South Lewis County Subarea Transportation Plan / South Lewis County Subarea Plan Transportation Element

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Prepared for:

Lewis County

Lewis County, WA

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EXECUTIVE SUMMARY

During 2008 -09, Lewis County evaluated existing (2008) and future (2030) traffic conditions within the South Lewis County Subarea. CONSULTANTS (Perteet, Inc. and Cook Engineering and Development Services PLLC) developed transportation improvement plans (TIPs) for three planning years: 2014, 2020 and 2030. These TIPs identify necessary system improvements (segments and intersection) to maintain the County's current level of adopted service D. This study was developed in collaboration with the subarea planning process and land use planning stakeholders. It defines the concurrency when evaluating associated traffic congestion to planning years 2014, 2020 and 2030.

This transportation element evaluates the effort for consistency within identified Countywide Planning Policies and the Transportation Element of the County's adopted land use plan. It also identifies necessary funding sources for TIPs and the means whereby funding is generated. Where necessary, new policies are identified that will require assimilation into the County's exiting Transportation Element. This plan also identifies cost per square foot of gross area for two land use designations: commercial and industrial. Cost per new housing unit is also indentified consistent with provided TIPs.

Appendices summarize study results for the three planning years: 2014, 2020 and 2030. Two alternatives for maintaining operational LOS are provided: signals and roundabouts. Detailed analysis is available from Lewis County Department of Public Works. Project contact is Mr. Erik Martin, PE, County Traffic Engineer.

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CHAPTER 1: INTRODUCTION

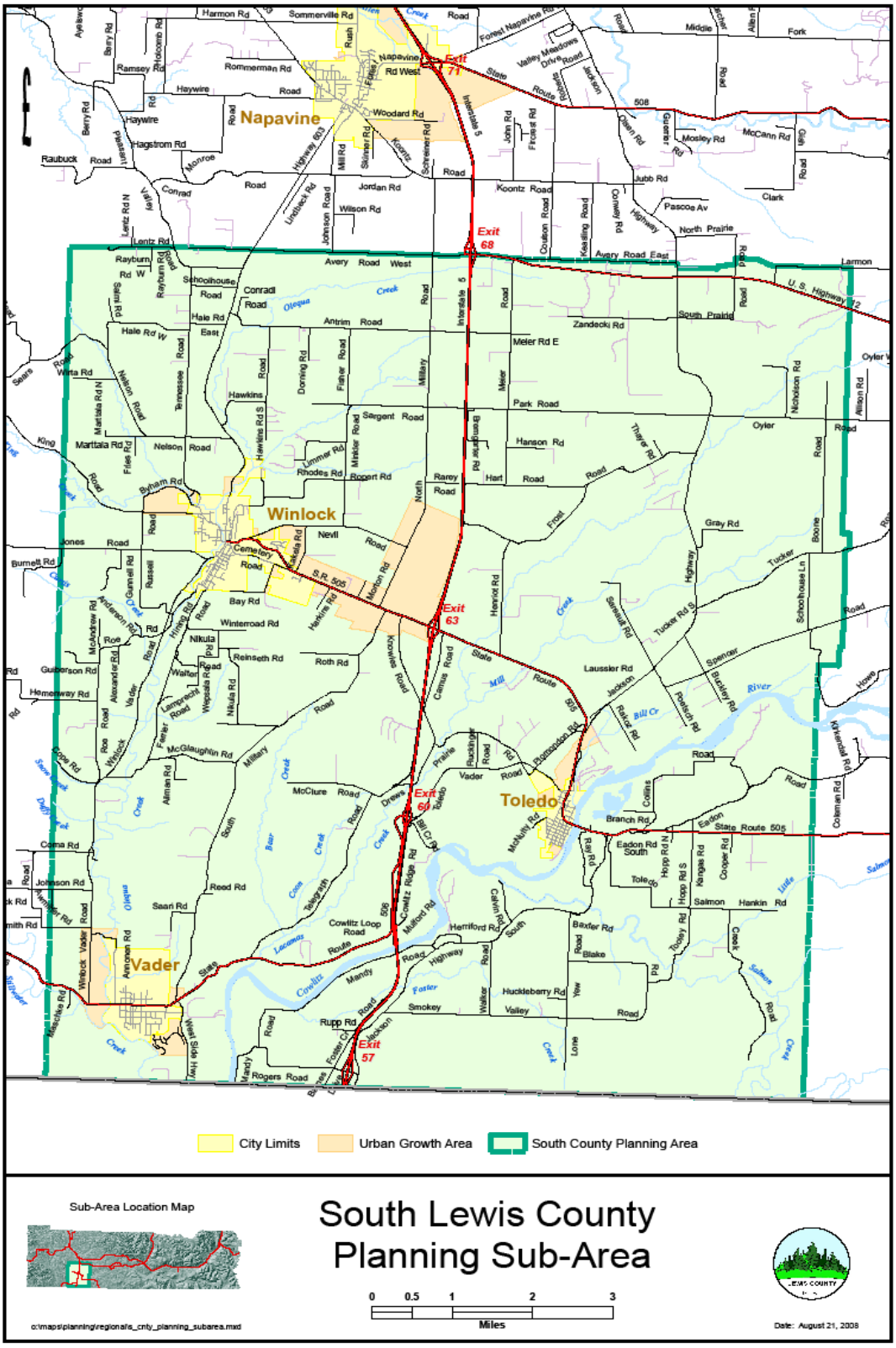
1.1 Subarea Plan and Process

1.1.1 Plan

This plan was developed using several cooperative planning efforts. During 2008, Lewis County Department of Community Development (Planning) began work on creating a subarea plan for south Lewis County. This work creates a larger effort around the transportation work began by Lewis County Public Works in 2007 for the same geographic area. While initial transportation efforts outpaced planning efforts, the transportation work was later tied to the subarea process by timeline to ensure complete integration of Planning's efforts. A map depicting the agreed upon[1] geographic boundaries of the subarea is presented below in Figure 1.

[1] Stakeholder meeting No. 1 – April 28, 2008. Appendix C – EnviroIssues meeting notes – S. Lewis County SR 505 Transportation Infrastructure Strategic Plan – March 2010.

Figure 1
Map of the South Lewis County Subarea Geographic Boundaries



The plan provides guidance for how selecting regions within the subarea that were likely capable/desired of supporting more intensive future land use. This transportation element has been developed in coordination with the land use planning effort to provide the maximum amount of support for future land use decision making. The planning effort incorporated watershed level land screening (Washington State Department of Ecology and Washington State Department of Fish and Wildlife) that identified high value water recharge and habitat areas within subarea boundaries. The lands were overlaid in the subarea and correlated to likely areas of more intensive future land use. Subarea stakeholders then identified preferred areas for future development balancing (to the extent practicable) environmental and economic factors when identifying lands for future land use intensification. These lands formed the basis for transportation analysis within the subarea. The transportation plan generated traffic within identified areas of future land use and generates travel demand. Operational analysis was performed on the subarea's transportation network for several planning year horizons: 2008 (existing conditions), 2014, 2020 and 2035 (five years beyond the planning horizon for the land use plan). 2035 was selected to address potential interchange issues associated with Interstate 5 Exit 63, located near the heart of the subarea).

1.1.2 Process

Supporting the planning process, two separate stakeholders groups were formed: one group focusing on land use and the other focusing on transportation. Each group was supported by a team of consultants. The land use planning team was led by BHC Consultants and the transportation team by Perteet, Inc. Both groups were kept informed of each other's progress and noticed of any decisions likely to affect one another's final products/results. Transportation members were largely represented by members of the planning group with the exception of the Washington State Department of Transportation (WSDOT). Each team conducted public outreach and public meetings to keep area residents informed of each team's efforts. Local decision makers were briefed during the course of the subarea planning effort to maximize potential for future adopting actions. Regular stakeholder meetings were conducted with both groups to provide staff and consultant feedback on various elements of the plan's work products.

It is anticipated that the subarea plan will be used to identify likely areas for more intense future development and identify likely transportation improvements necessary for supporting future land use decisions.

1.2 Growth Management Act Requirements

The transportation element of the South Lewis County Subarea Plan is required by the Growth Management Act (GMA) to encourage multi-modal transportation systems that are based on regional priorities and coordinated with county and city comprehensive plans. This transportation element has to be consistent and supportive of land use as depicted in Lewis County's adopted comprehensive plan. Guidance is provided within the act (GMA) on what components the transportation element should contain, including:

- Land use assumptions used in estimating travel demand
- Consistency with county-wide and regional transportation plans

- Internal consistency of county comprehensive plan elements
- Level of service (LOS) standards adopted for use and actions necessary to allow transportation facilities and services to function at adopted LOS on local roadways and along state highway routes (RCW 47.06.140)
- Multi-year financing strategy balancing needs against available funding
- Intergovernmental coordination of regional transportation facilities
- Any strategies for reducing travel demand

The GMA mandates that new development cannot occur unless transportation infrastructure is in place to accommodate the increased demand or that the infrastructure will be built "concurrent" with the development.

This plan recognizes where existing or forecast deficiencies in the transportation network will likely occur and identify necessary solutions to meet capacity demands. The plan provides a capital improvement plan at several key planning horizon years supporting six year planning cycles associated with Lewis County Public Works Department.

1.3 Subarea Background

During fall 2005, the City of Winlock, WA issued a final environmental impact statement (FEIS) for amending its comprehensive growth management plan and related land use and planning actions. The document supported the City's UGA expansion towards Interstate 5 in Lewis County, WA. The City prevailed in its efforts to create new industrial and commercial lands along SR 505 and Interstate 5.

The transportation component of the City's FEIS forecast significant increases in traffic demand over the 20-year period of evaluation. Lewis County Public Works, anticipating potential traffic impact in the area, worked with Washington State Department of Transportation (WSDOT) staff from the southwest region to secure a 2004 federal transportation earmark ("Widen I5 in Lewis County"). The county included traffic studies in its six-year transportation plan and wrote a project prospectus with WSDOT to begin traffic analysis for the SR 505 corridor from the City of Winlock to the City of Toledo.

In 2007, several large potential land developers expressed interest in the newly designated industrial and commercial lands within Winlock's UGA. All of the developers expressed concerns regarding the lack of public right of way accessing key properties north of SR 505. The City of Winlock, working with an area property owner, contracted with an area-engineering firm to design a future public roadway from SR 505 (extension of Knowles Road) through property formally known as "Mickelsen Dairy". The design supported the establishment of public right of way over the route for future roadway construction. Establishing this key transportation link is anticipated to encourage future development of Winlock's industrial/commercial land bank. Owing to the subarea's location (midway between the urban centers of Seattle, WA and Portland, OR along the Interstate 5 transportation corridor), development beyond Winlock's UGA is likely.

As the likelihood for area development increases, deteriorating levels of service at intersections and segments along SR 505 and county arterial/collector roadways is inevitable. It is believed that identifying future transportation improvements, assigning planning levels costs to the improvements and developing a financing strategy for the improvements will assist developers seeking to sight operations within the subarea. The initial SR 505 corridor plan (milepost 0.0 to milepost 6.8) was enlarged to include county arterial and collector roadways within the agreed upon geographic boundary (Figure 1, page 4). The Interstate 5 interchange at Exit 63 was evaluated to determine operational characteristics forecast for year 2035.

CHAPTER 2: GOALS, OBJECTIVES, AND POLICIES

2.1 Lewis Countywide Planning Policies

"Countywide Planning Policies for Lewis County" were adopted by Resolution 06-380 by the Board of County Commissioners on December 18, 2006. Thirteen planning policy elements exist with defined supporting actions:

1. Urban Growth (1.0 – 1.10.7)
2. Reduce Sprawl (2.0 – 2.6)
3. Transportation (3.0 – 3.11)
4. Housing (4.0 – 4.2)
5. Economic Development (5.0 – 5.9)
6. Property Rights (6.0 – 6.1)
7. Permits (7.0 – 7.3)
8. Natural Resource Industries (8.0 – 8.5)
9. Open Space and Recreation (9.0 – 9.4)
10. Environment (10.0 – 10.8)
11. Citizen Participation and Coordination (11.0 – 11.6)
12. Public Facilities and Services (12.0 – 12.6)
13. Historic Preservation (13.0 – 13.2).

The transportation element is stated as "Encourage efficient multi-modal transportation systems that are based on regional priorities and coordinated with County and City comprehensive plans".

Eleven stated actions exist (supporting the transportation goal) and are listed below. A brief description of how subarea actions fit into the transportation planning policy element is provided below each stated action.

3.0 The Transportation Element of the Comprehensive Plan should be designed to: 1) facilitate the flow of people, goods and services to strengthen the local and regional economy; and 2) conform with the Land Use Element of the Comprehensive Plan.

The SLCSTP (South Lewis County Subarea Transportation Plan) identifies new roadway connections to facilitate the movement of industrial and commercial goods within subarea boundaries. A new roadway (Mickelsen Parkway) specifically allows direct connection of industrial and commercial lands to SR 505 at the extension of Knowles Road. This eliminates the need for utilizing North Military Road for accessing SR 505.

3.1 Level of Service (LOS) standards and safety standards shall be established that coordinate and link with the urban growth and urban areas to optimize land use and traffic compatibility over the long term. New or expansion of existing private and public development shall mitigate transportation impacts concurrently with the development and occupancy of the project.

LOS standards adopted for the subarea are LOS D at intersections and along roadway segments. This standard is the currently adopted standard for Lewis County. This standard is one level above the standard currently adopted by WSDOT for SR 505.

3.2 The County and cities should coordinate agreements to cover situations where the impacts created by new or expanded existing private or public development affect adjoining jurisdictions such as between cities or between the County and cities.

Jurisdictions within the subarea are currently developing General Cooperative Agreement (GCA) adopting capital facilities plan(s) with funding strategies that maintain the adopted subarea LOS. Improvement cost per 1,000 SF of gross area for 2030 commercial and industrial land is identified. Improvement costs for new housing units are identified. Collection and management of development mitigation funding is identified in the GCA.

3.3 All-weather road systems that serve industrial and commercial areas shall be coordinated with state and local governments.

Jurisdictions within the subarea are adopting capital facility plans designed to mitigate increased travel demand resulting from future development (Cities of Vader, Toledo and Winlock, Lewis County and Washington State Department of Transportation).

3.4 Local jurisdictions should coordinate plans, programs and projects with regional, state and federal agencies to ensure consistency between land use development and transportation facilities.

Jurisdictions (Cities of Toledo, Vader and Winlock, Lewis County and WSDOT) are adopting a General Cooperative Agreement (GCA) that describes how mitigation costs are assigned, collected and managed funding necessary 2014, 2020 and 2030 improvements. The identified improvements maintain an operational level of service (LOS) D for intersections and along roadway segments.

3.5 State and local governments should ensure adequate road access to scenic and recreational areas, to accommodate local and tourist traffic.

SLCSTP adopts a LOS intended to maintain adequate access to scenic and recreational areas accommodating local and tourist traffic.

3.6 Airport authorities should maintain and improve airport facilities to safely accommodate current and future air service demands.

SLCSTP plan adopts land use that the jurisdictions have selected for land use development within the subarea to 2030. The plan's capital facility plan identifies necessary roadway improvements for mitigating 2030 forecast congestion.

3.7 State and local agencies should reduce conflicts between rail and vehicular traffic

wherever possible and support enhancement of rail and high-speed rail planning efforts in the region.

SLCSATP does not address the conflicts between rail and vehicular traffic nor support the enhancement of rail and high-speed rail planning efforts in the region.

3.8 The County and cities should encourage the use of alternative transportation modes, including mass transit, bicycles, and carpooling when developing improvement programs, designing new development and standards.

Jurisdictions within the subarea have adopted common urban design guidelines (with the exception of the City of Vader) that provide urban amenities in all UGA lands such as curb/gutter and sidewalks. The guidelines provide for future multi-modal elements such as bus pullouts and bike lanes.

3.9 Cost effectiveness shall be a consideration in transportation expenditures decisions and a balance established for both safety and service improvements.

During plan development, cost options were developed and evaluated by the jurisdictions balancing LOS and cost effectiveness. The SLCSTP capital facility plans (2014, 2020 and 2030) reflect that balance. Two separate 2030 mitigation strategies for SR 505 were evaluated: signalization/channelization and roundabouts with potentially divided highway segment (SB I5 Ramps to North Military Road). The alternatives were compared to determine the desired balance between expenditures and service improvements.

3.10 Local and State agencies should investigate a full range of actions when improving regional transportation facilities, including transportation systems and demand management programs to improve efficiency and mitigate environmental impacts.

The SLCSTP capital facility plan incorporates system improvements beyond those necessary for maintaining capacity LOS. An environmental screen was conducted for the SR 505 corridor and used for determining right of way demands and to predict likely sensitive areas impacted by the various capital facility plans. Individual demand management programs will be a likely outcome from individual land use applications through the SEPA review process.

3.11 State and local agencies should identify hazardous locations on the regional road system and target resources toward those goals.

The SLCSTP evaluates five years of collision data and identifies areas for future resource investment. The capital facility plan identifies specific projects and resources necessary to minimize existing and future hazards.

2.2 Lewis County Comprehensive Plan Transportation Element

In addition to countywide planning polices, the Lewis County Transportation Element contains separate goals, objectives and policies related to transportation. Ten goals are listed with supporting objectives and policies. A brief description of how subarea actions fit into defined objectives and policies of the County's transportation element are provided below each (objective/policy).

2.2.1 Transportation Element Goals, Objectives, and Policies

The Lewis County Transportation Element provides a framework document for the decision makers of the region to coordinate the transportation and land use elements of local comprehensive plans. This Element was developed to address the need to solve transportation problems that extend beyond individual jurisdictions throughout the County. It provides an assessment and strategy for addressing issues, such as economic development, urban traffic congestion, safety, the movement of goods, and access to tourist sites.

T GOAL: Improve County roads and bridges to current standards as funding allows.

The SLCSATP contains capital projects that improve county roads to current design standards.

T GOAL: The County should encourage the implementation of a safe, convenient and efficient transportation system.

Objective T1
Provide transportation facilities and improvements in relation to the needs and functions they are intended to serve.

Policy T 1.1
The size and design of transportation facilities and improvements should be appropriate for their anticipated needs and functions**.**

Objective T2
Develop strategies to ensure sufficient financing for the maintenance of all existing countywide transportation facilities.

Objective T3
Provide a transportation system that minimizes risk for all users of the county transportation system.

Policy T3.1
The transportation of hazardous waste should be limited to specific routes within the county, except for collection or delivery trips to local industrial and/or commercial sites.

Policy T3.2
Existing locations in the road system which have access management and/or safety problems

should be identified and corrective resources prioritized toward those locations.

Policy T3.3
The design of new transportation systems should have safety as a priority.

Policy T3.4
Support a road and walkway lighting program keeping with current illumination policy.

Objective T4
Manage growth of the transportation system in a way that minimizes adverse environmental impacts and enhances the quality of life for residents of the county.

Policy T4.1
Utilize sound and environmentally responsible design principals in roadway and transportation facility construction.

Policy T4.2
Transportation facility design should minimize adverse effects on sensitive natural features where feasible.

Policy T4.3
Where the location of transportation facilities will result in unavoidable environmental impacts, such impacts should be mitigated as far as is reasonable.

2030 Land use forecasts are utilized to develop travel demand within the SLCSTP. Mitigations are designed (Transportation Improvement Plan) to maintain LOS D for all federal functional classification designated rural codes (02, 06, 07 and 08). Areas of safety concern are identified and provisions contained within the various TIPs (20104, 2020 and 2030) to mitigate identified concerns. Urban standards are adopted that provide for illumination of all new roadways and for roadways indentified for improvement within the TIP. Access issues are identified and management strategies are contained within TIP projects. TIP projects are designed to maximize the transport of freight and motorized traffic while minimizing roadway footprint in an attempt to minimize impacts to identified sensitive areas. Where impacts to sensitive areas cannot be avoided, it is anticipated that environmental mitigations will be assigned to TIP projects that may include both on and offsite mitigations.

T GOAL: Facilitate coordination between land use and transportation planning between and within different jurisdictions.

Objective T5
Provide an intermodal transportation system.

Policy T5.1
Encourage the development of uniform design standards for the county transportation system.

Policy T5.2

Establish a development review procedure to aid in the preservation of county-wide significant transportation corridors.

Policy T5.3
Coordinate plans, programs and projects with local, regional, state and federal agencies to ensure consistency between land use development and transportation facilities on a regional basis.

Policy T5.4
Offer data on county transportation facilities to local governments to aid in the evaluation of transportation impacts resulting from development. This includes development and maintenance, in cooperation with other local agencies, of a county-wide transportation model.

Policy T5.5
Encourage citizen input in planning traffic safety improvements so as to better serve area residents.

The SLCSTP is developed concurrently with land use stakeholders to ensure maximum coordination between land use and transportation improvement planning. Common urban design standards are available for all incorporated cities in the subarea for UGA implementation. The county's transportation model (EMME) is updated as part of the transportation planning effort and used to develop subarea travel demand for several planning year horizons: 2014, 2020 and 2035. Several public outreach events were conducted during the planning process. Collision data was distributed at each public outreach event and information was collected from area residents regarding areas of special concern.

T GOAL: Land use development and redevelopment should be coordinated and balanced with the transportation facilities needed to support them.

Objective T6
Develop a transportation system that equitably addresses the needs of resource, rural, urban lands, and critical areas.

Policy T6.1
Obtain right-of-way for new roadways or the improvement of existing roadways should be obtained prior to or concurrent with development.

Policy T 6.2
Permit new development only when required transportation improvements have been made prior to or concurrent with construction.

Concurrency is at the core of the SLCSTP. Acquisition of necessary right of way is forecast within each of the TIP improvement projects. By containing multiple TIP plans (2014, 2020 and 2035), implementing agencies have the ability to identify right of way demand ahead of LOS breaks. Adopting LOS D as the subarea service level ensures consistency with currently adopted jurisdictional standards.

T GOAL: Preserve and enhance the existing county-wide transportation roadway network.

Objective T7
Strive to provide adequate local routes connecting commercial and industrial lands with the county and regional road system.

Policy T7.1
Strive to provide sufficient funds to construct and maintain routes serving rail, air and port facilities. This support should be at a level of service to support present and future demands on commodity movements and should come from all levels of public and private agencies.

Policy T7.2
Establish priorities and determine needed alignments for routes that serve economic development opportunities.

Policy T 7.3
Identify and assess resources to improve a core system of all-weather roads to move natural resource commodities.

Several new connecting roadways to SR 505 and to key local roadways are contained within SLCSTP TIPs. The roadways are designed to create maximum connectivity to industrial and commercial lands and SR 505/Interstate 5. Identified improvements contained in the TIPs will likely assist in the increased mobility for natural resource commodities.

TGOAL: Provide adequate capacity and safety, to accommodate demand for air service, at county airports.

Objective T8
Coordinate with regional and state agencies to fulfill state-wide needs for the potential siting of new facilities for international cargo and passenger air travel.

Policy T8.1
Cooperate with Airport Authorities to ensure that there are appropriate ground transportation links, at county airports, to accommodate passengers, cargo and other services.

Policy T8.2
Observe FAA standards for development in airport areas, including height limitations, noise mitigation, and land use considerations.

Policy T8.3
Discourage residential development in airport approach zones or in other high noise areas around airports.

SLCSTP land use is developed to take advantage of potential future development opportunities created by the Toledo airport. 2020 and 2030 travel demand forecasts generate mitigations

associated with each planning year horizon. These mitigations are contained in 2020 and 2030 TIPs. Future development of this area (Toledo Airport) is largely responsible for the forecast future signalization of the Jackson Highway/Plomondon/SR 505 intersection.

T GOAL: Preserve and improve existing rail corridors and facilities.

Objective T9
Maintain sufficient rail capacity and storage to accommodate rail freight traffic while supporting passenger service within the rail corridor.

Policy T9.1
Reduce conflicts between rail and vehicular traffic wherever practical, particularly through the implementation of safe crossings.

Policy T9.2
Work with rail interests to increase rail capacity to meet current and future rail car storage demands.

Policy T9.3
Identify options to mitigate impacts of urban congestion on freight movement around the I-5 corridor. Transportation system management measures should be implemented as appropriate.

Policy T9.4
Work closely with cities and individuals to ensure that implementation of the high-speed rail corridor upgrade is fair and considers the safety and local access impacts in small communities.

Improvements forecast for SR 505 will improve abilities to move potential rail freight from the City of Winlock UGA to Interstate 5. If a future rail yard is developed for the City of Winlock or vicinity, additional improvements to SR 505 may be warranted.

TGOAL: Plan and develop a multi-modal county transportation system that will enhance access and mobility for users of all modes of travel to major destinations in the county.

Objective T10
Encourage the use of alternative transportation modes to decrease reliance on the private automobile

Policy T10.1
Provide adequate facilities and services for alternative transportation modes by identifying specific corridors and alignments and protecting needed right-of-way.

Policy T10.2
Help transit agencies and WSDOT as they create options for alternative transportation modes, mass transit, and car/van pools.

Policy T10.3
Coordinate alternative transportation mode planning with other jurisdictions.

Policy T10.4
Encourage and facilitate the use of alternative means of travel by linking activity centers with such things as pedestrian walkways and bicycle paths.

Policy T10.5
Assure that all citizens, including low-income individuals, people with disabilities and other disadvantaged individuals, have access to basic transportation services.

Policy T10.6
Encourage local and regional transportation systems which contribute to the provision of basic transportation services, enhance mobility of the community, promote energy conservation, and relief from future traffic congestion.

Policy T10.7
The County should encourage consistency and uniformity of standards in the multi-modal county transportation system.

Common urban design standards are available for all agencies partners to the SLCSTP. These standards include sidewalks for all TIP projects within UGA lands. The sidewalks will provide safe pedestrian access along the SR 505 corridor serving all of the City of Winlock's UGA. The standards include guidance for mass transit (bus service) stations anticipated (future years) in the SR 505 corridor between the cities of Toledo, Vader and Winlock. One improvement option for SR 505 2030 mitigations includes five foot bike lanes on each side of SR 505 from MP 2.2 (North Military Road) to MP 3.1 (relocated I5 NB Ramps).

T GOAL: Establish land uses and urban patterns that support public transportation and promote ridership.

Objective T11
Coordinate land use decisions with existing and planned public and quasi-public transportation services.

Policy T11.1
Plan for higher density land uses along public transportation corridors.

Policy T11.2
Assist transit agencies to explore options to link public transit systems across the county.

Policy T11.3
Consider incorporation of the work of the Lewis County Rural Transit Plan into future public transportation decision making.

Policy T11.4

Encourage park-and-ride lots at suitable, convenient locations.

Objective T12
Encourage the establishment of safe pedestrian and bicycle access throughout the county as part of the non-motorized circulation system.

Policy T12.1
Strive to site an alternative route along a parallel corridor where implementation of a pathway on the county road system is not feasible.

Policy T12.2
Encourage safe and convenient pathways and crossings at hazardous locations along county-wide travel corridors.

Policy T12.3
Consider construction of safer and more convenient pathways in future County improvement projects that are constructed on the designated regional bicycle system.

Policy T12.4
Design and develop pedestrian and bicycle paths as funding priorities allow.

Policy T12.5
Develop criteria for determining the need for and location of pedestrian facilities within unincorporated urban areas.

Forecast TIP improvement projects provide increased opportunities for public transportation. Common design guidelines ensure consistency for service providers who might be attracted to deploying service to the area. Multiple TIP planning horizon years (2014, 2020 and 2035) create opportunities for incorporating potential service provider needs into the TIP process ahead of final design and construction. While not part of this plan, it is anticipated that roadway improvements contained in various TIPs may likely stimulate additional planning efforts to connect rural pedestrian facilities to the SR 505 corridor between the cities of Toledo and Winlock. One improvement scenario for SR 505 2035 mitigations includes five foot bike lanes on each side of SR 505 from MP 2.2 (North Military Road) to MP 3.1 (relocated I5 NB Ramps).

T GOAL: Provide the means by which the adequacy of the County road system is measured to assure that adequate facilities are present or planned and funded at the time of development.

Objective T13
Maintain Level of Service (LOS) standards consistent with current County road standards and with the goals, objectives, and policies of this Comprehensive Plan.

Policy T13.1
Have transportation facilities either in place, or planned and funded to be in place within six years of any development, to assure that the County maintains concurrency between planned

growth and needed facilities.

Policy T 13.2
Assure that projects which cannot meet the concurrency requirements of RCW 36.70A.060 (B) be prohibited to assure planned development not overwhelm existing facilities.

Policy T13.3
Make efficient use of existing facilities and assure that transportation LOS not be so narrowly defined that single or isolated network problems result in significant disruption, when reasonable alternatives are available or necessary. Thus, the County will look at corridor wide measures of service, rather than single movement or intersection measures, where reasonable alternatives are available.

Policy T13.4
Encourage the improvement of existing facilities, even where overall regional facilities are not in place.

Policy T13.5
Use the Institute of Traffic Engineers A-F traffic performance scale, in connection with the TModel 3 calculations for purposes of identifying both need and priority for county funding and construction of transportation capacity enhancement projects on State Routes and major county roadways.

Policy T13.7
Encourage the efficient use of existing facilities and to avoid dislocations caused by artificial or overly narrow assessment of traffic deficiency at a specific location when the overall system is able to accommodate traffic. For this reason, concurrency in Lewis County for arterials shall be determined as follows:

1. The peak hour shall include the peak commute hour and the next highest hour adjacent to the peak commute hour.

2. The concurrency measure shall apply to state routes and major county roadways and be calculated on a corridor basis. A corridor is defined as including the principal routes and affected intersections, together with associated routes and intersections that provide reasonable alternatives for the expected trips. The LOS for concurrency purposes is measured on a corridor average and not any single facility within the corridor. The level of service shall be calculated on the basis of the total traffic carrying capacity of the corridor, when measured against the total traffic potentially using the corridor. The level of service for deficiency purposes for both urban and rural areas shall be when the overall average applied to state routes and major county roadways for the entire corridor falls below LOS "D".

3. The concurrency measure shall also include transportation demand management strategies, transportation alternatives, and pro-rata participation. Where a project will affect a corridor which is at or below the measured LOS as provided in 1 and 2 above,

but will pay, in whole or in part, for facilities which will improve safety or the flow of traffic, or fund a pro-rata share of a planned bypass or alternate and meets County objectives for housing or economic development, the project shall be considered consistent with these goals and policies and may be approved.

4. The County shall adopt specific development regulations to implement 1-3 above.

Policy T13.8
State Facility LOS and Concurrency -Follow the LOS for state facilities as adopted pursuant to RCW 47.06 and 47.80 and to prioritize its Transportation Plan accordingly.

Policy T13.9
State Facility LOS and Concurrency -Where state funding is not adequate to meet state-mandated levels of service on highways of state significance, it is the policy of Lewis County to encourage new development to occur in locations which promote the overall goals of the comprehensive plan and to participate in traffic mitigation programs to reduce or mitigate impacts, to the extent practical, and to participate in local efforts to identify and develop reasonable alternatives.

The SLCSTP contains traffic impact analysis for multiple planning years: 2014, 2020 and 2030. Mitigations maintaining LOS D at study intersections (PM peak hour) and segments are included in various transportation improvement plans (2014, 2020 and 2035). The TIPs ensure concurrency along state and local transportation networks contained in the study area. Project funding is also presented as a portion of individual TIPs. Strategies limiting future travel demand are expected to be evaluated on an individual basis as projects petition land use applications through the State Environmental Policy Act.

2.3 SLCSTP Polices

C1: New growth shall pay for capacity improvements to SR 505 and locally impacted roadways.

C2: Traffic Impact Fees shall be developed for new commercial and industrial uses and assigned on the basis: per 1,000SF of gross area.

C3: Traffic Impact Fees shall be developed for new housing units (single and multi-family) and assigned on the basis: per unit.

C4: Lewis County shall implement and manage impact fee assignment, collection and expensing.

2.4 Implementation

2.4.1 Inter-local Agreements – Land Use

Lewis County has an inter-local agreement with the City of Winlock regarding implementation of

the city's development regulations within its UGA. The Cities of Toledo and Vader do not currently have a similar agreement with Lewis County.

Jurisdictions within the subarea are currently developing a General Cooperative Agreement defining implementation strategies for 2030 transportation improvements.

2.4.2 Development Guidelines

The city of Toledo is currently in the process of adopting common engineering guidelines governing development within UGAs. The model guidelines are those currently adopted by the City of Winlock. It is anticipated that the City of Toledo will substantially adopt the Winlock standards. The City of Vader has been given a set of Winlock standards and been invited to participate in a similar manner as was afforded the City of Toledo. Lewis County is expected to adopt the urban standards for use within the subarea. WSDOT will continue utilizing its "Design Manual" standards for any improvement or access to SR 505. Lewis County "Road Standards" are used for defining rural roadway improvements outside of subarea Urban Growth Areas.

2.4.3 Developer mitigations

SLCSTP partners agree that 2030 mitigations must be financed by new development. Partners agree that the funding vehicle shall be transportation impact fees. Impact fees are determined for new commercial and industrial land per 1,000 SF of gross area. New housing units (single and multi-family) are assigned impact fees based on a unit basis.

Financing
Each TIP (2014, 2020 and 2035) contains necessary improvement projects and offers various funding sources for each project listed on the TIP. Developer mitigation funding is identified in each TIP. TIP projects are eligible for listing within Lewis County's annual transportation improvement plan. A complete description of various TIP implementation strategies is contained in Appendix IV of this plan. A listing of transportation impact fee assignment per 1,000 SF of gross area and per new housing unit is provided in Appendix V of this plan.

APPENDIX I

TRANSPORTATION SYSTEM INVENTORY

The following summary is provided from "SR 505 Interchange/Corridor Plan Draft Existing Conditions Report", August 8, 2008; Perteet Inc with Cook Engineering and Development Services PLLC. A complete report is available at Lewis County Public Works, 360-740-1394.

Summary of Lewis County Subarea Roadways

Federal Functional Classification	Number of Roadway Miles	FFC Description
07	35.426	Rural Major Collector
08	12.183	Rural Minor Collector
09	134.451	Rural Local Access

APPENDIX II

EXISTING CONDITIONS (2008)

The following summary is provided from "SR 505 Interchange/Corridor Plan Draft Existing Conditions Report", August 8, 2008; Perteet Inc with Cook Engineering and Development Services PLLC. A complete report is available at Lewis County Public Works, 360-740-1394.

Land Use

Three incorporated cities reside within the identified boundaries of the South Lewis County Subarea Plan: Toledo, Vader and Winlock. All three cities maintain various land use zoning densities such as commercial, industrial and multi-family. Zoning of rural Lewis County land is predominantly: RDD-5, RDD-10 and RDD-20.

Roadway Characteristics

Two state routes are located within the subarea boundary (SR 505 and SR 506) and another (US HWY12) rests along the northern subarea boundary. The general topography for the area is rolling. Road grades generally do not exceed 10%. Right of way widths vary along the state routes and along local roadways from 60 (state and county routes) to 30 feet (within the cities of Toledo, Vader and Winlock). Seven Lewis County designated rural major collector roadways totaling approximately 35 miles and two minor collector roadways (approximately 12 miles) serve the subarea.

Collision History

Collision history along SR 505 (2003-2007) suggests rates that appear to exceed statewide averages for similarly classified routes. The collision types are those more akin to suburban roadway segments (side swipes and rear end collisions). Collision grouping appears at intersections west of Interstate 5 and particularly between the segment west of the southbound ramps to North Military Road. The data suggests that driver attention and potentially speed are suspect causes for a majority of the accidents reported during the study period.

Traffic Operations

All intersections are stop sign controlled with the exception of a traffic signal located at US HWY 12 and Jackson Highway. Posted speeds vary from a low of 25 mph (cities) to a high of 55 mph (SR 505). There is very little paved shoulder throughout most of the subarea with the exception of state routes and within the city corporate boundaries. All intersections along SR 505 currently provide operational service level C or higher, with most exhibiting B or higher. Volume/capacity ratios for roadway segments are all under 0.28, suggesting significant existing segment capacity.

Environmental Screening

An environmental screening was prepared for the SR 505 corridor using various Lewis County Geographic analysis layers. Three categories are identified: natural resources, natural hazards and the human environment. The 6.8 mile long corridor was evaluated 50 feet beyond edge of pavement. A summary of findings appears below.

- No DOE listed 303 (d) waters are located within four miles downstream of the corridor nor within one mile upstream of the corridor
- The study area is 84.8 acres

- Approximately 28 acres of impervious surface in the study area
- 1.6 acres of wetlands are located in the study area, with 8.9 acres of wetland buffer
- 25.6 acres of hydric soil are identified
- 16 stream crossing most of which are identified as supporting "fish"
- Three ESA listed fish species as being "Federal Threatened"
- Several priority habitats intersect the study area: Rocky Mountain and Roosevelt Elk, Spotted Owl and Pacific Salmon
- Natural hazards include: 100-year floodplain and 0.6 acres of steep slopes
- Human environment findings include: environmental justice breakdown, parks and recreation resources, cultural and historical resources and air quality

Access Permits at SR 505

The density of permits of records per mile along SR 505 approaches those common to more urban environments than those of rural Lewis County. This is particularly true from North Military Road to the City limits of Winlock. Access density east of Interstate 5 along SR 505 is consistent with rural densities. Access density increases from the city limits of Toledo to the bridge at the Cowlitz River.

APPENDIX III

FUTURE CONDITIONS (2014, 2020, AND 2035)

The following is a summary of future traffic conditions for various Lewis County roadways within the subarea. A complete future conditions report "Tech Memo IV", Perteet, January 2010, is available at Lewis Count y Public Works Department: contact Mr. Erik Martin, Lewis County Traffic Engineer at 360-740-1394.

The South Lewis County subarea traffic conditions were studied for three future year scenarios: 2014, 2020, and 2035. The 2008 Lewis County EMME travel demand model was used to develop traffic forecasts for the various future year land use scenarios. Selected Lewis County roadways were evaluated in terms of volume-capacity (V/C) ratios and intersection level of service (LOS A –F). LOS is defined below for roadway segments, signalized intersections and for unsignalized intersections.

Level of Service (LOS) Criteria for Roadway Segments[2]

A	Low volumes; primarily free-flow operations. Density is low, and vehicles can freely maneuver within the traffic stream. Drivers can maintain their desired speeds with little or no delay. **0.00 - 0.60**
B	Stable flow with potential for some restriction of operating speeds due to traffic conditions. Maneuvering is only slightly restricted. The stopped delays are not bothersome, and drives are not subject to appreciable tension. **0.61 - 0.70**
C	Stable operations; however, the ability to maneuver is more restricted by the increase in traffic volumes. Relatively satisfactory operating speeds prevail, but adverse signal coordination or longer queues cause delays. **0.71 - 0.80**
D	Approaching unstable traffic flow, where small increases in volume could cause substantial delays. Most drivers are restricted in their ability to maneuver and in their selection of travel speeds. Comfort and convenience are low but tolerable. **0.81 - 0.90**
E	Operations characterized by significant approach delays and average travel speeds of one-half to one-third the free-flow speed. Flow is unstable and potential for stoppages of brief duration. High signal density, extensive queuing, or progression/timing are the typical causes of the delays. **0.91 - 1.00**
F	Forced-flow operations with high approach delays at critical signalized intersections. Speeds are reduced substantially, and stoppages may occur for short or long periods of time because of downstream congestion. **1.010+**

[2] Source: Highway Capacity Manual, Transportation Research Board Number 212, January 1990.

Level of Service (LOS) Criteria for Signalized Intersections - LOS Average Delay per Vehicle

A	Very low control delay 10 or less seconds per vehicle; progression is very favorable; most vehicles arrive during green signal; most vehicles do not stop. Short cycle lengths may also contribute to low delay. Control delay greater than 10 and up to 20 seconds per vehicle; progression is good
B	Cycle lengths are short. More vehicles stop than for LOS A, causing higher levels of average delay. Control delay greater than 20 and up to 35 seconds per vehicle; progression is fair. Individual cycle failures may begin to appear at this level. The number of vehicles stopping is significant, though many vehicles still pass through without stopping.
C	Control delay greater than 35 and up to 55 seconds per vehicle; progression is unfavorable, cycle lengths are long, or has a high flow rate to capacity ratio. Many vehicles stop, and the proportion of vehicles not stopping diminishes. Individual cycle failures are obvious.
D	Control delay greater than 55 and up to 80 seconds per vehicle; progression is poor, cycle lengths are long, and has a high flow rate to capacity ratio. Individual cycle failures are frequent occurrences.
E	Control delay greater than 80 seconds per vehicle; progression is very poor, cycle lengths are long. Many individual cycle failures. Arrival flow rates exceed the capacity of the intersection.
F	This level is considered unacceptable to most drivers.

Level of Service (LOS) Criteria for Unsignalized Intersections - LOS Average Delay per Vehicle

A	Very low control delay 10 or less seconds per vehicle. All drivers find freedom of operation. Very rarely more than one vehicle in queue.
B	Control delay greater than 10 and up to 15 seconds per vehicle. Some drivers begin to consider the delay troublesome. Seldom there is more than one vehicle in queue.
C	Control delay greater than 15 and up to 25 seconds per vehicle. Most drivers feel restricted, but tolerably so. Often there is more than one vehicle in queue.
D	Control delay greater than 25 and up to 35 seconds per vehicle. Drivers feel restricted. Most often, there is more than one vehicle in queue. Control delay greater than 35 and up to 50 seconds per vehicle. Drivers find delays approaching

	intolerable levels. There is frequently more than one vehicle in queue. This level denotes a state in which the demand is close or equal to the probable maximum number of vehicles that can be accommodated by the movement.
E	Control delay in excess of 50 seconds per vehicle. Very constrained flow.
F	Represents an intersection failure situation that is caused by geometric and/or operational constraints external to the intersection.

2014

Land Use
The 2014 land use data for the South Lewis County Subarea was developed by the County. In 2014, it is assumed that the subarea will have about 4,350 housing units and around 3,600 commercial and industrial jobs. In 2008, the subarea had about 4,200 housing units and 2,250 commercial and industrial jobs.

Transportation Network
It was assumed that there would be no additional transportation improvements to the existing 2008 transportation network in the subarea.

Traffic conditions
All study segments report V/C ratios below 0.19 (significant reserve capacity). All study intersections LOS at A (virtually no delay).

Mitigations
No roadway segment or intersection mitigations are required.

2020

Land Use
The 2020 land use data for the South Lewis County Subarea was developed by the County. In 2020, it is assumed that the subarea will have about 5800 housing units and just over 5000 commercial and industrial jobs. In 2008, the subarea had about 4,200 housing units and 2,250 commercial and industrial jobs.

Transportation Network
The following network assumptions were made for the year 2020 Land Use scenario:

- Mickelson Parkway extension
- Nevil connection to Mickelson Parkway
- SR 505 - westbound Truck Climbing Lane from MP 2.82 to 2.52

Travel demand from the EMME model was post-processed to account for the difference between the 2008 model estimates and 2008 traffic counts.

Traffic Conditions

Once the land use scenario was forecasted for the PM peak hour, daily volumes were projected for the SR 505 corridor. This was done by taking the ratio of existing PM peak counts compared to existing daily counts and then applying it to the 2020 land use plan PM peak hour forecast. This was done for selected points along the SR 505 corridor. ADT was also projected for 2020 volumes on arterials outside the SR 505 corridor. V/C ratios for all Lewis County study roadways are less than or equal to 0.32, with the majority being below 0.2 (significant remaining capacity). Fourteen intersections along the SR 505 corridor were evaluated for 2020 traffic operations. Only the PM peak hour was analyzed for Intersection level of service because it is assumed to be when the worst traffic conditions exist.

In 2020, all of the study intersections along subarea arterials will operate at an acceptable level of service (LOS A and B) and require no mitigation.

Mitigations

In the 2020 land use scenario, two intersections (with SR 505) will receive mitigation to attain acceptable levels of service. One roadway segment is improved to provide a truck climbing lane along SR 505 from the south bound ramps at I5 to the intersection at Knowles Road.

SR 505 at South Military Road - This intersection is currently a stop-controlled intersection with northbound traffic on South Military Road forced to stop before entering SR 505. SR 505 has no stop control on it at this intersection. In 2020, the northbound traffic will experience excessive delay due to having to wait for breaks in the traffic flow on SR 505. To allow them adequate time to merge on to SR 505 a westbound left turn pocket will be provided that will create a receiving lane for the northbound left turn movement. This improvement will allow the intersection to operate at LOS A.

SR 505 at Jackson Highway – This intersection currently allows traffic on SR 505 to travel freely and requires traffic on Jackson Highway to stop when approaching SR 505. In 2020, both the eastbound and westbound approaches will experience excessive delay and queuing. To mitigate this problem, a traffic signal will be necessary in 2020 to allow vehicles on Jackson Highway to cross traffic on SR 505. No turn pockets will be necessary to make this intersection operate at an acceptable level. The intersection will operate at LOS A.

Truck Climbing Lane – A free right turn at the south bound ramp of I5 and an associated additional lane (north side of SR 505) is necessary to support forecast 2020 truck traffic.

2030

Land Use

Traffic forecasts were developed for the South Lewis County Subarea using the County's 2030 and 2035 housing and employment data along with the 2030 and 2035 transportation network. It was necessary to evaluate the additional five years to meet WSDOT interchange evaluation criteria at I5 Exit 63. Land use data was provided by participating jurisdictions. Employment data was developed by Lewis County and based on the "South Lewis County Regional Market

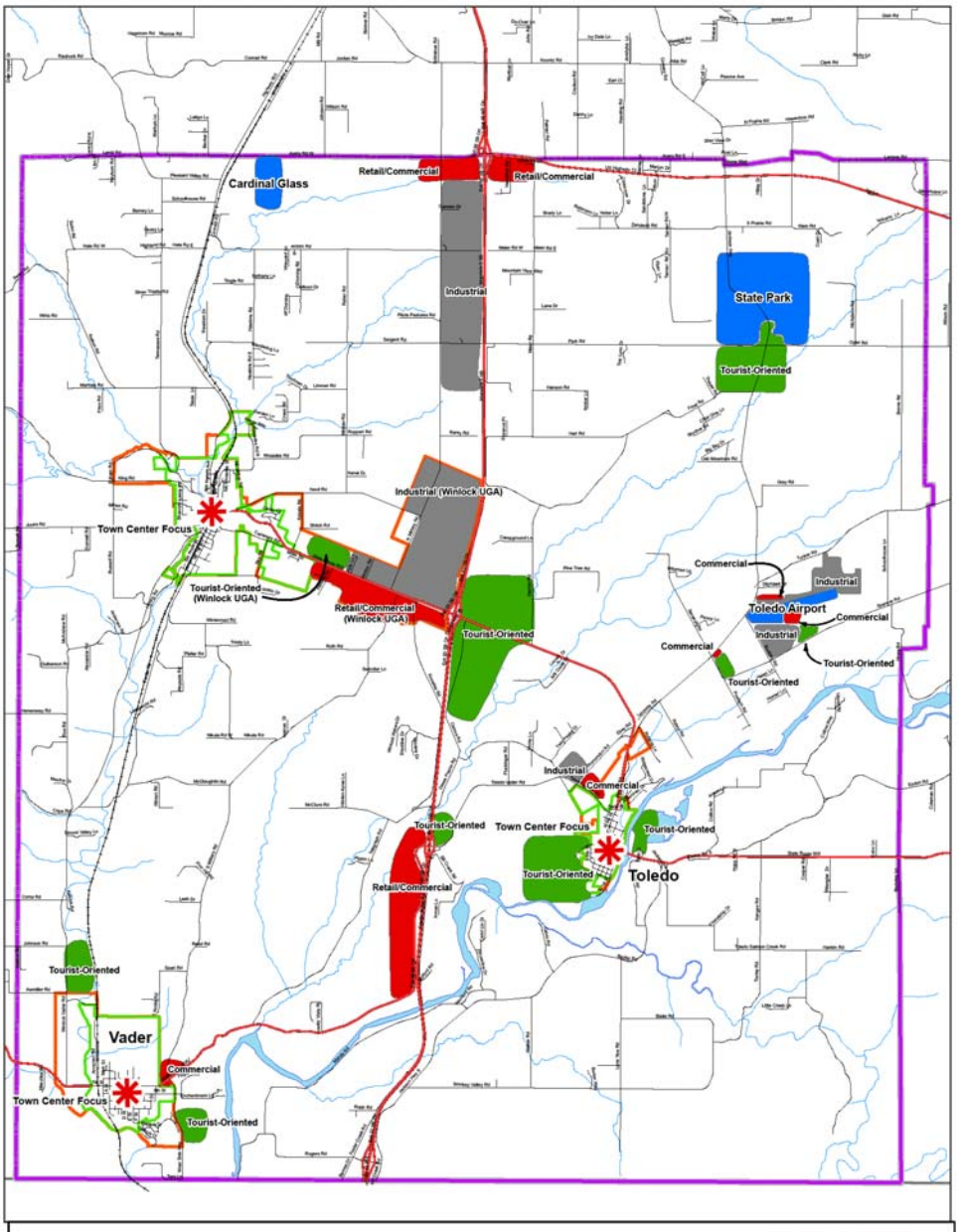
Analysis", prepared by Hovee & Company, 2009. Additional assumptions for the 2035 land use plan are:

- 75 acres of commercial land (converted to jobs) at Knowles Road pursuant to the adopting action taken by Winlock City Council.
- Additional commercial and industrial lands east of I-5 are developed (north and south of SR 505 immediately east of I-5). Areas around the airport and lands north and west of Toledo are also developed.

The resulting land use plan for the South Lewis County Subarea assumes that 8,200 housing units and 7,540 jobs will be developed by the year 2035. In 2008, the subarea had about 4,200 housing units and 2,250 commercial and industrial jobs. A copy of the final 2030 land use map used to conduct operational LOS is attached below as Exhibit AIII-1.

Exhibit AIII-1

Final Subarea 2030 Land Use Map



Transportation Network
The following network assumptions were made for the year 2035 Land Use scenario:

- Widening of I-5 to 6 lanes in the South Lewis County by 2035
- Mickelson Parkway extension
- Nevil connection to Mickelson Parkway
- SR 505 - westbound Truck Climbing Lane from MP 2.82 to 2.52

Travel demand from the EMME model was post-processed to account for the difference between the 2008 model estimates and 2008 traffic counts.

Traffic Conditions
V/C ratios for SR 505 intersections range from a high of 0.84 (S. Military to Knowles) to a low of 0.36 (Jackson Highway to Ash and from Nevil to Cemetery). Lewis County study roadways range from a high of 0.40 (Spencer to SR 505) to a low of 0.09 (US 12 to Jackson Highway).

Seven SR 505 intersections operate at LOS F. One County intersection (NB I5 ramps at Avery Road) operate at LOS F.

Mitigations
In the 2030 land use plan scenario, nine intersections (seven SR 505 and two Lewis County Arterial intersection) will receive mitigation to attain acceptable levels of service. Two mitigation alternatives are evaluated to maintain operational LOS: signals and roundabouts. TIP costs are provided for each alternative in Appendix IV of this report.

SR 505 at Highway 603 – This intersection is currently a three way stop at a four-legged intersection with traffic moving westbound on SR 505 not required to stop. In the 2035 land use scenario, maintaining a free westbound movement will cause excessive delay for the other approaches, particularly the southbound left turn movement. Turning this intersection into an all-way stop will give the other approaches a chance to get through the intersection, thus improving the average delay to acceptable standards. However, because the railroad crosses SR 505 just to the east of this intersection, having the east leg stop-controlled will be unsafe. To safely mitigate this intersection a signal will be required so that vehicles will not stop on the railroad tracks. The mitigated intersection will operate at LOS B.

SR 505 at North Military Road – This intersection is currently a stop-controlled intersection with southbound traffic on North Military Road forced to stop before entering SR 505. SR 505 has no stop control on it. In 2035, the southbound traffic will experience excessive delay due to waiting for breaks in the traffic flow on SR 505. To mitigate this intersection, an eastbound left turn pocket will be provided to store vehicles waiting to turn left. In addition, this intersection will require a signal to allow adequate time for eastbound vehicles to turn left on to North Military. The mitigated intersection will operate at LOS B.

SR 505 at South Military Road – This intersection is currently a stop-controlled intersection with northbound traffic on South Military Road forced to stop before entering SR 505. SR 505 has no stop control on it at this intersection. In 2035, the northbound traffic will experience

excessive delay due to having to wait for breaks in the traffic flow on SR 505. The westbound left pocket that will be phased into this intersection in 2020 will not be sufficient for this intersection to operate at a sufficient level in 2035. To further mitigate this problem, an additional northbound right turn pocket should be added. The mitigated intersection will operate at LOS B in 2035.

SR 505 at Knowles Road – This intersection is currently a three legged intersection with northbound traffic having to stop before entering SR 505. By 2035, the County plans to add Mickelson Parkway which will make it a 4-legged intersection. It is assumed that this intersection will continue to be stop-controlled both northbound and southbound. As part of the truck, climbing lane mitigation that will occur by 2020 the westbound approach will have one shared left-through lane and the truck climbing lane will drop at the intersection as a right turn only. With this configuration, in 2035 both northbound and southbound vehicles will experience excessive delay. To mitigate this problem, a signal should be installed to allow northbound and southbound vehicles adequate time to cross SR 505. This mitigation is proposed to be installed by the year 2020. The mitigated intersection will operate at LOS C.

SR 505 at Southbound I-5 Ramps – Currently, this intersection is stop-controlled for the one-way southbound approach with free movement for vehicles on SR 505. As part of the truck climbing lane mitigation that will occur by 2020, the southbound approach will have a free right turn into the additional westbound truck climbing lane. Even with this free turn lane in 2035, the southbound approach will experience excessive delay. Mitigation for this intersection includes installing a signal to allow southbound traffic adequate time to turn on to SR 505. The intersection will operate at LOS B.

SR 505 at Northbound I-5 Ramps – This intersection currently allows traffic to travel on SR 505 freely and northbound traffic from I-5 is required to stop. In 2035, the northbound approach will experience excessive delay and will require mitigation. A signal will allow northbound traffic adequate time to merge on to SR 505. However, with the addition of a signal, eastbound traffic will experience excessive delay unless a left turn pocket is added to keep vehicles turning left from blocking vehicles that are traveling straight. The mitigated intersection will operate at LOS A.

SR 505 at Camus Road – This intersection currently allows traffic to flow freely on SR 505 and requires northbound traffic to stop when approaching SR 505. In 2035, this intersection will operate at an acceptable level, however, there will be enough traffic on SR 505 to cause significant delay to northbound traffic, particularly those wishing to turn left onto SR 505. To alleviate some of the cross traffic a westbound left turn pocket is proposed which will provide a two way left turn lane west of the intersection. The mitigated intersection will operate at LOS A.

SR 505 at Jackson Highway – This intersection currently allows traffic on SR 505 to travel freely and requires traffic on Jackson Highway to stop when approaching SR 505. In 2020 and 2035, both the eastbound and westbound approaches will experience excessive delay and queuing. To mitigate this problem, a traffic signal will be necessary in 2020 to allow vehicles on Jackson Highway to cross traffic on SR 505. No turn pockets will be necessary to make this

intersection operate at an acceptable level. In 2035, the intersection will operate at LOS B with no further mitigation.

Avery Road at Southbound I-5 Ramps – This intersection currently allows traffic to travel on Avery Road freely and southbound traffic is required to stop. In 2035, the southbound approach will experience excessive delay and will require mitigation. A signal will allow southbound traffic adequate time to merge on to Avery Road. No turning pockets will be necessary to make this intersection operate at an acceptable level. The mitigated intersection will operate at LOS B.

APPENDIX IV

IMPROVEMENTS (TIPs)

SR 505 TIP for years 2014, 2020 and 2035 (Roundabout Alternative)

SR 505 TIP (2014, 2020, 2035)

PROJECT COST IN THOUSANDS

PROJECT	ROUTE NO.	2014 ENG	2014 R/W	2014 CONST	2020 ENG	2020 R/W	2020 CONST	2035 ENG	2035 R/W	2035 CONST	PROJECT FUNDING LOCAL	PROJECT FUNDING FED	PROJECT FUNDING OTHER
SR 505 ROUNDABOUT OPTION	SR 505												
1. TRUCK CLIMBING LANE FROM MP 2.88-2.52 (SB I5 Ramps to Knowles Road)													
W/DECCEL AND FREE RIGHT					183.1	140	995.4						1318.5
2. INTERSECTION IMPROVEMENTS AT MP 2.31 Phase 1 (S. Military Road)					69.4	42	388.2						499.6
(Plomondon Road)					31.4	16	178.9						226.3
4. INTERSECTION IMPROVEMENTS AT MP 2.22 (N. Military Road)								128	72	721.8			921.8
6. INTERSECTION IMPROVEMENTS AT MP 2.52 (Knowles Road)								131.7	71	745.9			948.6
7. INTERSECTION IMPROVEMENTS AT MP 2.88 (SB I5 Ramps)								92.2	66	505.6			663.8
8. INTERSECTION IMPROVEMENTS AT MP 3.1 (Relocated NB I5 Ramps)								135.5	92.5	747.8			975.8
9. NB I5 RAMPS								361.7	275	1967.5			2604.2
10. DIVIDED HIGHWAY MP 2.88 - 2.22								15	16	59			90
TOTAL		0	0	0	283.9	198	1562.5	864.1	592.5	4747.6			**8248.6**

Lewis County TIP for years 2014, 2020 and 2030 (Roundabout Alternative)

SOUTH LEWIS COUNTY SUBAREA TIP (2014, 2020, 2030)

PROJECT COST IN THOUSANDS

PROJECT	ROAD NO.	PROJECT LENGTH (MI)	2014 ENG	2014 R/W	2014 CONST	2020 ENG	2020 R/W	2020 CONST	2030 ENG	2030 R/W	2030 CONST	PROJECT FUNDING LOCAL	PROJECT FUNDING FED	PROJECT FUNDING CAPP	PROJECT FUNDING RAP	PROJECT FUNDING OTHER
SR 505 ROUNDABOUT OPTION																
1. MICKELSEN PARKWAY		0.68	478.6	0	2967.3											3445.9
2. S MIL INTERIUM IMPROVEMENTS						32	15	185								
3. RELOCATION OF SOUTH MILITARY RD (SR 505 ROUNDABOUTS)	30064	0.21							102.2	65	567.8					735
4. RELOCATION OF CAMUS ROAD (SR 505 ROUNDABOUTS)	55070	0.34							150.3	125	806.7					1082
TOTAL (SR 505 ROUNDABOUTS)		1.23	478.6	0	2967.3	32	15	185	252.5	190	1374.5					**5262.9**

SR 505 TIP for years 2014, 2020 and 2035 (Signal Alternative)

SR 505 TIP (2014 - 2035)

PROJECT COST IN THOUSANDS

PROJECT	ROUTE NO.	2014-2020 ENG	2014-2020 R/W	2014-2020 CONST	2020-2035 ENG	2020-2035 R/W	2020-2035 CONST	PROJECT FUNDING LOCAL	PROJECT FUNDING FED	PROJECT FUNDING OTHER
SR 505 SIGNAL OPTION	SR 505									
1. TRUCK CLIMBING LANE (MP 2.88-2.52)										
W/DECCEL AND FREE RIGHT		183.1	140	995.4						1318.5
2. INTERSECTION IMPROVEMENTS AT MP 2.31		124.7	42	333.3						500
3. INTERSECTION IMPROVEMENTS AT MP 5.46		59.2	0	367.3						426.5
4. INTERSECTION IMPROVEMENTS AT MP 2.22					159.8	91	899.8			1150.6
5. INTERSECTION IMPROVEMENTS AT MP 2.31					79.7	12.5	481.8			574
6. INTERSECTION IMPROVEMENTS AT MP 2.52					68.3	5.5	417.6			491.4
7. INTERSECTION IMPROVEMENTS AT MP 2.88					83.4	18	498.9			600.3
8. INTERSECTION IMPROVEMENTS AT MP 3.3					68.9	5.5	496.2			570.6
9. NB I5 RAMPS					148	275	2273.2			2696.2
TOTAL		367	182	1696	608.1	407.5	5067.5			**8328.1**

Local Roadways TIP for years 2014, 2020 and 2035 (Signal Alternative)

SOUTH LEWIS COUNTY SUBAREA TIP (2014, 2020, 2030)

PROJECT COST IN THOUSANDS

PROJECT	ROAD NO.	PROJECT LENGTH (MI)	2014 ENG	2014 R/W	2014 CONST	2020 ENG	2020 R/W	2020 CONST	2030 ENG	2030 R/W	2030 CONST	PROJECT FUNDING LOCAL	PROJECT FUNDING FED	PROJECT FUNDING CAPP	PROJECT FUNDING RAP	PROJECT FUNDING OTHER
SR 505 SIGNAL OPTION																
1. MICKELSEN PARKWAY		0.68	478.6	0	2967.3											3445.9
2. S MIL INTERSECTION IMPROVEMENTS	30064	0.12				32	15	185								232
3. CAMUS ROAD RELOCATION	55070	0.24							104.9	86	564.1					755
TOTAL (SR 505 INTERSECTIONS)		1.04	478.6	0	2967.3	32	15	185	104.9	86	564.1					**4432.9**

APPENDIX V

TRANSPORTATION IMPACT FEES

SR 505 Improvement Fees per 1,000 SF of Gross Area (Roundabout Alternative)

Land Use	Jobs/Acre	Number of Growth Acres and new housing units	Percent of Total New PM Peak Hour Trips	2035 SR 505 Improvement Cost	Cost per PM Peak Hour Trip	**Cost per 1,000 SF Gross Area and per Unit**	Cost per Gross Acre
Commercial *	2.44	1019	0.28042	$3,788,830.55	$1,710.53	**$85.35**	$3,718
Industrial	1.91	1469	0.21319	$2,880,537.54	$1,710.53	**$45.00**	$1,960
Housing**		4000	0.50639	$6,842,131.92	$1,710.53	**$1,710.53**	
Total			1.0	$13,511,500.00			

*Includes Tourism and Educational jobs (in addition to retail/general commercial)

**Includes single and multi-family units

All values based on 2009 unit costs

SR 505 Improvement Fees per 1,000 SF of Gross Area (Signal Alternative)

Land Use	Jobs/Acre	Number of Growth Acres and new housing units	Percent of Total New PM Peak Hour Trips	2035 SR 505 Improvement Cost	Cost per PM Peak Hour Trip	**Cost per 1,000 SF Gross Area and per Unit**	Cost per Gross Acre
Commercial *	2.44	1019	0.28042	$3,578,439.62	$1,615.52	**$80.62**	$3,512
Industrial	1.91	1469	0.21319	$2,720,517.59	$1,615.52	**$42.52**	$1,852
Housing**		4000	0.50639	$6,462,042.79	$1,615.52	**$1,615.52**	
Total			1.0	$12,761,000			