CENTRALIA
WASHINGTON

City of Centralia Comprehensive Plan Transportation Element

Draft

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DRAFT Transportation Element – City of Centralia Comprehensive Plan

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1.0 Introduction

The City of Centralia was settled in 1852 along the junction of the Chehalis and Skookumchuck Rivers. Once known as a "Hub City," or midway point, between Seattle and Portland, major rail routes transferred in Centralia to transport goods across the state. Rail industry and passenger trains spurred local economic activity. The Port of Centralia's industrial parks continue to drive economic and freight activity between Portland and Seattle. Recreational open spaces and attractions, such as Borst Park, the Factory Outlets, and Downtown, continue to draw visitors throughout the region. Population and employment are anticipated to increase placing an increasing demand for quality transportation infrastructure. The purpose of the Transportation Element of the Comprehensive Plan is to document the conditions of transportation system(s) in the City of Centralia while planning for preservation of an efficient and functional transportation network. The Transportation Element also identifies and prioritizes various transportation improvements.

The Transportation Element is compliant with existing federal, state and local policies. It is compliant with the elements of the Growth Management Act (GMA) and it is consistent with safety design standards implemented by the Washington State Department of Transportation (WSDOT). In addition the Transportation Element is consistent with Lewis County Planning and Development goals, the Lewis County Arterial Analysis Study, Parks and Open Space Plan, and the WSDOT Master Transportation Plan.

The study area for the Centralia Transportation Element update includes the area within the city limits of Centralia as well as the designated Urban Growth Area (UGA). The city of Centralia is located approximately 25 miles south of Olympia and 42 miles North of Kelso along Interstate 5 (I-5) in Washington. All roadway facilities in the study area fall under the jurisdiction of the City of Centralia, Lewis County or the Washington State Department of Transportation (WSDOT). I-5 and SR 507 are state highway facilities located within the study area. The study area is primarily level terrain with some rising elevations in the eastern portion of the study area. The confluence of the Chehalis and Skookumchuck Rivers are located within the study area as well as Borst, Hayes and Plumber lakes. Centralia contains some significant floodplain areas. Existing land uses include: commercial, industrial, low and medium density residential, public facilities and parks and open space.

Commercial development is mostly concentrated in three areas: near the Harrison and Mellen interchanges , in the Central Business District (CBD), and in the southeast portion of the city near Gold Street and Kresky Avenue. Industrial land is primarily located along Harrison Avenue, west of I-5 in the northeastern portion of the city. Other industrial areas are located south and outside the city limits within the UGA along Old Highway 99. Residential is the primary land use when measured by acreage within the city. Significant residential concentrations are located in the southwest portion of the city, west of the Chehalis River, surrounding the CBD, and to the east of the CBD and rail lines. Public facilities are dispersed throughout the city with only Centralia High School located outside the city limits, but within the designated UGA.

2.0 Goals and Policies

The goals and policies are consistent with the mandatory elements of the GMA while meeting the corresponding transportation element policy requirements. Lewis County countywide planning policies (CWPP) are also integrated with these goals and policies. Public input was used to help develop the transportation goals and policies of the transportation element.

Mobility Standards

Table 1 includes the current mobility standards of WSDOT (for urban areas) and Lewis County. City of Centralia mobility standard measurement are established as part of this transportation element update. Mobility standards are based on the Highway Capacity Manual (HCM) Level of Service (LOS) definitions and is applicable for signalized and unsignalized intersections. For unsignalized intersections, the LOS is based on the minor-street approach LOS and vehicle delay. Refer to Attachment 1 for an explanation of recommended levels of service and further definitions.

TABLE 1
Mobility Standards – Centralia Transportation Element

Roadway Jurisdiction	LOS Mobility Standard
WSDOT (Ramp terminals)[1]	D
Lewis County (urban areas)	D
Lewis County Regional Arterials	D
City of Centralia	D

[1] Washington State Department of Transportation 2002. 2002 *Washington State Highway System Plan*

Transportation Element Goals and Policies

General

Goal T-1 Provide a safe, convenient and economical circulation system for all modes of transportation.

- Policy T-1.1 Provide arterial streets which are of sufficient width and number to handle anticipated traffic loads.
- Policy T-1.2 Circulation system improvement on arterials should be designed to promote maximum traffic flow efficiency and safety.
- Policy T-1.3 Ensure that all streets and sidewalks meet City standards in newly developed areas, and encourage the construction of sidewalks in newly developed areas.
- Policy T-1.4 Upgrade existing City streets and walkways which do not meet adopted standards, consistent with available funding.

Policy T-1.5 Design arterials and local access streets to meet functional requirements and be consistent with the character of the surrounding area.

Policy T-1.6 Require all street and transportation related design and construction to follow adopted Development Guidelines and Public Works Standards.

Policy T-1.7 Require dedication of adequate right-of-way to accommodate future traffic volumes, when development occurs adjacent to arterials, and require construction of new local access streets and/or widening of existing rights-of-way as may be warranted in conjunction with land use or development decisions.

Policy T-1.8 Encourage street improvements to City standards when utility mainline extensions or improvements are made.

Policy T-1.9 Discourage private road development within the City except as may be incorporated in planned unit developments provided the structural road section meets minimum City street design standards.

Policy T-1.10 Establish and amend, as appropriate, uniform and fair administrative policies, procedures and directives to deal with the operation and administration of street and transportation systems.

Policy T-1.11 Require the installation or development of sidewalks, curbs, gutters, street lighting, bicycle paths or other such improvements when new development occurs.

Policy T-1.12 Require developers to contribute their fair share of necessary off-site transportation improvements. Require developers to pay all costs for on-site, contiguous or frontage improvements, as well as other new traffic improvements that may be necessary, or required by, or as a result of, the development.

Policy T-1.13 Within the constraints of funding sources and grants, fund road improvements according to the following priority: 1) maintain the existing arterial and collector road network; 2) make spot improvements to existing streets that enhance safety and capacity; 3) construct new roads and streets, and 4) make necessary storm drainage improvements.

Street Classification

Goal T-2 Establish street classification standards compliant with the federal and state agencies.

Policy T-2.1 Classify all City streets as Principal Arterials, Minor Arterials, Major Collectors, Minor Collectors or local roads, consistent with federal/regional/state classification systems, as follows:

a. locate and design Principal Arterials to handle large traffic volumes and freight passing through the City or traveling for considerable distances (generally in excess of two miles) within the City;

b. locate and design Minor Arterials to handle moderate traffic volumes traveling over relatively short distances within the City, or to Principal Arterial streets as part of longer trips;

c. locate and design Principal Arterials and Minor Arterials to pass around rather than through cohesive residential areas wherever possible;

d. locate and design Major and Minor Collectors to pick up traffic from within cohesive residential areas and feed it to the Principal Arterial and Minor Arterial street system, and not to carry through traffic.

e. design local roads in such a manner as to provide convenient access to adjacent properties and to discourage through traffic movements.

Policy T-2.2

The City's adopted functional classification system shall be as shown on the Functional Classification Map, consistent with the most recent U.S. Department of Transportation/Washington State Department of Transportation Functional Classification of Public Roads map (Centralia-Chehalis Urban Area).

Circulation System – Residential

Goal T-3 Provide an adequate residential circulation system.

Policy T-3.1 Establish a street system that promotes and maintains the integrity of neighborhoods and discourages industrial and commercial traffic from passing through residential areas.

Policy T-3.2 Identify traffic problems and facilitate their improvement.

Policy T-3.3 Coordinate transportation improvements and plans with emergency services, such as fire and police services.

Circulation System – Non-Residential

Goal T-4 Encourage provision of terminal facilities for inter-City rail and truck lines which are adequate to assure that the goods distribution needs of local industries, businesses and residences are fully met in a fashion compatible with other City goals and policies.

Policy T-4.1 Provide local vehicular access to arterials while minimizing the number of curb cuts and conflicts with through traffic.

Policy T-4.2 Design and maintain designated truck routes to accommodate freight truck traffic.

Barrier Free

Goal T-5 Provide adequate barrier free transportation facilities.

T-5.1 Design and construct transportation facilities to be barrier-free and easily accessible to all citizens, consistent with the American with Disabilities Act.

Level of Service and Concurrency

Goal T-6 Provide a transportation system at level of service (LOS) which will accommodate planned future growth within the City and their adopted UGAs.

Goal T-7 Maintain and monitor transportation Level of Service (LOS) standards for Centralia roadways and intersections. LOS will be measured by volume/capacity on roadways and delay at intersections.

Goal T-8 The City adopts LOS standard D for Centralia roadways and intersections.

Goal T-9 As mandated by state law, the City of Centralia adopts LOS standard D for all state highways (including highways of statewide significance), or whichever LOS is currently adopted by the Washington State Department of Transportation, consistent with the regional transportation plan. In Centralia, state routes include I-5 and SR 507.

Goal T-10 Consider mobility options (transit use, demand management, nonmotorized transportation) in relation to LOS standards and to relieve congestion where appropriate.

Goal T-11 The City will coordinate with Lewis County and other jurisdictions regarding designation and adoption of regional LOS standards for identified regional roadway facilities.

Goal T-12 If transportation improvements needed to maintain adopted LOS standards are not able to be funded, the City shall:

-Phase development consistent with the land use plan until such time that adequate resources can be identified to provide adequate transportation improvements; or

-Reassess the City's land use plan to reduce the travel demand placed on the system to the degree necessary to meet adopted transportation LOS standards; or

-Reassess the City's adopted LOS standards to reflect service levels that can be maintained given known financial resources.

Goal T-13 Projects shall be considered funded pursuant to Goal TG-3.6 when:

-Incorporated into the adopted City budget, or

-Upon grant agreement, or

-Upon developer agreement, or

-Upon a legally enforceable mechanism, such as a local improvement district, or

-Some combination of the above.

Goal T-14 Require that new development shall be allowed only if (1) all transportation facilities are adequate at the time of development and transportation impacts will not negatively impact or reduce LOS elsewhere or (2) a financial commitment is in place to complete the necessary improvements or strategies to accommodate transportation impacts within six years, in order to protect investment in and the efficiency of existing transportation facilities and services and promote compact growth.

Goal T-15 Require developers if needed to conduct traffic studies or analyses, as decided at pre-application meeting(s) or per the City Engineer, to determine development impacts on the transportation system.

Goal T-16 Consider establishment of a system for collecting traffic mitigation fees and require developers to mitigate development impact through improvements or strategies such as nonmotorized transportation modes, transit, ridesharing or transportation demand management, where practicable.

Non-Motorized

Goal T-17 Provide a sufficient multimodal transportation system.

Policy T-17.1 Incorporate planned new sidewalks and bicycle facilities, and provide for such facilities with street improvement projects.

Policy T-17.2 Design streets with features that encourage walking and bicycling.

Policy T-17.3 Provide sidewalks and pedestrian crossings where arterial or collector streets bisect residential areas (in order to retain neighborhood cohesion).

Parking

Goal T-18 Encourage parking patterns from impacting circulation near corridors.

Policy T-18.1 Reduce congestion and enhance circulation by development of off-street parking in high traffic corridors.

Regional Transportation and Intergovernmental Coordination

Goal T-19 Encourage coordination with regional and intergovernmental agencies.

Policy T-19.1 Work with Lewis County, Twin Transit, Thurston County and other regional transit agencies and Chehalis in any regional transportation or transit program to coordinate efforts in the provision of regional transportation improvements, including an assessment of impacts of the transportation plan and land use assumptions on the transportation systems of adjacent jurisdictions.

Policy T-19.2 The City should coordinate with local jurisdictions, Lewis County, Thurston County, the City of Chehalis and the State to program and construct improvements that will maintain LOS standards on Centralia roadways and state routes within Centralia.

Policy T-19.3 Coordinate with Lewis County, other jurisdictions and other government agencies to improve or replace deficient bridges and other highway components, including construction of an additional freeway interchange north of the City with an access road to route commercial and industrial traffic onto Reynolds Road and/or to industrial/commercial development.

Policy T-19.4 Work with Lewis County and Chehalis and be involved in the multi-county regional transportation planning organization to coordinate efforts to provide for multi-jurisdictional or regional transportation improvements.

Policy T-19.5 Coordinate with Lewis County to maintain the Countywide transportation model.

Goal TG-20 Encourage provision of terminal facilities for inter-City and intermodal transportation providers adequate to meet needs for movement of passengers and goods to and from Centralia.

Policy T-20.1 Facilitate circulation via all modes of transportation between Centralia and Chehalis and other regional jurisdictions.

Airport

Goal T-21 Encourage air transportation activities that support industrial and commercial health.

Policy T-21.1 Support expansion of the Chehalis/Centralia regional airport to have a positive impact on the industrial and commercial activities in the City.

Public Transit

Goal T-22 Support a public transit system to provide low-cost service to a variety of persons in the Centralia/Chehalis area in order to assure mobility for those

who do not or cannot drive and to reduce, to some degree, dependence on the private automobile for movement of people.

Policy T-22.1 Encourage the use and expansion of public transportation throughout the area.

Policy T-22.2 Support, in appropriate ways, the operation of public transportation in the Centralia/Chehalis area, including both fixed route and demand response transit.

Policy T-22.3 Promote routes within Centralia to areas with concentrations of elderly or handicapped persons.

Policy T-22.4 Promote routes, where appropriate, that provide transportation for employees to the hospital, clinics, schools, downtown and other generators of usage.

Policy T-22.5 Promote scheduling of service, including bus headways, for maximum usage for those persons who do not or cannot use an automobile for transportation.

Policy T-22.6 Encourage, in appropriate ways, programs and development of facilities that encourage reduction of single occupant vehicle trips.

Goal TG-23 Support a local and regional public transit system which contributes to the relief of traffic congestion, promotes energy conservation, and enhances mobility for the community.

Policy T-23.1 Coordinate decisions regarding transportation improvements with planned land uses.

Policy T-23.2 Cooperate with Twin Transit when appropriate in providing bus pull-outs along arterials where:

a. sufficient ridership exists;

b. there is sufficient existing right-of-way;

c. the pull-out would not adversely affect pedestrian movement;

d. storm drainage is not adversely affected;

e. there is a sharing of the improvement costs between the developer, the City and Twin Transit; and

f. the City has sufficient funding to assist in the financing of the improvement.

Policy T-23.3 Support Twin Transit in expansion of their transportation service to include all areas of the County.

Policy T-23.4 Encourage ridesharing, vanpool programs and other TDM measures where possible to reduce demand for roadway space and reduce peak-hour auto traffic.

Rail

Goal T-24 Encourage an efficient and safe rail transportation network.

Policy T-24.1 Encourage the use and expansion of both passenger and freight railroad services.

Policy T-24.2 Improve the quality and safety of railroad crossings to facilitate traffic circulation, including grade separations where feasible.

Policy T-24.3 Work with the railroads serving Centralia to assure that facilities and schedules remain adequate to serve efficiently local industry, businesses and residents.

Policy T-24.4 Work with the railroads and federal regulatory agencies to assure the rail operations create the minimum possible disruption to vehicular and pedestrian traffic.

Policy T-24.5 Encourage the use of the depot site as a major component in the revitalization of the downtown area.

Utility

Goal T-26 Provide effective service delivery and maintenance of utilities.

Policy T-26.1 Promote joint planning and coordination through timely and effective notice to all affected utilities (private or public) of all road construction, including maintenance and repair of existing roads.

Access

Goal 27 Provide adequate access for transportation networks within the city.

Policy T-6-11 Maintain the State access management standards on state facilities that are consistent with the State's design manual.

3.0 Improvement Project Criteria

The prioritization of improvement projects necessitates short-term, midterm, and long-term funding goals and strategies. The criteria are designed to assess and prioritize the completion of improvement projects based on how well the project improves, promotes, or maximizes transportation benefit. The criteria are consistent with the requirements of the Growth Management Act and Lewis County planning policies and enable appropriate funding sources for targeted improvement projects.

A list of criteria was developed to serve as a guide for selection and prioritization of improvement projects or strategies for the transportation improvement program (TIP).

Transportation Element Project/Strategy Criteria

(1) Vehicle Mobility

How well does the project/strategy improve existing and future vehicular mobility (including grade separation of rail crossings)?

(2) Safety

How well does the project/strategy remove existing identified safety issues?

(3) Multimodalism

How well does the project/strategy promote transit, pedestrian or bicycle modes of transportation?

(4) Coordination and Regional Transportation

How well does the project/strategy promote coordination among jurisdictions or the advancement of regional transportation projects/priorities (e.g. those identified in the Lewis County Arterial Analysis Study)?

(5) Freight Mobility

How well does the project/strategy promote freight mobility?

(6) Funding

How well is the project/strategy positioned to receive non-local funding?

(7) Cost

How well does the project/strategy maximize benefit in comparison to expense?

(8) Economic Development

How well does the project/strategy promote economic health?

(9) Neighborhood Integrity

How well does the project/strategy promote neighborhood communities?

(10) Connectivity

How well does the project/strategy improve connections between trip generators, such as schools, parks, downtown, freight centers, employment centers and higher density residential areas?

(11) Environment

How well does the project minimize environmental impacts?

(12) Emergency Access

How well does the project enhance or provide for emergency access routes?

4.0 Existing Transportation Conditions and Deficiencies

Various modes of transportation were inventoried to asses the condition and characteristics of the transportation system in the City of Centralia in order to provide a baseline of analysis for transportation needs and improvements. The transportation system is comprised of vehicular roadway, rail, freight and truck, transit, and non-motorized networks. Vehicular and non-motorized networks were inventoried along classified arterial streets. Traffic operations were evaluated for existing deficiencies and travel demand forecasting was completed to determine future deficiencies. Gap analysis was conducted for the non-motorized network to determine segments where pedestrian and bicycle infrastructure is absent. This section summarizes existing conditions and deficiencies. A complete analysis of existing conditions is included in Attachment 2.

4.1 Jurisdictional and Functional Classification of Roadways

Most of the classified roadways in Centralia are in the City of Centralia's jurisdiction. Interstate 5 and State Route 507 are maintained by WSDOT. Lewis County also has jurisdiction over several roadways within Centralia's UGA. Most of the City's roadways are classified as local roadways with some classified as arterials or collectors. Functional roadway classifications are shown on Map 1. Six types of roadway functional classifications exist in the City of Centralia:

- **Interstate Highways—**Interstate Highways have the highest roadway classification and serve larger volumes of interstate and regional traffic at higher speeds when traffic permits. Access is controlled and connections are generally made to other Interstate Highways, Principal Arterials and Minor Arterials.

- **Principal Arterials—**Principal Arterials provide a high level of mobility with limited access and signal control. High volumes of traffic and freight travel at a range of speeds. Trips on Principal Arterials are generally for longer distances within the city (generally in excess of 2 miles), or through the city. Connections are made to Interstate Highways, other Principal Arterials, Minor Arterials, Major Collectors and Minor Collectors.

- **Minor Arterials** –Minor Arterials provide a high level of mobility with slightly less limited access and signal control compared to Principal Arterials. High volumes travel at a range of speeds. Trips are generally shorter than Principal Arterial trips and often remain within the city. Connections are made to Interstate Highways, Principal Arterials, other Minor Arterials, Major Collectors, and Minor Collectors.

- **Major Collectors—**Major Collectors provide a medium level of mobility with a medium level of access and control. A range of volumes are present on Major Collectors and speeds are limited when compared to some arterials. Through trips are not generally carried by Major Collectors. Connections are made to Principal Arterials, Minor Arterials, other Major Collectors, Minor Collectors and Local Roadways.

- **Minor Collectors** – Minor Collectors provide medium to low levels of mobility with a high level of access. Low volumes of vehicles use Minor Collectors and travel at low speeds. Through trips are not carried by Minor Collectors and connections are made to

Principal Arterials, Minor Arterials, Major Collectors, other Minor Collectors, and Local Roadways.

• **Local Roadways—**Local Roadways provide the highest level of access while limited to a low level of speed. Through trips are not carried on Local Roadways. Trips on local roadways are short and connections are usually made to Minor Collectors, or Major Collectors.

Table 2 lists jurisdiction (ownership) and functional classification information for the interstate, arterial and collector roadways located within the Centralia study area.

TABLE 2
Roadway Functional Classification and Ownership

Roadway	Jurisdiction	Functional Classification
Interstate 5	WSDOT	Interstate Highway
NE Kresky Avenue	Centralia	Principal Arterial
S. Gold Street	Centralia	Principal Arterial
S. Tower Avenue (Kresky to Main)	Centralia	Principal Arterial
S. Pearl Street (Chestnut to Main)	Centralia	Principal Arterial
W. Main Street (S Tower to I-5)	Centralia	Principal Arterial
N. Pearl Street (Main to Howard)	Centralia	Minor Arterial
N. Tower (Main to 6th Street)	Centralia	Minor Arterial
W. Reynolds Avenue	Centralia	Minor Arterial
Mellen Street (Tower to S. Oak Street)	Centralia	Minor Arterial
Oakland Avenue	Centralia	Minor Arterial
Harrison Avenue	Centralia	Minor Arterial
Eshom Road	Centralia	Major Collector
Airport Road	Centralia	Major Collector
Borst Avenue	Centralia	Major Collector
Johnson Road	Centralia	Major Collector
Cooks Hill Road	Lewis County/Centralia	Major Collector
Scammon Creek Road	Centralia	Major Collector
Military Road	Centralia	Major Collector
Marion Street	Centralia	Major Collector
N. Gold Street (Kresky to May Street)	Centralia	Major Collector
Seminary Hill Road	Lewis County/Centralia	Major Collector
E Locust Street (Centralia College Boulevard)	Centralia	Major Collector
W. 6th Street	Centralia	Minor Arterial
W. 4th Street	Centralia	Major Collector
W. 1st Street	Centralia	Major Collector
Yew Street	Centralia	Major Collector
Washington Avenue	Centralia	Major Collector
E. Summa Street	Centralia	Major Collector
S. Tower Avenue (Floral Street to Jefferson Avenue)	Centralia	Major Collector

S. Pearl Street (Summa Street to Chestnut Street)	Centralia	Major Collector
Scheuber Road	Lewis County	Minor Collector
Galvin Road	Lewis County	Major Collector
Little Hanaford Road	Lewis County	Major Collector
Salzer Valley Road	Lewis County/Centralia	Minor Collector
Floral Road	Centralia	Major Collector

4.2 Existing Roadway Characteristics

An inventory of roadway facilities and characteristics sets a baseline of information for future improvement of the transportation system. The roadway network for the City of Centralia is a grid pattern with many parallel roads and intersecting cross-streets. Historically the grid pattern paralleled the north-south railroad and this pattern exists today in the downtown area. This section describes the arterial roadways within the study area designated on the Federal Highway Administration's Functional Classification Programmatic Update (approved 12/30/2003). Other public roadways are designated as local roadways.

Physical roadway characteristics help to define potential roadway issues or problem areas. Most roadways within Centralia are two lane facilities although a few arterials have two-way left turn lanes. Harrison Avenue is the only facility with more than three lanes. Roads within Centralia generally are posted with speeds of 25 or 30 miles per hour (mph) with some roadways characterized by speeds of 35 or 40 mph. Speed limits are shown on Map 2.

Most intersections in the city are stop controlled. Nineteen signalized intersections exist within the study area and are displayed on Map 2. The majority of the signalized intersections are concentrated in the downtown area and along the roads adjacent to I-5 that serve Centralia retail and commercial areas.

Key roadway facilities include Interstate 5, Pearl Street and Tower Avenue (SR 507), Harrison Avenue, Main Street and Mellen Street. Interstate 5 is a limited access Highway, classified as part of the National Highway System (NHS). I-5 is also a designated freight route and a federal North America Free Trade Agreement (NAFTA) route. I-5 is the primary north-south interstate roadway facility for the pacific coast states (Washington, Oregon and California). Two diamond interchanges at Harrison Avenue and Mellen Street link I-5 with the city street network. These interchanges are controlled with traffic signals where the ramp terminals intersect with the arterial network. Refer to Attachment 2 for a detailed discussion of existing conditions.

4.3 Existing Traffic Conditions and Deficiencies

Existing operational analysis was conducted at intersections and roadway segments on classified arterials to assess the existing operational conditions and identify any deficiencies within the study area. Intersection turning movement counts were collected and analyzed for the arterial intersections listed below.

Signalized

- Harrison Avenue and Reynolds Avenue
- Reynolds Avenue and Pearl Street (SR 507)
- Harrison Avenue and I-5 Southbound Ramps
- Harrison Avenue and I-5 Northbound Ramps
- Main Street and Pearl Street (SR 507 Couplet)
- Main Street and Tower Avenue (SR-507 Couplet)
- Mellen Street (SR 507) and I-5 Southbound Ramps
- Mellen Street (SR 507) and I-5 Northbound Ramps
- Cherry Street and Pearl Street (SR 507 Couplet)
- Cherry Street and Tower Avenue (SR 507 Couplet)

Unsignalized

- Harrison Avenue and West 1st Street
- Mellen Street and Airport Road
- Mellen Street and Yew Street
- Summa Street and Gold Street
- Summa Street and Kresky Avenue
- Tower Avenue and W. 6th Street
- Pearl Street and W. 6th Street
- Scheuber Road and Galvin Road
- Scheuber Road and Cooks Hill Road

Intersections and roadway segments were analyzed for traffic congestion deficiencies during the peak hour, The roadway segment, Mellen Street between I-5 and Yew Street, operates at LOS F. This can most likely be attributed to the high volumes that use Mellen Street to access I-5 and the general commercial areas directly to the south of Mellen Street in the PM peak hour. All other roadways operate at LOS D or better. This is shown in Table 3.

TABLE 3
Existing 2007 PM Peak Hour Traffic Operation Deficiencies (Roadway)

Roadway	From	To	2007 PM Peak Volume	Capacity	V/C Ratio	LOS
Mellen Street	I-5	Yew Street	1,645	1,470	1.12	F

City of Centralia Mobility Standards were used to analyze intersections for deficiencies. City of Centralia operational standards are LOS D. Table 4 presents the observed LOS for analyzed intersections. As shown in Table 6, all of the analyzed intersections except four currently operate better than the WSDOT, Lewis County and City of Centralia LOS thresholds. Deficient intersections include: W. 1st and Harrison, Mellen St and Yew St, Summa Ave and Gold St, and Summa Ave and Kresky Ave. All deficient intersections are signalized.

Deficient capacity was identified at Mellen and Yew where the level of service operates below LOS D at LOS F. Currently the Washington State Department of Transportation (WSDOT) is implementing plans to reconstruct the Mellen Street interchange at I-5.

Improved level of service performance may occur in the future as a result of this interchange revision.

TABLE 4
Existing 2006 PM Peak Hour Traffic Operations Summary (Intersection)

Intersection	Jurisdiction	LOS Standard	Signalized / Unsignalized	Existing (2006)	
				LOS	Delay [1]
W. 1st Street and Harrison Avenue	Centralia	D	Unsignalized	F	132
Mellen Street and Yew Street	Lewis County/Centralia	D	Unsignalized	F	100
Summa Street and Gold Street	Centralia	D	Unsignalized	E	44
Summa Street and Kresky Avenue	Centralia	D	Unsignalized	F	113

[1] Delay reported in average seconds per vehicle.
Unsignalized intersection results are reported for the worst minor street approach only.

4.4 Accident Conditions and Deficiencies

Safety deficiencies were identified at several intersections. Deficient intersections were defined as locations with an average of 5 or more accidents oer year over the past 5 years. These deficiencies are listed below in Table 5.

TABLE 5
Average Yearly Accidents by Intersection (2001-2005) - Deficiencies

Intersection	Accidents by Year					
	2001	2002	2003	2004	2005	Average
Harrison Ave. and I-5 NB Ramps	4	2	7	8	7	5.6
Mellen St. and Yew St.	4	4	5	5	9	5.4
Harrison Ave. and Belmont Ave.	13	3	7	17	9	9.8
Main St. and Washington Ave.	9	5	1	6	6	5.4

For road segments a threshold was established at an average of 10 accidents per mile per year over the past five years. Several segments exceeded a threshold equal to or greater than 10 accidents per mile per year. They are listed below in Table 6.

TABLE 6
Average Yearly Accidents by Road Segment

Road Segment	From	To	Average per Year	Distance (miles)	Average per mile per year
Harrison Avenue	I-5	Main St.	8	0.79	10.13
Main Street	Harrison Avenue	Tower Avenue	17	0.6	28.33
Mellen Street	I-5	Alder Street	6.2	0.4	15.50
Alder Street	Mellen Street	Cherry Street	3	0.3	10.00
Cherry Street	Alder Street	Tower Avenue	3.8	0.3	12.67

Pearl Street	Sixth Street	S Viaduct Street	17.8	1.31	13.59
Tower Avenue	Marion Street	Kresky Avenue	19	1.7	11.18

Each of these segments carry relatively high volumes and have numerous closely spaced stop controlled intersections and accesses which may contribute to the number of accidents. Over one-third of all accidents were rear end accidents. This type of accident is common for areas experiencing congested conditions. Over one quarter of accidents were T-bone or angle accidents. This type of accident is common where closely spaced accesses/driveways are present. Roadway segments and intersections where accidents occurred most frequently are depicted in Map 3.

4.5 Transit Facility Conditions and Deficiencies

Twin Transit operates the local bus service in the Centralia-Chehalis area. As of 2007, Twin Transit operated eight buses on four fixed routes which serve most of the Centralia area on an hourly basis. Existing routes do not provide service to the Port of Centralia and Grand Mound at this time.

Twin Transit's main facility and the Centralia Train Depot are located adjacent to one another near the intersection of Railroad Avenue and Pine Street. The Centralia Train Depot serves as a transfer point between bus routes. Twin Transit serves two park-and-ride facilities at Mellen Street and I-5 (Centralia) and Main Street and I-5 (Chehalis). Both are maintained by WSDOT. The Greyhound Bus Station is on Twin Transit Centralia Route 30 and shares operating space with a local gas station near the intersection of Mellen Street and Ellsbury Street. This station primarily functions as a passenger loading and unloading point among three north-south bus routes.

Amtrak serves the Centralia- Chehalis area with a depot in downtown Centralia. It operates along the BNSF rail lines. Transit and passenger rail service originate in the CBD at the Centralia Train Depot. The building features some public amenities although public information areas may become inadequate with increasing passenger service.The train depot functions as an intermodal facility. Table 7 below lists existing transit deficiencies. Existing and recommended transit routes are depicted on Map 4.

TABLE 7
Existing Transit Deficiencies

Deficiency	Location	Description
Route # 22	From Russell Road to Galvin Road	Existing route does not service Port of Centralia
Route # 21	On Harrison from Russell Road to Prairie Road	Existing route does not service neighborhoods north of Galvin Road, limited transit access to Grand Mound
Transit LOS Headway	All Transit Routes	Actual existing headways exceed scheduled headways by up to 30 minutes

Centralia Station Loading Areas	At Centralia Train Depot	Functional signage and designated loading, baggage, ticketing areas are absent at station facility
Centralia Station Public Amenities	At Centralia Train Depot	Public amenities, fare posting areas and other passenger amenities are absent at station facility

4.6 Pedestrian and Bicycle Transportation Conditions and Deficiencies

Pedestrian connections exist as sidewalk facilities along the major arterials, such as Harrison Avenue and 1st Street, and in the CBD. Pedestrian access in the West City neighborhood is less available, especially adjacent to public schools. In the Cooks Hill neighborhood, piecemeal portions of sidewalk facilities are present along Harrison Avenue and Cooks Hill Road. Providing appropriate and comprehensive pedestrian connections that link neighborhoods to commercial nodes and services will allow the City to close modal gaps within the City.

Designated bicycle paths and routes prove economical means of connection for non-motorists. Bicycle routes are present along portions of Harrison Avenue and on segments within the CBD. Most of the existing bicycle network is located in the City Center neighborhood. There is approximately 6.45 miles of bicycle network facilities east of Interstate 5. There is less than .25 miles of bicycle facilities in the western part of the city. Bicycle facilities are absent on some streets that connect schools and parks to neighborhoods or commercial areas. Future arterial sections of the West Connector and other urban arterial route include adequate shoulder widths that allow for the designation of future bike routes along these arterials. Future street improvement and development projects should address gaps in the non-motorized network.

Recreational trails provide linkages to open spaces, natural corridor areas, and commercial areas. Existing recreational trails include the Seminary Hill Natural Area and the Chehalis Discovery Trail located outside of the city limits near the sewage treatment facility. These trails allow for connection to Centralia's natural features.

The purpose of establishing a non-motorized system of connections that connect neighborhoods to commercial nodes is to provide economical means of transportation among Centralia's residents and workers. Expansion of the existing non-motorized network will complete a comprehensive system of nodes and connections while providing economical access. Existing pedestrian facility deficiencies are listed below in Table 8. Recommended and existing non-motorized facilities are shown in Map 5 and in the Centralia Parks and Open Space Plan.

TABLE 8
Existing Pedestrian and Bicycle Route Deficiencies

Deficiency	Location	Description
Missing Sidewalk – Centralia Middle School	On Borst Ave from Eshom Road to Cedarwood Ave	Missing sidewalk on Borst Avenue and at full perimeter

Missing Sidewalk – Centralia High School	On Eshom Road from Borst Ave to Mayberry St	Missing sidewalk on Eshom Road and at full perimeter
Missing Sidewalk – Fords Prairie Elementary	On Harrison from Galvin Rd to Caveness Dr	Missing sidewalk at western perimeter
Missing Sidewalk – Oakwood Elementary	On E. Oakview from Pearl St to Eureka Ave	Missing sidewalk connection between school and arterial
Missing Sidewalk – Washington Elementary	On Spruce St from Field Ave to Grand Ave	Missing sidewalk connection between school and arterial
Missing Sidewalk	On Mellen St from Old Access Treatment Plant to CMRailroad	Missing sidewalk on segment
Missing Sidewalk	On Locust St from Berry to Seminary Hill Trail	Missing sidewalk on segment
Bike Route Signage	On Harrison WB from Johnson to I-5	Absence of route signage does not indicate connection across I-5
Mellen Bike Route	On Mellen from Nick St to I-5	Absence of route signage does not indicate connection across I-5
Mt. Vista Bike Lane and Sidewalk	On Mt. Vista from Fort Borst Park to Eshom Rd	Non-motorized facilities are absent on segment
Johnson Bike Lanes	On Johnson Rd from Harrison to Mt. Vista	Bike lane facilities are absent on segment
Galvin Bridge Trail	Along Chehalis River from Public Works Facility Trail to Fort Borst Park	Absence of trail does not connect existing recreational areas
Borst Park/Schaefer County Park Trail	Along Chehalis/Skokumchuck Rivers from Borst Park trailhead to Schaefer County Park trailhead	Absence of trail does not connect existing recreational areas
Tacoma Rail Trail	On former Chicago Milwaukee Puget Pacific (Tacoma Rail) line	Missing trail along segment does not connect to regional trails

4.7 Freight (Rail and Truck)

Freight rail services Centralia along the Burlington Northern Santa Fe (BNSF) Railroad, Union Pacific Railroad, and Tacoma Railroad. Freight trains switch cars and transfer loads at Blakeslee Junction, an intermodal facility. The BNSF line crosses streets at three grade-separated crossings: East 6th Street, North Pearl Ave and North Tower Ave. The Tacoma Rail's Mountain Division line interconnects and interchanges rail cars at a switchyard near the intersection of East Maple Street and North Gold Street. Transferring loads and interconnecting freight cars causes congestion and delays among freight cars. Traffic on surrounding surface streets experience delays up to fifteen minutes due to freight activity at the Blakeslee Junction.

Truck routes provide for adequate flow of freight movement through the city. I-5 is a North American Free Trade Agreement (NAFTA) route, and carries interstate and international

freight. Future arterial sections of the West Connector will allow for future freight route designations. Designated freight routes are depicted on Map 6.

4.8 Public Air Facilities

The nearest public air services are at the Centralia-Chehalis Airport, located approximately 3 miles southwest of the city of Centralia. The airport has two (2) concrete runways and both are in good condition. Access to the airport is via the I-5 Chamber Way interchange. There are six (6) private airports within ten miles of Centralia.

4.9 Water Transportation

There are two rivers in the study area – the Chehalis River and Skookumchuck River. The Chehalis River flows into Grays Harbor in Aberdeen and is navigable. Within the study area, the Chehalis River flows parallel and west of I-5, while the Skookumchuck River flows east-west into the Chehalis River and is crossed by I-5.

5.0 Future Conditions and Deficiencies

This section summarizes and identifies future travel demand conditions through the year 2030, compliant with the GMA. This long range time frame was selected for consistency with the Lewis County travel demand model and the state Transportation Master Plan (TMP).

The identification of future deficiencies was based on a travel demand model that considered future land uses and growth to occur within designated traffic analysis zones. Existing deficiencies were also included in identifying future deficiencies to account for the occurrence of a no build scenario.

Future travel conditions were based on existing and projected land uses, traffic volumes, and projected employment and household growth. Specific growth is anticipated to occur in a targeted residential area located in the southeast UGA area. Socio-economic and land use conditions used in the travel demand modeling and analysis were consistent with the remaining elements in the Draft Comprehensive Plan. Existing and "no-build" conditions were included in the analysis and travel demand forecasting in determining future roadway operations deficiencies. Refer to Attachment 4 for details about the forecasting process.

Future planned land use and development, employment, and population growth is anticipated to impact existing roadways by stressing the capacity at certain locations and intersections. Travel forecast modeling showed that increased traffic volumes will exceed the capacity with LOS F along the following segments and intersections listed below in Table 9.

TABLE 9
Future Traffic Operations Deficiencies

Intersection/*Segment*	Jurisdiction	LOS	Signalized /	Future (2030)

				LOS	Delay [1] (v/c)
W. 1st Street and Harrison Avenue	Centralia	D	Unsignalized	F	230
Mellen Street and Yew Street	Lewis County/Centralia	D	Unsignalized	F	324
Summa Street and Gold Street	Centralia	D	Unsignalized	E	102
Summa Street and Kresky Avenue	Centralia	D	Unsignalized	F	80
Pearl and 6th	Centralia	D	Unsignalized	F	324
Harrison Avenue (from Galvin Road to Caveness Drive)	Centralia	D	n/a	F	(1.04)
Harrison Avenue (from Johnson Road to I-5)	Centralia	D	n/a	F	(1.18)
Salzar Valley Road (from Gold Street to Centralia Alpha Road)	Centralia	D	n/a	F	(.94)
North County Interchange at Interstate 5 (at future Downing Rd arterial and I-5)	Centralia	D	n/a	F	(1.4)

[1] Delay reported in average seconds per vehicle.
Unsignalized intersection results are reported for the worst minor street approach only.

Future worsened conditions on Harrison Avenue can be related to the location of closely spaced intersections and driveway approaches. In addition, when industrial, employment and population growth were factored in, the travel demand model showed stressed capacity in the future at existing interchanges. Capacity improvements by 2030 will be necessary to maintain and preserve functionality of the system while keeping consistent with adopted standards. Other agencies' planned improvements, as listed in Attachment 4, scheduled to occur by 2010 will not impact the identified existing and future deficiencies listed, as they were incorporated into the modeling.

6.0 Recommended System Improvements and Costs

The purpose of this section is to recommend and describe identified system improvements and their associated costs that accomplish the mission of the comprehensive plan by addressing existing and future deficiencies. Recommended improvements are based on identified existing and anticipated system deficiencies. Recommended improvements were designed to improve operating performance of the system while allowing for cost-effective maintenance.

Prioritization for completing the identified system improvements were categorized into short (2007-2009), mid (2010-2013), and long term (2014-2030) time frames. Prioritization of the projects was determined according to safety efficiency and established project criteria. Cost estimates are provided for the recommended system improvements and detailed cost sheets and assumptions are discussed in Attachment 3.

The recommended improvements are listed in Table 10.

TABLE 10
Recommended Capital Improvement Projects

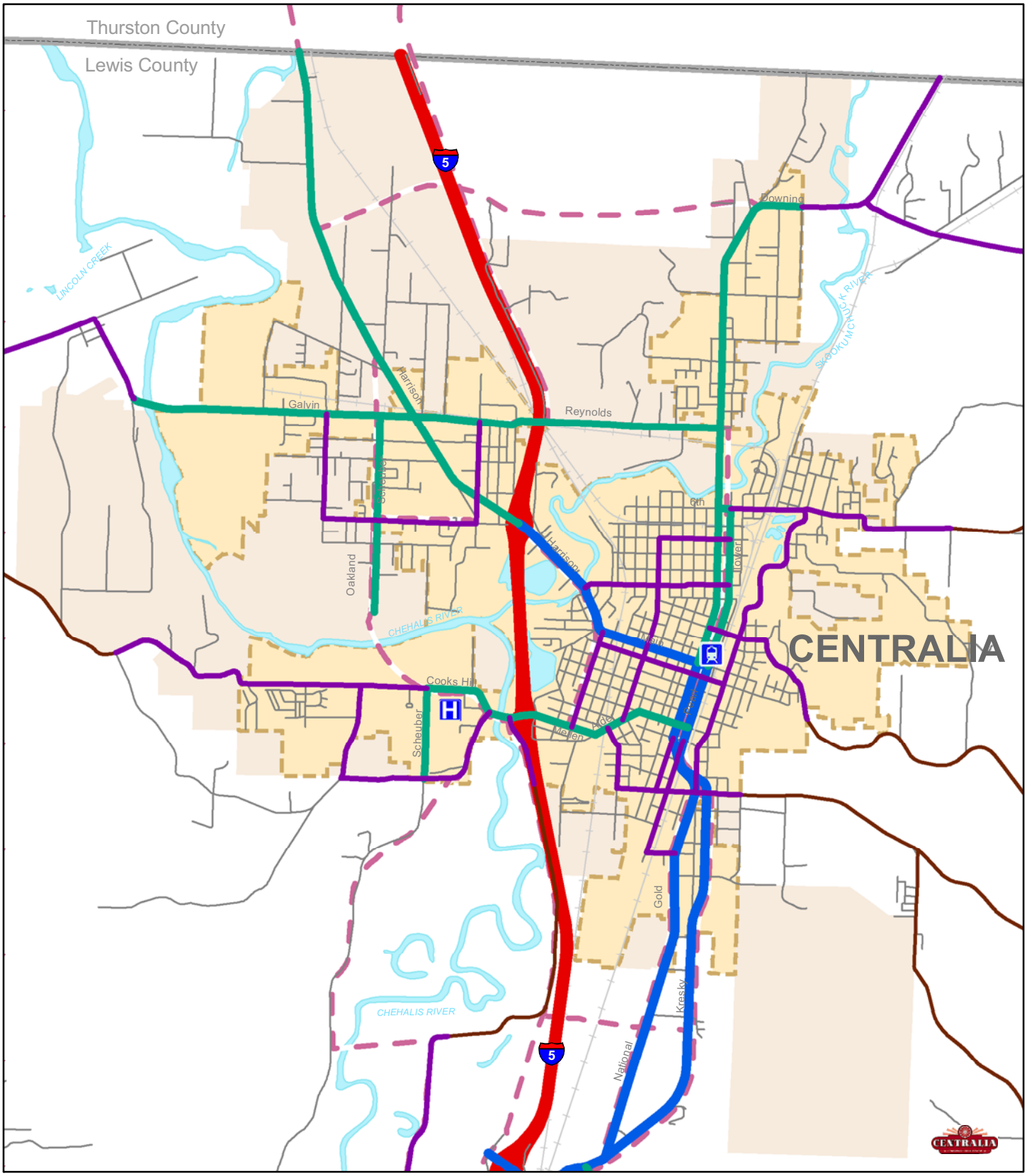
Project Number	Title	From/To	Description	Component of System	Source	Classification	Timeframe**	Priority*	Project Cost
Freight/Truck									
F-1	Harrison Ave truck route	On Harrison Avenue from Sandra to I-5	Provide signage on truck route	Freight	Existing Deficiency	Minor Arterial	Short term	High	$10500 (package)
F-2	Galvin Truck Route ext.	On Galvin from Foron to western City limits	Extend Galvin road truck route to city limits	Freight	Existing Deficiency	Minor Arterial	Mid term	Medium	$10500 (package)
F-3	West Connector truck route	On Forom and new West connection road (const. begin 2009) from Harrison to Airport road	Designate truck route on west connector	Freight	Existing Deficiency	Minor Arterial	Short term	High	$10500 (package)
F-4	Harrison truck route ext	On Harrison from Johnson to 1st	Designate and provide signage on route to Connect Harrison route with I-5 interchange and extend route to 1st	Freight	Existing Deficiency	Minor/Principal Arterial	Mid term	Medium	$10500 (package)
F-5	Central truck route	On 6th (from Tower to B sty) , on B sty (from 6th to Kearny), on Kearny (from B to Central), On Central to terminus	Designate and provide signage on route to connect truck routes to rail switch yard	Freight	Existing Deficiency	Local	Mid term	Medium	$10500 (package)
F-6	Johnson truck route	On Johnson from Harrison to Galvin	Truck access restricted to 10pm to 6am daily (provide signage)	Freight	Existing Deficiency	Minor Collector	Short term	High	$10500 (package)
Roadway Capacity									
C-R1	Airport Road widening	On Airport Road from Mellen to Louisiana	County initiated project will widen Airport from 2 to 4 lanes	Capacity (Roadway)	Lewis County 2005-2006 CIP	Minor Arterial	Short term	High	$16-29 mill
C-R2	I-5 - Blakeslee Junction to Grand Mound	On I-5 from Blakeslee railroad junction to Grand Mound	WSDOT initiated project will widen I-5 from 2 to 3 lanes in each direction	Capacity (Roadway)	WSDOT 2010 Project	Interstate/Rail/Minor Collector	Short term	High	$197 million (entire corridor from Mellen to Grand Mound)
C-R3	I-5 - Mellen Street Interchange	At Mellen Street and I-5	WSDOT initiated project will redesign and reconstruct interchange before widening I-5	Capacity (Roadway)	WSDOT 2010 Project	Interstate/Minor Arterial	Short term	High	$197 million (entire corridor from Mellen to Grand Mound)
C-R4	I-5 - Mellen to Blakeslee Junction	On I-5 from Mellen to Blakeslee Junction bridge	WSDOT initiated project will widen I-5 from 2 to 3 general purpose lanes + fourth auxiliary lane	Capacity (Roadway)	WSDOT 2030 Project	Interstate/Rail/Minor Collector	Short term	High	$197 million (entire corridor from Mellen to Grand Mound)
C-R5	West Connector (Old Highway 99)	On Old Highway 99 from US 12th SW(Thurston)) to Mellen	Construct new principal arterial, widen current segments to reflect new cross section	Capacity (Roadway)	Lewis County 2005-2006 CIP	Minor Arterial	Mid term	High	$55-97 mil
C-R6	Downing Road Extension	On Downing from Old Highway 99 to North Pearl	Extend from current terminus to Old Hwy 99, widen and designate to 4 lane major collector	Capacity (Roadway)	Lewis County Arterial Analysis	Minor Arterial	Mid term	Medium	$15.1 mil
C-R7	Blair Extension	On Blair Road from Old Hwy 99 to Hobson Road	Upgrade to 4/5 lane principal arterial road	Capacity (Roadway)	Lewis County Arterial Analysis	Minor Arterial	Long term	Low	$5-9 mil
C-R8	Salzar Valley Road	On Salzar Valley Road from National to Centralia Alpha	Provide two-way left turn lanes with left turn pockets at intersections	Capacity (Roadway)	Future Deficiency	Minor Collector	Long term	Low	$1.7 mil
C-R9	Downing /I-5 Interchange	At Downing Road arterial and I-5	Construct new interchange upon construction of Downing Road arterial	Capacity (Roadway)	Future Deficiency	Interstate/Minor Arterial	Long term	Medium	$27.2 mil

C-R10	Harrison Access Management	On Harrison from Galvin to Caveness	Consolidate driveway and/or close off intersections to remove conflicts	Capacity (Roadway)	Future Deficiency	Minor Arterial	Long term	Low	TBD
C-R12	Schueber & Cooks Hill Rd	At Schueber & Cooks Hill Rd Intersection	Add left turn pockets on all 4 approaches and signalize	Capacity (Roadway)	Future Deficiency	Major Collector	Mid term	Medium	$2.5 mil
Intersection Capacity									
I-I1	Harrison/1st Intersection	At Harrison and 1st	Provide signal, unsignalized intersection operates at LOS F	Capacity (Intersection)	Existing Deficiency	Principal Arterial/Major Collector	Short term	Medium	$250,000
I-I2	Pearl/6th Intersection	At Pearl Street and 6th Street	Provide signal, unsignalized intersection operates at LOS F	Capacity (Intersection)	Existing Deficiency	Minor/Major Collectors	Short term	Medium	$250,000
I-I3	Summa/Gold Intersection	At Summa Street and Gold Street	Provide signal, unsignalized intersection operates at LOS E	Capacity (Intersection)	Existing Deficiency	Principal Arterial	Short term	Medium	$250,000
I-I4	Summa/Kresky Intersection	At Summa Street and Kresky Avenue	Provide signal, unsignalized intersection operates at LOS F	Capacity (Intersection)	Existing Deficiency	Principal Arterial	Short term	Medium	$250,000
Safety									
S-1	Belmont/Harrison Intersection	At Belmont and Harrison	Provide signal due to intersection yielding high accident count	Capacity (Safety)	Existing safety deficiency	Local/Minor Collector	Short term	High	$250,000
S-2	Harrison/I-5 Interchange	At Harrison Avenue and I-5 ramps	Provide signal due to intersection yielding high accident count	Capacity (Safety)	Existing safety deficiency	Interstate/Principal Arterial	Short term	High	$250,000
S-3	Main/Washington Intersection	At Main and Washington	Provide signal due to intersection yielding high accident count	Capacity (Safety)	Existing safety deficiency	Principal Arterial/Minor Arterial	Short term	High	$250,000
Non Motorized									
NM-1	Harrison Bike Route	On Harrison WB from Johnson to I-5	Provide signage on bike route to indicate connection across I-5	Non-Motorized	Existing Deficiency	Minor Collector	Short term	Medium	TBD
NM-2	Mellen Bike Route	On Mellen from Nick Street to I-5	Provide signage on bike route to indicate connection across I-5	Non-Motorized	Existing Deficiency	Minor Collector	Short term	Medium	TBD
NM-3	Eshom Road Sidewalk	On Eshom from Borst to Mayberry	Provide sidewalk at schools	Non-Motorized	Existing Deficiency	Major Collector	Mid term	Medium	$650,654
NM-4	Borst Avenue Sidewalk	On Borst from Eshom to Cedarwood	Provide sidewalk at schools	Non-Motorized	Existing Deficiency	Major Collector	Short term	High	$3.3 mil
NM-5	Fords Prairie Sidewalk	On Harrison from Galvin to Caveness Dr	Provide sidewalk at schools	Non-Motorized	Existing Deficiency	Minor Collector	Mid term	Medium	$2.0 mil
NM-6	Mellen Street Sidewalk	On Mellen from Old Access Treatment Plant to CMRR	Provide pedestrian connection between future trail network (http://www.wsdot.wa.gov/Projects/I5/MellentoGrandMound/Phase3/)	Non-Motorized	Existing Deficiency	Minor Collector	Mid term	Medium	$197 million (entire corridor from Mellen to Grand Mound)
NM-7	Mt. Vista Road Bike Lane and Sidewalk	On Mt. Vista from Fort Borst Park to Eshom	Provide non-motorized facilities to connect community facilities	Non-Motorized	Existing Deficiency	Local	Long term	Low	TBD
NM-8	Johnson Bike Lanes	On Johnson from Harrison to Mt. Vista	Provide bike lanes to connect residential to commercial	Non-Motorized	Existing Deficiency	Major Collector	Mid term	Medium	$1.0 mil
NM-9	Oakland Bike Lanes	On Oakland from Galvin to city limits	Provide bike route to connect Oakland	Non-Motorized	Existing Deficiency	Minor Arterial	Mid term	Medium	TBD
NM-10	Locust sidewalk	On Locust from Berry to Seminary Hill trail	Provide sidewalk to connect residential to recreational	Non-Motorized	Existing Deficiency	Local	Long term	Low	TBD
NM-11	Galvin Bridge Trail to Borst Park	Trail on Chehalis River from Public Works Facility trail to Fort Borst Park	Designate and develop trail along Chehalis River	Non-Motorized	Draft Open Space Comprehensive Plan	Trail	Mid term	Medium	$3.4 mil (includes NM-12)

NM-12	Borst Park Trail to Schaefer County Park	Trail between Borst Park trailhead to Schaefer County Park trailhead	Designate and develop trail along Chehalis River	Non-Motorized	Draft Open Space Comprehensive Plan	Trail	Long term	Low	$3.4 mil (includes NM-11)
NM-13	Tacoma Line Rail trail	Converted Rail-to-Trail on CMPP/Tacoma line to City Limits	Designate and develop trail along Tacoma Rail (Chicago Milwaukee Pacific Rail)	Non-Motorized	Draft Open Space Comprehensive Plan	Trail	Long term	Low	TBD
Transit									
T-1	Designate Public Amenities/Facilities at Centralia station	At Centralia Station	Supply public benches, posted fares, and other passenger amenities	Transit	Existing Deficiency	Transit Facility	Mid term	Medium	TBD
T-2	Designated loading areas and platform	At Centralia Station	Designate passenger loading/parking/baggage checking/ticketing areas with signage at appropriate areas	Transit	Existing Deficiency	Transit Facility	Short term	High	TBD
T-3	Twin Transit Route #22 Ext	From Russell to Galvin	Re-route #21 or #22 northward on Harrison to Galvin and continue route along existing route on Eshom	Transit	Existing Deficiency	Minor Arterial, Major Collector	Mid term	Medium	TBD
T-4	Twin Transit Route #21 Ext	Route #21 on Harrison from Russell to Prairie	Extend route #21 on Harrison from Russell to Prairie to connect to Grand Mound	Transit	Existing Deficiency	Minor Arterial	Long term	Low	TBD
T-5	LOS Headway Improvements	All Twin Transit Routes	Improve LOS goals by decreasing headway from 60 to 30 minutes	Transit	Twin Transit	Transit LOS	Mid term	Medium	TBD

**Short term = 2007 - 2009
Mid-term = 2010 - 2013
Long term = 2014 - 2030

* High Priority = Urgent, Safety Issue
Medium Priority = Important Project
Low Priority = Long-term Project



Source: Lewis County (2006) and CH2M HILL (2006)

- Local Roadways
- Minor Collector
- Major Collector
- Minor Arterial
- Principal Arterial
- Interstate
- Future County Arterial
- Amtrak Station
- Hospital
- Centralia City Limits
- Urban Growth Area

0 0.5 1 Mile

N

Map 1
Functional Roadway Classifications
Centralia, WA

CH2MHILL

Note: Centralia functional classification is consistent with federal FHWA functional classification maps.

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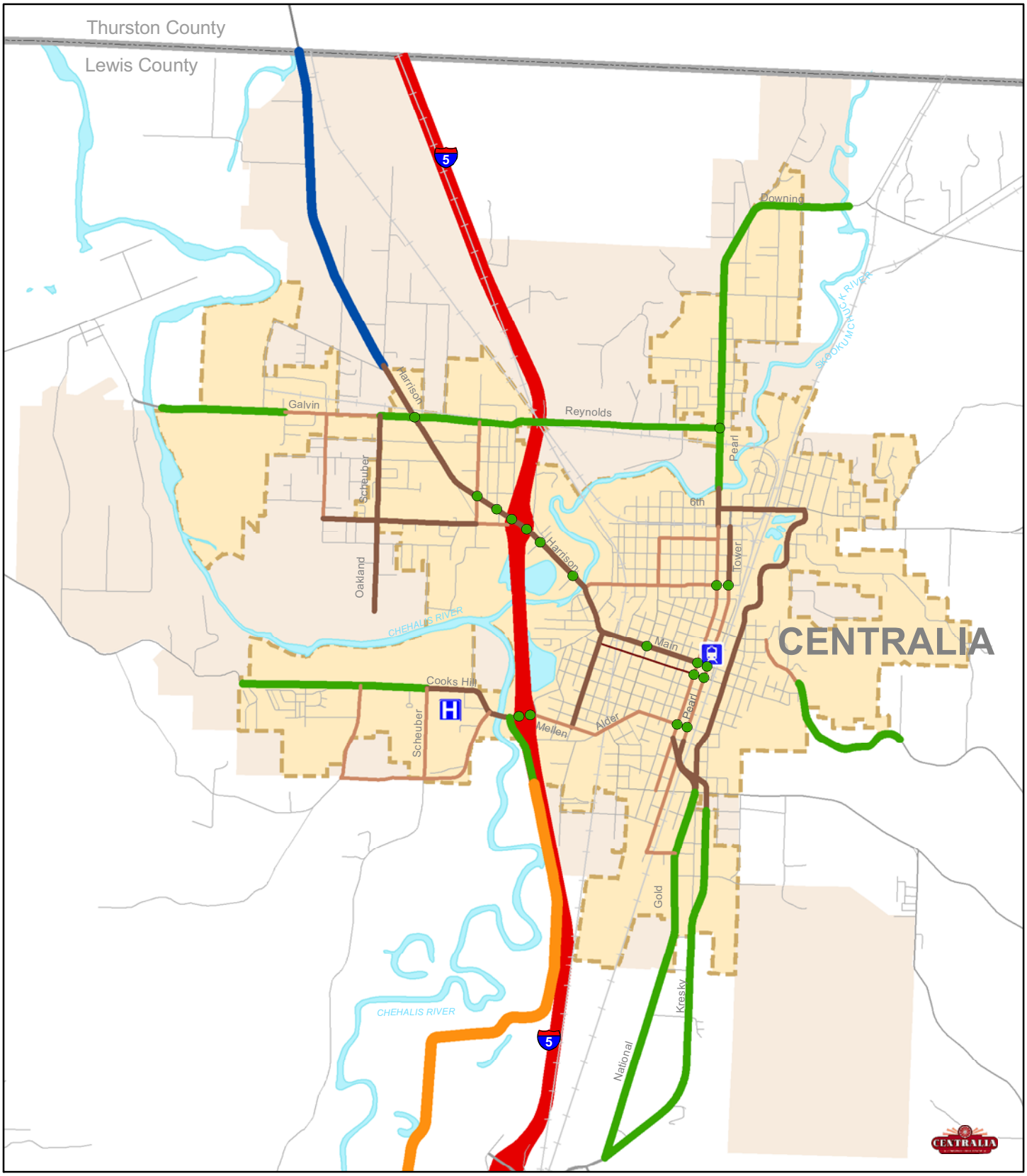

Source: Lewis County (2006) and CH2M HILL(2006)

20 MPH
25 MPH
30 MPH
35 MPH
40 MPH
50 MPH+

Signalized Intersection
Amtrak Station
Hospital

Centralia City Limits
Urban Growth Area

0 0.5 1 Mile

N

Map 2
Signalized Arterial Intersections and Speed Limits, 2007
Centralia, WA

CH2MHILL

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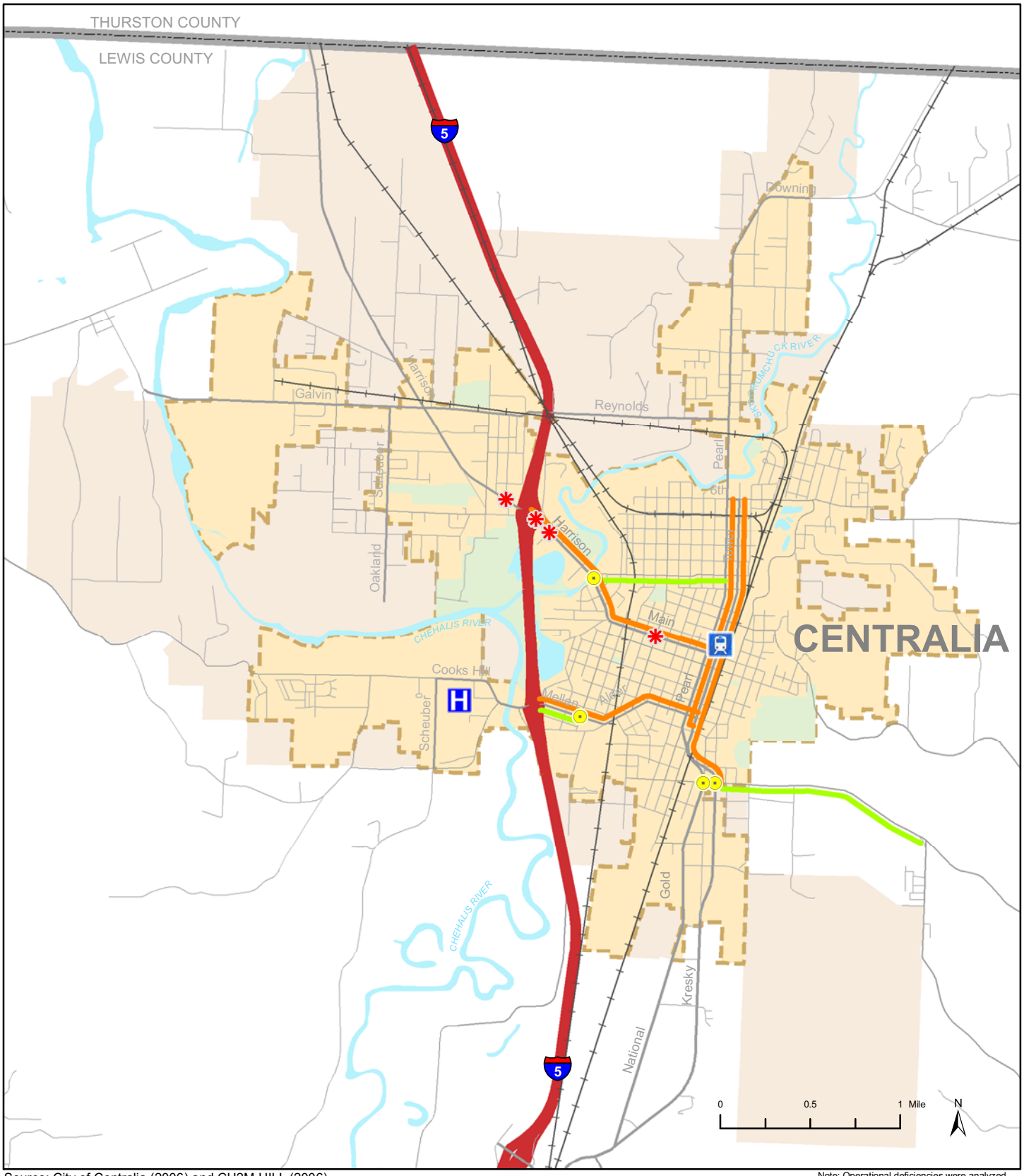

Source: City of Centralia (2006) and CH2M HILL (2006)

Note: Operational deficiencies were analyzed on LOS D for Centralia, County, regional arterial and state roadways. Accident deficiencies are defined as intersections with 5 or greater accidents per year, segments with 10 or greater accidents per year.

- Significant Intersection Accident Location
- Intersection Operational Deficiency
- Segment Accident Deficiency
- Segment Operational Deficiency
- Hospital
- Amtrak Station
- Railroad
- Centralia City Limits
- Urban Growth Area

Map 3
Existing Operational and Accident Deficiencies-Arterial (2007)
Centralia, WA

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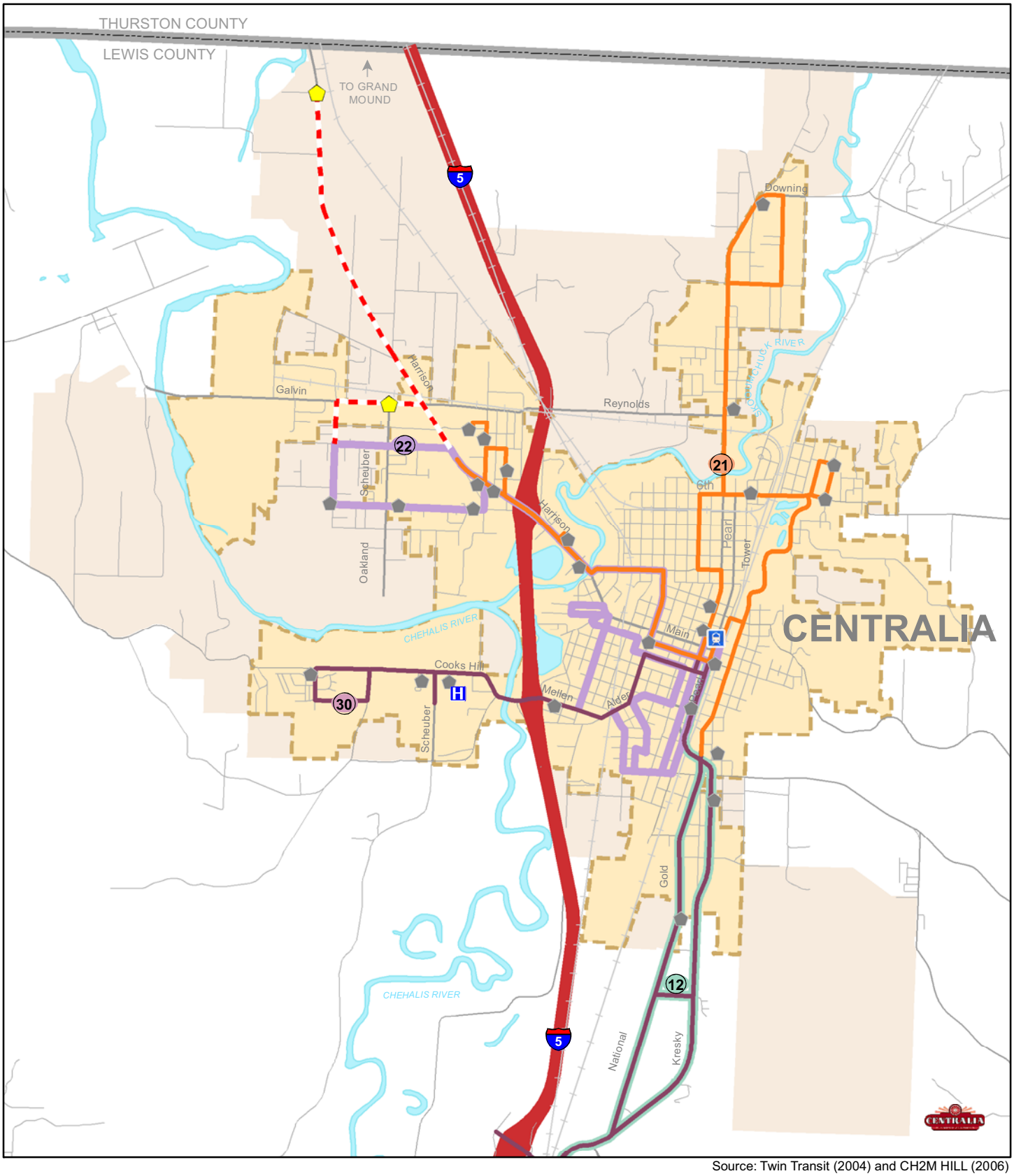

Source: Twin Transit (2004) and CH2M HILL (2006)

Transit Stops
Route #12
Route #21
Route #22
Route #30
Future Transit Stop
Future Bus Route 22
Amtrak Station
Hospital
Centralia City Limits
Urban Growth Area

0 0.5 1 Mile

N

Map 4
Existing and Future Transit Routes
Centralia, WA

CH2MHILL

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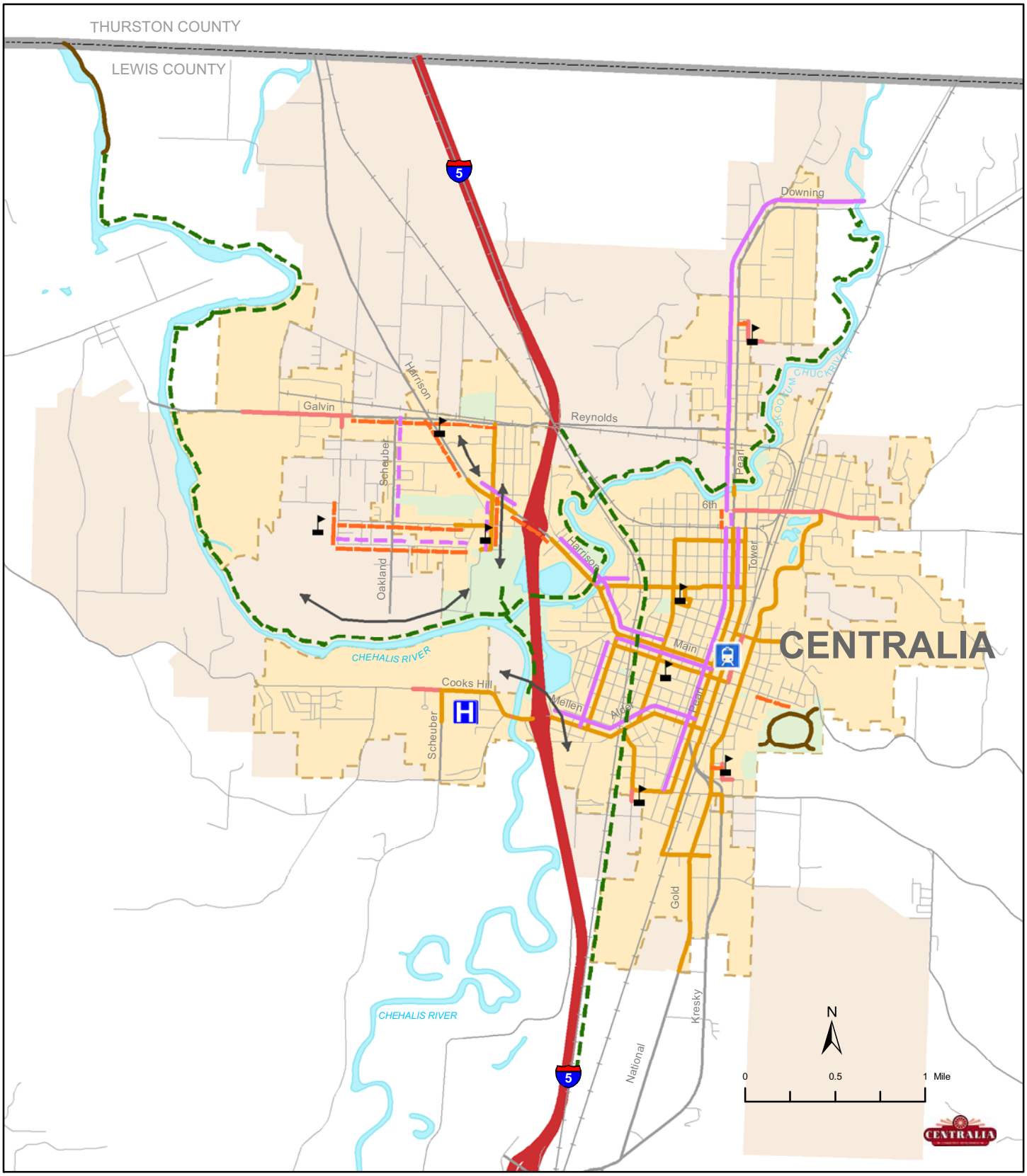

Source: Lewis County (2004), Centralia Parks and Open Space Plan (2006) and CH2M HILL (2006)

- Bike route
- Sidewalk, one side
- Sidewalk, both sides
- Trail
- Future Bike Route
- Future Sidewalk
- Future Trail
- Priority Connection Corridors
- School
- Hospital
- Amtrak Station
- Railroad
- Centralia City Limits
- Urban Growth Area

Map 5
Existing and Future Pedestrian and Bicycle Facilities (Arterials and Collectors)
Centralia, WA

Note: Sidewalk inventoried on arterial streets only, downtown Centralia features existing sidewalk.

CH2MHILL

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Source: Lewis County (2004) and CH2M HILL (2006)

Future Truck Route
Truck Route
Railroad
Amtrak Station
Hospital
Centralia City Limits
Urban Growth Area

0 0.5 1 Miles

N

Map 6
Freight Routes
Centralia, WA

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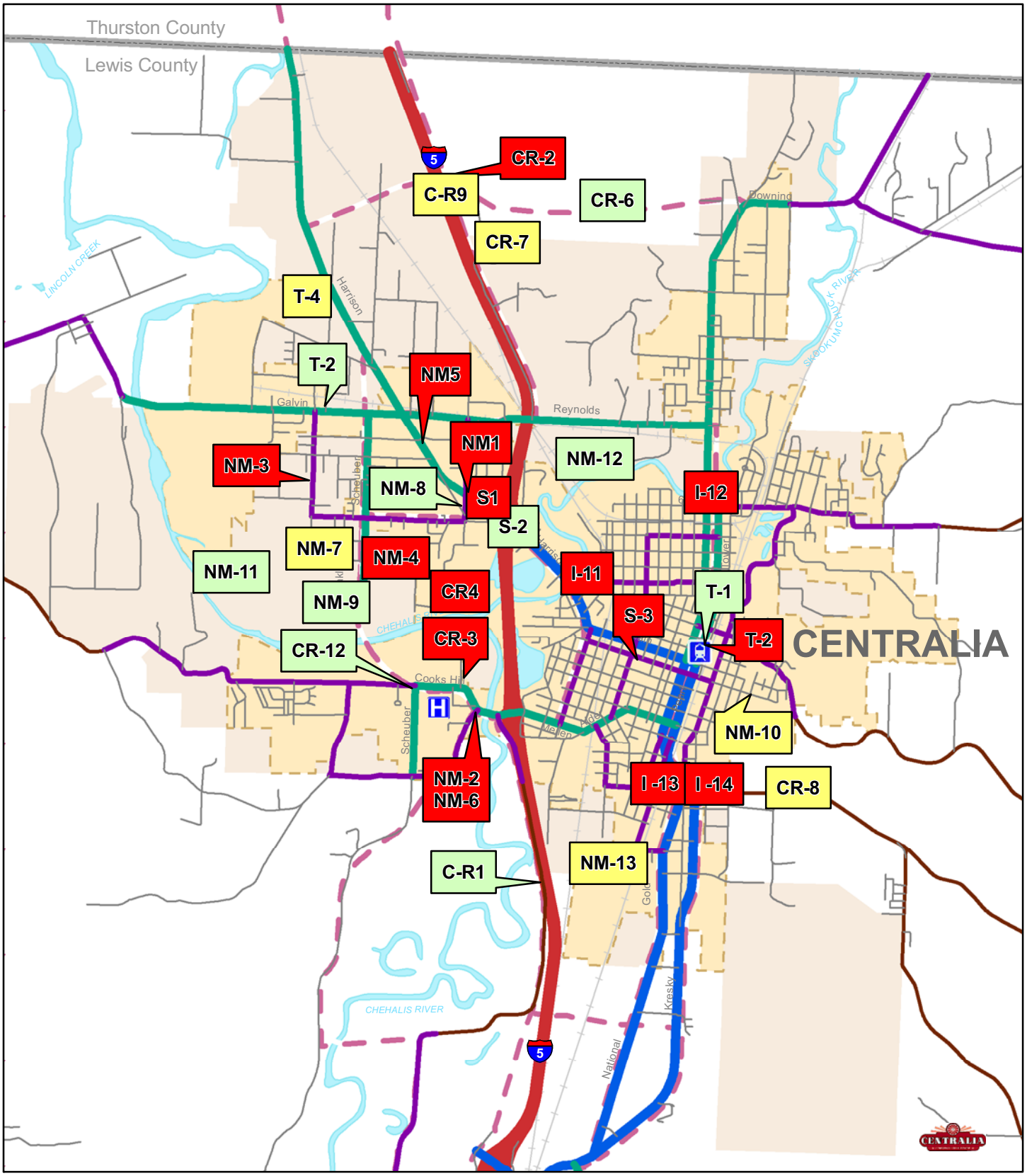

Source: Lewis County (2006) and CH2MHILL (2006)

Map 7
Capital Improvement Projects
Centralia, WA

CH2MHILL

Note: Project Labels correspond to projects shown in Table 10, Section 6.0

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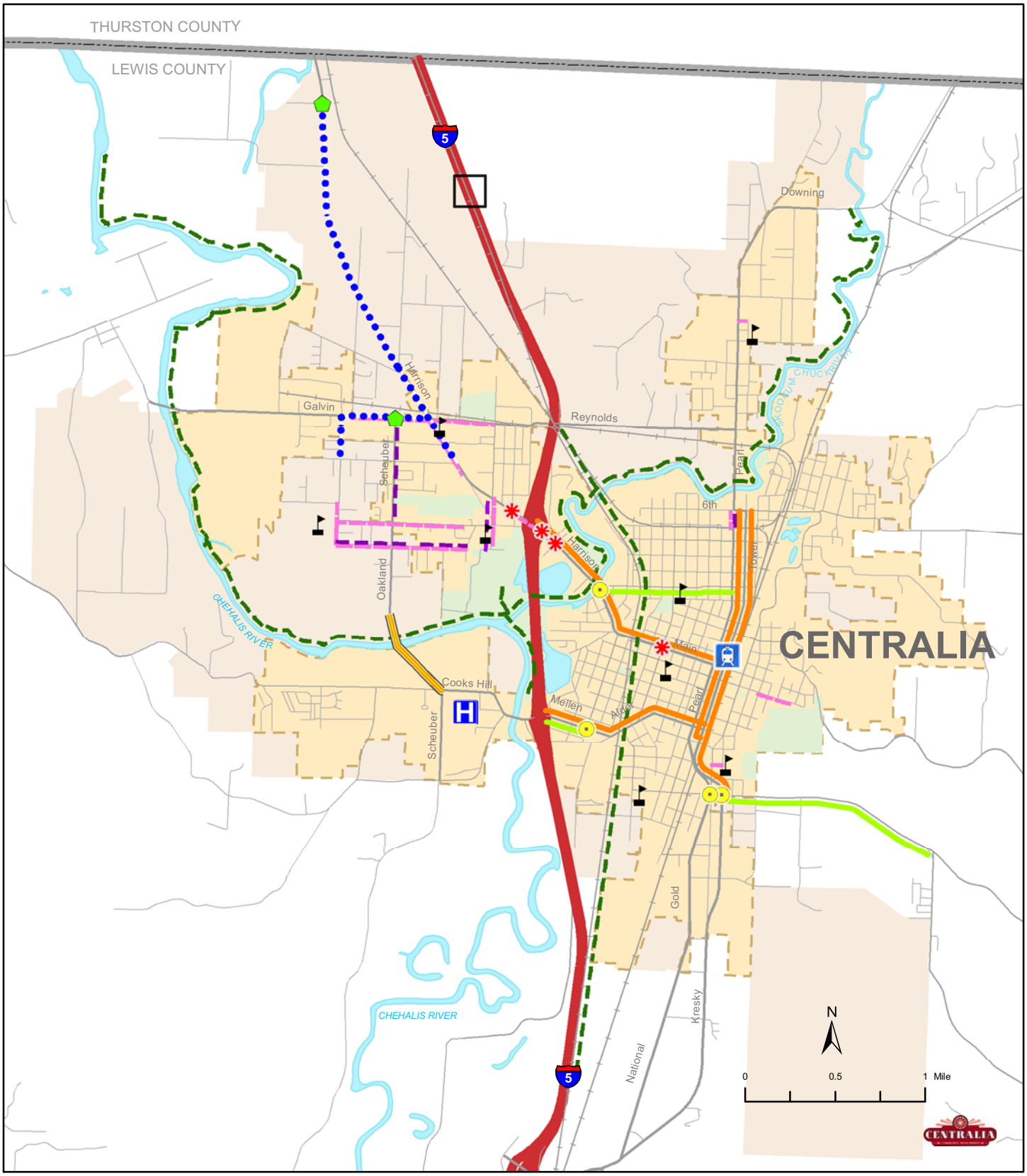

Source:City of Centralia (2006) and CH2M HILL (2006)

- Intersection Accident Location
- Accident Deficiency
- Operational Deficiency
- Operational Deficiency
- Future Transit Stop
- Future Bus Route 22
- Future Truck Route
- Future Bike Route
- Future Trail
- Future Sidewalk
- Future Deficiency Interchange Improvement
- Amtrak Station
- School
- Hospital
- Railroad
- Centralia City Limits
- Urban Growth Area

Map 8
Future Transportation Deficiencies
Centralia, WA

CH2MHILL

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Attachment 1

Level of Service Definitions and Recommendations

Centralia Transportation Element Concurrency Recommendations

TO:	Emil Pierson, City of Centralia Jan Stemkoski, City of Centralia
COPIES:	Jeanne Acutanza, CH2M HILL Craig Grandstrom, CH2M HILL
FROM:	Kirsten Pennington, CH2M HILL
DATE:	February 15, 2007

Note: This memorandum fulfills Task 3.2 of the Centralia Comprehensive Plan Transportation Element Update Scope of Work.

Purpose

The purpose of this memorandum is to provide the City of Centralia an overview of transportation concurrency and to recommend a local concurrency strategy and threshold that can be adopted as part of the City of Centralia's Comprehensive Plan Transportation Element revision.

What is Concurrency?

Transportation concurrency refers to an ongoing process of coordinating infrastructure needs with community development. This concept is a requirement at the state level in Washington and calls for infrastructure (such as additional roadway lanes and improved intersections) or strategies (such as increased public transportation service and ride sharing programs) to be planned and funded before new development begins. Infrastructure and strategies should increase capacity, and a financial commitment should be made to complete these improvement strategies within six years of the impact of new development.

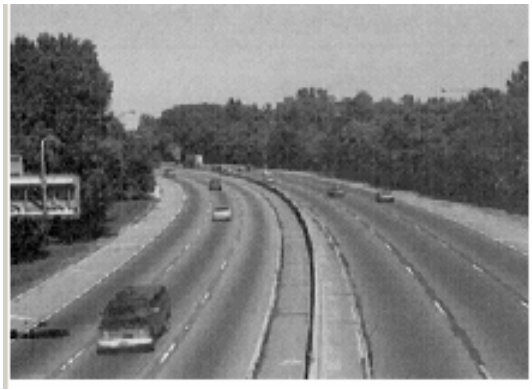


Figure 1. Level of Service A (Highway Capacity Manual)

Improved infrastructure and transportation strategies are often developed in anticipation of the increased travel demand normally associated with development. These improvements are important for accommodating growth as they can add capacity and reduce congestion.

This concept was formalized in the Washington State Growth Management Act (GMA), Chapter 36.70A in the Revised Code of Washington, to ensure that adequate public facilities are provided in concert with population and employment growth. For transportation facilities, the GMA requirement is fulfilled if roadway level of service (LOS) thresholds are met with the additional travel demand generated by development actions.

Level of service is often used as a measure of traffic operations because it refers to the degree of congestion on a roadway or at an intersection and is based on the methodologies provided in the Highway Capacity Manual, a nationally recognized and federal standard engineering manual. Examples of LOS measurements include measuring the delay at an intersection or the density of vehicles on a freeway segment. LOS A represents free-flow conditions (motorists experience little or no delay and traffic levels are well below roadway capacity), LOS F represents forced-flow conditions (motorists experience very long delays and traffic levels exceed roadway capacity), and LOS B to E represent increasingly congested conditions.

For the purposes of the Centralia Transportation Element, concurrency and LOS refer to vehicle travel on roadways. LOS standards can also be developed to work with or support other modes, such as freight, transit, and non-motorized.

Figure 3. Level of Service C (Highway Capacity Manual)

These LOS thresholds are adopted in a city's comprehensive plan. The concept of concurrency is also outlined in Revised Code of Washington 36.70A.070, which states,

> "local jurisdictions must adopt and enforce ordinances which prohibit development approval if the development causes the level of service on a locally owned transportation facility to decline below the standards adopted in the transportation element of the comprehensive plan, unless transportation improvements or strategies to accommodate the impacts of development are made concurrent with the development."

A concurrency LOS threshold is the level at which traffic must operate when a transportation facility (such as a roadway or intersection) becomes affected by an increase in traffic. This increase in traffic may come from increasing personal travel, new land uses or developments, or increased regional through traffic. Appendix A includes LOS definitions.

By setting a specific LOS threshold, which is generally set either to an existing condition or a desired (improved) condition, a city can ensure that traffic operations are still acceptable, and do not degrade below the adopted acceptable LOS, even with the potential increase in traffic.

For example: if a road segment exists at a LOS E condition and the concurrency standard adopted is the existing condition, a development would be expected to mitigate the traffic impacts related to the development in order to preserve this LOS E condition. Often times the concurrency standard is adjusted to different geographic areas so that it matches appropriately to the conditions. Urban conditions have more congestion; therefore, poorer (lower) levels of operation may be tolerable. In rural or residential neighborhoods, better (higher) levels of service might be desirable.

Figure 4. Level of Service D (Highway Capacity Manual)

The volume of development-related traffic is based on anticipated land use type, size, and location of the development. Each land use type correlates to a specific rate of trips, generally calculated on a per-square-foot basis. A standard source for trip generation estimates is the Institute of Transportation Engineers (ITE) Trip Generation Manual, 7th edition. These trip generation rates may then be adjusted or modified by a jurisdiction to better represent local traffic conditions, such as based on data from local Traffic Impact Studies.

The trip generation rate determines the volume of development-related traffic; therefore, it is not uncommon for certain larger, public developments to generate high volumes of traffic, which can cause operations to degrade below the LOS threshold.

When this occurs, the City may choose to impose development impact fees. These development impact fees are collected to fund improvements that add capacity to the transportation system. This added capacity is necessary to accommodate new travel demand by the development, and to keep traffic operations at or below the LOS threshold. The major goal of imposing impact fees is to shift the burden of financing new infrastructure from the overall community to land owners, developers, or consumers of new development. Impact fees are not intended to be used for operational expenses or to pay for capital improvements for correcting an existing deficiency or shortfall. The three most common types of impact fees are *flat fee* (based on a unit related to the size of the development such as dwelling units, number of employees, or square foot of space), *variable fee* (typically varies with amount of traffic generated by the development and its origin and destination), and *negotiated fee* (the developer and the community negotiate to determine the amount of fee imposed on the developer).

Why is Concurrency Important for the Transportation Element?

Concurrency strategies and threshold levels are important because they set the framework to compare and evaluate how the effects of potential future development will impact infrastructure needs.

A concurrency strategy may be adjusted or modified with time to better assess future development, but it is crucial to have in place before alternatives can be analyzed or developed. Concurrency thresholds dictate which improvements will be made to the transportation system and which issues will be addressed.

In addition to a concurrency strategy, a concurrency threshold is also important because an actual LOS value is determined, to which the effects of development can be measured against.

Figure 5. Level of Service E (Highway Capacity Manual)

Having an agreed upon LOS threshold value is critical, as there will be no uncertainty or ambiguity in determining measurable impacts of developments. If a development generates enough traffic to increase the LOS beyond what is acceptable, then the development must be modified or LOS mitigated back to an acceptable range in deciding impact fees, or implementing infrastructure.

Meeting concurrency is important because by regulating the extent of development, a City can more effectively try to accommodate traffic increases, by planning and /or funding additional transportation infrastructure, before it occurs.

Concurrency standards are important for Centralia because these standards can create a consistent platform for which all development occurs. This can provide for better, continuous travel because of similar rules on development and consistent traffic infrastructure.

What are the Different Ways Concurrency Thresholds are Measured?

Concurrency thresholds can be determined by assessing a variety of traffic measures described below.

Intersection or Corridor Arterial Level of Service (LOS)

As previously mentioned, LOS is a measure of congestion on a particular transportation facility. Level of service is commonly used as a concurrency threshold because it effectively measures impacts related to development in terms of congestion.

Volume to Capacity Ratio (v/c)

Similar to delay, the volume to capacity ratio (v/c) can also be calculated as a concurrency threshold measure. The v/c ratio measures the amount of traffic volume as a percent of the total capacity that can be carried by the facility. A v/c ratio of 1.0 indicates that the volume of traffic is equal to the capacity and increasing traffic demand will cause the facility to break down.

Vehicle Miles Traveled (VMT)

Vehicle miles traveled (VMT) is the total number of miles traveled by all vehicles within a system, and can be calculated to measure the relative amount of congestion between transportation alternatives. When assessing alternatives, a higher VMT value may suggest less congestion because vehicles are free to move within a system (accumulating many vehicle miles traveled).

Vehicle Hours of Delay (VHD)

Vehicle hours of delay (VHD) can also be calculated to measure relative congestion within a transportation system between alternatives. Delay can be reported in terms of travel time on a corridor, or by travel speeds on roadways. When assessing alternatives, a lower VHD value means vehicles experience less hours of delay, suggesting a higher percent of actual move time, while traveling through a system.

Area Averaging (Zoning)

Area averaging is a method in which the performance of transportation facilities are grouped and averaged by zones before being measured against a concurrency threshold. The jurisdiction is involved in grouping facilities into appropriate zones. This method can be useful for areas in which traffic operations are not uniformly affected (a certain area becomes extremely affected while nearby areas are not).

Screenline Volumes

A screenline traffic volume threshold can be set by a jurisdiction to measure concurrency. In this method, locations (screenlines) on parallel transportation facilities, typically arterials, will be monitored for traffic volume increases as they are generated by a potential development. This approach permits traffic to be distributed more evenly over several roadways, rather than measuring a single congested facility against a threshold. A development meets concurrency if the threshold volume limit is not exceeded across all screenlines.

Non-Traffic Related

Concurrency can also be measured by non-traffic means if geometric thresholds are set. Rather than measuring traffic operations (flow, congestion, etc.), the design speed and geometric features can be built to certain design standards. Adherence to these desirable design standards are used as a performance threshold measure. Examples of implementing concurrency using non-traffic related methods would be to design new infrastructure that accommodates certain speed limits, shoulder widths, amenities, etc.

How does Centralia Currently Handle Concurrency?

Centralia

The City of Centralia Comprehensive Plan Transportation Element (adopted December 1998) suggests that concurrency can be measured by a volume to capacity ratio (v/c) at six screenline locations within the city. For developments affecting more heavily traveled and commercial areas, a v/c ratio of 0.9 at screenline locations is recognized as acceptable, whereas for lesser traveled areas, a v/c ratio of 0.8 at screenline locations would be acceptable.

Washington State Facilities

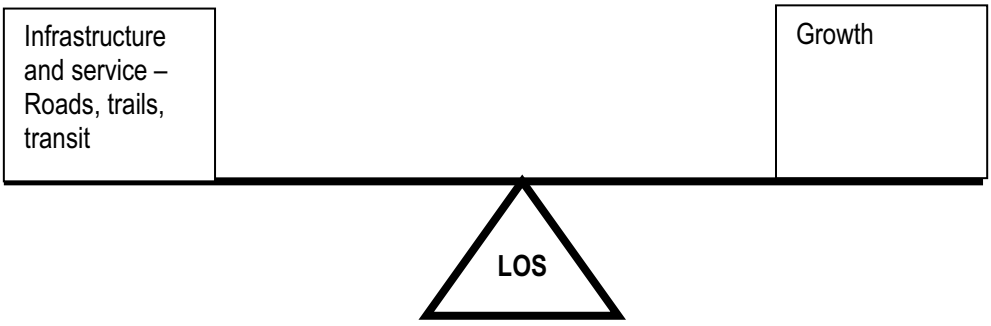
State roadways are categorized as either highways of statewide significance (HSS) or regionally significant state highways (non-HSS). An HSS designation is assigned to all interstate routes and other major highways that are needed to connect major communities in the state. The designation also helps assist with the allocation and direction of funding.

Level of service thresholds for HSS roadways are determined by the Washington State Department of Transportation, and are required by law to be adopted by local jurisdictions. In urban areas of all counties of the state, such as Centralia, the LOS standard for HSS roadways is LOS D.

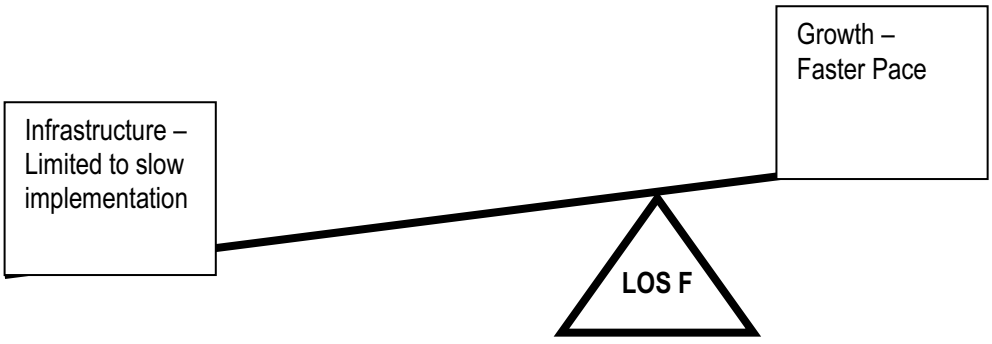
Non-HSS roadways include other major roadways that are used for local transportation. The LOS thresholds for non-HSS roadways can be determined or adopted by the local metropolitan planning organization (MPO) or regional transportation planning organizations (RTPO). In Lewis County urban areas, the LOS standard for non-HSS roadways is LOS D.

Considerations for Setting Concurrency / LOS Standards

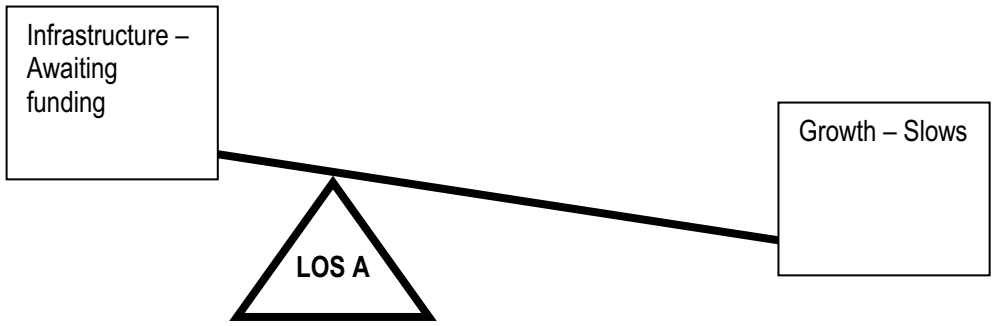
Setting a standard for LOS and concurrency has opportunities and challenges – if a standard is set too high (e.g. LOS A or free flow) it may negatively discourage development and leave capacity for through trips only, if it is set too low (e.g. LOS E or F), rising congestion can impact air quality, safety, and overall livability of a community. In developing a concurrency standard, agencies should consider the following issues:



- ***What level of data collection and monitoring is needed?*** The data needed for developing standards is dependent on the year and period (such as PM Peak or retail peak). Traffic volumes, travel times and other measures should be compared to current conditions to insure the instruments for measurement are valid. Variability in data collected can result from seasonal traffic, retail peaks, and school peaks. For example, on Interstate 5 through Lewis County high peak travel occurs on weekends where inter-city recreational travel coincides with high freight movements. The time frame for revisiting concurrency should also be established. Should concurrency be checked to test assumed land use (including known, pipeline developments) against programmed and funded infrastructure? For this case a shorter range, such as a 2010 forecast scenario, may be needed.
- ***How does a concurrency standard link to infrastructure investment plans (TIP, CIP)?*** In developing transportation investment plans, concurrency can be used as a factor to prioritize improvements and advance funding. In general concurrency links growth to infrastructure availability. If improvements can not be implemented to meet the demands of land use/growth the concurrency standard or land use may need to be revised. As noted above a 6-year capital improvement plan can be compared to short range developments to test concurrency standards.



- ***How does a concurrency standard link to long range transportation planning and Growth Management?*** Agencies are required to look at long range (20 plus years) growth and the implications to infrastructure including roadways. Concurrency allows a long range look to identify roadway and other transportation investments that are needed to support an agreed upon level of service with anticipated growth. A long range test of concurrency is also advisable to show that investment is being coordinated with land use and zoning goals.
- ***How can a concurrency standard link between modes of transportation?*** This document will generally address only vehicular level of service standards; however, as land use density can support transit and carpooling modes of travel, it may be desirable to reconsider the link between vehicle and other modes of transportation to develop a more durable standard. In general, congestion is viable reason to promote carpooling and transit use and argues in favor of not setting the standards to high (LOS A for example). Also, accommodating alternative modes of travel within capacity based projects, such as non-motorized modes, may be a way of increasing mode split on facilities away form single occupant vehicle use. Accommodation of non-motorized modes will also make projects more attractive in competing for grant funding.



- ***How can a concurrency standard link to mitigation or impact fees?*** In setting a concurrency standard, a community is identifying a desirable or tolerable level of service or level of congestion. When that threshold is expected to be exceeded, choices for the community include revising the standard, implementing mitigation or denying development. If the choice is to implement mitigation, the mitigation can be implemented by using agency funding sources, seeking grants or collecting fees from developments. Collecting mitigation from developers can either be done through permitting process with impact fees or as part of SEPA. Under SEPA there would need to be a direct connection or "nexus" between the mitigation and the traffic impact.

Recommendations

The following recommendations are offered for the City of Centralia's Comprehensive Plan Transportation Element:

-Intersection operations shall not exceed level of service D for the design year 2030 as measured in terms of average intersection delay and based on the methods in the Highway Capacity Manual. LOS is delay-based for intersections.

-Intersection operations will be measured every two years at the following intersections, or as development occurs:

-Harrison Avenue & Reynolds Avenue
-Reynolds Avenue & Pearl Street (SR 507)
-Harrison Avenue & I-5 Southbound Ramps
-Harrison Avenue & I-5 Northbound Ramps
-Main Street & Pearl Street (SR 507 Couplet)
-Main Street & Tower Avenue (SR 507 Couplet)
-Mellen Street (SR 507) and I-5 Southbound Ramps
-Mellen Street (SR 507) and I-5 Northbound Ramps
-Cherry Street & Pearl Street (SR 507 Couplet)
-Cherry Street & Tower Avenue (SR 507 Couplet)
-Harrison Avenue & West 1st Street
-Mellen Street & Airport Road
-Mellen Street & Yew Street
-Summa Street & Gold Street
-Summa Street & Kresky Avenue
-Tower Avenue & W. 6th Street
-Pearl Street & W. 6th Street

-The LOS standard will be used to help determine infrastructure needs for Centralia's transportation improvement program.

Appendix A

Level of Service Definitions

Level of Service (LOS) is a qualitative measurement of intersection operation. LOS for both unsignalized and signalized intersections are based on control delay. Control delay is a measure of driver discomfort and frustration, fuel consumption, and lost travel time. In general, control delay is the difference between the travel time actually experienced to the travel time experienced under ideal conditions in the absence of traffic control, geometric delay, incidents, and other vehicles.

TABLE A-1
Level of Service Definitions

Level of Service	Traffic Flow Characteristics
A	Level of service A describes operations with very low delay per vehicle. This occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Level of service B describes operations with minimal delay per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Level of service C describes operations with moderate delay per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Level of service D describes operations were the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle length, or high v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Level of service E describes operations with at the limit of acceptable. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.
F	Level of service F describes operations with an unacceptable delay per vehicle for most drivers. This condition often occurs with oversaturation, i.e., when arrival flow rates exceed the capacity of the intersection. It may also occur at high v/c ratios (those over 1.00) with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

Source: Highway Research Board, *Highway Capacity Manual*, Special Report No. 209, 2000.

Signalized and Unsignalized Intersection LOS Ranges

Unsignalized Intersection LOS

Level of Service for All-Way Stop-Controlled (AWSC) intersections is defined as average control delay for the whole intersection. Control delay is defined as the total elapsed time from when a vehicle stops at the end of the queue until the vehicle departs from the stop line; this time includes the time required for the vehicle to travel from the last-in-queue position to the first-in-queue position. Two-Way Stop-Controlled (TWSC) intersections apply the same methodology, but only provide delay for the minor stop-controlled approaches. Level of Service for TWSC intersections is not defined for the intersection as a whole.

Signalized Intersection LOS

Level of Service, based on average control delay, is defined for the intersection as a whole. Control delay is a complex measure and is dependent on a number of variables, including the quality of progression, the cycle length, the deceleration and acceleration delay, the stopped delay, the green ratio, and the v/c ratio for the lane group or approach in question.

LOS	Unsignalized Intersections (Control delay in seconds)	Signalized Intersections (Control delay in seconds)
A	≤ 10	≤ 10
B	> 10 and ≤ 15	> 10 and ≤ 20
C	> 15 and ≤ 25	> 20 and ≤ 35
D	> 25 and ≤ 35	> 35 and ≤ 55
E	> 35 and ≤ 50	> 55 and ≤ 80
F	>50	>80

Attachment 2

Existing Conditions Memorandum

Centralia Transportation Element: Existing Conditions

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I. Introduction

This memorandum includes a summary of existing transportation conditions for the City of Centralia Comprehensive Plan Transportation Element Update. This memorandum assesses existing transportation facilities and identifies transportation deficiencies in Centralia, which is used to help develop prioritized recommendations for projects and strategies to address long-range transportation needs (year 2030) in the City of Centralia.

The following topics are covered within this section:

- Study Area
- Summary of Existing Land Uses
- Roadway Facilities
- Accident Analysis
- Existing Traffic Operations Analysis
- Transit Facilities
- Pedestrian and Bicycle Facilities
- Air Transportation
- Rail Transportation
- Water Transportation
- Summary of Deficiencies and Issues

II. Study Area

The study area for the Centralia Transportation Element update includes the area within the city limits of Centralia as well as the designated Urban Growth Area (UGA). The city of Centralia is located approximately 25 miles south of Olympia and 42 miles north of Kelso along Interstate 5 (I-5) in Washington. All roadway facilities in the study area fall under the jurisdiction of the City of Centralia, Lewis County or the Washington State Department of Transportation (WSDOT). I-5 and SR 507 are the major highway facilities located within the study area.

The study area is primarily level terrain with some rising elevations in the eastern portion of the study area. The confluence of the Chehalis and Skookumchuck Rivers are located within the study area as well as Borst, Hayes and Plumber lakes. Centralia contains some significant floodplain areas. Map 1 shows the study area including city limits and designated UGAs outside the city limits.

III. Existing Land Uses

The three most common land uses in Centralia include: Centralia: commercial, industrial and very low density residential. Other land uses include low and medium density residential, public facilities and parks and open space.

Commercial development is mostly concentrated in three areas: commercial land adjacent to I-5, in the Central Business District (CBD) downtown, and the southeast portion of the city surrounding Gold Street and Kresky Avenue. Industrial land is primarily located along Harrison Avenue, west of I-5 in the northeastern portion of the city. Other industrial areas are located outside the city limits within the UGA. Residential is the primary land use when measured by acreage within the city. Significant residential concentrations are located in the southwest portion of the city, west of the Chehalis River, surrounding the CBD, and to the east of the CBD and rail lines.

Public facilities are dispersed throughout the city with only Centralia High School located outside the city limits, but within the designated UGA.

In the future, population and job growth within the study area is in anticipated to occur due to increased population pressures in the state and pending industrial development. The updated Centralia Comprehensive Plan includes land use information anticipated to help accommodate the expected growth.

I . Roadway Facilities

An inventory of roadway facilities and characteristics is important to set a baseline of information and recommend development of the transportation system. The roadway network for the City of Centralia demonstrates a grid pattern with many parallel roads and intersecting cross-streets. Historically the grid pattern paralleled the north-south railroad and that pattern exists today in the downtown area. The following section describes the roadways within the study area designated on the Federal Highway Administration's Functional Classification Programmatic Update (approved 12/30/2003) for the Centralia-Chehalis Urban Area. Other public roadways are designated as local roadways.

Interstate

Interstate 5

Interstate 5 is a limited access Highway, classified as part of the National Highway System (NHS). I-5 is also a designated freight route and a federal North America Free Trade Agreement (NAFTA) route. I-5 is the primary north-south interstate roadway facility for the pacific coast states (Washington, Oregon and California).

I-5 within the study area runs north-south through Centralia. Within the study area I-5 is a four-lane facility (two lanes in each direction). WSDOT data indicates an Average Daily Traffic volume (ADT) of 62,000 vehicles at milepost 81.21 just north of the SR 507/Mellen Street ramps in 2005. The truck percentage at WSDOT count location (R019) is 19 percent in 2005.

Two diamond interchanges at Harrison Avenue and Mellen Street link I-5 with the city street network. These interchanges are controlled with traffic signals where the ramp terminals intersect with the arterial network.

On-Ramp to I-5 in Centralia from Mellen Street

Principal Arterials

Pearl Street and Tower Avenue (SR 507)

Pearl Street and Tower Avenue serve Centralia's downtown area and form a one-way road couplet. Pearl Street operates as the southbound facility with Tower Avenue as the northbound roadway. These roadways are Principal Arterials south of Main Street. North of Main Street, Pearl Street and Tower Avenue are designated as Minor Arterials and are discussed again later in this section.

Pearl Street at Cherry Street (Southbound).

Tower Avenue at Cherry Street (Northbound).

Gold Street and Kresky Avenue

Gold Street and Kresky Avenue are designated Principal Arterials and maintain the one-way couplet orientation from Pearl Street and Tower Avenue until the southern Centralia city limits. Gold Street travels southbound and Kresky Avenue travels northbound. North of Summa Street, Gold Street is the primary north-south arterial serving the small grid of residential and commercial uses east of the railroad.

Harrison Avenue

Harrison Avenue is a Principal Arterial east of I-5 and a Minor Arterial west of I-5. It is the main east west roadway that ties downtown to the freeway. Many commercial retail and businesses and industrial sites are accessed from Harrison Avenue. Much of the traffic traveling to and from the city relies on the I-5/Harrison Avenue interchange because it is centrally located to the current retail activity adjacent the freeway and provides a direct route into Centralia's downtown and major residential areas.

Harrison Avenue at Reynolds Avenue (Northbound).

Main Street

Main Street is a principal east-west arterial connecting Tower Avenue and Pearl Street to Harrison Avenue.

Minor Arterials

Pearl Street and Tower Avenue (SR 507)

Pearl Street and Tower Avenue serve Centralia's downtown area and form a one-way road couplet. Pearl Street operates as the southbound facility with Tower Avenue as the northbound roadway. North of Sixth Street, these roads combine and Pearl Street operates as a two way facility. South of Main Street, Pearl Street and Tower Avenue are designated as Principal Arterials.

Mellen Street (SR 507)

Mellen Street is a minor arterial running east-west serving the south end of the city. From I-5 it connects with Alder Street west of downtown and extends to Cooks Hill Road. The Mellen Street interchange provides access to a concentration of medical facilities on the west side of I-5, and serves as a convenient route to the southern portion of the downtown to the east of I-5.

Reynolds Road and Galvin Road

Reynolds Road is an east-west minor arterial located north of the Harrison Avenue interchange stretching from Pearl Street to I-5, where it changes to Galvin Road. Reynolds Road is an important connection to SR 507. Galvin Road is an east-west minor arterial that intersects Harrison Avenue stretching from the western city limits to I-5, where it changes to Reynolds Road. Galvin Road serves industrial traffic in the northeast of the city.

Oakland Avenue and Scheuber Road

Oakland Avenue is a north-south minor arterial located west of I-5. Oakland Avenue serves primarily residential traffic. This roadway has been designated as a link to a potential new north-south connection over the Chehalis River connecting Cooks Hill Road at Scheuber Road (known locally as the West Connector).

Alder Street and Cherry Street

Alder Street and Cherry Street travel east-west and connect Mellen Street to Pearl Street and Tower Avenue. Alder Street and Cherry Street are part of SR 507.

Major Collectors

Yew Street

Yew Street is a Major Collector street operating in the north-south direction connecting Mellen Street and Main Street.

Locust Street (Centralia College Boulevard)

Locust Street is a Major Collector street operating in the east-west direction serving Centralia College and connecting Yew Street and Washington Avenue to Pearl Street, Tower Avenue and Gold Street.

Washington Avenue

Washington Avenue is a Major Collector operating in the north-south direction connecting First Street, Main Street and Alder Street. Washington Avenue also serves Edison Elementary School and Centralia College.

Summa Street

Summa Street is a Major Collector operating in the east-west direction connecting Washington Avenue to Pearl Street, Tower Avenue and Gold Street. East of Pacific Avenue, Summa Street changes to Salzer Valley Road. This road also serves Jefferson Lincoln Elementary School.

Airport Road

Airport Road is a Major Collector operating in the north-south direction connecting Mellen Street to the Chehalis-Centralia Airport and to Northwest Louisiana Ave in Chehalis further south. Future planned improvements will change Airport Road's classification from Major Collector to Principal Arterial.

Minor Collectors

Johnson Road, Eshom Road, Airport Road and Woodland Avenue are additional north-south collector streets in the city. Borst Avenue, Marion Street, Fourth Street, First Street, Floral Avenue and Seminary Hill are additional east-west collector streets in the city.

Jurisdictional and Functional Classification of Roadways

Most of the roadways with in the study area are in the City of Centralia's jurisdiction. Interstate 5 and State Route 507 are maintained by WSDOT. Lewis County also has jurisdiction over several roadways within Centralia UGA. Most of the City's roadways are classified as local roadways with some classified as arterials or collectors. Six types of roadway functional classifications exist in the City of Centralia and include the following:

- **Interstate Highways—**Interstate highways have the highest roadway classification and serve larger volumes of interstate and regional traffic at higher speeds when traffic permits. Access is controlled and connections are generally made to other interstate highways, Principal Arterials and Minor Arterials.
- **Principal Arterials—**Principal arterials provide a high level of mobility with limited access and signal control. High volumes of traffic and freight travel at a range of speeds as trips on Principal Arterials are generally for longer distances within the city (generally in excess of 2 miles), or through the city. Connections are made to Interstate Highways, other Principal Arterials, Minor Arterials, Major Collectors and Minor Collectors.
- **Minor Arterials** –Minor Arterials provide a high level of mobility with slightly less limited access and signal control compared to Principal Arterials. High volumes travel at a range speeds. Trips are generally shorter than Principal Arterial trips and often remain within the city. Connections are made to Interstate Highways, Principal Arterials, other Minor Arterials, Major Collectors, and Minor Collectors.
- **Major Collectors—**Major Collectors provide a medium level of mobility with a medium level of access and control. A Range of volumes use Major Collectors and speeds will be limited when compared to some arterials. Through trips are not carried by Major Collectors. Connections are made to Principal Arterials, Minor Arterials, other Major Collectors, Minor Collectors and Local Roadways.
- **Minor Collectors** – Minor Collectors provide medium to low level of mobility with a high level of access. Low volumes use Minor Collectors and travel at low speeds. Through trips are not carried by Minor Collectors and connections are made to Principal Arterials, Minor Arterials, Major Collectors, other Minor Collectors, and Local Roadways.
- **Local Roadways—**Local roadways provide the highest level of access while limited to a low level of speed. Through trips are not carried on Local Roadways. Trips on local roadways are short and connections are usually made to Collectors, or Major Collectors.

Table 1 lists jurisdiction (ownership) and functional classification information for the interstate, arterial and collector roadways located within the study area. Map 1 depicts functional classification for interstate, arterial and collector roadways within the UGA.

TABLE 1
Roadway Functional Classification and Ownership

Roadway	Jurisdiction	Functional Classification
Interstate 5	WSDOT	Interstate Highway
NE Kresky Avenue	Centralia	Principal Arterial
S. Gold Street	Centralia	Principal Arterial
S. Tower Avenue (Kresky to Main)	Centralia	Principal Arterial
S. Pearl Street (Chestnut to Main)	Centralia	Principal Arterial
W. Main Street (S Tower to I-5)	Centralia	Principal Arterial
N. Pearl Street (Main to Howard)	Centralia	Minor Arterial
N. Tower (Main to 6th Street)	Centralia	Minor Arterial
W. Reynolds Avenue	Centralia	Minor Arterial
Mellen Street (Tower to S. Oak Street)	Centralia	Minor Arterial
Oakland Avenue	Centralia	Minor Arterial
Harrison Avenue	Centralia	Minor Arterial
Eshom Road	Centralia	Major Collector
Airport Road	Centralia	Major Collector
Borst Avenue	Centralia	Major Collector
Johnson Road	Centralia	Major Collector
Cooks Hill Road	Lewis County/Centralia	Major Collector
Scammon Creek Road	Centralia	Major Collector
Military Road	Centralia	Major Collector
Marion Street	Centralia	Major Collector
N. Gold Street (Kresky to May Street)	Centralia	Major Collector
Seminary Hill Road	Lewis County/Centralia	Major Collector
E Locust Street (Centralia College Boulevard)	Centralia	Major Collector
W. 6th Street	Centralia	Minor Arterial
W. 4th Street	Centralia	Major Collector
W. 1st Street	Centralia	Major Collector
Yew Street	Centralia	Major Collector
Washington Avenue	Centralia	Major Collector
E. Summa Street	Centralia	Major Collector
S. Tower Avenue (Floral to Jefferson)	Centralia	Major Collector
S. Pearl Street (Summa to Chestnut)	Centralia	Major Collector
Scheuber Road	Lewis County	Minor Collector
Galvin Road	Lewis County	Major Collector
Little Hanaford Road	Lewis County	Major Collector
Salzer Valley Road	Lewis County/Centralia	Minor Collector
Floral	Centralia	Major Collector

Number of Lanes and Speed Limits

Physical roadway characteristics help to define potential roadway issues or problem areas. Most roadways within Centralia are two lane facilities although a few arterials have two-way left turn lanes. Harrison Avenue is the only facility with more than three lanes. Roads within Centralia generally are posted with speeds of 25 or 30 miles per hour (mph) with some roadways characterized by speeds of 35 or 40 mph. Table 2 lists number of lanes and speed limits for arterial and collector roadways within the study area.

TABLE 2
Lanes and Posted Speed Limits – Arterials and Collectors

Roadway	Number of Lanes	Posted Speed (mph)
Harrison Avenue – City Limits to Reynolds Road	2	40
Harrison Avenue – Reynolds Road to Caveness Road	3	30
Harrison Avenue – Caveness Road to Main Street	5	30
Oakland Avenue – Galvin Road to Cooks Hill Road	2	30
Main Street – Harrison Avenue to Tower Avenue	2	30
Galvin Road – I-5 to Northpark Road	2	30
Galvin Road – Northpark Road to Gallagher Road	3	30
Galvin Road – Gallagher Road to City Limits	2	30
Reynolds Road – I-5 to Pearl Street	2	35
Mellen Street – Oakland Avenue to Alder Street	2	30
Alder Street – Mellen Street to Cherry Street	2	25
Cherry Street – Alder Street to Tower Avenue	2	25
Pearl Street – UGA to Chestnut Street	2	25
S Viaduct Street – Chestnut Street to Summa Street	2	30
Gold Street – S Viaduct Street to City Limits	2	35
Tower Avenue – Marion Street to Kresky Avenue	2	25
Kresky Avenue – Tower Avenue to City Limits	2	35

Notes: If the physical characteristics vary on a street segment, this summary table lists the primary characteristic (for example, if a roadway segment is primarily two lanes and is one lane for a short segment, it will be listed in the table as two lanes).

Traffic Control

Traffic control is critical for traffic flow and safety. Most intersections in the city are stop controlled. Nineteen signalized intersections exist within the study area and are listed below and displayed on Map 2. The majority of the signalized intersections are concentrated in the downtown area and along the roads adjacent to I-5 that serve the Centralia retail and commercial areas.

Signalized intersections include the following:

- Harrison Avenue/Johnson Road
- Reynolds Avenue/Harrison Avenue
- Reynolds/Pearl Street
- 1st Street/Pearl Street
- Main Street/W Bridge Street
- Main Street/High Street
- Main Street/I-5 Northbound Ramp
- Main Street/I-5 Southbound Ramp

- 1st Street/Tower Avenue
- Main Street/Oak Street
- Main Street/Pearl Street
- Main Street/Tower Avenue
- Locust *(Centralia College Boulevard)*/Tower Avenue
- Locust *(Centralia College Boulevard)*/Pearl Street
- Mellen Street/I-5 Northbound Ramp
- Mellen Street/I-5 Southbound Ramp
- Mellen/Pearl Street
- Mellen/Tower Avenue
- Harrison/Belmont Avenue

. Accident Analysis

The accident analysis includes a summary of safety conditions along the federally classified roadways and study intersections within Centralia's UGA. The City of Centralia provided historical accident data from January 1, 2001 to December 31, 2005. This information was analyzed to identify accident patterns that could be a result of existing geometric or operational deficiencies.

Additional intersections (outside of the study area) but along federally classified roads that present a significant number of incidents for the years 2001-2005 have also been identified. Table 3 below provides a summary of the accidents for the road segments, while Table 4 provides a summary of the accidents at the study area intersections.

Accidents were averaged over the five year period and thresholds were established to determine if the road segments or study area intersections have a high accident rate. For road segments a threshold was established at an average of 10 accidents per mile per year. For the intersections the threshold was established at an average of five accidents per year. To ensure accident data was not duplicated, incidents that occurred at the study area intersections were not included in the road segment summary table.

TABLE 3

Average Yearly Accidents by Road Segment

Road Segment	From	To	Accidents by Year						Distance (miles)	Accidents per mile per year
			2001	2002	2003	2004	2005	Average		
Harrison Avenue	City Limits	Reynolds Road	3	2	1	4	1	2.2	2.16	1.02
Harrison Avenue	Reynolds Road	Caveness Road	5	2	4	3	3	3.4	0.44	7.73
Harrison Avenue	Caveness Road	I-5	2	3	3	7	4	3.8	0.39	9.74
Harrison Avenue	**I-5**	**Main St.**	**8**	**8**	**10**	**7**	**7**	**8**	**0.79**	**10.13**
Oakland Avenue/Schueber Road	Galvin Road	Cooks Hill Road	1	0	0	0	0	0.2	1.12	0.18
Main Street	**Harrison Avenue**	**Tower Avenue**	**21**	**11**	**14**	**22**	**17**	**17**	**0.6**	**28.33**
Galvin Road	I-5	City Limits	2	2	2	0	1	1.4	1.85	0.76
Reynolds Road	I-5	Pearl Street	4	4	7	6	5	5.2	1	5.20
Mellen Street	Oakland Avenue	I-5	0	0	1	0	0	0.2	0.6	0.33
Mellen Street	**I-5**	**Alder Street**	**10**	**2**	**3**	**10**	**6**	**6.2**	**0.4**	**15.50**
Alder Street	**Mellen Street**	**Cherry Street**	**0**	**4**	**3**	**6**	**2**	**3**	**0.3**	**10.00**
Cherry Street	**Alder Street**	**Tower Avenue**	**5**	**2**	**4**	**3**	**5**	**3.8**	**0.3**	**12.67**
N Pearl Street	UGA	Sixth Street	7	4	7	5	6	5.8	1.97	2.94
Pearl Street	**Sixth Street**	**S Viaduct Street**	**20**	**14**	**14**	**17**	**24**	**17.8**	**1.31**	**13.59**
S Viaduct Street	Chestnut Street	Summa Street	1	0	0	1	0	0.4	0.35	1.14
Gold Street	Marion Street	S Viaduct Street	18	6	7	19	13	12.6	1.8	7.00
S Gold Street	S Viaduct Street	City Limits	2	4	3	4	7	4	1	4.00
Tower Avenue	**Marion Street**	**Kresky Avenue**	**19**	**16**	**12**	**21**	**27**	**19**	**1.7**	**11.18**
Kresky Avenue	Tower Avenue	City Limits	2	3	1	3	3	2.4	1	2.40
W. Sixth St	Tower Avenue	Pearl Street	1	0	0	1	0	0.4	0.07	5.71
W. First St	Harrison Avenue	Tower Avenue	7	6	7	9	5	6.8	0.81	8.40

Segments that exceeded the established threshold of equal to or greater than 10 accidents per mile per year are listed below:

- Harrison Avenue (I-5 to Main Street)
- Main Street (Harrison Avenue to Tower Avenue)
- Mellen Street (I-5 to Alder Street)
- Alder Street (Mellen Street to Cherry Street)
- Cherry Street (Alder Street to Tower Avenue)
- Pearl Street (Sixth Street to S. Viaduct Street)
- Tower Avenue (Marion Avenue to Kresky Avenue)

Each of these segments carry relatively high volumes and have numerous closely spaced stop controlled intersections and accesses which may contribute to the number of accidents. Table 4 presents average yearly accidents by intersection.

TABLE 4
Average Yearly Accidents by Intersection

Intersection	Accidents by Year					
	2001	2002	2003	2004	2005	Average
Harrison Ave. and Reynolds Ave.	1	2	1	3	8	3
Reynolds Ave. and Pearl St.	3	1	2	1	4	2.2
Harrison Ave. and I-5 SB Ramps	3	5	3	1	8	4
Harrison Ave. and I-5 NB Ramps	**4**	**2**	**7**	**8**	**7**	**5.6**
Main St. and Pearl St.	3	5	1	6	6	4.2
Main St. and Tower Ave.	2	0	4	5	4	3
Mellen St. and I-5 SB Ramps	1	0	1	2	1	1
Mellen St. and I-5 NB Ramps	0	1	1	0	1	0.6
Cherry St. and Pearl St.	3	5	3	4	7	4.4
Cherry St. and Tower Ave.	2	1	1	3	5	2.4
First St. and Harrison Ave.	2	2	2	3	5	2.8
Mellen St. and Airport Rd.	0	0	1	1	0	0.4
Mellen St. and Yew St.	**4**	**4**	**5**	**5**	**9**	**5.4**
Summa St. and S Gold St.	6	2	3	3	7	4.2
Summa St. and Kresky Ave.	2	2	0	1	1	1.2
Tower Ave. and Sixth St.	2	2	2	3	1	2
Pearl St. and Sixth St.	2	3	3	4	2	2.8
Harrison Ave. and Belmont Ave.	**13**	**3**	**7**	**17**	**9**	**9.8**
Harrison Ave. and Bridge St.	9	3	2	4	5	4.6
Harrison Ave. and High St.	6	5	7	8	4	6
Harrison Ave. and Johnson Rd.	6	2	5	4	5	4.4
Main St. and Washington Ave.	**9**	**5**	**1**	**6**	**6**	**5.4**
First St. and Washington Ave.	1	3	0	5	3	2.4

Four intersections that exceeded the accident threshold of equal to or greater than five accidents per year are listed below:

- Harrison Avenue and I-5 NB Ramps
- Mellen Street and Yew Street
- Harrison Avenue and Belmont Street
- Main Street and Washington Avenue

Three of the four intersections exceeding the threshold are unsignalized (Harrison Avenue and I-5 NB ramp is signalized). Also, three of the four intersections are in close proximity to I-5 which would indicate increased volumes and a higher percentage of drivers that are unfamiliar with the area when compared with other intersections within the study area.

Table 5 presents accidents by type and percentage of total accidents.

TABLE 5
Accidents by Type

Accident Type	Count	Percent of Total
Rear End	373	36%
T-Bone/Angle	277	27%
Fixed Object	171	17%
Side Swipe	142	14%
Pedestrian/Bike	44	4%
Head On	11	1%
Other	15	1%
Total	1033	100%

Over one-third of all accidents were rear end accidents. This type of accident is common for areas in relatively congested conditions. Over a quarter of accidents were T-bone or angle accidents. This type of accident is common where closely spaced accesses/driveways are present.

Table 6 presents accidents by severity. Accidents are classified by either being Property Damage Only (PDO), Injury, Fatality or Pedestrian/Bike related. Overall, a total of 1,033 accidents occurred within Centralia's UGA between 2001-2005.

TABLE 6
Accidents by Severity

Years of accidents	PDO	Injury	Fatality	Pedestrian/bike	Total
2001-2005	635 (62%)	351 (34%)	3 (<1%)	44 (4%)	1033

Notes: PDO = Property Damage Only

Only one of the three fatality accidents listed a contributing factor; excessive speed. A majority of the accidents were PDO accidents and did not involve an injury or fatality. Four percent of the accidents were pedestrian or bike related.

I. Existing Traffic Conditions

Existing operational analysis was conducted for 17 intersections and 23 roadway segments within the study area to assess the existing operational conditions and identify any deficiencies within the study area. Map 3 depicts the operational analysis LOS results for the roadway segments and intersections within the study area. (Map 3 will be developed once accident data has been synthesized)

Study Intersections and Raw Traffic Counts

Intersection turning movement counts were collected for the 17 study area intersections listed below. Intersection data was collected on typical weekdays in March 2005, May 2005, February 2006 and November 2006. The counts completed during March 2005, May 2005 and February 2006 were 2-hour counts and the counts completed during November 2006 were 15-minute counts. Roadway volume information was collected between 2003 and 2006. All counts were collected during the PM peak period that typically occurs between 3 and 6 pm. In a few of the locations, the most recent roadway and intersection count data was collected prior to 2006. In these instances a growth factor, based on current and historical volume trends, was applied to the pre-2006 data to create a consistent 2006 existing condition. Appendices A and B provide the traffic analysis methodology and the raw traffic data used in this Transportation Element.

Signalized

- Harrison Avenue and Reynolds Avenue
- Reynolds Avenue and Pearl Street (SR 507)
- Harrison Avenue and I-5 Southbound Ramps
- Harrison Avenue and I-5 Northbound Ramps
- Main Street and Pearl Street (SR 507 Couplet)
- Main Street and Tower Avenue (SR-507 Couplet)
- Mellen Street (SR 507) and I-5 Southbound Ramps
- Mellen Street (SR 507) and I-5 Northbound Ramps
- Cherry Street and Pearl Street (SR 507 Couplet)
- Cherry Street and Tower Avenue (SR 507 Couplet)

Unsignalized

- Harrison Avenue and West 1st Street
- Mellen Street and Airport Road
- Mellen Street and Yew Street
- Summa Street and Gold Street
- Summa Street and Kresky Avenue
- Tower Avenue and W. 6th Street
- Pearl Street and W. 6th Street
- Scheuber Road and Galvin Road
- Scheuber Road and Cooks Hill Road

State ighway Mobility Standards

State Highway Mobility Standards are developed in the WSDOT Highway System Plan (HSP) as a method to gauge reasonable and consistent standards for traffic flow along state highways. These mobility standards consider the significance (statewide, regional) and location (rural, urban) of each state highway. Mobility standards are based on level-of-service (LOS).

Four of the study intersections are governed by WSDOT HSP standards. These are the Interstate 5 northbound and southbound ramp terminals at Harrison Avenue and Mellen Street interchanges. The WSDOT HSP sets the standard mobility for statewide significant urban highways at LOS D.

Lewis County Mobility Standards

Lewis County standards were used to analyze any existing intersections under Lewis County jurisdiction. Lewis County operational standards are LOS D for urban intersections.

City of Centralia Mobility Standards

City of Centralia Mobility Standards were used to analyze any existing intersections under City of Centralia jurisdiction. City of Centralia operational standards are LOS D.

perational Analysis of Existing Conditions

Table 7 presents the observed intersection delays and LOS for the study intersections. For signalized intersections, the overall intersection results are reported. For unsignalized intersections, the movement with the worst operating performance on both the major and minor approaches is reported. Refer to Appendix C for the intersection LOS descriptions. The latest Synchro software package, version 6, was used to assess the intersection operations. Appendix C provides the complete report output for each intersection.

Intersection delays higher than the mobility standards indicate areas of congestion. Intersection delays lower than the mobility standards indicate intersections operating at acceptable levels of mobility. As shown in Table 7, all of the study intersections except four currently operate better than the WSDOT, Lewis County and City of Centralia LOS thresholds.

All four of the intersections are unsignalized, with three of the four performing at LOS F. The four locations are West 1st Street and Harrison Avenue, Mellen Street and Yew Street, Summa Street and Gold Street and Summa Street and Kresky Avenue. In each of the four cases the minor street is stop controlled and observes very significant delays as vehicles attempt to find gaps to enter into the major street traffic stream. Mellen Street and Harrison Avenue are both arterials with high volumes due to the access provided to I-5. Gold Street and Kresky Avenue are the southern extensions of the SR-507 couplet. Gold Street and Kresky Avenue are principal arterials and provide a parallel to I-5 between Centralia and Chehalis. At this time modifications are being implemented at the intersection of Mellen and Yew to include left-turn pockets and LOS may improve in the future.

TABLE 7
Existing 2006 PM Peak Hour Traffic Operations Summary (Intersection)

Intersection	Jurisdiction	LOS Standard	Signalized / Unsignalized	Existing (2006)	
				LOS	Delay [1]
Harrison Avenue and Reynolds Avenue	Centralia	D	Signalized	B	13
Reynolds Avenue and Pearl Street	Lewis County/Centralia	D	Signalized	C	32
Harrison Avenue and I-5 SB Ramps	WSDOT/Centralia	D	Signalized	C	32
Harrison Avenue and I-5 NB Ramps	WSDOT/Centralia	D	Signalized	C	29
Main Street and Pearl Street	Lewis County/Centralia	D	Signalized	C	28
Main Street and Tower Avenue	Lewis County/Centralia	D	Signalized	C	34
Mellen Street and I-5 SB Ramps	WSDOT/Lewis County	D	Signalized	D	49
Mellen Street and I-5 NB Ramps	WSDOT/Lewis County	D	Signalized	C	34
Cherry Street and Pearl Street	Lewis County	D	Signalized	B	12
Cherry Street and Tower Avenue	Lewis County	D	Signalized	D	43
W. 1st Street and Harrison Avenue	Centralia	D	Unsignalized	**F**	**132**
Mellen Street and Airport Road	Lewis County/Centralia	D	Unsignalized	C	19
Mellen Street and Yew Street	Lewis County/Centralia	D	Unsignalized	**F**	**100**
Summa Street and Gold Street	Centralia	D	Unsignalized	**E**	**44**
Summa Street and Kresky Avenue	Centralia	D	Unsignalized	**F**	**113**
Tower Avenue and W. 6th Street	Lewis County/Centralia	D	Unsignalized	C	16
Pearl Street and W. 6th Street	Lewis County/Centralia	D	Unsignalized	C	24

[1] Delay reported in average seconds per vehicle.
Bold text indicate intersections operating at unacceptable conditions; i.e. LOS E or F
Unsignalized intersection results are reported for the worst minor street approach only.
NB = northbound; SB = southbound

Roadway Operations

Roadway operations are analyzed to assess the PM peak hour volume on a roadway versus the roadway's hourly capacity (volume/capacity, or v/c ratio). Several roadways were selected for this analysis because they are designated as arterials or collectors. This analysis used planning level analysis documented in Appendix A - traffic methodology. Many of the streets are divided into multiple sections as either the street characteristics and/or traffic volumes significantly change, causing a potential change in operating conditions. Based on this analysis only Mellen Street between I-5 and Yew Street operates at LOS F. This can most likely be attributed to the high volumes that use Mellen Street to access I-5 and the general commercial areas directly to the south of Mellen Street in the PM peak hour. All other roadways operate at LOS D or better.

Table 8 presents volumes and capacities of the existing federally classified roadways.

TABLE 8
Existing 2006 PM Peak Hour Traffic Operations Summary (Intersection)

Roadway	Cross Street	Cross Street	2006 PM Peak Volume	Capacity	V/C Ratio	LOS
Harrison Avenue	City Limits	Reynolds Road	865	1000	0.87	D
Harrison Avenue	Reynolds Road	Caveness Road	930	1,310	0.71	D
Harrison Avenue	Caveness Road	Main Street	1,515	2,640	0.57	D
Oakland Avenue	Galvin Road	City Limits	105	1,120	0.09	C or better
Main Street	Harrison Avenue	Tower Avenue	645	1,120	0.58	D
Galvin Road	City Limits	Gallagher Road	390	1,120	0.35	C or better
Galvin Road	Gallagher Road	Northpark Road	155	1,470	0.10	C or better
Galvin Road	Northpark Road	I-5	155	1,120	0.14	C or better
Reynolds Road	I-5	Pearl Street	645	1,120	0.58	D
Mellen Street	Military Road	I-5	1,015	1,120	0.91	D
Mellen Street	**I-5**	**Yew Street**	**1,645**	**1,470**	**1.12**	**F**
Mellen Street	Yew Street	Alder Street	915	1,120	0.82	D
Alder Street	Mellen Street	Cherry Street	970	1,560	0.62	C or better
Cherry Street	Cherry Street	Tower Avenue	755	1,400	0.54	D
Pearl Street	Chestnut Street	West 6th Street	690	1,850	0.37	C or better
Pearl Street	West 6th Street	City Limits	790	1,120	0.70	D
S. Viaduct	Chestnut Street	Summa Street	825	1,780	0.46	C or better
Gold Street	Marion Street	Summa Street	215	1,120	0.19	C or better
Gold Street	Summa Street	City Limits	765	1,780	0.43	C or better
Tower Avenue	Summa Street	West 6th Street	715	1,850	0.39	C or better
Kresky Avenue	City Limits	Summa Street	745	1,780	0.42	C or better
West 1st Street	Harrison Avenue	Tower Avenue	260	1,120	0.23	C or better
West 6th Street	Pearl Street	Tower Avenue	65	1120	0.06	C or better

Note: Bold text indicates LOS F.

Appendix D provides a more detailed spreadsheet that includes the capacity adjustments for each street geometric condition and the associated traffic volume data.

II. Transit Facilities

Twin Transit operates the local bus service in the Centralia-Chehalis area. Twin Transit provides accessible Fixed-route, Deviated Route and Paratransit service. Paratransit is door-to-door service and Dial-A-Ride service for qualified individuals. Paratransit has four buses. Route Deviation service is provided to qualified Paratransit clients, but is different then the fixed route bus and goes off route for a few blocks to pick up and drop off the passenger,

then goes back on its fixed route. Approximately 25 percent of the Paratransit trips are provided via route deviation. Twin Transit buses provide seating for two wheelchairs per bus. Twin Transit buses also provide bike racks with a capacity of two bikes per bus. Paratransit buses provide seating for three wheelchairs. Average monthly Twin Transit ridership for January to October 2006 is shown in Exhibit 1.

Twin Transit operates eight buses on four fixed routes. The fixed routes are numbered 12, 21, 22 and 30. Routes 12, 21 and 22 serve most of the Centralia area on an hourly basis. Routes 21 and 22 also provide hourly service on Saturday and Sunday. Route 12 serves South Chehalis, route 21 serves Centralia North and the Outlet Mall area, route 22 serves southern Centralia and Centralia High School. Route 30 covers part of Centralia as well as Chehalis with hourly service, increased to half hour service during peak hours on weekdays. Route 30 provides hourly service on Saturday and Sunday. Existing routes do not provide service to the Port of Centralia and Grand Mound at this time. Map 4 shows Centralia transit routes.

The Lower Columbia Community Action Council (CAP) provides transit service from the Amtrak station in Centralia to the Tumwater Square, where a connection to Intercity Transit provided by Thurston County can be made. CAP provides transit service twice daily Monday through Friday and one mid-day service on Saturdays.

The White Pass Community Services Coalition operates Mountain Highway Transit (MHT) which provides transit service between Chehalis, Morton and connects to Pierce County. This service offers three daily round trips on one route and operates on weekdays only. Currently MHT does not provide service between Centralia and the rural areas in eastern Lewis County.

Twin Transit and the Centralia Train Depot are located adjacent one another near the intersection of Railroad Avenue and Pine Street. The Twin Transit operating facilities consist of 900 square feet of space for administration; 6,800 square feet of space for maintenance; and 12,200 square feet for bus storage. The Centralia Train Depot serves as a transfer point between bus routes. Twin Transit serves two park-and-ride facilities at Mellen Street and I-5 (Centralia) and Main Street and I-5 (Chehalis). Both are maintained by WSDOT.

The Greyhound Bus Station is on Twin Transit Centralia Route 30 and shares operating space with a local gas station near the intersection of Mellen Street and Marsh Avenue. This station primarily functions as a passenger loading and unloading point among three north-south bus routes. The nearest transfer service stations are located in Tacoma, WA and Portland, OR. Routes 1441, 1431 and 1423 provide service between Seattle and Portland with local stops in Centralia, Kelso and Vancouver. Greyhound busses arrive and depart Centralia three times daily.

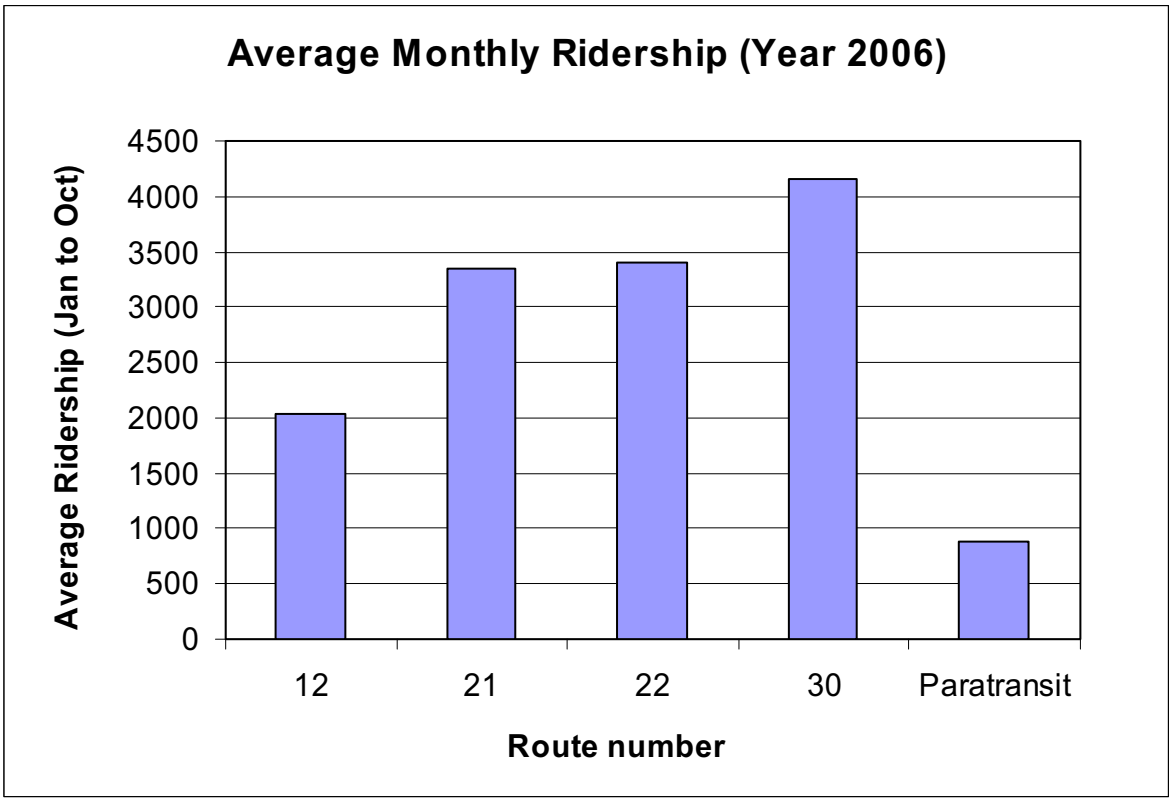

Exhibit 1 Average Monthly Ridership for Jan to ct 2006 by Route

Thirteen bus shelters are located on or near principal and major arterials within the study area. Shelter locations are listed below. More bus shelters may exist within the city but are not located on principal or minor arterials. Twin Transit stop locations and routes are shown on Map 1.

- Oakland Avenue and Borst Avenue
- Borst Avenue and Johnson Road
- View Avenue and Linda Lane
- Belmont Avenue and Earl Street
- Harrison Avenue and View Avenue
- West Bridge Street and Harrison Avenue
- South Rock Street and Locust Street (Centralia College Boulevard)
- Locust Street and Pearl Street
- Tower Avenue and Mellen Street
- Marsh Avenue and Mellen Street
- Ward Street and Marion Street
- Logan Street and Marion Street
- Pearl Street and Virginia Drive

Amtrak serves the Centralia- Chehalis area with a depot in downtown Centralia. It operates along the Burlington Northern Santa Fe rail lines. Centralia has annual Amtrak ridership of 19,118 among which 9,527 are boarding and 9,591 are alighting per year. Currently there are

five passenger trains in each direction each day. Additional rail information is discussed in *Section X. Freight (Rail and Truck).*

Local trolley service is provided between downtown and the Centralia Outlet Mall during designated seasonal events that are sponsored by the Lewis County Convention & Visitors Bureau (CVB). A fare is not required. The motorized trolley busses can be rented from the CVB at any time during the year for large group events so route schedules vary. The trolley route originates at the Rail Depot in downtown and travels to Harrison Avenue where it terminates at the Outlet Mall.

Transit and passenger rail service originate in the CBD at Centralia Station. The building features some public amenities although public information areas may become inadequate with increasing passenger service.

III. Pedestrian and Bicycle Transportation

Sidewalk facilities within the study area were inventoried along arterials and collectors and adjacent schools. Sidewalks were classified as good or poor. Sidewalks in good conditions were equal to or greater than five (5) feet wide and may have shown minor signs of damage and cracking, but were still easily navigable. Sidewalks in substandard condition were less than five (5) feet wide, showed significant damage and cracking or presented an impasse for disabled pedestrians. Sidewalk condition is shown on Map 5.

Sidewalks along both sides of arterials and collectors in downtown Centralia are sufficient. Sidewalks are absent on Reynolds Avenue, Scammon Creek Road, Pearl Street north of Fifth Street. Sidewalks are absent along portions of Harrison Avenue between Caveness Drive and Russell Road and at the Harrison/I-5 interchange. A small section of Galvin Road west of Oakland Road has sidewalks on one side, but otherwise lacks sidewalks. Sidewalks are on both sides of Cooks Hill Road from Military Road west to Scheuber Road and one side from Scheuber Road to just west of Landing Way. Sidewalks present on both sides of East Magnolia Street are sufficient between North Gold and Wilding Streets. Sidewalks are absent along Seminary Hill Road which could provide pedestrian connection between downtown and the Seminary Hill Natural Area.

Within city limits there is an approximate 3-mile pedestrian trail network in the Seminary Hill Natural Area. The network is comprised of nine designated trails with trailhead access located at the parking lot entrance near the intersection of Locust Street and Barner Drive. The Chehalis River Discovery Trail opened in September 2006 and travels south from the Centralia treatment plant along the Chehalis River for about 1.5 miles. It is located on city-owned property outside of the city limits. Marked trail access and interpretive signage is located at the terminus of Goodrich Road.

Future plans to expand open and recreational space include the development of impervious trail way that follows the Chehalis River and connects the Discovery Trail to Schafer County Park in Lewis County. Sections of this trail plan are located outside of the UGA and will require shared implementation efforts between the County and other agencies. Additional trail plans include the development of a 2.5 mile trail along the former Chicago Milwaukee St. Paul and Pacific Rail rights-of-way. A portion of this planned trail network will cross I-5 at the Skookumchuck River underpass.

All public schools within the study area are served by sidewalk along a portion of its perimeter with the exception of Centralia High School which has no sidewalks along its perimeter. Centralia Middle School lacks sidewalks on the western perimeter. The perimeters of these two schools are adjacent to Borst Avenue which also lacks sidewalk. Fords Prairie Elementary has a small segment of sidewalk along its northern perimeter but sidewalks are otherwise absent. Sidewalk is planned for the west perimeter of Fords Prairie Elementary in connection with programmed improvements at the Harrison Avenue/Galvin Road intersection. All other public schools have sidewalks where the school perimeter is adjacent a local road. Schools where the perimeter is adjacent residential land generally do not have sidewalks along that perimeter. Table 9 lists the sidewalk deficiencies adjacent public schools.

TABLE 9
Sidewalk Absent School Perimeters

School	Absent Sidewalk
Centralia High School	East and South Perimeter
Centralia Middle School	West Perimeter
Fords Prairie Elementary	West Perimeter

Bicycle Facilities

There are two types of bicycle facilities in Centralia: signed bicycle routes, and bicycle lanes. Signed bicycle routes are provided on the streets listed in Table 10. Bicycle lanes are provided on Harrison Avenue from First Street to Lowe Street and Harrison Avenue from Belmont Avenue to Johnson Road. Most of the existing bicycle network is located in the eastern part of the city. There is approximately 6.45 miles of bicycle network facilities east of Interstate 5. There is approximately less than .25 miles of bicycle facilities in the western part of the city. Three public schools on the west side of I-5 do not have access to existing bicycle facilities. Bicycle facilities are generally absent on streets that connect schools and parks to neighborhoods or commercial areas. Future arterial sections of the West Connector and other urban arterial route include adequate shoulder widths that allow for the designation of future bike routes along these arterials. Pedestrian and bicycle facilities are depicted on Map 5.

TABLE 10
Bicycle and Pedestrian Facilities

Roadway	Bike Route/Lane	Sidewalk	Comment
Tower Avenue	1st Street to 5th Street	Entire corridor	Floral to Fair Street Poor Sidewalks
Pearl Street	Entire corridor	Summa to 6th Street	Bike Route Sidewalks both sides
Mellen Street	Pearl Street to Lakeshore Drive	Pearl Street to Scheuber Road	Bike Route Sidewalks both sides
Cooks Hill Road	None	Military Road to Landing Way	Sidewalk on south side –

TABLE 10
Bicycle and Pedestrian Facilities

Roadway	Bike Route/Lane	Sidewalk	Comment
			Scheuber Road to Landing Way
Locust Street (Centralia College Boulevard)	Pearl Street to Yew Street	Yew Street to Rail Line	Bike Route Sidewalks both sides
Yew Street	Mellen Street to Main Street	Mellen Street to Main Street	Bike Route Sidewalks both sides
1st Street	Main Street to M Street	Tower Avenue to Lowe Street	Bike Route Sidewalks both sides
Harrison Avenue	1st Street to Lowe Street	None	Bike Lane
Harrison Avenue	Belmont Avenue to Johnson Rd	None	Bike Route
4th Street	None	Tower Avenue to Oak Street	Sidewalks both sides
Main Street	Oak Street to 1st Street	Tower Avenue to 1st Street	Bike Route Sidewalks both sides
Gold Street	None	Entire corridor	Sidewalks both sides
May Street	None	Pearl Street to Marion	Sidewalk on one side
Reynolds Avenue	None	None	None
Marion Street	None	North Tower Avenue to Rhobina Street	Sidewalk on one side
East Magnolia Street	None	North Gold Street to Wilding Street	Sidewalk on both sides
Seminary Hill Road	None	Wilding Street to City Limits	None
Woodland Avenue	None	Mellen Street to Summa Street	Sidewalks both sides

I . Air Transportation

Public Air Facilities

The nearest public air services are at the Centralia-Chehalis Airport, located approximately 3 miles southwest of the city of Centralia. Average air traffic is 131 aircraft operations per day comprised of 48% local general aviation, 42% transient general aviation, 9% air taxi, and 1% military. The airport has two (2) concrete runways and both are in good condition. Runway 16/34 is 5,000 feet long and 150-feet wide and has weight limits of 85,000 pounds for double tandem, and 30,000 pounds for single wheel and double wheel aircraft. Access to the airport is via South Scheuber Road and NW Airport Road through Chehalis from the interchange with I-5 via Louisiana Avenue.

Private Air Facilities

There are six (6) private airports within ten miles of Centralia.

- Skyqueen Airport is located 2 miles east of Centralia at Seminary Hill. Four aircraft are based on the field.
- Hartly Airport is located 6.7 miles south of Centralia at Chehalis. One aircraft is based on the field.
- Skatter Creek Airport is located 8.4 miles northwest of Centralia at Rochester. Two aircraft are based on the field.
- Wissler's Airport is located 8.7 miles northeast of Centralia at Tenino.
- Dwight Field Airport is located 9.1 miles southeast of Centralia at Chehalis. Five aircraft are based on the field.
- Sorrel Airport is located 9.3 miles northwest of Centralia at Tenino. Four aircraft are based on the field.

. Freight (Rail and Truck)

In addition to Amtrak passenger services there is freight rail service to and from Centralia along the Burlington Northern Santa Fe (BNSF) Railroad, Union Pacific Railroad, and Tacoma Railroad. These lines are shown on Map 1. Freight trains switch cars and transfer loads at the Blakeslee Junction. The Burlington Northern Santa Fe (BNSF) line crosses streets at three grade-separated crossings: East 6th Street, North Pearl Ave and North Tower Ave. The Tacoma Rail's Mountain Division line interconnects and interchanges rail cars at a switchyard near the intersection of East Maple Street and North Gold Street. Transferring loads and interconnecting freight cars causes congestion and delays among freight cars. Traffic on surrounding surface streets experience delays up to fifteen minutes due to freight activity at the Blakeslee Junction. Currently, WSDOT is implementing plans to build a new rail connection at Blakeslee Junction which will reduce congestion at crossing streets by increasing passing speed among rail cars. The Union Pacific Railroad provides rail freight connection between the Port of Centralia and switchyard.

Truck route locations are important for understanding the flow of freight movement through the city. I-5 is a significant freight route, and carries interstate and international freight. The City of Centralia has signed designated truck routes, shown on Map 2. These signed truck routes are:

- First Street
- South Viaduct and Gold Street from Floral Street to Chestnut Street
- Cherry, Alder and Mellen Streets
- Gold Street from Floral Avenue to Mellen Street
- Harrison Avenue from Johnson Road to the County line/city limits

On First Street and Johnson Street, trucks are restricted from 6:00 AM to 7:00 PM with truck speeds limited to 20 mph. These truck routes connect to I-5 but do not provide connection between each of them. The Harrison Avenue truck route provides freight connection between the Port of Centralia area and I-5. It is the only truck route located west of Interstate 5. The truck routes on Gold Street and Cherry Street provide some connectivity between the rail freight routes and Interstate 5. Freight routing is absent on Central Boulevard although it is a common route for freight vehicles that transfer and pick up loads at a local switchyard. County designated routes are also located within Centralia on Cooks Hill Road

and Reynolds Avenue. They are not signed at this time. Freight routing on Reynolds Avenue does not completely extend to the Port of Centralia on Galvin Road.

While these routes have been designated, there are also routes regularly used by large trucks that do not follow these designated streets. While the roadways have sufficient capacity, the geometry at intersections does not always permit larger tractor-trailer trucks to use these routes to access their destinations. Future arterial sections of the West Connector will allow for future freight route designations.

I. Water Transportation

There are two rivers in the study area – the Chehalis River and Skookumchuck River. The Chehalis River flows into Grays Harbor in Aberdeen and is navigable. Within the study area, the Chehalis River flows parallel and west of I-5, while the Skookumchuck River flows east-west and is crossed by I-5.

II. Summary of Deficiencies and Issues

The following transportation deficiencies or issues are relevant for the Centralia Comprehensive Pan Transportation Element update (in no particular order):

1. Operations at Unsignalized Intersections—Four (4) unsignalized intersections experience significant delays on the minor approaches. The locations are:

    - Harrison Avenue and West 1st Street
    - Mellen Street and Yew Street*
    - Gold Street and Summa Street
    - Kresky Avenue and Summa Street.

    * At this time modifications are being implemented at the intersection of Mellen and Yew to include left-turn pockets and LOS may improve in the future

    The poor operations are a result of high volumes along the uncontrolled major approaches. Safety hazards may occur when severely delayed motorists disregard safety in an attempt to overcome the delays.

2. Roadway Operations on Mellen Street – Mellen Street from I-5 to Yew Street operates over roadway capacity. The volume of vehicles traveling on Mellen Street is greater than the capacity of the roadway. This roadway is congested because of its proximity to I-5.and surrounding retail/commercial land uses.

3. Current safety deficiencies are identified for seven (7) road segments. The Main Street segment has the highest incident average with over 28 reported accidents per mile. This could be caused by the numerous access/driveway locations along this route. The Harrison Avenue and Alder Street segments are just over the established safety threshold and therefore may not necessarily be considered deficient unless further engineering studies determine a deficiency.

    - Harrison Avenue (I-5 to Main Street)
    - Main Street (Harrison Avenue to Tower Avenue)

- Mellen Street (I-5 to Alder Street)
- Alder Street (Mellen Street to Cherry Street)
- Cherry Street (Alder Street to Tower Avenue)
- Pearl Street (Sixth Street to S. Viaduct Street)
- Tower Avenue (Marion Avenue to Kresky Avenue)

In addition to the road segment accident deficiencies, there were also four (4) intersections that were above the safety threshold. Three of the four intersections are unsignalized.

- Harrison Avenue and I-5 NB Ramps (signalized)
- Mellen Street and Yew Street (unsignalized)
- Harrison Avenue and Belmont Street (unsignalized)
- Main Street and Washington Avenue (unsignalized)

Potentially signalizing the unsignalized intersections could reduce the number of incidents by protecting the movements to and from the side-street.

4. Signed Truck Routes—The following road segments are signed as truck routes and shown on map 2: Tower Avenue to I-5 along Cherry, Alder and Mellen Streets, Gold Street from Floral Avenue to Mellen Street, and Harrison Avenue from Johnson Road to the County line/city limits. This does not present a cohesive network of truck routes as they do not connect with each other. Many trucks must deviate from designated truck routes to reach their destination. Signing all truck routes would create an easily identifiable network for trucks to travel on when within city limits and encourage trucks to use designated routes rather than local roads which were not designed structurally and geometrically for large tractor trailer trucks.
5. Enforced Truck Routes—Trucks that deviate from designated truck routes negatively affect the transportation system for all modes of travel. Most city streets are not designed to accommodate truck traffic, either structurally or geometrically. Pedestrians are also put at risk when trucks do not use the designated routes.
6. Freight Rail Congestion—Freight rail creates congestion when large trains restrict traffic flow during peak hours. This occurs when trains transfer loads and/or interconnect with other freight cars. This type of freight activity occurs at the Blakeslee Junction and can cause significant traffic congestion and vehicle delays.
7. Pedestrian and Bicycle Facility Expansions—Pedestrian Sidewalk facilities are sufficient in the CBD but a key link is missing along Harrison Avenue between Lowe Street and Belmont Avenue. Bicycle routes are signed primarily in the CBD but only two segments of bike lane exist. Many of the signed bike routes coincide with common truck routes. With limited bike lanes available this discourages bike transportation and creates a safety hazard with competing modes. There are significant gaps in the pedestrian and bicycle network. The limited access of Interstate 5 prevents "east-west" crossing for bicycle and pedestrian movements. The bicycle and pedestrian network does not connect seamlessly in the west area of the city with the walkable areas of the CBD.
8. Pedestrian Facilities Adjacent Schools – Three schools show deficient pedestrian facilities. Centralia High School has no pedestrian facilities along its perimeter. Fords Prairie Elementary lacks pedestrian facilities along its western perimeter. Centralia

Middle School also lacks pedestrian facilities along its western perimeter. Bicycle facilities are absent on designated arterials and collectors in proximity to these schools.

9. Transit Facilities – Transit service may not be as expansive in terms of route locations and frequency as desired by the community.

Attachment 3

Cost Estimations

Cost Estimation

The following appendix includes estimates for the range of cost for the capital improvement projects included in the 2007 Centralia Transportation Element. Also included are unit descriptions, unit costs and cost estimate assumptions. Cost estimates for regional arterial projects identified in the Lewis County Arterial Analysis Study were derived from that project.

For the proposed construction projects, the following is provided: individual project summary, cost estimate summary and project-specific assumptions.

General Assumptions

An estimation of cost was conducted for the Centralia Transportation Element improvement projects. Due to the conceptual level of design, and overall size and scale of the projects, many cost elements are either not included (environmental mitigation, utility re-location, right-of-way negotiations), or roughly estimated (e.g. drainage, intersection improvements). An estimated range of cost was calculated for the proposed projects to account for risk related to design and construction unknowns. Costs may need to be reassessed as time passes.

The following general assumptions were utilized during the cost estimation process.

- Projects that result in widening of existing facilities will be planed and repaved in existing areas, and include full-depth pavement construction in areas to be widened.
- Only the roadway corridor was considered for widening, cross-streets were not.
- Projects along existing roadway segments assume existing roadway surface will be planed, repaved and re-striped.
- For proposed rural roadway sections without sidewalks, drainage will be provided through a swale, or ditch, though lateral culverts will be added at regular intervals.
- For urban roadway sections with sidewalks, drainage will be provided along both sides of the roadway, with catch basins and manholes regularly spaced.
- Costs related to environmental mitigation are not reflected in the cost estimate.
- Private utilities (power, phone, cable, gas) were not included in the cost estimate.
- Roadway widening is assumed to be symmetrical about the centerline.
- Illumination will be assumed to be installed within city boundaries, with luminaires every 200 feet, on both sides of roadway. Illumination on the trail system is specified specifically in the trail cost estimate.
- Number of intersections and driveway accesses was estimated based on aerial photography and mapping.
- Property values were based on average square footage costs (2004 Lewis County assessor data/www.zillow.com).
- Right of way not included in costs for minor widening projects such as turn lane or sidewalk improvements.
- Existing signals will be replaced in areas where the existing road is widened.

- New sidewalk construction on existing roads will have drainage under the sidewalk to reduce the amount of construction on the roadway prism.
- 15' outside lanes are assumed due to the inclusion of "shy distance" where sidewalks are added.
- In cases where quantities were significantly smaller than the amount used for the sample unit cost information (WSDOT Unit Bid Analysis), unit costs were increased 150%-200%.
- Addition of bike lanes assumes no roadway widening (re-striping or signage only).
- No retaining walls are needed along the river for the trail project.
- Drainage and electrical project elements will connect to local services.

Unit Costs

Note: *Unit Costs were derived from WSDOT Unit Bid Analysis (Southwest Region), CH2M HILL project history and the Lewis County Arterial Analysis Study.*

ITEM	Unit	Unit Cost
12-Inch Storm Sewer Pipe	L.F.	$30[1]
18-Inch Storm Sewer Pipe	L.F.	$45[1]
Aggregate Base (CSBC/CSTC)	TN.	$20[1]
Aggregate Base (Gravel)	TN.	$9[1]
Asphalt	TN.	$60[1]
Barrier	L.F.	$35
Planing Bituminous Pavement	S.Y.	$2[1]
Demolition of Extg. Curbs and Sidewalks	C.Y.	$10
Embankment	C.Y.	$15
Excavation	C.Y.	$11
Interconnect Signal System	L.S.	$30,000
Landscaping	L.S.	$225,000
Luminaire and appurtenances	EA.	$4,500
Modify Signal	L.S.	$60,000
New Signal	L.S.	$250,000
Painted Permanent Pavement Striping	L.F.	$0.10[1]
Raised Pavement Markers (RPM's)	HUNDRED	$350
Sidewalk	S.Y.	$40[1]
Standard Catch Basin	EA.	$1,200
Standard Concrete Curb and Gutter	L.F.	$30[1]
Standard Retaining Wall	S.F.	$50
Storm Manhole	EA.	$2,000[1]
Stripe Removal	L.F.	$1.30[1]
Wheel Chair Ramp	EA.	$1,200
Bridge Construction	S.F.	$120
Rural ROW Costs	S.F.	$0.57[2]
Urban ROW Costs	S.F.	$1.75[2]
Sign and Installation	EA.	$750
Roadway Symbol (Bike, Left Turn Arrow)	EA.	$500

1 - *Unit costs provided by Brian McMullen WSDOT, 12/15/2006*

2 - *Estimated ROW costs derived from 2004 Lewis County assessor data.*

Item Descriptions

ITEM	DESCRIPTION	UNIT
Curb, Gutter and Sidewalks	~6-ft wide sidewalk ~Estimated excavation at depth of 4'	Mile
Drainage	~18-inch concrete pipe storm system w/ 2.5-ft of cover ~Storm manhole every 500 LF ~Standard catch basin every 250 LF (each side of the roadway) ~Culverts every 500'	Mile
New Roadway	~Subgrade preparation, based on Lewis County cross sections ~Clearing/grubbing, excavation/embankment, removal of struct. ~1 Raised Pavement Marker (RPM) per 80 linear feet	Lane-Mile
Reconstruct Existing Roadway	Removal of existing shoulders and roadway that is not to standard and rebuilding a new facility, pavement planing and overlay of existing roadway width within shoulders. includes: ~Removal cost of 1.3' (urban) & 1.55' (rural) AC & aggregate base ~"New Roadway" cost (listed above)	Lane-Mile
Restriping Existing Roadway	~Removal of existing striping and restriping of existing facility	Lane-Mile
Interconnect Signal	~Lump sum cost to interconnect signal system	Lump Sum
New Signal	~The signal including signal system and all appurtenances (pole, wiring, detection devices, etc) for one intersection	Each
Signal Modifications	~All evaluations and modifications	Each
Illumination	~luminaire, pole, wiring, and all other appurtenances ~one light pole on each side of the roadway every 200 LF	Mile
Landscaping	~Plantings, topsoil, and irrigation requirements	Mile
Bridges	~Based on estimated square footage of bridge (Except for LC-01 see "Bridge" tab)	Square Foot
Walls	~Cost of Standard Retaining Wall	Square Foot
ROW	~Assumed avg. cost of $0.57/SF rural and $1.75/SF urban. ~Rural/urban boundaries defined by city limits ~Property values calculated through average County land values (2004)	Square Foot

Additional Costs

ITEM	DESCRIPTION
General Construction Costs	Insert the desired percentage from the common range for each factor: ~Miscellaneous Costs: 15.0-20.0% ~Construction Surveying: 1.0-2.5% ~Temporary Protection and Direction of Traffic: 3.0-8.0% ~Mobilization: 8.0-10.0% ~Erosion Control: 0.5-2.0%
Contingency Factor	General Contingency for Construction Costs: 30.0%.
Escalation Factor	Given the year and escalation percentage, this estimate can roughly approximate yearly inflation of prices: ~Insert the desired percentage from the common range: 0.5-2.0% ~Insert the current year (must be 2005 or later)
Engineering Costs	Calculated as a percentage of the total Construction Costs: ~Design Engineering: 13.0% ~Construction Engineering: 10.0%

Centralia Transportation Element – Specific Project Cost Assumptions

Salzer Road Reconstruction – *Project Assumptions:*

-Rural road segment from Kresky Avenue to Centralia Alpha Road (1.25 miles).
-No structures will be needed in this road reconstruction.

RURAL

Reconstructed Roadway:

- 1.25 miles of reconstructed rural roadway segment – connecting Kresky Avenue to Centralia Alpha Road.
- All intersections are currently, and will remain unsignalized.
- Road cross section is one lane each way with a two way left turn center lane.
- Lane widths are assumed 12 feet.
- 8 foot shoulders and 5 foot swale on each side of road bring total cross section to 62 feet.

I-5 North Interchange - *Project Assumptions:*

- Interchange design will be in accordance with WSDOT design manual
- Design will reflect offset diamond interchange. SB ramps will diverge/merge from I-5 only a short distance before beginning to incline/decline to meet with Downing Road/new arterial bridge span in order to avoid right of way takes from adjacent rail line. The NB ramp terminal will extend approximately 600' east to the base of Downing Road/new arterial bridge to accommodate appropriate spacing of interchange termini and to keep costs down.
- I-5 SB ramps will require structure on both sides to prevent right of way encroachment.
- Cross section of overpass will be five lanes to accommodate the left turn lane pockets required at each intersection with I-5. Transition from five to four lanes will occur just east of NB ramp terminus on Downing Road/new arterial. Sidewalks and gutters will be provided over the bridge.
- Structure depth is assumed to be 7 feet.
- Minimum vertical clearance over the railroad tracks will be 24 feet.
- Interchange intersections will be unsignalized. On and off ramps will be a single lane.

Downing Rd E-W Connector - *Project Assumptions:*

- No existing roadway, entire segment is rural and new roadway.
- Total length = 2.49 miles (rural)
- Intersection of Downing Road and Harrison will be signalized. All other intersections will be unsignalized.
- All bridges provide 24' vertical clearance. Bridge over I-5 also above railroad so must provide clearance for 24'.
- Road west of Seawall Ave appears to align with new segment, but will be considered new roadway.
- No intersection widening will be accounted for in estimate because widening would take place on existing roadway, not on conceptual segment.

- One new signal with signal interconnect included.
- Bridge over I-5 and single line railroad spur will be 250 feet long (180 for I-5 and 50′ for rail line plus 20′ between the two bridges).

Harrison W Reynolds Connector - Project Assumptions:

- Connector must clear both sets of NW/SE railroad tracks even though one set is non-functional.
- Bridge will have a span of 325 feet. 275′ between the two railroad tracks, and 50′ lateral clearance.
- Bridge will have embankment on sides of elevation, and abutment walls on either side of the tracks.
- Existing Eckerson is 30 feet wide (measured on Google Earth). It is assumed to have 2 lanes 11′ wide, and 4′ shoulder.
- A new signal will be included where the proposed alignment meets West Reynolds.
- There are no existing luminaries.
- ROW cost is 1.06/SF (estimated using Zillow)
- Bridge cost is $180/SF. This cost was increased by a factor of 1.5 because structure costs have risen.

* Assumptions used in cost estimating spread sheet are based on WSDOT Standard plans. Unit Costs were derived from WSDOT Unit Bid Analysis (Southwest Region), CH2M HILL project history and the Lewis County Arterial Analysis Study.

UNIT COST SUMMARY

ITEM	Unit	Unit Cost
12 Inch Storm Sewer Pipe	L.F.	$30.00
18 Inch Storm Sewer Pipe	L.F.	$45.00
Aggregate Base (CSTC)	TN.	$20.00
Aggregate Base (Gravel)	TN.	$9.00
Asphalt	TN.	$60.00
Bus Shelter	L.S.	$25,000.00
Barrier	L.F.	$35.00
Planing Bituminous Pavement	S.Y.	$2.00
Demolition of Extg. Curbs and Sidewalks	C.Y.	$10.00
Embankment	C.Y.	$15.00
Excavation	C.Y.	$11.00
Interconnect Signal System	L.S.	$30,000.00
Landscaping	L.S.	$225,000.00
Luminaire and appurtenances	EA.	$4,500.00
Modify Signal	L.S.	$60,000.00
New Signal	L.S.	$250,000.00
Painted Permanent Pavement Striping	L.F.	$0.10
Raised Pavement Markers (RPM's)	HUNDRED	$350.00
Sidewalk	S.Y.	$40.00
Standard Catch Basin	EA.	$1,200.00
Standard Concrete Curb and Gutter	L.F.	$30.00
Standard Retaining Wall	S.F.	$50.00
Storm Manhole	EA.	$2,000.00
Stripe Removal	L.F.	$1.30
Wheel Chair Ramp	EA.	$1,200.00
Bridge Construction	S.F.	$120.00
Rural ROW Costs	S.F.	$0.28
Urban ROW Costs	S.F.	$1.75

CITY OF CENTRALIA - CIP
Unit Price Descriptions (2007)

ITEM	DESCRIPTION	UNIT
Curb, Gutter and Sidewalks	~6-ft wide sidewalk (each side of "urban" segments) ~Estimated excavation at depth of 4' (Rural)	Mile
Drainage	~18-inch concrete pipe storm system w/ 2.5-ft of cover ~Storm manhole every 500 LF ~Standard catch basin every 250 LF (each side of the roadway) ~Culverts every 500' (Rural)	Mile
Bike Boulevard	N/A	Mile
New Roadway	~Subgrade preparation, based on LC cross sections ~Clearing/grubbing, excavation/embankment, removal of struct. ~1 Raised Pavement Marker (RPM) per 80 linear feet	Lane-Mile
Overlay Existing Roadway	N/A	Lane-Mile
Reconstruct Existing Roadway	Removal of existing shoulders and roadway that is not to standard and rebuilding a new facility, pavement planing and overlay for roadway area within shoulders. Cost includes: ~Removal cost of 1.3' urban/1.55' rural AC & aggregate base ~"New Roadway" cost (listed above)	Lane-Mile
Intersection Widening	N/A	Each
Restriping Existing Roadway	~Removal of existing striping and restriping of existing facility	Lane-Mile
Interconnect Signal	~Lump sum cost to interconnect signal system	Lump Sum
New Signal	~The signal including signal system and all appurtenances (pole, wiring, detection devices, etc) for one intersection	Each
Signal Modifications	~All evaluations and modifications	Each
Transit Enhancements	N/A	Each
Traffic Calming	N/A	Percentage
Illumination	~luminaire, pole, wiring, and all other appurtenances ~one light pole on each side of the roadway every 200 LF	Mile
Landscaping	~Plantings, topsoil, and irrigation requirements	Mile
Bridges	~Based on estimated square footage of bridge (Except for LC-01 see "Bridge" tab)	Square Foot
Walls	~Cost of Standard Retaining Wall	Square Foot
ROW	~Assumed avg. cost of $0.85/SF rural and $1.75/SF urban. ~Rural/urban boundries defined by city limits ~Property values calculated through average County land values (2004)	Square Foot

Additional Costs

ITEM	DESCRIPTION
General Construction Costs	Insert the desired percentage from the common range for each factor: ~Miscellaneous Costs: 15.0-20.0% ~Construction Surveying: 1.0-2.5% ~Temporary Protection and Direction of Traffic: 3.0-8.0% ~Mobilization: 8.0-10.0% ~Erosion Control: 0.5-2.0%
Contingency Factor	General Contingency for Construction Costs: 30.0%.
Escalation Factor	Given the year and escalation percentage, this estimate can roughly approximate yearly inflation of prices: ~Insert the desired percentage from the common range: 0.5-2.0% ~Insert the current year (must be 2005 or later)
Engineering Costs	Calculated as a percentage of the total Construction Costs: ~Design Engineering: 13.0% ~Construction Engineering: 10.0%

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT: Truck Route Sign Package	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL: Improvement			
KIND OF WORK: Provide signage on designated routes	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	0.00	$0
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.00	$0
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	0.00	$0
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	0.00	$0
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	10.00	$7,500
13	Illumination	Mi.	0.00	$0
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$7,500*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$0
	Construction Surveying	1.0-2.5%	2.0%	$0
	TP & DT	3.0-8.0%	5.0%	$0
	Mobilization	8.0-10.0%	9.0%	$1,000
	Erosion Control	0.5-2.0%	1.5%	$0
	Contingency	30.0%	30.0%	$0
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$0
	Construction Engineering	10.0%	10.0%	$1,000
	TOTAL CONSTRUCTION COST			***$9,500***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$1,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	0.00	$0
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$0***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $10,500

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$15,750**
	Low Total	-15.0%	**$8,925**

Range of Total Cost: $8,900 to $15,800

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	W 1st St. and Harrison Ave.	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL:	Improvement			
KIND OF WORK:	Signal Improvement	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	0.00	$0
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.00	$0
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	1.00	$250,000
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	0.00	$0
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$250,000*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$0
	Construction Surveying	1.0-2.5%	2.0%	$0
	TP & DT	3.0-8.0%	5.0%	$0
	Mobilization	8.0-10.0%	9.0%	$0
	Erosion Control	0.5-2.0%	1.5%	$0
	Contingency	30.0%	30.0%	$0
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$0
	Construction Engineering	10.0%	10.0%	$0
	TOTAL CONSTRUCTION COST			***$250,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$0**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	0.00	$0
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$0***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $250,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$375,000**
	Low Total	-15.0%	**$212,500**

Range of Total Cost: $212,500 to $375,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Borst Sidewalk	**REFERENCE NAME/PHONE**		**SHEET**
DESIGN LEVEL:	Improvement			1 of 1
	Install curb, gutter, sidewalk from	**LENGTH (MI.):**	**DATE**	**NAME/CHECKED BY**
KIND OF WORK:	Eshom to Cedarwood		6/6/2007	SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter, Sidewalks	Mi.	0.75	$774,000
2	Drainage	Mi.	0.75	$643,225
3	New Roadway	Lane-Mi.	N/A	N/A
4	Overlay Existing Roadway	Lane-Mi.	0.75	$217,932
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	N/A	N/A
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	N/A	N/A
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	0.00	N/A
16	Walls	SF	N/A	N/A
	SUBTOTAL			***$1,635,157***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Miscellaneous		15.0-20.0%	20.0%	$327,000
	Construction Surveying		1.0-2.5%	2.0%	$33,000
	TP & DT		3.0-8.0%	5.0%	$82,000
	Mobilization		8.0-10.0%	9.0%	$147,000
	Erosion Control		0.5-2.0%	1.5%	$25,000
	Contingency		30.0%	30.0%	$491,000
	Escalation (per year)		0.5-2.0%	2.0%	
	-Current Year			2006	$33,000
	Construction Engineering	10.0%	10.0%	10.0%	$164,000
	TOTAL CONSTRUCTION COST				***$2,937,157***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$382,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.85	0.00	$0
	Urban ROW	SF	$1.75	0.00	$0
	TOTAL ROW COST				**$0**

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $3,319,157

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$4,978,736**
	Low Total	-15.0%	**$2,821,283**

Range of Total Cost: $2,821,300 TO $4,978,700

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Fords Prairie Sidewalk	**REFERENCE NAME/PHONE**		**SHEET**
DESIGN LEVEL:	Improvement			1 of 1
KIND OF WORK:	Install curb, gutter, sidewalk from Galvin to Caveness	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter, Sidewalks	Mi.	0.45	$465,120
2	Drainage	Mi.	0.45	$385,944
3	New Roadway	Lane-Mi.	N/A	N/A
4	Overlay Existing Roadway	Lane-Mi.	0.45	$146,599
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	N/A	N/A
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	N/A	N/A
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	0.00	N/A
16	Walls	SF	N/A	N/A
	SUBTOTAL			***$997,663***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Miscellaneous		15.0-20.0%	20.0%	$200,000
	Construction Surveying		1.0-2.5%	2.0%	$20,000
	TP & DT		3.0-8.0%	5.0%	$50,000
	Mobilization		8.0-10.0%	9.0%	$90,000
	Erosion Control		0.5-2.0%	1.5%	$15,000
	Contingency		30.0%	30.0%	$299,000
	Escalation (per year)		0.5-2.0%	2.0%	
	-Current Year			2006	$20,000
	Construction Engineering	10.0%	10.0%	10.0%	$100,000
	TOTAL CONSTRUCTION COST				***$1,791,663***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$233,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.85	0.00	$0
	Urban ROW	SF	$1.75	0.00	$0
	TOTAL ROW COST				**$0**

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $2,024,663

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$3,036,994**
	Low Total	-15.0%	**$1,720,963**

Range of Total Cost: $1,721,000 TO $3,037,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Downing Road E-W Connector & North Interchange	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL:	Conceptual	**LENGTH (MI.):** 3.7	**DATE** 6/6/2007	**NAME/CHECKED BY:** GS/AB
KIND OF WORK:	Roadway			

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Drainage	Mi.	2.49	$522,091
2	Curb, Gutter & Sidewalks	Mi.	N/A	N/A
3	New Roadway	Lane-Mi.	3.70	$2,072,541
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	2	$500,000
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Permanent Signing	LS	1.00	$25,000
13	Illumination	Mi.	8.00	$36,000
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	16,000	$10,383,667
16	Walls	SF	33,000	$0
	SUBTOTAL			***$13,539,299***
	ADDITIONAL COSTS	**RANGE**	**PERCENTAGE**	**COST**
	Miscellaneous	15.0-20.0%	20.0%	$2,708,000
	Construction Surveying	1.0-2.5%	2.0%	$271,000
	TP & DT	3.0-8.0%	5.0%	$677,000
	Mobilization	8.0-10.0%	9.0%	$1,219,000
	Erosion Control	0.5-2.0%	1.5%	$203,000
	Contingency	30.0%	30.0%	$4,062,000
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$271,000
	Construction Engineering	10.0%	10.0%	$1,354,000
	TOTAL CONSTRUCTION COST			***$24,304,299***

PSE Cost

	ELEMENT	PERCENT	COST
	Design Engineering	13.0%	**$3,160,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.28	$1,066,120.00	$298,514
	Urban ROW	SF	$1.75	0	$0
	ROW TOTAL				**$298,514**

Environmental Cost

	ELEMENT	PERCENT	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $27,762,812

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$41,644,219**
	Low Total	-15.0%	**$23,598,391**

Range of Total Cost: $23,598,400 TO $41,644,200

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Eshom Sidewalk	**REFERENCE NAME/PHONE**		**SHEET**
DESIGN LEVEL:	Improvement			1 of 1
KIND OF WORK:	Install curb, gutter, sidewalk from Borst to Mayberry	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter, Sidewalks	Mi.	0.10	$162,880
2	Drainage	Mi.	0.10	$114,654
3	New Roadway	Lane-Mi.	N/A	N/A
4	Overlay Existing Roadway	Lane-Mi.	0.10	$44,120
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	N/A	N/A
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	N/A	N/A
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	0.00	N/A
16	Walls	SF	N/A	N/A
	SUBTOTAL			***$321,654***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Miscellaneous		15.0-20.0%	20.0%	$64,000
	Construction Surveying		1.0-2.5%	2.0%	$6,000
	TP & DT		3.0-8.0%	5.0%	$16,000
	Mobilization		8.0-10.0%	9.0%	$29,000
	Erosion Control		0.5-2.0%	1.5%	$5,000
	Contingency		30.0%	30.0%	$96,000
	Escalation (per year)		0.5-2.0%	2.0%	
	-Current Year			2006	$6,000
	Construction Engineering	10.0%	10.0%	10.0%	$32,000
	TOTAL CONSTRUCTION COST				***$575,654***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$75,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.85	0.00	$0
	Urban ROW	SF	$1.75	0.00	$0
	TOTAL ROW COST				**$0**

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $650,654

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$975,982**
	Low Total	-15.0%	**$553,056**

Range of Total Cost: $553,100 TO $976,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Johnson Avenue Bike Lane	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL:	Improvement			
KIND OF WORK:	Provide Bike Lanes on Johnson from Harrison to Mt. Vista	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter, Sidewalks	Mi.	N/A	N/A
2	Drainage	Mi.	N/A	N/A
3	New Roadway	Lane-Mi.	N/A	N/A
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	2.00	$500,000
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	N/A	N/A
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	N/A	N/A
	Signing	LS	N/A	$25,000
	SUBTOTAL			***$525,000***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Miscellaneous		15.0-20.0%	20.0%	$105,000
	Construction Surveying		1.0-2.5%	2.0%	$11,000
	TP & DT		3.0-8.0%	5.0%	$26,000
	Mobilization		8.0-10.0%	9.0%	$47,000
	Erosion Control		0.5-2.0%	1.5%	$8,000
	Contingency		30.0%	30.0%	$158,000
	Escalation (per year)		0.5-2.0%	2.0%	
	-Current Year			2006	$11,000
	Construction Engineering	10.0%	10.0%	10.0%	$53,000
	TOTAL CONSTRUCTION COST				***$944,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$123,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.85	0.00	$0
	Urban ROW	SF	$1.75	0.00	$0
	TOTAL ROW COST				**$0**

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $1,067,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$1,600,500**
	Low Total	-15.0%	**$906,950**

Range of Total Cost: $907,000 TO $1,600,500

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Johnson Avenue Bike Lane	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL:	Improvement			
KIND OF WORK:	Provide Bike Lanes on Johnson from Harrison to Mt. Vista	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter, Sidewalks	Mi.	N/A	N/A
2	Drainage	Mi.	N/A	N/A
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	0.00	$3,934
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	N/A	N/A
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	N/A	N/A
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	N/A	N/A
16	Walls	SF	N/A	N/A
	SUBTOTAL			***$3,934***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Miscellaneous		15.0-20.0%	20.0%	$1,000
	Construction Surveying		1.0-2.5%	2.0%	$0
	TP & DT		3.0-8.0%	5.0%	$0
	Mobilization		8.0-10.0%	9.0%	$0
	Erosion Control		0.5-2.0%	1.5%	$0
	Contingency		30.0%	30.0%	$1,000
	Escalation (per year)		0.5-2.0%	2.0%	
	-Current Year			2006	$0
	Construction Engineering	10.0%	10.0%	10.0%	$0
	TOTAL CONSTRUCTION COST				***$5,934***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$1,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.85	0.00	$0
	Urban ROW	SF	$1.75	0.00	$0
	TOTAL ROW COST				**$0**

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $6,934

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$10,400**
	Low Total	-15.0%	**$5,894**

Range of Total Cost: $5,900 TO $10,400

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Scheuber and Cooks Hill Rd	**REFERENCE NAME/PHONE**		**SHEET**
DESIGN LEVEL:	Improvement			1 of 1
KIND OF WORK:	Left turn pocket at all approaches and signalize	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter, Sidewalks	Mi.	N/A	N/A
2	Drainage	Mi.	N/A	N/A
3	New Roadway	Lane-Mi.	N/A	N/A
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	4.00	$1,023,000
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	1.00	$250,000
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	N/A	N/A
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	0.00	N/A
16	Walls	SF	N/A	N/A
	SUBTOTAL			***$1,273,000***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Miscellaneous		15.0-20.0%	20.0%	$255,000
	Construction Surveying		1.0-2.5%	2.0%	$25,000
	TP & DT		3.0-8.0%	5.0%	$64,000
	Mobilization		8.0-10.0%	9.0%	$115,000
	Erosion Control		0.5-2.0%	1.5%	$19,000
	Contingency		30.0%	30.0%	$382,000
	Escalation (per year)		0.5-2.0%	2.0%	
	-Current Year			2006	$25,000
	Construction Engineering	10.0%	10.0%	10.0%	$127,000
	TOTAL CONSTRUCTION COST				***$2,285,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$297,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.85	0.00	$0
	Urban ROW	SF	$1.75	0.00	$0
	TOTAL ROW COST				**$0**

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $2,582,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$3,873,000**
	Low Total	-15.0%	**$2,194,700**

Range of Total Cost: $2,194,700 TO $3,873,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	REFERENCE NAME/PHONE		SHEET
Summa Street and Gold Street			1 of 1
DESIGN LEVEL: Improvement	**LENGTH (MI.):**	**DATE**	**NAME/CHECKED BY**
KIND OF WORK: Left turn pocket at all approaches		6/6/2007	SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter, Sidewalks	Mi.	N/A	N/A
2	Drainage	Mi.	N/A	N/A
3	New Roadway	Lane-Mi.	N/A	N/A
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	N/A	N/A
6	Intersection Widening	EA	4.00	$1,023,000
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	N/A	N/A
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	N/A	N/A
14	Landscaping	Mi.	N/A	N/A
15	Bridges	SF	0.00	N/A
16	Walls	SF	N/A	N/A
	SUBTOTAL			***$1,023,000***

	ADDITIONAL COSTS		RANGE	PERCENTAGE	COST
	Miscellaneous		15.0-20.0%	20.0%	$205,000
	Construction Surveying		1.0-2.5%	2.0%	$20,000
	TP & DT		3.0-8.0%	5.0%	$51,000
	Mobilization		8.0-10.0%	9.0%	$92,000
	Erosion Control		0.5-2.0%	1.5%	$15,000
	Contingency		30.0%	30.0%	$307,000
	Escalation (per year)		0.5-2.0%	2.0%	
	-Current Year			2006	$20,000
	Construction Engineering	10.0%	10.0%	10.0%	$102,000
	TOTAL CONSTRUCTION COST				***$1,835,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$239,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	$0.85	0.00	$0
	Urban ROW	SF	$1.75	0.00	$0
	TOTAL ROW COST				**$0**

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $2,074,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$3,111,000**
	Low Total	-15.0%	**$1,762,900**

Range of Total Cost: $1,762,900 TO $3,111,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Belmont Avenue & Harrison Avenue	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL:	Improvement			
KIND OF WORK:	Signal Improvement	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	0.00	$0
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.00	$0
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	1.00	$250,000
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	0.00	$0
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$250,000*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$0
	Construction Surveying	1.0-2.5%	2.0%	$0
	TP & DT	3.0-8.0%	5.0%	$0
	Mobilization	8.0-10.0%	9.0%	$0
	Erosion Control	0.5-2.0%	1.5%	$0
	Contingency	30.0%	30.0%	$0
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$0
	Construction Engineering	10.0%	10.0%	$0
	TOTAL CONSTRUCTION COST			***$250,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$0**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	0.00	$0
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$0***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $250,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$375,000**
	Low Total	-15.0%	**$212,500**

Range of Total Cost: $212,500 to $375,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Main Street & Washington Avenue	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL:	Improvement			
KIND OF WORK:	Signal Improvement	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	0.00	$0
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.00	$0
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	1.00	$250,000
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	0.00	$0
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$250,000*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$0
	Construction Surveying	1.0-2.5%	2.0%	$0
	TP & DT	3.0-8.0%	5.0%	$0
	Mobilization	8.0-10.0%	9.0%	$0
	Erosion Control	0.5-2.0%	1.5%	$0
	Contingency	30.0%	30.0%	$0
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$0
	Construction Engineering	10.0%	10.0%	$0
	TOTAL CONSTRUCTION COST			***$250,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$0**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	0.00	$0
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$0***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $250,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$375,000**
	Low Total	-15.0%	**$212,500**

Range of Total Cost: $212,500 to $375,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT: Pearl St. and 6th Street	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL: Improvement			
KIND OF WORK: Signal Improvement	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	0.00	$0
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.00	$0
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	0.00	$250,000
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	0.00	$0
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$250,000*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$0
	Construction Surveying	1.0-2.5%	2.0%	$0
	TP & DT	3.0-8.0%	5.0%	$0
	Mobilization	8.0-10.0%	9.0%	$0
	Erosion Control	0.5-2.0%	1.5%	$0
	Contingency	30.0%	30.0%	$0
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$0
	Construction Engineering	10.0%	10.0%	$0
	TOTAL CONSTRUCTION COST			***$250,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$0**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	0.00	$0
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$0***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $250,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$375,000**
	Low Total	-15.0%	**$212,500**

Range of Total Cost: $212,500 to $375,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT: Salzer Valley Road	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL: Capacity Improvement			
KIND OF WORK: Provide Left Turn lane on Salzar	**LENGTH (MI.):** 1.25	**DATE** 6/6/2007	**NAME/CHECKED BY:** GS/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	1.25	$254,694
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	1.25	$623,494
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	0.00	$0
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	0.00	$0
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$878,187*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$176,000
	Construction Surveying	1.0-2.5%	2.0%	$18,000
	TP & DT	3.0-8.0%	5.0%	$44,000
	Mobilization	8.0-10.0%	9.0%	$79,000
	Erosion Control	0.5-2.0%	1.5%	$13,000
	Contingency	30.0%	30.0%	$263,000
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$18,000
	Construction Engineering	10.0%	10.0%	$88,000
	TOTAL CONSTRUCTION COST			***$1,577,187***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$205,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	11,760.32	$6,703
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$6,703***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $1,788,891

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$2,683,336**
	Low Total	-15.0%	**$1,520,557**

Range of Total Cost: $1,520,600 to $2,683,300

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT:	Summa Street and Kresky Avenue	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL:	Improvement			
KIND OF WORK:	Signal Improvement	**LENGTH (MI.):**	**DATE** 6/6/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	0.00	$0
3	New Roadway	Lane-Mi.	0.00	$0
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.00	$0
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	1.00	$250,000
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	0.00	$0
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$250,000*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$0
	Construction Surveying	1.0-2.5%	2.0%	$0
	TP & DT	3.0-8.0%	5.0%	$0
	Mobilization	8.0-10.0%	9.0%	$0
	Erosion Control	0.5-2.0%	1.5%	$0
	Contingency	30.0%	30.0%	$0
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$0
	Construction Engineering	10.0%	10.0%	$0
	TOTAL CONSTRUCTION COST			***$250,000***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$0**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	0.00	$0
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$0***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $250,000

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$375,000**
	Low Total	-15.0%	**$212,500**

Range of Total Cost: $212,500 to $375,000

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT: Centralia Trail System	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL: Conceptual			
KIND OF WORK: Non-Motorized Trail Network	**LENGTH (MI.):** 13.5	**DATE** 6/6/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.00	$0
2	Drainage	Mi.	0.00	$0
3	New Roadway (trailway)	Lane-Mi.	13.50	$1,687,521
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.00	$0
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	0.00	$0
10	Signal Modifications	EA	0.00	$0
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	EA	2.00	$18,000
14	Landscaping	Mi.	0.00	$0
15	Bridges	LS and SF	0.00	$0
16	Walls	SF	0.00	$0
	SUBTOTAL			*$1,705,521*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$341,000
	Construction Surveying	1.0-2.5%	2.0%	$34,000
	TP & DT	3.0-8.0%	5.0%	$85,000
	Mobilization	8.0-10.0%	9.0%	$153,000
	Erosion Control	0.5-2.0%	1.5%	$26,000
	Contingency	30.0%	30.0%	$512,000
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$34,000
	Construction Engineering	10.0%	10.0%	$171,000
	TOTAL CONSTRUCTION COST			***$3,061,521***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$398,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	0.57	0.00	$0
	Urban ROW	SF	1.75	0.00	$0
	TOTAL ROW COST				***$0***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $3,459,521

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$5,189,281**
	Low Total	-15.0%	**$2,940,593**

Range of Total Cost: $2,940,600 to $5,189,300

Centralia Transportation Element
COST ESTIMATE SUMMARY

PROJECT: Eckerson Road Extension	**REFERENCE NAME/PHONE**		**SHEET** 1 of 1
DESIGN LEVEL: Conceptual			
KIND OF WORK: Roadway	**LENGTH (MI.):** 6.8	**DATE** 6/22/2007	**NAME/CHECKED BY:** SM/AB

Construction Cost

NO.	ITEM	UNIT	QUANTITY	COST
1	Curb, Gutter & Sidewalks	Mi.	0.90	$567,360
2	Drainage	Mi.	0.90	$583,716
3	New Roadway	Lane-Mi.	0.68	$508,482
4	Overlay Existing Roadway	Lane-Mi.	N/A	N/A
5	Reconstruct Existing Roadway	Lane-Mi.	0.22	$123,707
6	Intersection Widening	EA	N/A	N/A
7	Restriping Existing Roadway	Lane-Mi.	N/A	N/A
8	Interconnect Signal	LS	N/A	N/A
9	New Signal	EA	1.00	$250,000
10	Signal Modifications	EA	N/A	N/A
11	Transit Enhancements	EA	N/A	N/A
12	Traffic Calming	%	N/A	N/A
13	Illumination	Mi.	0.90	$214,650
14	Landscaping	Mi.	0.90	$202,500
15	Bridges	SF	2.00	$3,976,000
16	Walls	SF	2.00	$134,400
	SUBTOTAL			*$6,560,815*

	ADDITIONAL COSTS	RANGE	PERCENTAGE	COST
	Miscellaneous	15.0-20.0%	20.0%	$1,312,000
	Construction Surveying	1.0-2.5%	2.0%	$131,000
	TP & DT	3.0-8.0%	5.0%	$328,000
	Mobilization	8.0-10.0%	9.0%	$590,000
	Erosion Control	0.5-2.0%	1.5%	$98,000
	Contingency	30.0%	30.0%	$1,968,000
	Escalation (per year)	0.5-2.0%	2.0%	
	-Current Year		2006	$131,000
	Construction Engineering	10.0%	10.0%	$656,000
	TOTAL CONSTRUCTION COST			***$11,774,815***

PSE Cost

	ELEMENT	PERCENTAGE	COST
	Design Engineering	13.0%	**$1,531,000**

ROW Cost

	ELEMENT	UNIT	UNIT COST	QUANITY	COST
	Rural ROW	SF	N/A	N/A	N/A
	Urban ROW	SF	1.06	192,620.20	$204,177
	TOTAL ROW COST				***$204,177***

Environmental Cost

	ELEMENT	PERCENTAGE	COST
	Environmental Cost	TBD	**TBD**

Total Cost: $13,509,993

Range of Total Cost

	RANGE	PERCENTAGE	COST
	High Total	50.0%	**$20,264,989**
	Low Total	-15.0%	**$11,483,494**

Range of Total Cost: $11,483,500 to $20,265,000

Attachment 4

Methods and Assumptions Memorandum

Centralia Transportation Element Methods and Assumptions Memorandum

PREPARED FOR: Emil Pierson/City of Centralia
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PREPARED BY: Grahm Satterwhite/CH2M HILL
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DATE: November 21, 2006

This memorandum outlines the methods and assumptions that will be used for the City of Centralia Comprehensive Plan Transportation Element update. The goal of this memo is to achieve consensus within the project team to help produce consistent and defensible analysis. This memo identifies the analysis years, study area limits, travel demand forecasting and operational analysis and assumptions.

Study Area Limits

The study area for this project includes the Centralia city limits and the designated Urban Reserve Areas (URAs) of Centralia (see Figure 1). For the roadway operational analysis 17 existing intersections and 14 roadways have been identified. These 14 roadways are identified as part of the federally classified arterial system. The City would like this Transportation Element update to clarify that the City's functional classification is the same as the federal classification; the City is making modifications to its street standards to reflect this change. Potential intersections or roadways may be analyzed depending on the projects developed as part of the future roadway alternative packages. These intersections and roadways are listed in Table 1.

TABLE 1
Study Intersections/Roadways

Facility Type	Intersection/Roadway Name	Count Date (PM Peak)
Signalized Intersections		
1	Harrison Avenue & Reynolds Avenue	May 25, 2005
2	Reynolds Avenue & Pearl Street (SR-507)	May 25, 2005
3	Harrison Avenue & I-5 Southbound Ramps	March 22, 2005
4	Harrison Avenue & I-5 Northbound Ramps	March 22, 2005
5	Main Street & Pearl Street (SR-507 Couplet)	May 25, 2005
6	Main Street & Tower Avenue (SR-507 Couplet)	May 25, 2005
7	Mellen Street (SR-507) & I-5 Southbound Ramps	March 22, 2005
8	Mellen Street (SR-507) & I-5 Northbound Ramps	March 22, 2005
9	Cherry Street & Pearl Street (SR-507 Couplet)	May 25, 2005

TABLE 1
Study Intersections/Roadways

Facility Type	Intersection/Roadway Name	Count Date (PM Peak)
10	Cherry Street & Tower Avenue (SR-507 Couplet)	May 25, 2005
Unsignalized Intersections		
11	Harrison Avenue & West 1st Street	February 16, 2006
12	Mellen Street & Airport Road	February 16, 2006
13	Mellen Street & Yew Street	February 16, 2006
14	Summa Street & Gold Street	February 16, 2006
15	Summa Street & Kresky Avenue	February 16, 2006
16	Tower Avenue & W. 6th Street	November 9, 2006
17	Pearl Street & W. 6th Street	November 9, 2006
Roadways		
	West First Street – Harrison Avenue to Pearl Street	
Principal/Minor Arterial	Harrison Avenue – URA to Main Street	
Principal Arterial	Oakland Avenue – Galvin Road to Cooks Hill Road	
Principal Arterial	Main Street – Harrison Avenue to Tower Avenue	
Minor Arterial	Galvin Road – I-5 to URA	
Minor Arterial	Reynolds Road – I-5 to Pearl Street	
Minor Arterial	Mellen Street – Oakland Avenue to Alder Street	
Minor Arterial	Alder Street – Mellen Street to Cherry Street	
Minor Arterial	Cherry Street – Alder Street to Tower Avenue	
Principal/Minor Arterial	Pearl Street– URA to Chestnut Street	
Principal Arterial	S. Viaduct Street – Chestnut Street to Summa Street	
Principal Arterial	Gold Street – S. Viaduct Street to National Avenue (City Limits)	
Principal Arterial	Kresky Avenue – Tower Avenue to City Limits	
Principal/Minor Arterial	Tower Avenue – Marion Street to Kresky Avenue	

Traffic count and intersection data was collected during one of the field visits at the Scheuber Road/Galvin Road and Scheuber Road/Cooks Hill Road intersections. These intersections potentially will be analyzed in the future conditions phase of the scope of work.

Analysis Years

PM peak hour intersection analysis and daily roadway capacity will be analyzed for the two conditions listed below.

- Existing Year (2006)
- Future 2030 Condition

The existing year of 2006 was selected to provide an assessment of the current facilities and operations. This is useful in generating deficiencies and potential solutions. The design year of

2030 was selected to be consistent with the Lewis County Travel Demand model and generate shelf-life for potential projects as part of any solution package.

Data Collection

Traffic counts collected in 2005 will be increased to existing year 2006 to provide a consistent baseline existing condition. This increase in volume will be based on historical growth patterns derived from the extensive traffic count inventory collected by the City and Lewis County.

Accident data will be collected and synthesized for analysis by City staff and will be from 2001 to 2006. This data includes information such as accident type, date/time, street location, and accident severity. A template for information was sent to the City on November 14th, 2006.

Two field visits to collect non-motorized, transit, rail, road and intersection geometry information were performed on November 9th and 13th, 2006.

Operational Analysis Methods/Parameters

General Parameters

Existing conditions will be represented by data from years 2005 and 2006. The Lewis County traffic model will be used to forecast PM peak hour volumes for the future 2030 condition. The intersection analysis from the Lewis County Arterial Study will be used to document the intersection operations under the existing conditions for consistency.

Intersection Analysis

Software

All intersection analysis will be performed using the Synchro software package (version 6). This software implements methods from the Highway Capacity Manual (HCM) and will be used to analyze both signalized and unsignalized intersections. The level-of-service (LOS) and intersection delays (per vehicle) results will be reported using the results from the Synchro software.

Mobility Standards

Table 2 includes the current mobility standards of WSDOT (for urban areas) and Lewis County. City of Centralia future mobility standards will be established as part of this transportation element update, per section 3.2. The mobility standards are based on the HCM LOS definitions and are applicable for signalized and unsignalized intersections. For unsignalized intersections, the reported LOS will be based on the minor-street approach LOS and vehicle delay.

TABLE 2
Mobility Standards

Roadway Jurisdiction	LOS Mobility Standard
WSDOT (Ramp terminals)[1]	D
Lewis County (urban areas)	D
City of Centralia	D[2]

[1] Washington State Department of Transportation 2002. 2002 *Washington State Highway System Plan*

[2] This proposed LOS will be documented in the revised transportation element's goals and policies

Intersection Parameters

Table 3 includes a list of all intersection parameters/inputs assumed for this project.

TABLE 3

Arterial Operations Parameters/Assumptions

Arterial Intersection Parameters	Existing	2030 – Baseline and Alternatives
PM Peak Hour Factor	From traffic count and by approach	0.85: for approach with existing PHF ≤ 0.85 0.95: for approach with existing PHF > 0.85 ≤ 0.95 No change: for approach with existing PHF > 0.95
Conflicting Bikes and Pedestrian per Hour	From traffic count, otherwise assume 10 peds/bikes	Same as Existing
Area Type	"Other"	Same as Existing
Ideal Saturation Flow Rate (for all mvmts)	1,800 pc/ph/pl for all movements	Same as Existing
Lane Width	From field visit	**Baseline:** Same as Existing **Alternatives:** Based on design
Percent Heavy Vehicles	From traffic count and by approach, otherwise 5%[1]	Same as Existing
Percent Grade	From field visit	**Baseline:** Same as Existing **Alternatives:** Based on design
Parking Maneuvers per Hour	1 parking maneuver per hour per legal space	Same as Existing (only on Tower and Pearl Streets)
Bus Blockages	Headway information provided by transit agencies	Assume headways reduced by half at each transit stop, per the Lewis County model documentation.
Intersection signal phasing and coordination	From current timing plans	Optimized by Synchro
Intersection signal timing optimization limits	From current timing plans	Between 60-120 seconds
Minimum Green time	From current timing plans	**Baseline:** Same as Existing **Alternatives:** Based on pedestrian times (7 sec. walk and 3.5 feet per second for FDW clearance) 10 sec. if no crosswalk 15 sec. for protected LT phase 10 sec. for prot/perm LT phase
Yellow and All-red time	From current timing plans	**Baseline:** Same as Existing **Alternatives:** Proposed signals: (yellow) = 4 seconds and (all-red) = 1 second
Right Turn on Red	Allow	Allow
Right Turn Overlaps	From current timing plans	**Baseline:** Same as Existing **Alternatives:** Identify if used

Note: LOS and delay will be reported from Synchro.

[1] Traffic counts indicate that some locations have a heavy vehicles percentage of nearly 20%.

Segment Analysis

The level of service (LOS) analysis for the federally classified roadways within the study area will be analyzed using the methods described in the Florida Department of Transportation's (FDOT) LOS handbook[2]. The methodologies of this handbook assess the PM peak hour

[1] State of Florida Department of Transportation. 2002. *2002 Quality/Level of Service Handbook*.

roadway volumes against the PM peak hour roadway capacity (volume to capacity [V/C] ratios). Existing and future 2030 roadway analysis will be performed to identify deficiencies and appropriate roadway improvements. The federally classified roadways within the study area that will be assessed are listed in Table 1.

Accident Analysis

Accident data will be analyzed for all federally classified roadways. This analysis will identify locations that have experienced five or more accidents over the most current five years at either an intersection or within a single block. Identified safety deficiencies will be evaluated for solutions that could improve safety as part of the developed solution packages. Assessment of potential future safety deficiencies will not be provided.

Pedestrian and Bicycle

Pedestrian facilities will be identified along each of the federally classified roadways inside the study area noting location (side) and width (greater than or less than five feet). Marked or signed bicycle routes will also be identified within Centralia's URAs. Future proposed improvements will be based upon the identified deficiencies (gaps, etc.).

Transit

Current service plans, headways, and stop locations within the study area will be identified. Future service plans from Twin Transit will be incorporated into the transportation element revision.

Freight and Rail

Existing freight and rail facilities within the study area will be identified. Future planned and programmed projects will be included in the future conditions for coordination. Any identified deficiencies, grade separations or future routes will be proposed as part of the solution packages.

Forecasting/Modeling

Travel demand forecasts for year 2030 will be developed to assess future deficiencies and evaluate potential alternatives. The Lewis County travel demand forecasting model will be updated to reflect 2030 Centralia's current land use projections on the anticipated future roadway network using the EMME/2 software, assuming City input regarding land use by December 1st, 2006.

The 2030 Baseline (with no roadway alternative packages) travel demand forecasts will utilize the updated Centralia land use projections, with the regional planned and programmed roadway improvements listed in Table 4. The two 2030 Build Alternative travel demand forecasts will utilize the same land use assumptions and planned and programmed improvements as in the Baseline condition, but incorporate two different sets of roadway alternative packages for evaluation.

A post-processing spreadsheet tool will adjust the macro-level modeling forecasts into future intersection turning movement counts for the operational analysis. The spreadsheet tool incorporates the methods described in NCHRP Report 255. In this case, the 2006 PM peak hour

traffic volumes will serve as the basis for the turning movement distribution. In situations where the model indicates a negative growth, traffic volumes will be kept constant unless justified. After this process is completed for each intersection, the turning movement volumes will be balanced between adjacent intersections, when applicable. The future 2030 PM peak hour traffic volumes will be analyzed for each future condition.

Turning movement volumes at intersections for the two arterial roadway alternative packages will be developed using a comparison of traffic volumes between the 2030 baseline and build alternative forecasts.

Background Projects

The Lewis County EMME/2 travel demand forecasting model will be used for the future 2030 travel forecasting. A single updated land use scenario based on city recommendations will be used for the Baseline and two Roadway Alternative forecasts. The projects listed in Table 4 are assumed to be constructed by year 2030 and are included as part of the Baseline and Alternative(s) conditions. These projects are listed in the Lewis County model documentation and have been confirmed to be in the regional model.

TABLE 4
Assumed 2030 Baseline Transportation Improvements

Project	Improvement	Reference
I-5 Widening – Mellen Street to Grand Mound	**Phase 1**: This project will widen 4 miles of I-5 from two lanes to three lanes in each direction between the Blakeslee railroad junction in Lewis County (milepost 83.5) and just south of the Grand Mound interchange (Exit 88) in Thurston County. Construction of Phase 1 will begin in 2009. **Phase 2**: This project will replace the existing I-5, Mellen Street interchange (Exit 81) prior to widening the freeway beneath it. Construction of Phase 2 will begin in 2010. **Phase 3**: This project will widen approximately 3 miles of I-5 from two lanes to three lanes, plus a fourth auxiliary lane, in each direction between the Mellen Street interchange (Exit 81) and the Blakeslee Railroad Junction bridge in Lewis County. Construction of Phase 3 will begin in 2011.	http://www.wsdot.wa.gov/Projects/I5/MellentoGrandMound/
I-5 – Rush Road to 13th Street	When finished, I-5 from the Rush Road interchange to the 13th Street interchange in Lewis County will be a concrete barrier-divided interstate with three general-purpose lanes in each direction (six lanes total). In addition, access to the Chehalis Industrial Park will be improved as a result of building a new interchange at LaBree Road. Construction is currently scheduled to start in 2007.	http://www.wsdot.wa.gov/Projects/I5/RushRd13thSt/
I-5 – Grand Mound to Maytown	This is one of a series of projects that will, when completed, provide a minimum of three lanes in both directions of I-5 from Skagit County to the I-205 interchange in Clark County. The interchange at Grand Mound will be modified slightly. The existing west side loop ramp will be eliminated. A signal will be installed at the west side ramp intersection to allow traffic that would have used the loop ramp to use the other existing on-ramp to southbound I-5. On the east side of the interchange, the two existing exits from northbound I-5 will be consolidated	http://www.wsdot.wa.gov/Projects/I5/GrandMoundtoMaytown/

TABLE 4
Assumed 2030 Baseline Transportation Improvements

Project	Improvement	Reference
	to one exit point. Both exit ramps will connect to this consolidated exit-point. South of the Grand Mound interchange, the realignment will provide a more gradual curve that can be negotiated safely at the posted 70 mph speed. Construction date is slated for 2008.	
Airport Way Improvements/ Airport Road TIB	This project will raise and widen Airport Way between the Mellen Street interchange and the Airport Dike. The new Airport Way will sit on top of a levee. Seawalls are planned at two locations where the roadway is close to the Chehalis River. The project is expected to enter design and construction in December 2006.	Lewis County Transportation Coalition, I-5 Corridor Projects, last updated 2/22/05. Lewis County Department of Public Works, 2006-2011 6-Year Transportation Improvement Program, adopted 11/21/2005.
Rush Road Extension	This project will construct a freight corridor with curb-and-gutter for an urban collector. Construction is scheduled to begin in 2007. Extend Rush Road north of its intersection with Bishop Road into the Chehalis Industrial Park.	Lewis County Department of Public Works, 2006-2011 6-Year Transportation Improvement Program, adopted 11/21/2005.

Test Solutions

Two 2030 roadway alternatives will be evaluated for intersection and corridor performance. Proposed future projects as part of the Lewis County Arterial Study will be incorporated within the two roadway alternative packages. This will ensure consistency between the planning efforts.

The intersection and roadway evaluation will be based upon the established Centralia transportation levels of service standards (per section 3.2 of the scope of work). Roadway performance evaluation will be conducted by testing the difference in traffic volumes and capacity between the Baseline and two roadway alternatives. The previously described FDOT LOS handbook will be used to evaluate and recommend an appropriate roadway width and capacity.

From the results of the intersection and roadway evaluation among the other evaluation criteria developed as part of this task, specific projects will be prioritized and recommended to be included in the Centralia TIP.