20	-	0.00	91	0	91	0.00	0.00	0.00
1802	6079	6059	52	-	0.00	0	0	0	0.00	0.00	0.00
1802	6079	6070	-88	-	0.00	7	0	7	0.00	0.00	0.00

Intersection 1804 – Willamette and Pearl

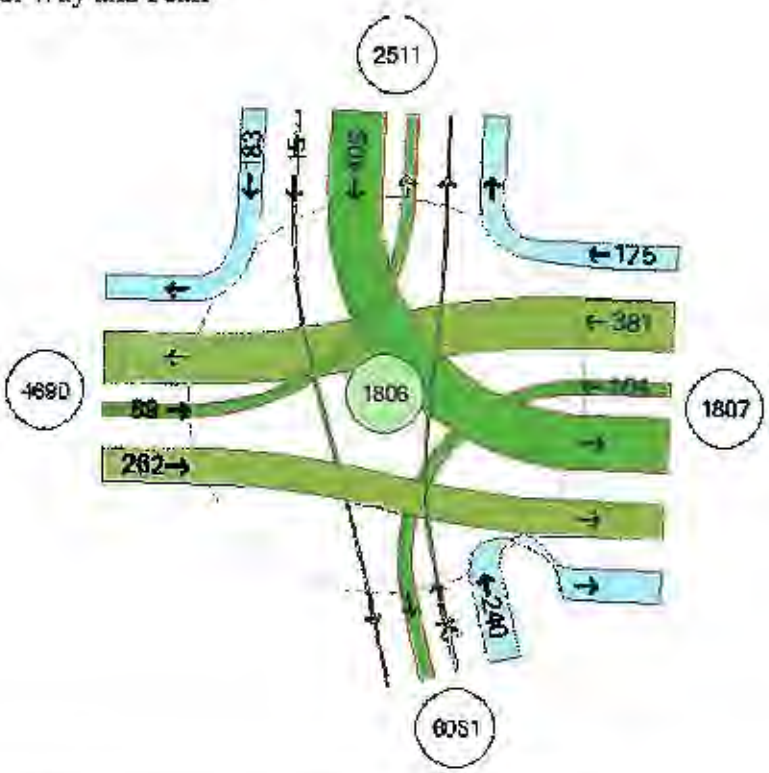


Turn filter: [all movements except u-turns] not[isUTurn]

Intersection node filter: [all intersection nodes] isIntersection Node: 1804

At	From	To	Angle	PenFct	Time	AutoVol	AddVol	TotVol	AutoHrs	AddHrs	TotHrs
1804	1814	2509	-13	-	0.00	550	0	550	0.00	0.00	0.00
1804	1814	6065	95	-	0.00	72	0	72	0.00	0.00	0.00
1804	2509	1814	13	-	0.00	343	0	343	0.00	0.00	0.00
1804	2509	6065	-70	-	0.00	186	0	186	0.00	0.00	0.00
1804	6065	1814	-95	-	0.00	100	0	100	0.00	0.00	0.00
1804	6065	2509	70	-	0.00	144	0	144	0.00	0.00	0.00

Intersection 1806 Industrial Way and Pearl

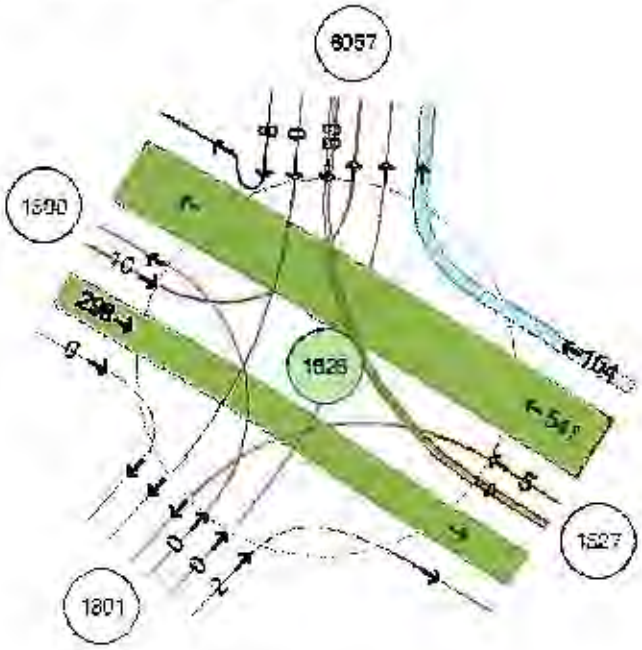


Turn filter: [all movements except (Uturns)(traffic Turn)]

Intersection node filter: [all intersection nodes] sIntersection Node: 1806

At	From	To	Angle	PenFac	Time	AutoVol	AccVol	TotVol	AutoHrs	AddHrs	TotHrs
1806	1807	2511	89	-	0.00	175	0	175	0.00	0.00	0.00
1806	1807	4690	-2	-	0.00	381	0	381	0.00	0.00	0.00
1806	1807	6081	-105	-	0.00	104	0	104	0.00	0.00	0.00
1806	2511	1807	-89	-	0.00	409	0	409	0.00	0.00	0.00
1806	2511	4690	89	-	0.00	183	0	183	0.00	0.00	0.00
1806	2511	6081	-14	-	0.00	15	0	15	0.00	0.00	0.00
1806	4690	1807	2	-	0.00	262	0	262	0.00	0.00	0.00
1806	4690	2511	-89	-	0.00	89	0	89	0.00	0.00	0.00
1806	4690	6081	---	-	0.00	0	0	0	0.00	0.00	0.00
1806	6081	1807	105	-	0.00	240	0	240	0.00	0.00	0.00
1806	6081	2511	14	-	0.00	15	0	15	0.00	0.00	0.00
1806	6081	4690	-77	-	0.00	0	0	0	0.00	0.00	0.00

Intersection 1826 -- N. Coburg Rd and Coburg Rd.



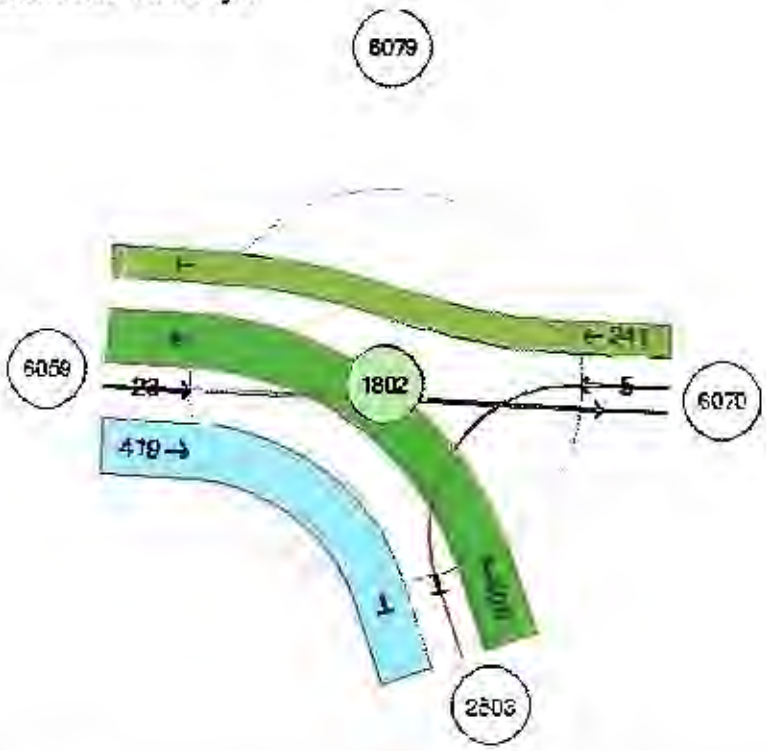
Turn filter: [all movements except uturns] not(isUTurn)

Intersection node filter: [all intersection nodes] intersection Node: 1826

Ac	From	To	Angle	PenFct	Time	AutoVol	AddlVol	TotVol	AutoHrs	AddlHrs	TotHrs
1826	1800	1801	103	-	0.00	0	0	0	0.00	0.00	0.00
1826	1800	1827	3	-	0.00	259	0	259	0.00	0.00	0.00
1826	1800	6057	-115	-	0.00	10	0	10	0.00	0.00	0.00
1826	1801	1800	-103	-	0.00	0	0	0	0.00	0.00	0.00
1826	1801	1827	79	-	0.00	2	0	2	0.00	0.00	0.00
1826	1801	6057	-99	-	0.00	0	0	0	0.00	0.00	0.00
1826	1827	1800	-3	-	0.00	541	0	541	0.00	0.00	0.00
1826	1827	1801	-79	-	0.00	5	0	5	0.00	0.00	0.00
1826	1827	6057	82	-	0.00	164	0	164	0.00	0.00	0.00
1826	6057	1800	115	-	0.00	9	0	9	0.00	0.00	0.00
1826	6057	1801	99	-	0.00	0	0	0	0.00	0.00	0.00
1826	6057	1827	-82	-	0.00	56	0	56	0.00	0.00	0.00

Scenario 97120 – 2035, Alternate Land Use, No EW Collector, PM Pk 1 hr

Intersection 1802 – Willamette and Van Duyn

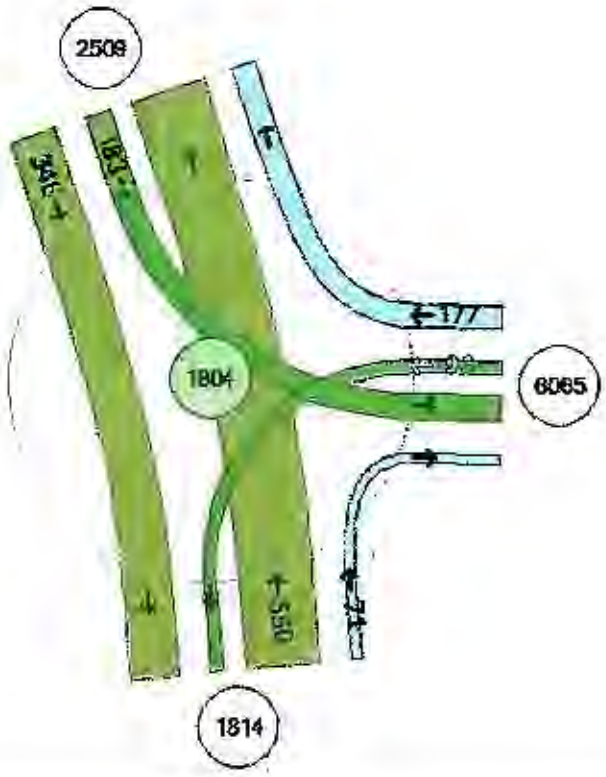


Turn filter: [all movements except volume] range, Turn

Intersection node filter: [all intersection nodes] Intersection None: 1802

At	From	To	Angle	Ped/Bi	Time	Auto Vol	Add Vol	Total Vol	Auto Hrs	Add Hrs	Total Hrs
1802	2508	6059	-56	-	0.00	405	0	405	0.00	0.00	0.00
1802	2508	6070	111	-	0.00	0	0	0	0.00	0.00	0.00
1802	2508	6079	20	-	0.00	0	0	0	0.00	0.00	0.00
1802	6059	2508	68	-	0.00	419	0	419	0.00	0.00	0.00
1802	6059	6070	-9	-	0.00	23	0	23	0.00	0.00	0.00
1802	6059	6079	-90	-	0.00	0	0	0	0.00	0.00	0.00
1802	6070	2508	-111	-	0.00	5	0	5	0.00	0.00	0.00
1802	6070	6059	9	-	0.00	241	0	241	0.00	0.00	0.00
1802	6070	6079	99	-	0.00	0	0	0	0.00	0.00	0.00
1802	6079	2508	-20	-	0.00	0	0	0	0.00	0.00	0.00
1802	6079	6059	90	-	0.00	0	0	0	0.00	0.00	0.00
1802	6079	6070	-68	-	0.00	0	0	0	0.00	0.00	0.00

Intersection 1804 – Willamette and Pearl

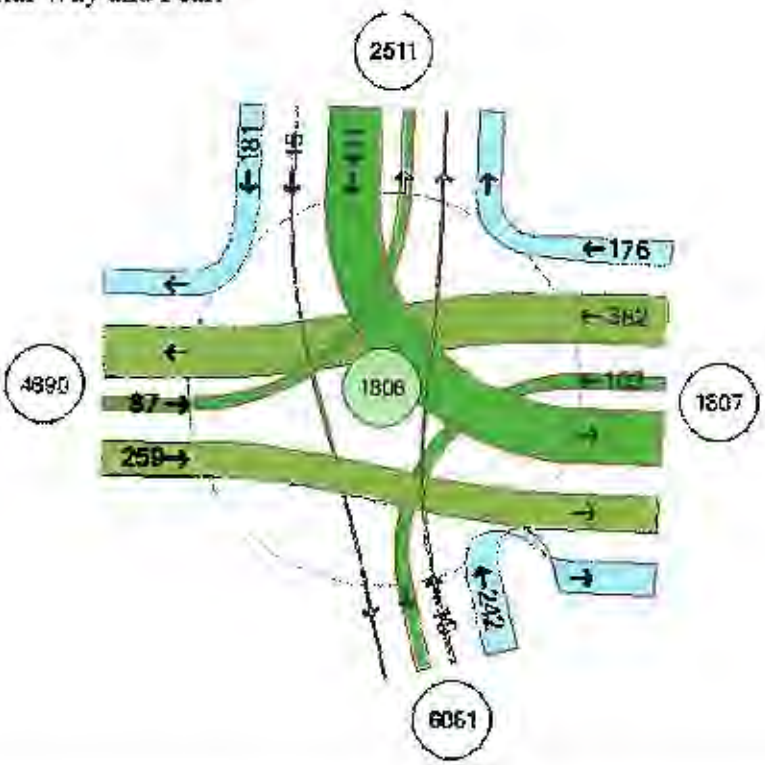


Turn filter: [all movements except u-turns] not(isUTurn)

Intersection node filter: [all intersection nodes] isIntersection Node: 1804

At	From	To	Angle	PenFct	Time	AutoVol	AddlVol	TotVol	AutoHrs	AddlHrs	TotHrs
1804	1814	2509	-13	-	0.00	550	0	550	0.00	0.00	0.00
1804	1814	6065	96	-	0.00	71	0	71	0.00	0.00	0.00
1804	2509	1814	13	-	0.00	346	0	346	0.00	0.00	0.00
1804	2509	6065	-70	-	0.00	183	0	183	0.00	0.00	0.00
1804	6065	1814	-96	-	0.00	98	0	98	0.00	0.00	0.00
1804	6065	2509	70	-	0.00	177	0	177	0.00	0.00	0.00

Intersection 1806 Industrial Way and Pearl

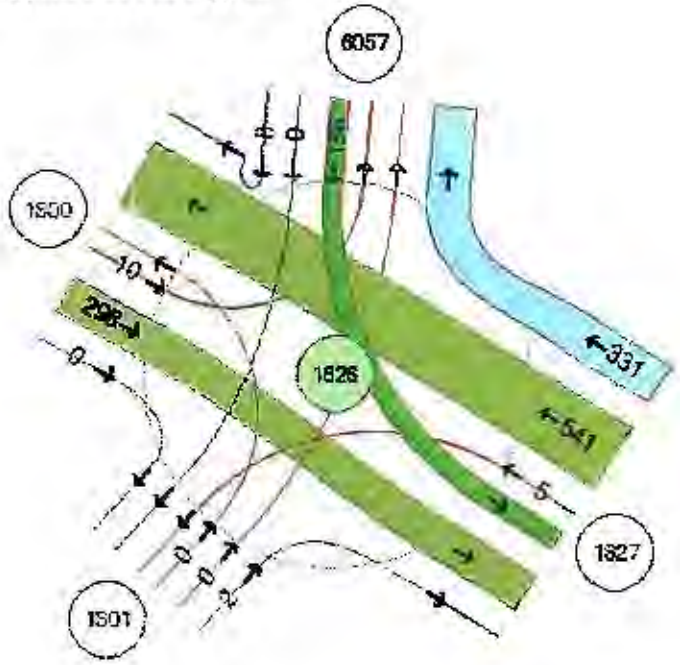


Turn from: [all movements except Uturns] node 1(Turn)

Intersection node filter: [all intersection nodes] is intersection Node: 1806

At	From	To	Angle	PerAtt	Time	AutoVol	AddVol	TotVol	AutoVeh	AddVeh	TotVeh
1806	1807	2511	89	-	0.00	176	0	176	0.00	0.00	0.00
1806	1807	4690	-2	-	0.00	382	0	382	0.00	0.00	0.00
1806	1807	6081	-105	-	0.00	103	0	103	0.00	0.00	0.00
1806	2511	1807	-89	-	0.00	411	0	411	0.00	0.00	0.00
1806	2511	4690	89	-	0.00	181	0	181	0.00	0.00	0.00
1806	2511	6081	-74	-	0.00	15	0	15	0.00	0.00	0.00
1806	4690	1807	2	-	0.00	259	0	259	0.00	0.00	0.00
1806	4690	2511	-89	-	0.00	87	0	87	0.00	0.00	0.00
1806	4690	6081	77	-	0.00	0	0	0	0.00	0.00	0.00
1806	6081	1807	105	-	0.00	242	0	242	0.00	0.00	0.00
1806	6081	2511	74	-	0.00	15	0	15	0.00	0.00	0.00
1806	6081	4690	-77	-	0.00	0	0	0	0.00	0.00	0.00

Intersection 1826 – N. Coburg Rd and Coburg Rd.



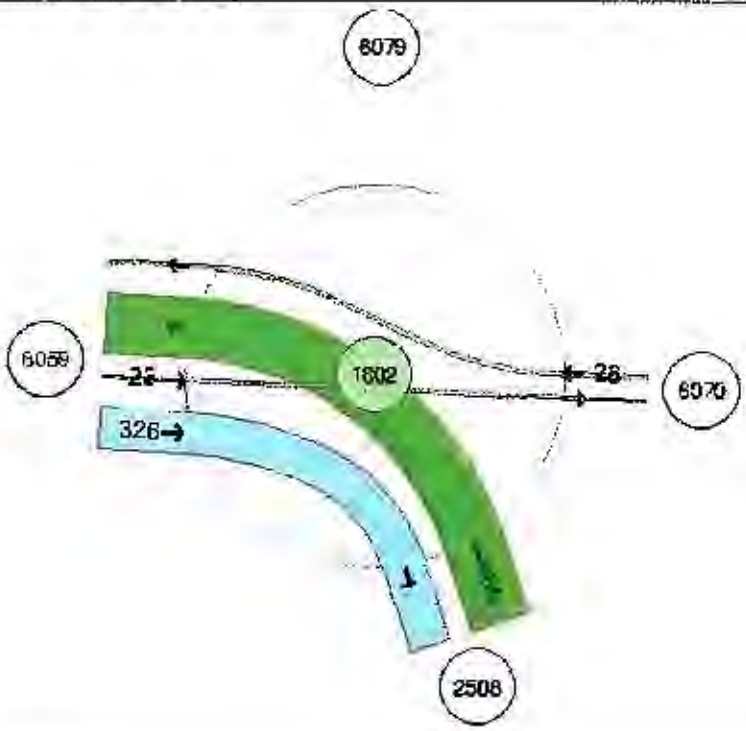
Turn filter: [all movements except u-turns] node [UT.cm]

Intersection node filter: [all intersection nodes] is intersection Node: 1826

At	From	To	Angle	Perfect	Time	AutoVol	AddVol	TotVol	AutoHrs	AddHrs	TotHrs
1826	1800	1801	103	-	0.00	0	0	0	0.00	0.00	0.00
1826	1800	1827	3	-	0.00	298	0	298	0.00	0.00	0.00
1826	1800	6057	-115	-	0.00	10	0	10	0.00	0.00	0.00
1826	1801	1800	-103	-	0.00	0	0	0	0.00	0.00	0.00
1826	1801	1827	79	-	0.00	2	0	2	0.00	0.00	0.00
1826	1801	6057	-36	-	0.00	0	0	0	0.00	0.00	0.00
1826	1827	1800	-3	-	0.00	541	0	541	0.00	0.00	0.00
1826	1827	1801	-79	-	0.00	5	0	5	0.00	0.00	0.00
1826	1827	6057	92	-	0.00	331	0	331	0.00	0.00	0.00
1826	6057	1800	115	-	0.00	8	0	8	0.00	0.00	0.00
1826	6057	1801	36	-	0.00	0	0	0	0.00	0.00	0.00
1826	6057	1827	-92	-	0.00	156	0	156	0.00	0.00	0.00

Scenario 98120 – 2035, Alternate Land Use, E-W Collector, PM Pk 1 hr

Intersection 1802 – Willamette and Van Duyn

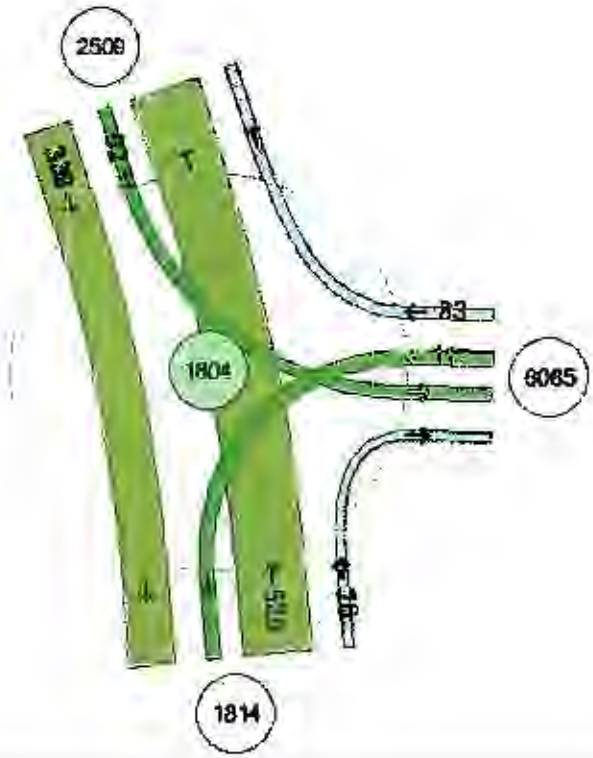


Turn filter: [all movements except u-turns] Include Turns

Intersection node filter: [all intersection nodes] Intersection Node: 1802

At	From	To	Angle	PerVol	Time	AutoVol	AddVol	TotVol	AutoHrs	AddHrs	TotHrs
1802	2508	6059	-58	-	0.00	488	0	488	0.00	0.00	0.00
1802	2508	6070	111	-	0.00	0	0	0	0.00	0.00	0.00
1802	2508	6079	28	-	0.00	0	0	0	0.00	0.00	0.00
1802	6059	2508	58	-	0.00	325	0	325	0.00	0.00	0.00
1802	6059	6070	-0	-	0.00	23	0	23	0.00	0.00	0.00
1802	6059	6079	-82	-	0.00	0	0	0	0.00	0.00	0.00
1802	6070	2508	-111	-	0.00	0	0	0	0.00	0.00	0.00
1802	6070	6059	0	-	0.00	28	0	28	0.00	0.00	0.00
1802	6070	6079	86	-	0.00	0	0	0	0.00	0.00	0.00
1802	6079	2508	-28	-	0.00	0	0	0	0.00	0.00	0.00
1802	6079	6059	82	-	0.00	0	0	0	0.00	0.00	0.00
1802	6079	6070	-86	-	0.00	0	0	0	0.00	0.00	0.00

Intersection 1804 – Willamette and Pearl

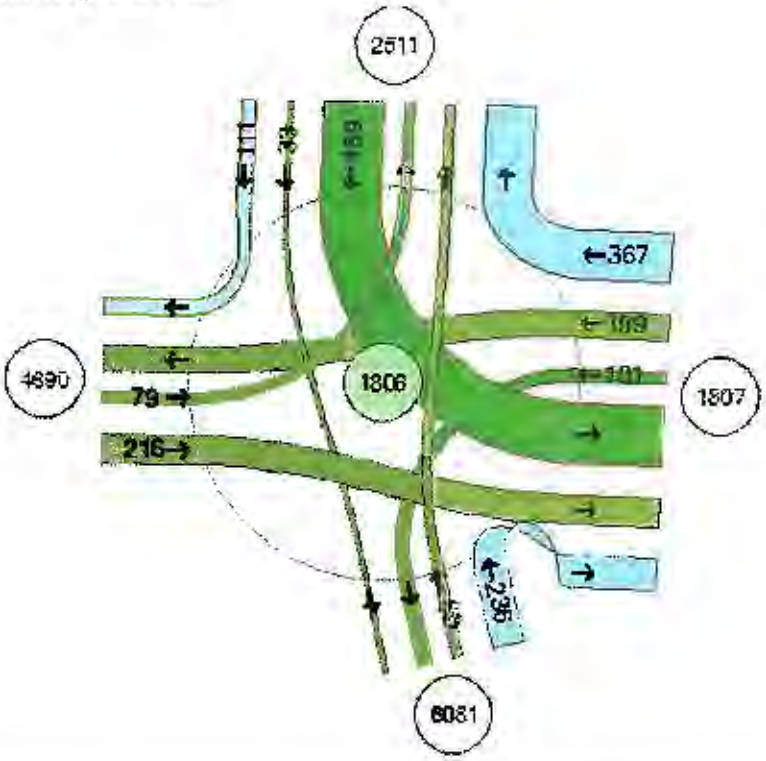


Turn filter: [all movements except u-turns] not(aUTurn)

Intersection node filter: [all intersection nodes] is intersection Node: 1804

At	From	To	Angle	PeaFct	Time	AutoVol	AddVol	TotVol	AutoHrs	AddHrs	TotHrs
1804	1814	2509	-13	-	0.00	525	0	525	0.00	0.00	0.00
1804	1814	6065	96	-	0.00	70	0	70	0.00	0.00	0.00
1804	2509	1814	13	-	0.00	339	0	339	0.00	0.00	0.00
1804	2509	6065	-70	-	0.00	92	0	92	0.00	0.00	0.00
1804	6065	1814	-96	-	0.00	117	0	117	0.00	0.00	0.00
1804	6065	2509	70	-	0.00	93	0	93	0.00	0.00	0.00

Intersection 1806 Industrial Way and Pearl

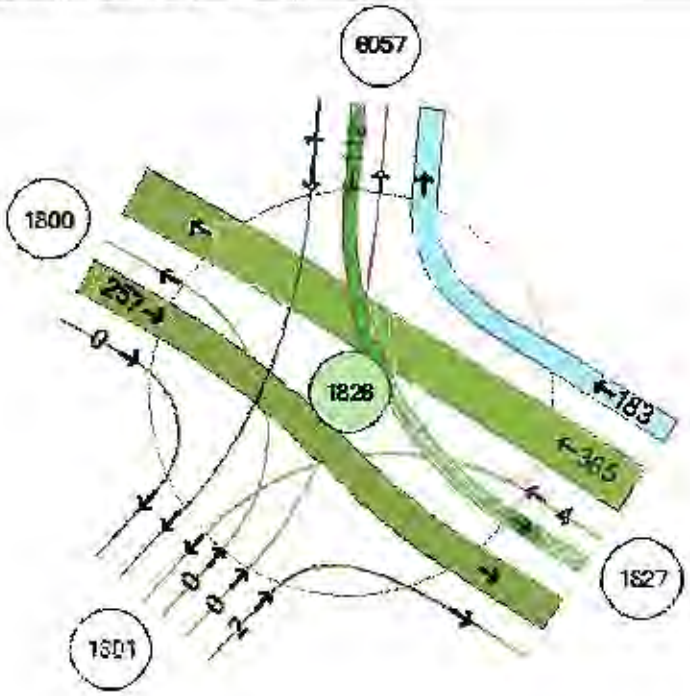


Turn filter: [all movements except u-turns] node U-turn

Intersection node filter: [all intersection nodes] is intersection Node 1806

At	From	To	Angle	PerFac	Time	AutoVol	AddVol	TotVol	AutoHrs	AddHrs	TotHrs
1806	1807	2511	89	-	0.00	367	0	367	0.00	0.00	0.00
1806	1807	4690	-2	-	0.00	199	0	199	0.00	0.00	0.00
1806	1807	6081	-105	-	0.00	101	0	101	0.00	0.00	0.00
1806	2511	1807	-89	-	0.00	459	0	459	0.00	0.00	0.00
1806	2511	4690	89	-	0.00	111	0	111	0.00	0.00	0.00
1806	2511	6081	-14	-	0.00	33	0	33	0.00	0.00	0.00
1806	4690	1807	2	-	0.00	216	0	216	0.00	0.00	0.00
1806	4690	2511	-89	-	0.00	79	0	79	0.00	0.00	0.00
1806	4690	6081	77	-	0.00	0	0	0	0.00	0.00	0.00
1806	6081	1807	105	-	0.00	236	0	236	0.00	0.00	0.00
1806	6081	2511	14	-	0.00	55	0	55	0.00	0.00	0.00
1806	6081	4690	-77	-	0.00	0	0	0	0.00	0.00	0.00

Intersection 1826 – N. Coburg Rd and Coburg Rd.



Turn filter: [all movements except uturns] node(s) (Turn)

Intersection node filter: [all intersection nodes] intersection Node: 1826

At	From	To	Angle	PerFld	Time	AutoVol	AddlVol	TotVol	AutoHrs	AddlHrs	TotHrs
1826	1800	1801	105	-	0.00	0	0	0	0.00	0.00	0.00
1826	1800	1827	3	-	0.00	257	0	257	0.00	0.00	0.00
1826	1800	6057	-115	-	0.00	0	0	0	0.00	0.00	0.00
1826	1801	1800	-103	-	0.00	0	0	0	0.00	0.00	0.00
1826	1801	1827	79	-	0.00	2	0	2	0.00	0.00	0.00
1826	1801	6057	-38	-	0.00	0	0	0	0.00	0.00	0.00
1826	1827	1800	-3	-	0.00	365	0	365	0.00	0.00	0.00
1826	1827	1801	-79	-	0.00	4	0	4	0.00	0.00	0.00
1826	1827	6057	82	-	0.00	183	0	183	0.00	0.00	0.00
1826	6057	1800	115	-	0.00	0	0	0	0.00	0.00	0.00
1826	6057	1801	38	-	0.00	1	0	1	0.00	0.00	0.00
1826	6057	1827	-82	-	0.00	112	0	112	0.00	0.00	0.00


2035 Coburg EW Connector Build
PM peak 1 hr volumes (roads where volumes>10)

2035 Coburg EW Connector Nobuild

PM Peak 1 hr volumes (roads where volumes>10)


NoBuild: all new north trips onto N. Coburg Rd
PM Peak 1 hr Veh Volumes (roads where volumes>10)


PM Peak 1 hour Veh volumes (roads where volumes >10)
Road. All new north trips on N. Coburg Rd

ATTACHMENT D
LANE COUNTY PERFORMANCE STANDARDS

15.695 Specific Road Improvements.
Pursuant to LC 15.696 through 15.697 below, the owner of land being developed may be required, as a condition of development approval, to make road improvements necessitated by the development. The Director shall specify any required improvements and these shall be in addition to other requirements of this chapter. *(Revised by Ordinance No 7-82, Effective 7.9.82; 10-04, 6.4.04)*

15.696 Roadway Performance Standards.
Lane County uses the volume to capacity ratio (v/c) as the basic peak hour performance standard for evaluation of project need, plan amendments, and land development proposals. Table 4 below contains maximum v/c for County Roads. Achieving or maintaining the v/c standard means the v/c is, or is projected to be, numerically equal to, or less than, the applicable v/c in Table 4 below.

(1) In addition to the v/c standards in Table 4, other analysis methods producing a predicted level of service may be required as specified in the Traffic Impact Analysis Guidelines of the Public Works Engineering Division. The Highway Capacity Manual publication cited in LM 15.450 provides nationally recognized methods and procedures for estimating level of service and capacity for various types of transportation facilities. Where level of service analysis is required, the peak hour performance standard is to achieve or maintain, and not exceed, LOS D. Not exceeding LOS D means "A," "B," "C," or "D." Failure to meet the standard, or "exceedence" of the standard means that the predicted level of service is "E" or "F." Where level of service analysis is required, both the v/c standard and the level of service standard must be achieved or maintained.

(2) When analyzing County roads within cities, Lane County standards shall apply, except that within urban growth boundaries, the applicable design standards of the respective city shall apply to County Roads functionally classified as Local Roads. In the absence of city standards for such roads, the County's road design standards shall apply. Traffic study requirements should be coordinated with cities and ODOT when development proposals affect facilities under the jurisdiction of these agencies.

(3) When analyzing signalized intersections, locations where signal warrants may be met, or intersections with all-way stop control (AWSC), the primary objective is to maintain the performance of the overall intersection. The overall intersection v/c must meet the applicable standard. If level of service analysis is required, the level of service standard must also be met.

(4) At unsignalized intersections and road approaches with two-way stop control (TWSC), the objective is to achieve or maintain the volume to capacity ratios specified in Table 4 for the approaches that are not stopped.

(5) Approaches at which traffic must stop, or otherwise yield the right of way, shall be operated to maintain safe operation of the intersection and all its approaches and shall not exceed a v/c of 0.95 within urban growth boundaries and a v/c of 0.80 outside of urban growth boundaries.

(6) If nearby public or private roads, streets, or driveways are predicted to exceed the standards as a result of the proposal requiring a traffic impact analysis, mitigation measures shall be recommended. If nearby road, street or driveway performance is predicted to exceed standards in order to maintain flow on the road or street where access is proposed, adequate space for vehicle queuing (based on 95% probability) must be maintained on the nearby road, street or driveway.

(7) At the intersection of a County road and a state highway, state highway standards must be achieved or maintained for the state highway.

Table 4: Maximum Volume to Capacity Ratios (v/c) for Peak Hour Operating Conditions on Lane County Roads

Roadway Category	Location/ Speed Limits				
	Inside Urban Growth Boundary			Outside Urban Growth Boundary	
	Eugene-Springfield Metro Area	Outside Eugene-Springfield Metro area where speed limit <45 mph	Outside Eugene-Springfield Metro area where speed ≥ 45 mph	Within Unincorporated Communities	Outside Unincorporated Communities
Freeways and Expressways	0.80	n/a	n/a	n/a	n/a
Other County Roads	0.85	0.85	0.75	0.80	0.70

(Revised by Ordinance 10-04, Effective 6.4.04)

ATTACHMENT E
PERFORMANCE CALCULATIONS
(SYNCHRO OUTPUT FILES)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	5	0	5	5	0	5	5	345	5	5	245	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.50	0.50	0.50	0.50	0.50	0.50	0.88	0.88	0.88	0.88	0.88	0.88
Hourly flow rate (vph)	10	0	10	10	0	10	6	392	6	6	278	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	709	702	281	709	702	395	284			398		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	709	702	281	709	702	395	284			398		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	99	97	100	98	100			100		
cM capacity (veh/h)	341	359	758	345	359	659	1278			1172		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	20	403	290
Volume Left	10	10	6	6
Volume Right	10	10	6	6
cSH	471	452	1278	1172
Volume to Capacity	0.04	0.04	0.00	0.00
Queue Length 95th (ft)	3	3	0	0
Control Delay (s)	13.0	13.3	0.2	0.2
Lane LOS	B	B	A	A
Approach Delay (s)	13.0	13.3	0.2	0.2
Approach LOS	B	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	32.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	5	145	5	100	5	245	110	110	170	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	
Frt		0.93			1.00	0.85		0.96		1.00	1.00	
Flt Protected		1.00			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1632			1621	1444		1625		1539	1710	
Flt Permitted		1.00			0.72	1.00		1.00		0.52	1.00	
Satd. Flow (perm)		1632			1232	1444		1622		842	1710	
Peak-hour factor, PHF	0.92	0.92	0.92	0.72	0.92	0.72	0.92	0.87	0.87	0.92	0.92	0.92
Adj. Flow (vph)	0	5	5	201	5	139	5	282	126	120	185	5
RTOR Reduction (vph)	0	4	0	0	0	99	0	30	0	0	2	0
Lane Group Flow (vph)	0	6	0	0	206	40	0	383	0	120	188	0
Heavy Vehicles (%)	0%	0%	0%	3%	0%	3%	0%	2%	6%	8%	2%	0%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		13.9			13.9	13.9		26.2		26.2	26.2	
Effective Green, g (s)		13.9			13.9	13.9		26.2		26.2	26.2	
Actuated g/C Ratio		0.29			0.29	0.29		0.54		0.54	0.54	
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)		472			356	417		884		459	931	
v/s Ratio Prot		0.00									0.11	
v/s Ratio Perm					c0.17	0.03		c0.24		0.14		
v/c Ratio		0.01			0.58	0.10		0.43		0.26	0.20	
Uniform Delay, d1		12.2			14.6	12.5		6.5		5.8	5.6	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			2.3	0.1		1.5		1.4	0.5	
Delay (s)		12.2			16.9	12.6		8.1		7.2	6.1	
Level of Service		B			B	B		A		A	A	
Approach Delay (s)		12.2			15.2			8.1			6.5	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM Average Control Delay	9.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	48.1	Sum of lost time (s)	8.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	10	200	45	135	185	25	40	5	145	210	25	75
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.97		1.00	0.98		1.00	0.85		1.00	0.89	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1247	2414		1032	2692		1385	1220		2764	1322	
Flt Permitted	0.60	1.00		0.43	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	788	2414		468	2692		1385	1220		2764	1322	
Peak-hour factor, PHF	0.80	0.80	0.80	0.86	0.86	0.86	0.78	0.78	0.78	0.60	0.60	0.60
Adj. Flow (vph)	12	250	56	157	215	29	51	6	186	350	42	125
RTOR Reduction (vph)	0	13	0	0	6	0	0	158	0	0	84	0
Lane Group Flow (vph)	12	293	0	157	238	0	51	34	0	350	83	0
Heavy Vehicles (%)	20%	20%	23%	45%	8%	18%	8%	21%	10%	5%	8%	5%
Turn Type	pm+pt			pm+pt			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	19.7	18.2		35.1	29.6		10.9	10.9		14.1	14.1	
Effective Green, g (s)	19.7	18.2		35.1	29.6		10.9	10.9		14.1	14.1	
Actuated g/C Ratio	0.27	0.25		0.49	0.41		0.15	0.15		0.20	0.20	
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)	225	609		329	1105		209	184		541	259	
v/s Ratio Prot	0.00	0.12		c0.09	0.09		c0.04	0.03		c0.13	0.06	
v/s Ratio Perm	0.01			c0.15								
v/c Ratio	0.05	0.48		0.48	0.21		0.24	0.19		0.65	0.32	
Uniform Delay, d1	19.2	22.9		11.5	13.7		27.0	26.7		26.7	24.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.6		1.1	0.1		0.6	0.5		2.7	0.7	
Delay (s)	19.3	23.5		12.6	13.8		27.6	27.2		29.4	25.6	
Level of Service	B	C		B	B		C	C		C	C	
Approach Delay (s)		23.4			13.3			27.3			28.1	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	23.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	72.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		

Description: Pearl Street and Industrial Way

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	10	135	5	25	225	105	5	5	25	95	5	10
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.83	0.83	0.83	0.89	0.89	0.89	0.79	0.79	0.79	0.72	0.72	0.72
Hourly flow rate (vph)	12	163	6	28	253	118	6	6	32	132	7	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	371			169			575	617	166	593	561	312
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	371			169			575	617	166	593	561	312
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			98			98	98	96	66	98	98
cM capacity (veh/h)	1199			1421			409	396	864	392	426	733

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	181	399	44	153
Volume Left	12	28	6	132
Volume Right	6	118	32	14
cSH	1199	1421	659	410
Volume to Capacity	0.01	0.02	0.07	0.37
Queue Length 95th (ft)	1	2	5	42
Control Delay (s)	0.6	0.7	10.9	18.9
Lane LOS	A	A	B	C
Approach Delay (s)	0.6	0.7	10.9	18.9
Approach LOS			B	C

Intersection Summary				
Average Delay	4.8			
Intersection Capacity Utilization	47.9%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	5	0	25	5	0	5	120	405	5	15	315	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85
Hourly flow rate (vph)	6	0	29	6	0	6	133	450	6	18	371	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1134	1131	374	1158	1131	453	376			456		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1134	1131	374	1158	1131	453	376			456		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	96	100	96	96	100	99	89			98		
cM capacity (veh/h)	161	178	673	151	178	611	1182			1116		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	35	12	589	394
Volume Left	6	6	133	18
Volume Right	29	6	6	6
cSH	439	242	1182	1116
Volume to Capacity	0.08	0.05	0.11	0.02
Queue Length 95th (ft)	7	4	10	1
Control Delay (s)	13.9	20.6	2.9	0.5
Lane LOS	B	C	A	A
Approach Delay (s)	13.9	20.6	2.9	0.5
Approach LOS	B	C		

Intersection Summary				
Average Delay	2.6			
Intersection Capacity Utilization	63.2%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	5	90	5	80	5	505	120	90	325	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	
Frt		0.93			1.00	0.85		0.97		1.00	1.00	
Flt Protected		1.00			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1600			1623	1444		1659		1539	1711	
Flt Permitted		1.00			0.73	1.00		1.00		0.40	1.00	
Satd. Flow (perm)		1600			1240	1444		1655		647	1711	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.85	0.90	0.85	0.90	0.90	0.90	0.90	0.85
Adj. Flow (vph)	0	6	6	100	6	89	6	561	133	100	361	6
RTOR Reduction (vph)	0	5	0	0	0	75	0	9	0	0	1	0
Lane Group Flow (vph)	0	7	0	0	106	14	0	691	0	100	366	0
Heavy Vehicles (%)	2%	2%	2%	3%	2%	3%	2%	2%	6%	8%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		51.7		51.7	51.7	
Effective Green, g (s)		11.0			11.0	11.0		51.7		51.7	51.7	
Actuated g/C Ratio		0.16			0.16	0.16		0.73		0.73	0.73	
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)		249			193	225		1210		473	1251	
v/s Ratio Prot		0.00									0.21	
v/s Ratio Perm					c0.09	0.01		c0.42		0.15		
v/c Ratio		0.03			0.55	0.06		0.57		0.21	0.29	
Uniform Delay, d1		25.3			27.6	25.4		4.4		3.0	3.2	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			3.2	0.1		2.0		1.0	0.6	
Delay (s)		25.4			30.7	25.6		6.3		4.0	3.8	
Level of Service		C			C	C		A		A	A	
Approach Delay (s)		25.4			28.4			6.3			3.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	78.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	190	10	160	190	225	10	70	235	265	45	55
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.92		1.00	0.88		1.00	0.92	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1247	2472		1032	2424		1385	1238		2784	1359	
Flt Permitted	0.49	1.00		0.44	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	639	2472		475	2424		1385	1238		2764	1359	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	59	224	12	178	211	250	12	82	276	294	50	61
RTOR Reduction (vph)	0	3	0	0	159	0	0	84	0	0	36	0
Lane Group Flow (vph)	59	233	0	178	302	0	12	274	0	294	75	0
Heavy Vehicles (%)	20%	20%	23%	45%	8%	18%	8%	21%	10%	5%	8%	5%
Turn Type	pm+pt			pm+pt			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	23.6	15.6		36.3	24.3		25.9	25.9		14.6	14.6	
Effective Green, g (s)	23.6	15.6		36.3	24.3		25.9	25.9		14.6	14.6	
Actuated g/C Ratio	0.27	0.18		0.41	0.27		0.29	0.29		0.16	0.16	
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)	225	434		299	663		404	361		454	223	
v/s Ratio Prot	0.02	0.09		c0.11	0.12		0.01	c0.22		c0.11	0.06	
v/s Ratio Perm	0.05			c0.13								
v/c Ratio	0.26	0.54		0.60	0.46		0.03	0.76		0.65	0.34	
Uniform Delay, d1	25.1	33.3		19.0	26.6		22.5	28.6		34.7	32.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.3		3.2	0.5		0.0	8.8		3.2	0.9	
Delay (s)	25.7	34.6		22.2	27.3		22.5	37.4		37.9	33.7	
Level of Service	C	C		C	C		C	D		D	C	
Approach Delay (s)		32.8			25.8			36.9			36.7	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.7%	ICU Level of Service	C
Analysis Period (min)	15		

Description: Pearl Street and Industrial Way

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	5	240	5	5	325	85	5	5	25	70	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	282	6	6	361	94	6	6	29	82	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	456			288			725	764	285	749	719	408
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	456			288			725	764	285	749	719	408
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	98	96	74	98	99
cM capacity (veh/h)	1116			1265			333	333	758	311	353	647

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	294	461	41	94
Volume Left	6	6	6	82
Volume Right	6	94	29	6
cSH	1116	1285	556	324
Volume to Capacity	0.01	0.00	0.07	0.29
Queue Length 95th (ft)	0	0	6	29
Control Delay (s)	0.2	0.1	12.0	20.6
Lane LOS	A	A	B	C
Approach Delay (s)	0.2	0.1	12.0	20.6
Approach LOS			B	C

Intersection Summary			
Average Delay	2.9		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	5	5	90	5	10	165	125	385	5	15	370	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85
Hourly flow rate (vph)	6	6	106	6	12	194	139	428	6	18	435	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1382	1185	438	1291	1185	431	441			433		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1382	1185	438	1291	1185	431	441			433		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	92	96	83	94	93	69	88			98		
cM capacity (veh/h)	71	163	619	102	163	629	1119			1137		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	118	212	572	459
Volume Left	6	6	139	18
Volume Right	106	194	6	6
cSH	405	483	1119	1137
Volume to Capacity	0.29	0.44	0.12	0.02
Queue Length 95th (ft)	30	55	11	1
Control Delay (s)	17.5	18.1	3.2	0.5
Lane LOS	C	C	A	A
Approach Delay (s)	17.5	18.1	3.2	0.5
Approach LOS	C	C		

Intersection Summary				
Average Delay	5.8			
Intersection Capacity Utilization	75.9%	ICU Level of Service	D	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	5	80	5	115	5	525	125	160	330	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	
Frt		0.93			1.00	0.85		0.97		1.00	1.00	
Flt Protected		1.00			0.96	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1600			1624	1444		1658		1539	1712	
Flt Permitted		1.00			0.73	1.00		1.00		0.39	1.00	
Satd. Flow (perm)		1600			1243	1444		1655		631	1712	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.85	0.90	0.85	0.90	0.90	0.90	0.90	0.85
Adj. Flow (vph)	0	6	6	89	6	128	6	583	139	178	367	6
RTOR Reduction (vph)	0	5	0	0	0	109	0	9	0	0	1	0
Lane Group Flow (vph)	0	7	0	0	95	19	0	719	0	178	372	0
Heavy Vehicles (%)	2%	2%	2%	3%	2%	3%	2%	2%	6%	8%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		10.4			10.4	10.4		50.7		50.7	50.7	
Effective Green, g (s)		10.4			10.4	10.4		50.7		50.7	50.7	
Actuated g/C Ratio		0.15			0.15	0.15		0.73		0.73	0.73	
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)		241			187	217		1214		463	1256	
v/s Ratio Prot		0.00									0.22	
v/s Ratio Perm					c0.08	0.01		c0.43		0.28		
v/c Ratio		0.03			0.51	0.09		0.59		0.38	0.30	
Uniform Delay, d1		25.0			27.0	25.3		4.3		3.4	3.1	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			2.2	0.2		2.1		2.4	0.6	
Delay (s)		25.1			29.2	25.4		6.5		5.8	3.7	
Level of Service		C			C	C		A		A	A	
Approach Delay (s)		25.1			27.0			6.5			4.4	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	89.1	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	60	225	10	165	325	110	65	15	235	240	25	85
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.86		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1247	2475		1032	2605		1385	1223		2764	1318	
Flt Permitted	0.48	1.00		0.45	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	625	2475		487	2605		1385	1223		2764	1318	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	71	265	12	183	361	122	76	18	276	267	28	94
RTOR Reduction (vph)	0	2	0	0	23	0	0	231	0	0	77	0
Lane Group Flow (vph)	71	275	0	183	460	0	76	63	0	267	45	0
Heavy Vehicles (%)	20%	20%	23%	45%	8%	18%	8%	21%	10%	5%	8%	5%
Turn Type	pm+pt			pm+pt			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	24.9	16.7		34.5	22.3		11.5	11.5		12.4	12.4	
Effective Green, g (s)	24.9	16.7		34.5	22.3		11.5	11.5		12.4	12.4	
Actuated g/C Ratio	0.35	0.24		0.49	0.32		0.16	0.16		0.18	0.18	
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)	294	587		345	825		226	200		487	232	
v/s Ratio Prot	0.03	0.11		c0.10	c0.18		c0.05	0.05		c0.10	0.03	
v/s Ratio Perm	0.06			0.16								
v/c Ratio	0.24	0.47		0.53	0.56		0.34	0.32		0.55	0.19	
Uniform Delay, d1	15.6	23.0		11.4	20.0		26.1	26.0		26.4	24.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		1.6	0.8		0.9	0.9		1.3	0.4	
Delay (s)	16.0	23.6		12.9	20.8		27.0	26.9		27.7	25.1	
Level of Service	B	C		B	C		C	C		C	C	
Approach Delay (s)		22.1			18.6			26.9			26.9	
Approach LOS		C			B			C			C	

Intersection Summary					
HCM Average Control Delay	22.8	HCM Level of Service		C	
HCM Volume to Capacity ratio	0.50				
Actuated Cycle Length (s)	70.4	Sum of lost time (s)		12.0	
Intersection Capacity Utilization	63.6%	ICU Level of Service		B	
Analysis Period (min)	15				

Description: Pearl Street and Industrial Way

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	10	285	5	5	445	105	5	5	25	80	5	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	12	335	6	6	494	117	6	6	29	94	6	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	611			341			946	984	338	958	929	553
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	611			341			946	984	338	958	929	553
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			97	98	96	58	98	97
cM capacity (veh/h)	978			1229			229	246	709	222	265	537

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	353	617	41	118
Volume Left	12	6	6	94
Volume Right	6	117	29	18
cSH	978	1229	452	246
Volume to Capacity	0.01	0.00	0.09	0.48
Queue Length 95th (ft)	1	0	7	60
Control Delay (s)	0.4	0.1	13.8	32.4
Lane LOS	A	A	B	D
Approach Delay (s)	0.4	0.1	13.8	32.4
Approach LOS			B	D

Intersection Summary				
Average Delay	4.1			
Intersection Capacity Utilization	54.0%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (veh/h)	5	5	5	5	0	240	5	490	5	20	460	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85
Hourly flow rate (vph)	6	6	6	6	0	282	6	544	6	24	541	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1432	1152	544	1158	1152	547	547			550		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1432	1152	544	1158	1152	547	547			550		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	89	97	99	96	100	48	99			98		
cM capacity (veh/h)	52	192	539	165	192	541	1022			1030		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	288	556	571
Volume Left	6	6	6	24
Volume Right	6	282	6	6
cSH	115	517	1022	1030
Volume to Capacity	0.15	0.56	0.01	0.02
Queue Length 95th (ft)	13	85	0	2
Control Delay (s)	42.0	20.4	0.2	0.6
Lane LOS	E	C	A	A
Approach Delay (s)	42.0	20.4	0.2	0.6
Approach LOS	E	C		

Intersection Summary				
Average Delay	4.9			
Intersection Capacity Utilization	63.6%	ICU Level of Service	B	
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	5	75	5	135	5	525	125	155	335	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	
Frt		0.93			1.00	0.85		0.97		1.00	1.00	
Flt Protected		1.00			0.96	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1600			1624	1444		1658		1539	1712	
Flt Permitted		1.00			0.73	1.00		1.00		0.39	1.00	
Satd. Flow (perm)		1600			1244	1444		1655		629	1712	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.85	0.90	0.85	0.90	0.90	0.90	0.90	0.85
Adj. Flow (vph)	0	6	6	83	6	150	6	583	139	172	372	6
RTOR Reduction (vph)	0	5	0	0	0	126	0	10	0	0	1	0
Lane Group Flow (vph)	0	7	0	0	89	24	0	716	0	172	377	0
Heavy Vehicles (%)	2%	2%	2%	3%	2%	3%	2%	2%	6%	8%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		10.7			10.7	10.7		49.2		49.2	49.2	
Effective Green, g (s)		10.7			10.7	10.7		49.2		49.2	49.2	
Actuated g/C Ratio		0.16			0.16	0.16		0.72		0.72	0.72	
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)		252			196	228		1199		456	1241	
v/s Ratio Prot		0.00									0.22	
v/s Ratio Perm					c0.07	0.02		c0.43		0.27		
v/c Ratio		0.03			0.45	0.10		0.60		0.38	0.30	
Uniform Delay, d1		24.2			25.9	24.5		4.6		3.5	3.3	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			1.7	0.2		2.2		2.4	0.6	
Delay (s)		24.2			27.6	24.7		6.8		5.9	3.9	
Level of Service		C			C	C		A		A	A	
Approach Delay (s)		24.2			25.8			6.8			4.6	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	67.9	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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	225	10	160	325	110	5	15	240	240	25	85
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.96		1.00	0.86		1.00	0.88	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1247	2475		1032	2605		1385	1223		2764	1318	
Flt Permitted	0.48	1.00		0.45	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	625	2475		489	2605		1385	1223		2764	1318	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	65	265	12	178	361	122	6	18	282	267	28	94
RTOR Reduction (vph)	0	2	0	0	23	0	0	235	0	0	78	0
Lane Group Flow (vph)	65	275	0	178	460	0	6	65	0	267	44	0
Heavy Vehicles (%)	20%	20%	23%	45%	8%	18%	8%	21%	10%	5%	8%	5%
Turn Type	pm+pt			pm+pt			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	25.0	16.9		34.4	22.3		11.6	11.6		12.3	12.3	
Effective Green, g (s)	25.0	16.9		34.4	22.3		11.6	11.6		12.3	12.3	
Actuated g/C Ratio	0.36	0.24		0.49	0.32		0.17	0.17		0.17	0.17	
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)	294	595		344	826		229	202		484	231	
v/s Ratio Prot	0.03	0.11		c0.10	c0.18		0.00	c0.05		c0.10	0.03	
v/s Ratio Perm	0.05			0.15								
v/c Ratio	0.22	0.46		0.52	0.56		0.03	0.32		0.55	0.19	
Uniform Delay, d1	15.4	22.8		11.3	19.9		24.6	25.9		26.5	24.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.6		1.3	0.8		0.0	0.9		1.4	0.4	
Delay (s)	15.8	23.4		12.6	20.7		24.7	26.8		27.8	25.2	
Level of Service	B	C		B	C		C	C		C	C	
Approach Delay (s)		21.9			18.5			26.7			27.0	
Approach LOS		C			B			C			C	

Intersection Summary				
HCM Average Control Delay	22.6	HCM Level of Service	C	
HCM Volume to Capacity ratio	0.49			
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	63.9%	ICU Level of Service	B	
Analysis Period (min)	15			

Description: Pearl Street and Industrial Way

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	10	280	5	5	435	295	5	5	25	180	5	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	12	329	6	6	483	328	6	6	29	212	6	18
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	811			335			1035	1178	332	1047	1017	647
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	811			335			1035	1178	332	1047	1017	647
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			97	97	96	0	97	96
cM capacity (veh/h)	824			1235			197	189	714	192	235	474

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	347	817	41	235
Volume Left	12	6	6	212
Volume Right	6	328	29	18
cSH	824	1235	403	202
Volume to Capacity	0.01	0.00	0.10	1.17
Queue Length 95th (ft)	1	0	8	293
Control Delay (s)	0.5	0.1	14.9	163.6
Lane LOS	A	A	B	F
Approach Delay (s)	0.5	0.1	14.9	163.6
Approach LOS			B	F

Intersection Summary				
Average Delay	27.3			
Intersection Capacity Utilization	72.1%	ICU Level of Service		C
Analysis Period (min)	15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	5	5	5	5	0	25	5	465	5	5	350	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85
Hourly flow rate (vph)	6	6	6	6	0	29	6	517	6	6	412	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	986	960	415	966	960	519	418			522		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	986	960	415	966	960	519	418			522		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	98	99	97	100	95	100			99		
cM capacity (veh/h)	213	254	638	228	254	560	1141			1054		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	18	35	528	424
Volume Left	6	6	6	6
Volume Right	6	29	6	6
cSH	294	451	1141	1054
Volume to Capacity	0.06	0.08	0.00	0.01
Queue Length 95th (ft)	5	6	0	0
Control Delay (s)	18.0	13.7	0.1	0.2
Lane LOS	C	B	A	A
Approach Delay (s)	18.0	13.7	0.1	0.2
Approach LOS	C	B		

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	5	5	90	5	80	5	505	120	90	330	5
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	
Frt		0.93			1.00	0.85		0.97		1.00	1.00	
Flt Protected		1.00			0.95	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1600			1623	1444		1659		1539	1712	
Flt Permitted		1.00			0.73	1.00		1.00		0.40	1.00	
Satd. Flow (perm)		1600			1240	1444		1655		647	1712	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.85	0.90	0.85	0.90	0.90	0.90	0.90	0.85
Adj. Flow (vph)	0	6	6	100	6	89	6	561	133	100	367	6
RTOR Reduction (vph)	0	5	0	0	0	75	0	9	0	0	1	0
Lane Group Flow (vph)	0	7	0	0	106	14	0	691	0	100	372	0
Heavy Vehicles (%)	2%	2%	2%	3%	2%	3%	2%	2%	6%	8%	2%	2%
Turn Type	Perm			Perm		Perm	Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)		11.0			11.0	11.0		51.7		51.7	51.7	
Effective Green, g (s)		11.0			11.0	11.0		51.7		51.7	51.7	
Actuated g/C Ratio		0.16			0.16	0.16		0.73		0.73	0.73	
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)		249			193	225		1210		473	1252	
v/s Ratio Prot		0.00									0.22	
v/s Ratio Perm					c0.09	0.01		c0.42		0.15		
v/c Ratio		0.03			0.55	0.06		0.57		0.21	0.30	
Uniform Delay, d1		25.3			27.6	25.4		4.4		3.0	3.3	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		0.0			3.2	0.1		2.0		1.0	0.6	
Delay (s)		25.4			30.7	25.6		6.3		4.0	3.9	
Level of Service		C			C	C		A		A	A	
Approach Delay (s)		25.4			28.4			6.3			3.9	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM Average Control Delay	8.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	190	10	160	190	235	5	70	240	265	45	60
Ideal Flow (vphpl)	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
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	0.95		1.00	0.95		1.00	1.00		0.97	1.00	
Frt	1.00	0.99		1.00	0.92		1.00	0.88		1.00	0.91	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1247	2472		1032	2417		1385	1238		2764	1355	
Flt Permitted	0.48	1.00		0.44	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	632	2472		473	2417		1385	1238		2764	1355	
Peak-hour factor, PHF	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Adj. Flow (vph)	59	224	12	178	211	261	6	82	282	294	50	67
RTOR Reduction (vph)	0	3	0	0	166	0	0	85	0	0	39	0
Lane Group Flow (vph)	59	233	0	178	306	0	6	279	0	294	78	0
Heavy Vehicles (%)	20%	20%	23%	45%	8%	18%	8%	21%	10%	5%	8%	5%
Turn Type	pm+pt			pm+pt			Split			Split		
Protected Phases	5	2		1	6		8	8		4	4	
Permitted Phases	2			6								
Actuated Green, G (s)	23.6	15.6		36.3	24.3		26.7	26.7		14.6	14.6	
Effective Green, g (s)	23.6	15.6		36.3	24.3		26.7	26.7		14.6	14.6	
Actuated g/C Ratio	0.26	0.17		0.41	0.27		0.30	0.30		0.16	0.16	
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)	221	430		296	656		413	369		450	221	
v/s Ratio Prot	0.02	0.09		c0.11	0.13		0.00	c0.23		c0.11	0.06	
v/s Ratio Perm	0.05			c0.13								
v/c Ratio	0.27	0.54		0.60	0.47		0.01	0.76		0.65	0.35	
Uniform Delay, d1	25.5	33.7		19.4	27.2		22.2	28.5		35.1	33.3	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.7	1.4		3.4	0.5		0.0	8.6		3.4	1.0	
Delay (s)	26.2	35.1		22.8	27.8		22.2	37.1		38.5	34.3	
Level of Service	C	D		C	C		C	D		D	C	
Approach Delay (s)		33.3			26.4			36.8			37.3	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	32.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	89.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

Description: Pearl Street and Industrial Way

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (veh/h)	5	200	5	5	310	180	5	5	25	135	5	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.85	0.85	0.85	0.85	0.85	0.85
Hourly flow rate (vph)	6	235	6	6	344	200	6	6	29	159	6	6
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	544			241			714	806	238	738	708	444
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	544			241			714	806	238	738	708	444
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	99			100			98	98	96	50	98	99
cM capacity (veh/h)	1035			1337			339	315	806	317	358	618

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	247	550	41	171
Volume Left	6	6	6	159
Volume Right	6	200	29	6
cSH	1035	1337	567	324
Volume to Capacity	0.01	0.00	0.07	0.53
Queue Length 95th (ft)	0	0	6	73
Control Delay (s)	0.3	0.1	11.8	27.9
Lane LOS	A	A	B	D
Approach Delay (s)	0.3	0.1	11.8	27.9
Approach LOS			B	D

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		

ATTACHMENT F
VEHICLE QUEUING CALCULATIONS
(SIMTRAFFIC OUTPUT FILES)

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	37	27	23	6
Average Queue (ft)	14	11	6	1
95th Queue (ft)	42	32	38	9
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	34	27	13	59
Average Queue (ft)	3	6	1	4
95th Queue (ft)	20	24	8	27
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	38	27	29	59
Average Queue (ft)	6	7	2	3
95th Queue (ft)	27	26	19	24
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #1

Movement	EB	WB	WB	NB	SB	SE
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	15	132	82	166	122	94
Average Queue (ft)	2	81	38	97	62	50
95th Queue (ft)	14	144	81	171	133	86
Link Distance (ft)	229	232	232	1565		571
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					3	0
Queuing Penalty (veh)					6	0

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #2

Movement	EB	WB	WB	NB	SB	SE
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	26	121	83	155	136	107
Average Queue (ft)	5	47	22	79	54	43
95th Queue (ft)	22	95	50	148	107	84
Link Distance (ft)	229	232	232	1565		571
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					1	0
Queuing Penalty (veh)					2	0

Intersection: 1804: Pearl Street & N. Willamette Street, All Intervals

Movement	EB	WB	WB	NB	SB	SE
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	26	138	86	182	146	112
Average Queue (ft)	4	56	26	83	56	45
95th Queue (ft)	20	112	60	154	114	85
Link Distance (ft)	229	232	232	1565		571
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					2	0
Queuing Penalty (veh)					3	0

Intersection: 1806: Pearl & Industrial, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	43	127	172	174	130	73	69	155	143	140	143
Average Queue (ft)	9	72	91	103	72	36	37	83	83	95	78
95th Queue (ft)	36	128	174	174	148	77	76	154	140	146	157
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				3	1			0			
Queuing Penalty (veh)				3	2			0			

Intersection: 1806: Pearl & Industrial, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	60	162	149	163	102	77	86	126	91	98	109
Average Queue (ft)	9	51	63	79	46	17	30	53	40	54	42
95th Queue (ft)	39	117	126	143	88	57	71	99	80	91	83
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				2	0						
Queuing Penalty (veh)				2	0						

Intersection: 1806: Pearl & Industrial, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	64	166	175	182	130	84	86	159	143	140	143
Average Queue (ft)	9	56	70	85	52	22	32	60	50	64	51
95th Queue (ft)	38	122	141	153	108	64	72	117	104	114	109
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				2	0			0			
Queuing Penalty (veh)				2	0			0			

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	5	50	35	81
Average Queue (ft)	1	10	26	55
95th Queue (ft)	7	45	48	84
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	33	72	42	74
Average Queue (ft)	3	6	25	39
95th Queue (ft)	18	37	48	64
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	33	82	42	87
Average Queue (ft)	2	7	25	43
95th Queue (ft)	16	39	48	71
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty, Interval #1: 11
Zone wide Queuing Penalty, Interval #2: 4
Zone wide Queuing Penalty, All Intervals: 6

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #1

Movement	EB	WB	NB	SE
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	42	35	119	31
Average Queue (ft)	25	8	51	5
95th Queue (ft)	52	33	124	25
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #2

Movement	EB	WB	NB	SE
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	43	37	144	54
Average Queue (ft)	22	9	41	6
95th Queue (ft)	48	31	109	33
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, All Intervals

Movement	EB	WB	NB	SE
Directions Served	LR	LR	LTR	LTR
Maximum Queue (ft)	52	47	175	58
Average Queue (ft)	23	9	43	6
95th Queue (ft)	49	31	113	32
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	24	112	69	272	84	134
Average Queue (ft)	8	55	33	156	49	65
95th Queue (ft)	28	117	68	276	99	132
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					1	1
Queuing Penalty (veh)					4	1

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	31	115	69	310	141	161
Average Queue (ft)	6	47	26	123	50	66
95th Queue (ft)	25	96	58	255	105	136
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					1	1
Queuing Penalty (veh)					2	1

Intersection: 1804: Pearl Street & N. Willamette Street, All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	31	124	74	349	148	176
Average Queue (ft)	7	49	28	131	49	66
95th Queue (ft)	25	102	61	263	104	135
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					1	1
Queuing Penalty (veh)					3	1

Intersection: 1806: Pearl & Industrial, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	111	115	116	204	226	168	26	256	137	148	93
Average Queue (ft)	45	62	72	129	105	85	5	167	81	92	56
95th Queue (ft)	113	123	124	214	218	172	24	274	135	147	96
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				6	2			5			
Queuing Penalty (veh)				7	4			1			

Intersection: 1806: Pearl & Industrial, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	115	129	118	205	198	165	60	278	158	157	145
Average Queue (ft)	37	60	54	92	73	65	7	132	76	84	51
95th Queue (ft)	95	117	103	179	152	127	33	240	135	142	109
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				4	1			2			
Queuing Penalty (veh)				4	1			0			

Intersection: 1806: Pearl & Industrial, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	131	145	131	210	267	187	60	294	158	171	145
Average Queue (ft)	39	61	59	101	81	70	6	141	77	86	52
95th Queue (ft)	100	118	110	191	172	140	31	251	135	144	107
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				5	1			3			
Queuing Penalty (veh)				5	2			0			

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	21	16	35	64
Average Queue (ft)	4	3	26	38
95th Queue (ft)	22	23	48	72
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	11	10	50	88
Average Queue (ft)	1	0	25	38
95th Queue (ft)	7	6	52	67
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	22	28	50	95
Average Queue (ft)	1	1	25	38
95th Queue (ft)	12	12	51	68
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty, Interval #1: 16
Zone wide Queuing Penalty, Interval #2: 9
Zone wide Queuing Penalty, All Intervals: 11

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	87	92	107	87
Average Queue (ft)	52	54	54	24
95th Queue (ft)	89	94	110	102
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	100	92	144	82
Average Queue (ft)	42	45	50	9
95th Queue (ft)	75	77	112	46
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	109	97	145	108
Average Queue (ft)	45	47	51	13
95th Queue (ft)	79	82	111	64
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	25	95	98	323	179	340
Average Queue (ft)	6	59	51	165	122	137
95th Queue (ft)	25	99	93	300	208	398
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						3
Queuing Penalty (veh)						14
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					25	2
Queuing Penalty (veh)					94	3

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	26	118	89	275	204	343
Average Queue (ft)	5	46	36	129	87	73
95th Queue (ft)	21	93	70	246	170	200
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					9	1
Queuing Penalty (veh)					30	1

Intersection: 1804: Pearl Street & N. Willamette Street, All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	30	119	111	349	204	423
Average Queue (ft)	5	49	40	137	95	88
95th Queue (ft)	22	96	77	262	183	264
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						1
Queuing Penalty (veh)						4
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					13	1
Queuing Penalty (veh)					46	2

Intersection: 1806: Pearl & Industrial, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	91	124	115	212	266	170	128	238	114	122	95
Average Queue (ft)	50	77	74	131	143	86	53	114	70	78	50
95th Queue (ft)	95	128	123	213	270	178	110	244	119	123	93
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				9	9			1			
Queuing Penalty (veh)				15	16			1			

Intersection: 1806: Pearl & Industrial, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	120	127	133	210	257	156	127	212	128	129	146
Average Queue (ft)	44	62	64	112	104	59	50	83	66	68	50
95th Queue (ft)	100	116	120	201	203	122	104	161	113	112	101
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				6	4			0			
Queuing Penalty (veh)				9	6			0			

Intersection: 1806: Pearl & Industrial, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	120	133	136	220	284	181	140	280	133	130	148
Average Queue (ft)	45	66	66	117	114	66	51	90	67	71	50
95th Queue (ft)	99	120	121	205	223	139	106	186	115	115	99
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				6	5			1			
Queuing Penalty (veh)				10	8			0			

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	28	43	107
Average Queue (ft)	8	6	26	62
95th Queue (ft)	39	45	52	111
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	42	41	49	86
Average Queue (ft)	4	2	23	42
95th Queue (ft)	24	23	50	72
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	52	52	113
Average Queue (ft)	5	3	24	47
95th Queue (ft)	28	29	50	85
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty, Interval #1: 143
Zone wide Queuing Penalty, Interval #2: 46
Zone wide Queuing Penalty, All Intervals: 70

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LR	LTR	LTR
Maximum Queue (ft)	34	214	22	76
Average Queue (ft)	18	112	6	23
95th Queue (ft)	42	277	34	91
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LR	LTR	LTR
Maximum Queue (ft)	44	148	12	94
Average Queue (ft)	15	60	1	16
95th Queue (ft)	44	111	7	66
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LR	LTR	LTR
Maximum Queue (ft)	44	225	28	112
Average Queue (ft)	16	73	2	18
95th Queue (ft)	44	172	17	73
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	21	86	103	372	176	187
Average Queue (ft)	5	54	54	189	111	76
95th Queue (ft)	22	86	105	400	181	171
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					15	1
Queuing Penalty (veh)					57	2

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	36	93	98	287	168	208
Average Queue (ft)	7	40	40	132	76	66
95th Queue (ft)	28	83	82	262	148	166
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					5	1
Queuing Penalty (veh)					16	2

Intersection: 1804: Pearl Street & N. Willamette Street, All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	36	98	120	392	182	230
Average Queue (ft)	6	43	43	146	85	68
95th Queue (ft)	25	85	89	304	160	167
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					7	1
Queuing Penalty (veh)					26	2

Intersection: 1806: Pearl & Industrial, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	116	133	141	199	253	159	20	202	128	126	82
Average Queue (ft)	56	75	75	122	141	83	4	112	73	78	42
95th Queue (ft)	116	141	142	219	279	173	20	189	126	134	74
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				6	6			1			
Queuing Penalty (veh)				11	11			0			

Intersection: 1806: Pearl & Industrial, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	116	220	131	215	249	144	34	186	136	126	128
Average Queue (ft)	40	64	55	96	99	52	4	87	68	75	47
95th Queue (ft)	92	151	105	187	192	117	20	155	120	118	94
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				4	3			0			
Queuing Penalty (veh)				6	4			0			

Intersection: 1806: Pearl & Industrial, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	137	220	148	215	294	169	34	213	148	137	133
Average Queue (ft)	44	67	60	102	109	60	4	93	69	75	46
95th Queue (ft)	99	149	116	196	219	135	20	165	122	122	80
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				5	4			0			
Queuing Penalty (veh)				8	6			0			

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	60	48	313
Average Queue (ft)	19	9	30	208
95th Queue (ft)	92	59	59	421
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	50	42	60	237
Average Queue (ft)	5	2	24	95
95th Queue (ft)	26	21	53	186
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	90	71	66	329
Average Queue (ft)	8	4	25	122
95th Queue (ft)	50	34	55	276
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty, Interval #1: 82
Zone wide Queuing Penalty, Interval #2: 29
Zone wide Queuing Penalty, All Intervals: 42

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	87	92	107	87
Average Queue (ft)	52	54	54	24
95th Queue (ft)	89	94	110	102
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	100	92	144	82
Average Queue (ft)	42	45	50	9
95th Queue (ft)	75	77	112	46
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1802: W. Van Duyn St & N. Willamette Street, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	109	97	145	108
Average Queue (ft)	45	47	51	13
95th Queue (ft)	79	82	111	64
Link Distance (ft)	462	500	759	1274
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #1

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	25	95	98	323	179	340
Average Queue (ft)	6	59	51	165	122	137
95th Queue (ft)	25	99	93	300	208	398
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						3
Queuing Penalty (veh)						14
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					25	2
Queuing Penalty (veh)					94	3

Intersection: 1804: Pearl Street & N. Willamette Street, Interval #2

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	26	118	89	275	204	343
Average Queue (ft)	5	46	36	129	87	73
95th Queue (ft)	21	93	70	246	170	200
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						0
Queuing Penalty (veh)						0
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					9	1
Queuing Penalty (veh)					30	1

Intersection: 1804: Pearl Street & N. Willamette Street, All Intervals

Movement	EB	WB	WB	NB	SB	SB
Directions Served	LTR	LT	R	LTR	L	TR
Maximum Queue (ft)	30	119	111	349	204	423
Average Queue (ft)	5	49	40	137	95	88
95th Queue (ft)	22	96	77	262	183	264
Link Distance (ft)	349	238	238	1496		570
Upstream Blk Time (%)						1
Queuing Penalty (veh)						4
Storage Bay Dist (ft)					105	
Storage Blk Time (%)					13	1
Queuing Penalty (veh)					46	2

Intersection: 1806: Pearl & Industrial, Interval #1

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	91	124	115	212	268	170	126	238	114	122	95
Average Queue (ft)	50	77	74	131	143	86	53	114	70	78	50
95th Queue (ft)	95	128	123	213	270	178	110	244	119	123	93
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				9	9			1			
Queuing Penalty (veh)				15	16			1			

Intersection: 1806: Pearl & Industrial, Interval #2

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	120	127	133	210	257	156	127	212	128	129	146
Average Queue (ft)	44	62	64	112	104	59	50	83	66	68	50
95th Queue (ft)	100	116	120	201	203	122	104	161	113	112	101
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				6	4			0			
Queuing Penalty (veh)				9	6			0			

Intersection: 1806: Pearl & Industrial, All Intervals

Movement	EB	EB	EB	WB	WB	WB	NB	NB	SB	SB	SB
Directions Served	L	T	TR	L	T	TR	L	TR	L	L	TR
Maximum Queue (ft)	120	133	136	220	284	181	140	280	133	130	148
Average Queue (ft)	45	66	66	117	114	66	51	90	67	71	50
95th Queue (ft)	99	120	121	205	223	139	106	186	115	115	99
Link Distance (ft)		685	685		731	731		813			1762
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	225			125			200		350	350	
Storage Blk Time (%)				8	5			1			
Queuing Penalty (veh)				10	8			0			

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #1

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	37	28	43	107
Average Queue (ft)	8	6	26	62
95th Queue (ft)	39	45	52	111
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, Interval #2

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	42	41	49	86
Average Queue (ft)	4	2	23	42
95th Queue (ft)	24	23	50	72
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 1826: Coburg Road & N. Coburg Road, All Intervals

Movement	EB	WB	NB	SB
Directions Served	LTR	LTR	LTR	LTR
Maximum Queue (ft)	62	52	52	113
Average Queue (ft)	5	3	24	47
95th Queue (ft)	28	29	50	85
Link Distance (ft)	795	1274	770	570
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Zone Summary

Zone wide Queuing Penalty, Interval #1: 143
Zone wide Queuing Penalty, Interval #2: 46
Zone wide Queuing Penalty, All Intervals: 70

ATTACHMENT G
ODOT CRASH DATA

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Van Duyn St from Willamette to 200 feet West of Coburg Bottom Loop Rd
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2011														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	0	1	0	0	1
2011 TOTAL	0	1	0	1	0	1	0	1	0	0	1	0	0	1
FINAL TOTAL	0	1	0	1	0	1	0	1	0	0	1	0	0	1

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Willamette St 200 ft South of Pearl St to Van Dyn St
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2010														
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2010 TOTAL	0	1	0	1	0	1	0	1	0	1	0	1	0	0
YEAR: 2009														
REAR-END	0	0	1	1	0	0	0	1	0	0	1	0	0	0
SIDESWIPE - OVERTAKING	0	0	1	1	0	0	0	0	1	1	0	0	0	0
2009 TOTAL	0	0	2	2	0	0	0	1	1	1	1	0	0	0
FINAL TOTAL	0	1	2	3	0	1	0	2	1	2	1	1	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Pearl Street from Willamette Street to Roberts Road (excluding ending intersections)
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2013														
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2013 TOTAL	0	1	0	1	0	2	0	1	0	1	0	1	0	0
YEAR: 2012														
ANGLE	0	1	0	1	0	1	0	1	0	1	0	1	0	0
TURNING MOVEMENTS	0	0	1	1	0	0	1	0	1	1	0	1	0	0
2012 TOTAL	0	1	1	2	0	1	1	1	1	2	0	2	0	0
YEAR: 2010														
TURNING MOVEMENTS	0	1	0	1	0	4	0	1	0	0	1	1	0	0
2010 TOTAL	0	1	0	1	0	4	0	1	0	0	1	1	0	0
FINAL TOTAL	0	3	1	4	0	7	1	3	1	3	1	4	0	0

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Coburg Bottom Loop Road & Coburg Road
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2012														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	1	0	1	0	1	0	1
TURNING MOVEMENTS	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2012 TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	1
FINAL TOTAL	0	1	1	2	0	1	0	2	0	2	0	2	0	1

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OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Willamette Street & Van Duyn Street
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR:														
TOTAL														
FINAL TOTAL														

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Willamette Street & Pearl Street
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF-ROAD
YEAR: 2010														
FIXED / OTHER OBJECT	0	1	0	1	0	1	0	0	1	1	0	1	0	0
TURNING MOVEMENTS	0	1	0	1	0	1	0	1	0	1	0	1	0	0
2010 TOTAL	0	2	0	2	0	2	0	1	1	2	0	2	0	1
FINAL TOTAL	0	2	0	2	0	2	0	1	1	2	0	2	0	1

Disclaimer: A higher number of crashes may be reported as of 2011 compared to prior years. This does not reflect an increase in annual crashes. The higher numbers result from a change to an internal departmental process that allows the Crash Analysis and Reporting Unit to add previously unavailable, non-fatal crash reports to the annual data file. Please be aware of this change when comparing pre-2011 crash statistics.

OREGON DEPARTMENT OF TRANSPORTATION - TRANSPORTATION DEVELOPMENT DIVISION
TRANSPORTATION DATA SECTION - CRASH ANALYSIS AND REPORTING UNIT
CRASH SUMMARIES BY YEAR BY COLLISION TYPE

Coburg Industrial Way & Pearl Street
January 1, 2009 through December 31, 2013

COLLISION TYPE	FATAL CRASHES	NON-FATAL CRASHES	PROPERTY DAMAGE ONLY	TOTAL CRASHES	PEOPLE KILLED	PEOPLE INJURED	TRUCKS	DRY SURF	WET SURF	DAY	DARK	INTER-SECTION	INTER-SECTION RELATED	OFF ROAD
YEAR: 2013														
TURNING MOVEMENTS	0	1	0	1	0	2	0	1	0	1	0	1	0	0
2013 TOTAL	0	1	0	1	0	2	0	1	0	1	0	1	0	0
YEAR: 2012														
REAR-END	0	0	1	1	0	0	0	1	0	1	0	1	0	0
2012 TOTAL	0	0	1	1	0	0	0	1	0	1	0	1	0	0
YEAR: 2010														
TURNING MOVEMENTS	0	1	0	1	0	4	0	1	0	0	1	1	0	0
2010 TOTAL	0	1	0	1	0	4	0	1	0	0	1	1	0	0
FINAL TOTAL	0	2	1	3	0	6	0	3	0	2	1	3	0	0

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MECHAM Milo R

To: MECHAM Milo R
Subject: FW: Coburg UGB Expansion Analysis WORD DOCUMENT
Attachments: Coburg UGB Expansion analysis with edits.doc; coburg ugb map.pdf

From: Howard, Gordon [mailto:gordon.howard@state.or.us]
Sent: Wednesday, May 21, 2014 9:12 AM
To: CALLISTER Jacob (LCOG)
Cc: MOORE ED (LCOG List); HOGUE Thomas (OR)
Subject: RE: Coburg UGB Expansion Analysis WORD DOCUMENT

Hello Jacob, I have attached my revisions to the UGB locational analysis. The main changes I have made are 1) revising the Goal 14 factor analysis to reflect the 4 locational goals in the current Goal 14 rather than the seven such goals in the pre-2005 Goal 14; and 2) Additional justification of the preferred alternatives based upon the methods set forth in the "McMinnville" Court of Appeals decision in 2011.

Some comments:

The residential locational analysis presents an interesting "test case" of how to apply the "McMinnville" locational analysis. Coburg's preferred alternative is eminently defendable from a practical city-building perspective, but more difficult to justify when put into the more rigid framework of the state urban growth boundary laws. I believe that what I have presented here makes the best possible case for justifying Coburg's decision – but I think additional "on-the-ground" evidence in the form of findings would be desirable to back up the more broad assertions I have included in the edits.

The employment locational analysis is more straight-forward – the choice fits in well with the required locational analysis. However, there remains one paradox – the cost of extending services across the freeway is a primary reason why additional east of freeway study areas weren't included for residential land need, but the employment land need discounts this issue and selects this parcel.

Additionally, I would note, as we discussed last Wednesday, that the EOA's determination of any kind of industrial land need in Coburg, which is not based upon past trends but instead upon future economic "aspirational" projections, may be subject to legal attack as has occurred in other cities in Oregon.

Finally, I would note that the amount of land to be added – over 100 acres – is far in excess of the amount of land need identified (maximum 40 acres). I understand the concern about "cutting off" part of this agricultural property from unified ownership to the north, so I would suggest an alternative inclusion, as shown on the attached map. The revised area, while long and rectangular, would be divided into two parcels that are less so, and the remaining property would still be connected with the ownership to the north. Without such action, I think the employment land proposal would easily succumb to a legal challenge. And any thought of designating this property as "highway commercial" would be opposed by the department and most likely other parties, and would also easily succumb to a legal challenge.

Please let me know if you have any questions.

Gordon Howard | Urban Planning Specialist
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Oregon Dept. of Land Conservation and Development
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