



Quad County Regional Transportation Plan Adams, Grant, Kittitas and Lincoln Counties 2007



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Quad County

Regional Transportation Plan

Adams, Grant, Kittitas and Lincoln Counties,
Washington

2007

Members

Counties: Adams, Grant, Kittitas and Lincoln

Cities: Almira, Coulee City, Coulee Dam, Creston, Davenport, Electric City, Ellensburg, Ephrata, George, Grand Coulee, Harrington, Krupp, Lind, Mattawa, Moses Lake, Odessa, Othello, Quincy, Reardon, Ritzville, Roslyn, Royal City, Soap Lake, Sprague, Warden, Washtucna, Wilbur and Wilson Creek

Transit Agencies: Grant Transit Authority

Ports: Port of Ephrata, Port of Moses Lake, and Port of Royal Slope

State Agency: Washington State Department of Transportation

Prepared for:

Quad County
Regional Transportation Planning Organization
Adams, Grant, Kittitas and Lincoln Counties,
Washington

Prepared by:



J-U-B ENGINEERS, Inc.

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Introduction

Adams County, Grant County, Kittitas County and Lincoln County in central Washington make up the Quad County Regional Transportation Planning Organization (QUADCO) under the provisions of the 1990 Growth Management Act (SHB 2929). The responsibility of acting as the lead planning agency rotates periodically to each of the four counties. These four counties are included in three regions within the Washington State Department of Transportation (WSDOT): the North Central Region, the South Central Region and the Eastern Region. The four counties included in the QUADCO RTPO study area are shown in Figure 1.

On June 8, 1994 the QUADCO RTPO adopted the initial Regional Transportation Plan. A subsequent Amendment to the Plan was adopted on April 30, 2004.

The QUADCO Board is made up of duly elected officials and staff that represent each jurisdiction within the four county region. They represent regional jurisdictions, ports districts, private business, and the Department of Transportation. These members are supported by staff that are technically proficient in planning or engineering that represent each jurisdiction. Current membership of the RTPO Board is included in Appendix A.

The preparation of this RTP Update involved of the full QUADCO Board, with extensive oversight from a committee comprised of representatives from each county, several cities and WSDOT. Individual public meetings were held as deemed appropriate in each city and county before elected representatives with opportunity for public input. Meetings were also held with the county engineers and other staff and various city representatives and interested parties. Input was also sought from representatives of the three Regions of the Washington State Department of Transportation.

The purpose of this plan is to describe the region's characteristics, identify future improvements to the transportation system;, determine model priorities;, and determine funding sources, funding levels and strategies to correct transportation system deficiencies. This plan relies in part on the Washington Transportation Plan 2007 - 2026 (WTP), primarily the material related to QUADCO. This helps to ensure consistency with the WTP.

This plan is intended to be the foundation of the RTPO Transportation Improvement Program (TIP). The plan recognizes the need to review projects based on smaller sub-regions created by natural transportation barriers, significant yet limited federal improvements and Non GMA and GMA jurisdictional and regulatory differences. The plan accomplishes this task by validating member's current TIP, based on the broader mobility, economic, social, and environmental goals of the citizens and jurisdictions of the region, and by providing an organized review from which transportation project improvements are identified, programmed and built.

The Regional Transportation Plan and the Transportation Improvement Program are designed and created to fulfill requirements of the Growth Management Act (GMA) for both NON-GMA and GMA members, specifically requirements for preparation of a RTPO spelled out in RCW 47.80 and Washington State Department of Transportation RTPO Transportation Planning Guidebook.

Figure 1. Quad County Region Study Area

Goals, Policies and Objectives

This section provides a strategy or system of review that each member agency should consider as they develop their local 6-year Transportation Improvement Plan. The intent of this section is to provide for a reasonable level of consistent TIP planning by member agencies for regionally significant transportation infrastructure needs.

The Regional Transportation Strategy for the QUADCO Region is to provide for all modes of transportation that can be developed, maintained and utilized in the most cost effective manner. In this regard the following Regional Transportation Goals and Policies have been created:

GOAL #1: Encourage GMA Counties to document that urban development is in areas where adequate public facilities and services exist or can be provided in an efficient manner.

OBJECTIVE: Select projects in GMA Counties that plan and make provision for public facilities and services, such as transportation, so that they will be available at the same time as the development.

GOAL #2: When appropriate plan for multimodal transportation systems that are based on regional or sub-regional priorities and are coordinated with county and city comprehensive plans.

OBJECTIVE: Select projects that insure that the RTP reflects the link between transportation facilities (roads, buses, trains, paths, waterways and trails), or that utilize more than one mode or which provide more opportunities to choose between modes.

GOAL #3: Encourage economic development throughout the region that is consistent with adopted comprehensive plans, promote economic opportunity for all citizens of the region, especially unemployed and disadvantaged persons, and encourage growth in areas experiencing insufficient economic growth.

OBJECTIVE: Projects should be economically viable. The project must meet the criteria specified for the funding source and must offer a viable solution to a recognized problem in a cost-effective manner.

GOAL #4: Protect the environment and enhance the planning area's high quality of life, including air and water quality, and the availability of water.

OBJECTIVE: Select projects that are consistent with a jurisdictions environmental and/or critical areas standards.

GOAL #5: Encourage involvement of citizens in the planning process and ensure coordination between communities and jurisdiction to reconcile conflicts.

OBJECTIVE: Select projects that demonstrate consistency with locally adopted public review policies.

GOAL #6: Provide access to transportation for all citizens within the four counties.

OBJECTIVE: Select projects that comply with local requirements Title VI of the 1964 Civil Rights Act.

The following section presents the objectives of the Quad County Regional Transportation Plan as originally adopted in 1994, beginning with those of a more general nature and progressing to those dealing with specific modes and issues.

1. General

- a. Support economic growth and vitality.
- b. Ensure that growth and change in the transportation system within and near local jurisdictions are consistent with the regional and local comprehensive and transportation plans for those jurisdictions.
- c. Provide a tool for the communities to use that will guide transportation system development to make it consistent with and supportive of area comprehensive plans.
- d. Ensure consistency with environmental rules and regulations.
- e. Emphasize the movement of goods and people rather than the movement of vehicles.
- f. Wherever possible, preserve existing rail lines and reserve abandoned rail lines through compatible use in accordance with the Washington State Rail Transportation Plan.
- g. Consider the most cost-effective mode or modes of transportation for the overall good of the region.
- h. Apply minimum standards for operating conditions, classification schemes, and performance measures uniformly on the regional system.
- i. Identify and implement strategies to resolve constraints to intermodal connections.
- j. Identify and implement strategies to take advantage of opportunities for new and enhanced intermodal connections and alternative transportation modes.

2. Coordination

- a. Ensure that transportation decisions and improvements crossing county boundaries or affecting more than one county or jurisdictions outside the region are coordinated across all affected counties and jurisdictions.
- b. Coordinate transportation decisions with affected agencies.
- c. Provide for coordination between the state and region on major transportation decisions with regard to all modes.
- d. Ensure that transportation decisions leading to the development of the nonmotorized component of the regional transportation system are coordinated.
- e. Communicate with the private sector to ensure that transportation decisions which have an impact on private facilities are coordinated with the affected industries. These may include:
 - Railroads
 - Elevator and terminal operators
 - Trucking companies
 - Bus companies

- Package express services
- Taxi companies
- Pipelines
- Paratransit contractors
- Airlines

3. System Capacity and Improvement

- a. Focus on minimizing inefficient routing and lowering travel time.
- b. Whenever possible and practical, the improvement of existing facilities in the transportation system rather than provide new facilities, except where new facilities promote alternatives to the Single Occupant Vehicle (SOV) and/or are otherwise demonstrated to have a lower cost and higher benefit.
- c. Encourage major employers, activity centers, and others to establish programs for ridesharing and other transportation demand management systems.
- d. Encourage consolidation of freight facilities wherever feasible and the location of freight facilities adjacent to appropriate existing arterials and transportation hubs.
- e. Improve the safety and capacity of roadways, while retaining aesthetic features on tourist roads.
- f. Focus on supporting and accommodating movement within the region and between the region and its adjacent areas, rather than traffic movements merely passing through the region or movements within limited local areas.

4. Roadway

- a. Guide changes in classification and future reclassification of roadways.
- b. Accommodate the type of user most likely to benefit from improvements to the particular transportation facility.
- c. Match the available funding with the necessary improvements. Typically, the higher classed facilities receive higher priorities.
- d. Ensure consistency of roadway classification when jurisdiction changes between state, county, and municipal control. Segments which change classification solely because they change jurisdiction need to be carefully analyzed as to whether they are properly classified.
- e. Ensure that facilities with a higher level of classification enhance movement through the region while lower level classifications encourage access to and from the transportation facilities within the region.

5. Public Transportation

- a. Maximize mobility for population segments dependent on public transportation such as the disabled and elderly.
- b. Provide a viable alternative to the single occupant vehicle (SOV).
- c. Provide effective intermodal connections between passenger modes.
- d. Raise awareness within the region of the role of public transportation.

6. Land Use

- a. Support urban growth boundaries, urban nodes, residential centers, and employment centers identified in the comprehensive plans of Kittitas and Grant Counties, and the Cities of Ellensburg and Moses Lake. Support planning efforts to deal with growth throughout the QUADCO region, including non-GMA counties, to meet current and future needs.
- b. Address conditions under which access to adjacent land uses is to be enhanced and conversely, conditions under which movement between the regional transportation system and adjacent land uses is to be discouraged.
- c. Identify and encourage preservation of transportation corridors for future rights-of-way.
- d. Implement transportation improvements which enhance the likelihood that improvement of inadequate regional infrastructure, in particular, water, sewer, and other utility systems will occur.

Profile of the QUADCO Region

Physical Features

Existing and proposed land uses are an integral component of transportation planning. The Growth Management Act requires that the transportation element implemented be consistent with the land use element of the local comprehensive plan.

It can be shown that land use and transportation are inter-related and that land use activities largely determine the travel demand.

QUADCO RTPO covers an area of 9,214 square miles of central and eastern Washington. There are three distinct sub regions within the area, each of which has unique characteristics that shape the transportation system into internally dependent local area networks. The backbone or lifeblood of these sub regions are the farm-to-market, or haul road systems, even though they are not necessarily the same in every portion of the region. The condition and accessibility of these roads is vital to regional economic development and require as much attention as major transportation facilities to meet current needs.

- The drylands of Lincoln, Adams, and Grant Counties with their emphasis on grain production, and destination recreation;
- The irrigated areas of Grant County, Adams County Panhandle, and a large part of Kittitas County with their emphasis on perishable products, orchards and the timothy hay industry; and
- The remainder of Kittitas County has a focus on urban, service industries, agricultural industries, timber industries as well as recreational facilities and opportunities.

The success of all these enterprises is highly dependent upon an efficient transportation system that connects state produced commodities with their respective markets.

In general the region includes the higher elevations as well as the eastern ridges and foothills of the Cascade Range. This type of terrain is exclusively found within Kittitas County, mostly to the west of the City of Ellensburg in the areas usually referred to as Upper Kittitas County. Much of the balance of this county (Lower Kittitas) and a sizable portion of western Grant County consist naturally of low hills with scabland vegetation. Similar terrains as well as considerably flatter portions of central and eastern Grant County and western Adams County have been irrigated under the U.S. Bureau of Reclamation's Columbia Basin Project. Portions of lower Kittitas County are also irrigated. Much of the balance of Adams County and almost the entire area of Lincoln County rest in the channeled scablands area with limited irrigation.

Other significant physical features include the Columbia River and its constituent lakes, Drumheller Canyon, Moses Lake and the surrounding Potholes area, the Saddle Mountains, and the Palouse Hills. The Columbia River remains navigable to a point just upriver from the southern boundary of the region. Banks Lake and Lake Roosevelt are two reservoirs of the Columbia River located in the northern portions of the region which feature prominently in their recreational amenities. Moses Lake and its surrounding water bodies located near to the center of the region offer a similar recreational opportunity. The Saddle Mountains trend east/west and separate the area around the town of Mattawa from the balance of Grant County. The Mattawa side of these hills is called the Wahluke Slope with the northern side being referred to as the Royal Slope. Although both the lower Mattawa area and the lower

portion of the Royal Slope area are irrigated, the remainder of the Saddle Mountains area is not. Its economic activity is focused on hunting and wildlife observation. The Palouse Hills are a feature located further to the southeast, encompassing about one quarter of Adams County with this type of terrain. The northern portion of the Palouse Hills includes Sprague Lake and surrounding areas that have recreational amenities.

In Upper Kittitas County evergreen forests have featured prominently in that region's economy. Elsewhere, the natural vegetation is of desert and steppe varieties that are being replaced by irrigated crop agriculture within the Columbia Basin Project area.

Population Trends

The four-county area had a combined population of 134,672 as determined by the 2000 census. This represents almost 2.3 percent of the state population. The 2006 estimate of population in the region is 145,500. It is significant to note that approximately 45% of the regions population is located in unincorporated areas, demonstrating the strong agricultural orientation of the region. Historical population growth is shown in Table 1 for each jurisdiction within the region, including the percentage increase between 1990 and 2000.

Although sparsely populated, the QUADCO region's population is growing fast, up 30 percent from 1990 to 2000. Grant County population is up 36 percent from 1990 to 2000 and was the third fastest growing county in the state. Several communities have had more than 25% growth between the 1990 and 2000 census, these are highlighted in Figure 1. Nine communities in Grant County had high growth rates, including: Ephrata, George, Mattawa, Moses Lake, Quincy, Royal City, Soap Lake, Warden and Wilson Creek. The greatest percentage increase was shown in Mattawa at 177%, this area has been a growing area for orchards. Much of this growth can likely be attributed to the proximity to Moses Lake and the I-90 corridor. Some smaller communities are experiencing large lot residential development. Processing of agricultural and industrial products has grown in recent years and housing prices in these nearby communities to Moses Lake are more affordable. Two Adams County cities, Othello and Hatton, had growth greater than 25%. This may be attributable in part to their proximity to Moses Lake as well, however the City of Othello has a certain critical mass as well and is experiencing growth in processing and manufacturing. Reardan, in Lincoln County, was the only city to experience substantial growth which is likely due to it's close proximity to the City of Spokane. Both Ellensburg and Cle Elum in Kittitas County had growth greater than 25% during the 1990's.

The growth in the QUADCO region is attributed to the fact that a significant portion of employment is in the private sector. As agricultural lands in other parts of the state and nation become less desirable, farming in the QUADCO region, with its abundance of sub-regional farm-to-market roads and major transportation facilities has experienced economic growth over the past several years.

Table 1. Historical Population by Jurisdiction

<u>County/ Municipality</u>	<u>Year of Incorporation or Formation</u>	<u>Decennial Census Data</u>				<i>Estimate</i>	<u>% Change 1990-2000</u>
		<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2006</u>	
Adams	1883	12,014	13,267	13,603	16,428	17,300	21%
Unincorporated		5,018	6,031	6,466	7,905	8,435	22%
Incorporated		6,996	7,236	7,137	8,523	8,865	19%
Hatton	1907	60	81	71	98	105	38%
Lind	1902	622	567	472	582	565	23%
Othello	1910	4,122	4,522	4,638	5,847	6,205	26%
Ritzville	1890	1,876	1,800	1,725	1,736	1,730	1%
Washtucna	1903	316	266	231	260	260	13%
Grant	1909	41,881	48,522	54,798	74,698	80,600	36%
Unincorporated		15,212	20,568	25,282	35,797	38,455	42%
Incorporated		26,669	27,954	29,516	38,901	42,145	32%
Coulee City	1907	558	510	568	600	600	6%
Coulee Dam <i>part</i>	1959	1,425	1,439	1,127	4	0	-100%
Electric City	1950	651	927	910	922	955	1%
Ephrata	1909	5,255	5,359	5,349	6,808	6,950	27%
George	1961	273	261	324	528	530	63%
Grand Coulee	1935	1,302	1,180	984	897	930	-9%
Hartline	1907	189	165	176	134	135	-24%
Krupp	1911	52	87	53	60	60	13%
Mattawa	1958	180	299	941	2,609	3,330	177%
Moses Lake	1938	10,310	10,629	11,235	14,953	16,830	33%
Quincy	1907	3,237	3,525	3,734	5,044	5,395	35%
Royal City	1962	477	676	1,104	1,823	1,875	65%
Soap Lake	1919	1,064	1,196	1,203	1,733	1,740	44%
Warden	1910	1,254	1,479	1,639	2,544	2,575	55%
Westlake	1957	258	-	-	-	-	-
Wilson Creek	1903	184	222	169	242	240	43%
Kittitas	1883	25,039	24,877	26,725	33,362	37,400	25%
Unincorporated		7,704	9,109	10,418	13,614	15,780	31%
Incorporated		17,335	15,768	16,307	19,748	21,620	21%
Cle Elum	1902	1,725	1,773	1,778	1,755	1,810	-1%
Ellensburg	1883	13,568	11,755	12,360	15,414	17,080	25%
Kittitas	1931	637	853	843	1,105	1,135	31%
Roslyn	1890	1,031	938	869	1,017	1,020	17%
South Cle Elum	1911	374	449	457	457	575	0%

Table 1. (continued)

<u>County/ Municipality</u>	<u>Year of Incorporation or Formation</u>	<u>Decennial Census Data</u>			<u>2000</u>	<i>Estimate</i>	<u>% Change 1990-2000</u>
		<u>1970</u>	<u>1980</u>	<u>1990</u>		<u>2006</u>	
Lincoln	1883	9,572	9,604	8,864	10,184	10,200	15%
Unincorporated		3,932	3,778	3,669	4,520	4,540	23%
Incorporated		5640	5826	5195	5,664	5,660	9%
Almira	1904	376	349	310	302	280	-3%
Creston	1903	325	318	230	232	255	1%
Davenport	1890	1,363	1,550	1,502	1,730	1,745	15%
Harrington	1902	489	507	449	431	420	-4%
Odessa	1902	1,074	1,009	943	957	950	1%
Reardan	1903	389	498	488	608	620	25%
Sprague	1883	550	473	410	490	495	20%
Wilbur	1890	1,074	1,122	863	914	895	6%
Total Counties		88,506	96,270	103,990	134,672	145,500	30%
Unincorporated		31,866	39,486	45,835	61,836	67,210	35%
Incorporated		56,640	56,784	58,155	72,836	78,290	25%

Source: Washington State Office of Financial Management, April 1, 2006

Population forecasts for each county are prepared by the State of Washington. The percentage share of each city's population of the county has been carried into the future to prepare Table 2.

Table 2. Population Forecasts by Jurisdiction

County/ Municipality	<u>Census</u>	<u>Estimate</u>	<u>Forecast</u>			
	2000	2006	2010	2015	2020	2025
Adams	16,428	17,300	19,853	21,489	23,136	24,766
<i>Hatton</i>	98	105	119	129	139	149
<i>Lind</i>	582	565	675	731	787	842
<i>Othello</i>	5,847	6,205	6,750	7,306	7,866	8,420
<i>Ritzville</i>	1,736	1,730	2,581	2,794	3,008	3,220
<i>Washtucna</i>	260	260	397	430	463	495
Grant	74,698	80,600	96,502	104,523	111,029	117,459
<i>Coulee City</i>	600	600	612	663	705	745
<i>Electric City</i>	922	955	941	1,019	1,083	1,145
<i>Ephrata</i>	6,808	6,950	7,863	8,517	9,047	9,571
<i>George</i>	528	530	610	661	702	742
<i>Grand Coulee</i>	897	930	974	1,055	1,120	1,185
<i>Hartline</i>	134	135	137	148	157	166
<i>Krupp</i>	60	60	61	66	70	75
<i>Mattawa</i>	2,609	3,330	4,414	4,781	5,078	5,372
<i>Moses Lake</i>	14,953	16,830	19,581	21,209	22,529	23,834
<i>Quincy</i>	5,044	5,395	5,826	6,310	6,703	7,091
<i>Royal City</i>	1,823	1,875	2,387	2,586	2,747	2,906
<i>Soap Lake</i>	1,733	1,740	2,002	2,168	2,303	2,436
<i>Warden</i>	2,544	2,575	3,128	3,388	3,599	3,807
<i>Wilson Creek</i>	242	240	247	268	284	301
Kittitas	33,362	37,400	0,545	44,806	48,796	52,810
<i>Cle Elum</i>	1,755	1,810	7,704	8,513	9,271	10,034
<i>Ellensburg</i>	15,414	17,080	18,245	20,163	21,958	23,765
<i>Kittitas</i>	1,105	1,135	1,216	1,344	1,464	1,584
<i>Roslyn</i>	1,017	1,020	1,014	1,120	1,220	1,320
<i>South Cle Elum</i>	457	575	811	896	976	1,056
Lincoln	10,184	10,200	10,386	11,004	11,918	12,802
<i>Almira</i>	302	280	308	326	353	380
<i>Creston</i>	232	255	237	251	272	292
<i>Davenport</i>	1,730	1,745	1,764	1,869	2,025	2,175
<i>Harrington</i>	431	420	440	466	504	542
<i>Odessa</i>	957	950	976	1,034	1,120	1,203
<i>Reardan</i>	608	620	620	657	712	764
<i>Sprague</i>	490	495	500	529	573	616
<i>Wilbur</i>	914	895	932	988	1,070	1,149

Source: Population Distribution - Adams County Comp Plan approved Feb, 2005 (used OFM High Series for Pop. Growth)
Grant County Comp Plan approve 1998 (used OFM High Series)
Kittitas County Comp Plan update 2006 (used OFM High Series)
Lincoln County used year 2000 distribution (assumed OFM Intermediate Series based on historic growth)

Economic Activity

Agriculture is the predominant economic activity in the region. The more intense agricultural areas of the region are located within the irrigated lands of the Columbia Basin. Crops include potatoes, various vegetables, and specialty plants and seeds. Some of the more labor-intensive agriculture is within the fruit orchards primarily in southern Grant County. The dry land portion of Adams, Lincoln, and northern Grant County produce less-intensive crops such as wheat and barley. Within the dry land area of the region there are portions that are irrigated by well water, thus producing higher density crops than the true dry land areas. Forestry remains an important primary activity in Upper Kittitas County although it has diminished as a result of market and environmental considerations. Livestock is raised throughout the region and pasture grazing is the principal economic activity in portions of northeastern Kittitas County and the Palouse Hills portion of Adams County. Portions of Kittitas and Lincoln Counties also have well irrigated croplands outside of the Columbia Basin Project.

The total acreage within the region under cultivation for each type of crop varies greatly over time due to normal crop rotation. Thus, it is not possible to present a detailed analysis of the production capabilities of the agricultural portion of the region. The ratio of dry to irrigated farming has implications on the demand for transportation facilities. Generally, an acre of irrigated cropland produces eight to nine times more tonnage than an acre of dry land. An acre of orchards is even more productive than other irrigated land and yields about 20 times more product than an acre of dry land. Although there is not a one-to-one relationship between tonnage produced and subsequently shipped on the regional transportation system, there is enough of a correlation to clearly indicate that shipments associated with the irrigated lands are considerably more frequent and heavier than those from dry lands.

The principal population centers of Ellensburg and Moses Lake also function as significant regional economic activity nodes. Growth in the construction trades is increasing significantly in recent years. In particular, the northern portion of Moses Lake near Grant County Airport and the Wheeler Corridor located toward the east of the city are developing centers for light manufacturing, wholesaling, distribution, and retail trade. The area toward the west of Ellensburg near Bowers Field and the Thorp area have similar characteristics although not as developed as the Moses Lake area. Smaller areas such as Quincy and Othello are primarily centers of activity for agriculture related industries such as food processing and fertilizer manufacturing and distribution. However, substantial growth in the Quincy area is underway due to the interest by multiple companies in the fiber systems technology, and the capacity of major communication lines in the Quincy area. Some of the smaller municipalities such as Royal City, Mattawa, Lind, Ritzville, Harrington, Odessa and Sprague, also provide a base for agricultural related industries, although on a lesser scale.

Because, Ellensburg and Moses Lake are centers for major retail, social, medical, and cultural services, large portions of the region are oriented toward urban centers outside of the four counties. Upper Kittitas County is within the sphere of influence of the Puget Sound metropolitan area. Ellensburg and its vicinity are divided between being focused on Puget Sound and Yakima. Southern Grant County, Wahluke Slope and Adams County Panhandle areas are oriented toward the Tri-Cities. The balance of Adams County and all of Lincoln County are influenced by Spokane. The effect of this extra-regional orientation is that a significant proportion of traffic within the region has either an origin or destination outside the region.

This differs from the more metropolitan regions west of the Cascades where most trips are internal.

Recreation and tourism activities in the area generate a large number of trips that either originate or are destined towards the region's many lakes, rivers and mountains. Based on data from the Interagency Committee for Outdoor Recreation, as many as one-third of those enjoying recreational amenities within the region are from outside. Major activities include skiing, boating, camping, hiking, fishing, and hunting in Upper Kittitas County; winery tours, boating, fishing, swimming, and hiking in the Potholes and Bank Lake areas of Grant County; and fishing, boating, wildlife watching and historical touring in portions of northern Adams County and Lincoln County. Major special events in the region include the Ellensburg Rodeo, the laser light show at Coulee Dam and concerts at the Gorge. For many of the recreation activities found in the eastern regions of the state, the people and traffic are generated from the greater Seattle region and travel I-90 through Ellensburg and rely on the goods and services available in Ellensburg and surrounding region.

Regional Transportation System

The four counties of Adams, Grant, Kittitas and Lincoln that comprise the Quad County Regional Transportation Planning Organization (QUADCO) recognize the importance of a multimodal transportation system for the movement of people and goods. This includes roadway networks for passenger cars, buses and trucks. Bicycle and pedestrian systems, transit services and airports serve needs for the movement of passengers as well as some freight and crop services. Although not situated within the region, barging services provided to the south on the Columbia-Snake River system move a significant amount of freight from the region to worldwide markets. Railroads also meet a significant need and provide linkages to the rest of the state and country to move important agricultural products from the region to outside markets. Each of these modes will be discussed below.

Roadway Network Components

In order to fully understand the magnitude of the task of providing an operable transportation system in each county, it is important to consider the full system of county roadways. There are many miles of county roadways in the region as well as local roads that are operated and maintained by the cities in the region. State highways also provide a critical component of the transportation system in linking the region internally as well as to the rest of the state and nation. Typically roadways are functionally classified within each jurisdiction as to the type of service provided. The table below summarizes the mileage of city streets, county roads and state highways by functional classification.

Table 3. Roadway Functionally Classified Mileage by County

Owner/Functional Classification	Adams	Grant	Kittitas	Lincoln	TOTAL
Cities (all combined)	72.00	280.90	102.26	82.72	537.88
County Roads					
Arterial	-	13.79	1.23	18.96	33.98
Collector	668.97	903.59	308.35	639.48	2,520.39
Local Access	1,109.53	1,609.43	251.99	1,333.81	4,304.76
Total	1,778.50	2,526.81	561.56	1,992.26	6,859.12
State Roads					
Interstate Highways	46.65	54.46	104.65	16.18	221.94
Principal State Highways	114.48	102.27	40.26	59.07	316.08
Minor State Highways	0.94	157.37	-	75.60	233.91
Collector State Highways	85.27	51.04	49.72	141.06	327.09
Total	247.34	365.14	194.63	291.91	1,099.02
COMBINED TOTAL	2,097.84	3,172.85	858.45	2,366.89	8,496.02

Source: County Road Administration Board 2006 Annual Report; 2005 Data from WSDOT Revenue & Expenditures Summary

In some areas of the region there are roadways that have significant grades. There are also many roadways that have frequent significant horizontal alignment changes to follow valleys or hillsides. The challenges that arise from such roadways are not insignificant in that they pose maintenance and safety issues. Each of the counties in the region has stewardship of some roadways that have some or all of the following characteristics: gravel surface, narrow lanes, small or non-existent shoulders, no guardrails, seasonal weight restrictions. The table below was prepared to show the extent of roadway surface type for each county within the region.

Table 4. Roadway Surface Type and Total Mileage of County Roads

System Component	County				Total
	Adams	Grant	Kittitas	Lincoln	
Access Roads	1,109.5	1,609.4	252.0	1,333.8	4,304.7
Arterial Roads	669.0	917.4	309.8	658.4	2,554.6
TOTAL System	1,778.5	2,526.8	561.8	1,992.3	6,859.4

Paved Arterial	545.6	830.9	305.7	378.2	2,060.4
Unpaved Arterial	123.4	86.5	4.1	280.3	494.3
Other Paved	104.8	564.5	187.4	62.2	918.9
Other Gravel	993.6	988.8	46.2	1200.2	3,228.8
Dirt	11.1	56.1	18.3	71.4	156.9
TOTAL System	1778.5	2526.8	561.8	1992.3	6,859.4

Source -- County Road Administration Board 2006 Annual Report;
2005 Certified County Road Log.

Examination of Tables 3 and 4 reveals several important characteristics of each county roadway network:

- Total roadway mileage within the 4 counties of all state and local roads combined is nearly 8,500 centerline miles.
- Combined city roadway mileage makes up approximately 6% or the regions total
- County roadway mileage for the 4 counties combined makes up over 80% of the mileage in the region at over 6,850 centerline miles, with just under 3,000 miles being paved
- Nearly 20% of the county arterial roadways are unpaved, with Lincoln County having the largest percentage at nearly 75%, while Kittitas County has only 1% of arterial roads as gravel.
- Some counties have non arterial roadways that are paved.
- Adams, Grant and Lincoln counties each has well over 900 miles of unpaved roads to maintain, some being arterial roads, that provide access to farms in the county.

Freight and Goods Transportation System

Within the four counties there are over 2000 miles of county roadways included in the statewide Freight and Goods System. A summary of mileage in each county is included in Table 5. Interesting to note in the table is the percentage of adequate roads in each county.

Table 5. Freight and Goods System of County Roads

F&GS Truck Route Class	County			
	Adams	Grant	Kittitas	Lincoln
T-1; > 10 million tons/year	0.000	0.000	0.070	0.000
T-2; 4 - 10 millions tons/year	0.530	10.460	5.376	0.000
T-3; 300,000 - 4 M tons/ year	31.575	273.459	239.785	99.490
T-4; 100,000 - 300,000 tons/year	346.750	263.565	59.255	57.120
T-5; 20,000 tons in 60 days	204.500	310.166	3.980	94.557
TOTAL F&GS Mileage	583.355	857.650	308.466	251.167
Total Adequate	177.019	58.490	203.753	0.250
Percent Adequate 2006	30.3%	6.8%	66.1%	0.1%

SOURCE: County Road Log certified 1/1/2006

Adequacy defined by Cost Responsibility Study - All Weather Roads

Interstate 90, designated as a strategic freight corridor, serves as a major east-west facility for freight movement throughout Central Washington. Interstate 90 a National Scenic Byway, transverses 200 miles through the QUADCO region from the summit of Snoqualmie Pass to the Lincoln County line near Spokane. Interstate 90 serves a portion of the intra-regional needs of transporting factory or field processed agricultural products to market. Congestion on I-90 affects the region's delivery of freight to markets and intermodal connections on the west side of the Cascade Mountains. Wintertime closures can interfere with freight movement vital to some segments of the economy in this agricultural region. North-south strategic freight corridors include: US 97, SR 970, I-82, US 395, SR 17, SR 28/281 between I-90 and Wenatchee and SR 243 from Vernita to Vantage, connecting I-90 to the Tri-Cities area to the south. U Road in Grant County provides for significant amount of traffic north-south parallel to SR 17 to get to the Columbia River. East-west strategic freight corridors include: I-90, US 2, SR 24, SR 26, and SR 28. These highways provide corridors for inter-regional transporting of products passing through the state from destinations as varied as Asia, Mexico, Canada, and the Eastern Seaboard.

The fruit and potato industries centered in QUADCO are particularly significant creators of freight truck traffic. The cities of Moses Lake, Quincy and Othello each generate an average of 100 truck trips per day. More than one-third of truck trips originating in this region are destined for Eastern Washington locations delivering, goods and services, supplies, moving crops to storage, or to processors. The largest percentage of truck trips from QUADCO are headed out of state with everything from unprocessed grains to manufactured food products such as eggs, french fries, hay, lumber, and milk. In the past aerial transport of cattle, fruit, machinery, etc was common and may become a necessity in the future if the bridges across the Columbia River were disabled. Area farmers depend on the many aerial

applicators for the care of their crops. Aerial applicators depend on private and local airports to provide service. In addition to the aerial applicators many recreational users and emergency transporters also depend on the many small rural air ports within the region.

Its important to note that dramatic changes such as an increase in fuel prices could result in a decline in truck traffic along the principal through corridors of the region with a corresponding increase along local arterials and collectors serving the existing rail stations within and adjacent to the region. Like wise it is expected that environmental considerations related to salmon will result in the ongoing seasonal draw downs of the Columbia River being mandated. Any such action will hinder navigation and thus have a significant impact on dryland grain from the Quad County region presently destined for Columbia and Snake River ports. Both of these issues are likely to result in shifting local traffic patterns to local rail ports and some of this traffic will be directed onto the US- 395 corridor toward ether the Pasco barge terminal or via the same corridor directly to down river and coastal ports such as Portland.

Types of freight moved by rail include grain, intermodal trailers, containers, lumber and various agriculture products.

Bridges

Several bridges on the county roadway system have been constructed in order serve a vital role to make important connections between areas of the county and to provide a complete roadway system that accesses farms and cities throughout the region. These bridges must be maintained as well. Table 6 summarizes the number of bridges by county.

Table 6. Bridge Data By County by Year

Adams County							Grant County					
Year	County Owned Bridges	Bridges Posted or May Consider Posting		Bridges with Posting Not Required		Deficient Bridges *	County Owned Bridges	Bridges Posted or May Consider Posting		Bridges with Posting Not Required		Deficient Bridges*
		FAR	NFAR	FAR	NFAR			FAR	NFAR	FAR	NFAR	
1999	124	8	33	27	56	8	181	6	36	41	98	26
2000	124	3	16	32	73	15	182	2	22	45	113	26
2001	123	2	15	34	72	17	185	3	21	45	114	26
2002	124	1	19	35	69	22	184	3	17	45	119	25
2003	124	2	18	34	70	24	184	3	15	45	121	26
2004	124	1	18	35	70	27	187	3	8	45	131	21
2005	123	1	14	36	72	26	187	3	12	45	127	21
2006	123	1	13	36	73	26	189	2	7	46	131	17

Table 6. (continued)

Year	Kittitas County						Lincoln County					
	County Owned Bridges	Bridges Posted or May Consider Posting		Bridges with Posting Not Required		Deficient Bridges *	County Owned Bridges	Bridges Posted or May Consider Posting		Bridges with Posting Not Required		Deficient Bridges*
		FAR	NFAR	FAR	NFAR			FAR	NFAR	FAR	NFAR	
1999	106	8	23	13	62	11	123	6	29	22	66	11
2000	106	8	18	18	62	13	124	1	16	30	77	13
2001	106	8	18	18	62	9	125	0	15	31	79	15
2002	106	8	18	18	62	12	125	0	15	31	79	18
2003	114	7	17	20	70	9	125	0	15	31	79	18
2004	110	5	15	22	68	6	125	0	13	31	81	17
2005	110	5	15	22	68	6	125	0	12	31	82	16
2006	114	5	15	26	68	5	125	0	10	31	84	14

Source: CRAB Annual Reports

Bridges 20 Feet or Greater in Length

* FAR = Federal Aid

** NFAR = Non-Federal Aid

*** Deficient Bridges are listed as Structurally Deficient or Functionally Obsolete

Examination of the table shows that each county has over 100 bridges to maintain, with Grant County having the most with 189. Overall, progress has been made in recent years to reduce the number of bridges requiring posting and also reducing the number of deficient bridges overall. However, year to year comparisons show many instances where the number of bridges requiring posting was reduced but the number of deficient bridges increased. This is illustrative of an aging infrastructure. Adams County Public Works department indicates that there are a number of structures that cross canals that have been in place for over 50 years. Many of these have served their useful life and will need replacing in the near future. This information is borne out in the table.

Also significant in the maintaining of the roadway system is the number of structures less than 20 feet in length. The replacement of these structures does not have a designated funding source and can expend a significant portion of county maintenance funds. Data obtained from County Engineers indicates the magnitude of these structures that must be maintained and is shown in Table 7. It is certain that cities also have to maintain these structures as well, however data is not as readily accessible.

Table 7. Small Structures by County

	<u>Adams</u>	<u>Grant</u>	<u>Kittitas</u>	<u>Lincoln</u>	<u>TOTAL</u>
Number of Small Structures < 20 ft	161	23	155	80	419

Roadways of regional significance have been identified. Within each county roadways were considered that fit the definition of “regional” taken from RCW 47.80.030.

- (i) Crosses member county lines;
- (ii) Is or will be used by a significant number of people who live or work outside the county in which the facility, service, or project is located;
- (iii) Significant impacts are expected to be felt in more than one county;
- (iv) Potentially adverse impacts of the facility, service, program, or project can be better avoided or mitigated through adherence to regional policies;
- (v) Transportation needs addressed by a project have been identified by the regional transportation planning process and the remedy is deemed to have regional significance; and
- (vi) Provides for system continuity;

By definition all state highways are considered to have regional significance. Since many roads are used to haul grain and other produce to market outside the region all roads on the Freight and Goods System are also considered to be of regional significance. Other functionally classified roads provide access to recreational facilities in the region that attract visitors statewide as well. All railroads, airports, transit systems and non-motorized facilities are considered to be regionally significant as well. Regionally significant roads and other transportation system components discussed below are shown for each county in Figures 2 - 5. The Goods and Freight Systems Roadways and the classifications are shown in Figure 6.

River Transportation

The Columbia - Snake River system serves an important function for the QUADCO region as it provides the means to transport significant amounts of grain and other commodities that are produced in the region. Columbia River system provides links to port districts from Grant County in the north to the Port of Lewiston to the east, and also provides access to the Pacific Ocean via the Port of Pasco to the south. This system constitutes about 465 river miles from the mouth of the Columbia River. The ability to provide barge service to central Washington is critical in maintaining multi-modal competitiveness and in providing locally produced agricultural products to world-wide markets.

The Columbia River forms the border between Grant and Kittitas counties as well as the northern border of Grant and Lincoln counties. It is a significant body of water that provides many recreational opportunities throughout much of the region with State Parks and many regional and local parks as well. Moses Lake and the surrounding Potholes also are an attraction to many within the region as well as throughout the state.

Figure 2. Regional Transportation Facilities -- Adams County

Figure 3. Regional Transportation Facilities -- Grant County

Figure 4. Regional Transportation Facilities -- Kittitas County

Figure 5. Regional Transportation Facilities -- Lincoln County

Figure 6. Freight and Goods System Roadway Network

Railroads

In 2002, there were 497 miles of trackage within the region owned by four freight rail companies:

- The Burlington Northern Santa Fe provides mainline service east-west from the east coast to Seattle through Spokane. Within QUADCO it passes through Lincoln and Grant counties. BNSF also provides service to Portland, Oregon via the Tri-Cities passing through Lincoln and Adams Counties.
- The Union Pacific also provides mainline service to Portland primarily passing through Adams County and The Tri-Cities.
- Columbia Basin Railway provides short-line service to the Moses Lake area as well as Othello with a connection to the BNSF mainline between Spokane and the Tri-Cities.
- Palouse River Coulee City Line traverses the northern portion of Lincoln County as far west as Coulee City with a connection to the BNSF mainline near Spokane

Although in the past other railroads served the region, abandonment of rail lines is critical issue in central Washington. For example, the Royal Slope Railroad 26-mile line between Royal City and Othello is not currently in operation. The Washington State Department of Transportation is in the process of purchasing the Palouse River and Coulee City Railroad in order to maintain this as a viable short line in the region. Many other rail lines have been abandoned over time as shown in Figure 7 along with active rail lines.

A major positive attribute of rail in the QUADCO Region has been the “Grain Train”. This program started in Washington State in 1994 in Walla Walla County to help farmers get grain to market. Local Port Districts worked with the state of Washington and the federal government to purchase grain hopper cars which are now locally owned. The program has expanded to Moses Lake in 2000. These Grain Trains help to prevent damage to highways by reducing the number of heavy trucks carrying grain to deep water ports for more than 2,500 cooperative members/farmers.

Airports

There are 139 public-use airports in the state of Washington, with 19 of them serving the QUADCO region, the second highest number of airports of any region in the state. These airports serve an important function of the overall regional transportation system. Figure 8 depicts the airport locations. QUADCO airports serve a variety of general aviation functions including personal and business travel, air ambulance access, flight training, aircraft testing, agricultural spraying, recreational flying, and other uses. Scheduled commercial air service is not provided at any of the airports and air freight does not make up a significant portion of the traffic.

Of the 19 airports in the Quad County region 10 are included in the FAA’s National Plan of Integrated Airport Systems (NPIAS). The National Plan of Integrated Airport Systems (NPIAS) identifies more than 3,300 airports that are significant to national air transportation and thus eligible to receive Federal grants under the Airport Improvement Program (AIP). The remaining 9 non-NPIAS airports are not eligible to receive Federal grants and must fund planning and improvement projects locally. Funding assistance can also be obtained from the State, when

Figure 7. Railroad Facilities in the QUADCO Region

Figure 8. Airports in the QUADCO Region

available, through the Washington State Department of Transportation's Local Airport Aid Grant Program.

A summary of basic airport information is listed in Table 8 below. More detailed information regarding each runway at the airports within the region is included in Appendix B. Most of the airports in the Quad County region have performed recent master plan or airport layout plan (ALP) updates. These documents serve as an official inventory of existing airport facilities and provide planning guidance for future airport development. An ALP is required for an airport to receive FAA grant assistance. According to available information, the airports in need of ALP updates are Easton State, J-Z, Lind Municipal, Moses Lake Municipal, New Warden Municipal, and Quincy Municipal. The estimated total number of aircraft based at each airport and the total annual airport operations are also shown in Table 8. Airport operations consist of the number of take-offs and landings at an airport. The definition of one operation is either a take-off or landing. Operations are grouped into two types of operations: local and itinerant.

- (1) Local operations mean operations performed by aircraft that:
 - (i) Operate in the local traffic pattern or within sight of the airport;
 - (ii) Are known to be departing for, or arriving from flight in local practice areas located within a 20-mile radius of the airport; or
 - (iii) Execute simulated instrument approaches or low passes at the airport.
- (2) Itinerant operations mean all aircraft operations other than local operations.

The total annual operations for the QUADCO airports are estimated to be nearly 343,000. For perspective, this total is roughly equivalent to the total annual operations reported for Seattle-Tacoma International Airport (342,000), a major commercial airport. A breakdown of the types of air traffic seen at the QUADCO airports is shown in Table 9.

Currently there is no scheduled air transportation service to any of the QUADCO airports. Until recently, scheduled service was available through Moses Lake's Grant County International Airport. Service was subsidized by the Essential Air Service Program (EAS), a federal program designed to maintain a minimal level of scheduled air service to communities which otherwise would not be profitable. However, the subsidy for Grant County International Airport was terminated in August 2006 and scheduled service was discontinued on September 1, 2006. Therefore, the 10% commuter traffic reported for Grant County International Airport is not currently accurate but may be again if the Port of Moses Lake is successful in attracting another airline to serve the airport.

Limited air taxi services are reported at three QUADCO airports: Grant County International, Bowers Field, and De Vere Field. Air taxi services are not expected to increase significantly in the near term.

All data reported in Tables 8 and 9 was obtained from current FAA Airport Master Records (Form 5010). Whenever possible, the data was verified during telephone conversations with airport managers and sponsors.

Table 8. Airport Details Summary

Airport	Owner	NPIAS Airport	2005 Annual Operations	Local Based Aircraft (see Note 1)	Latest ALP
Bowers Field	Kittitas County	Yes	60,445	49	2004
Cle Elum Municipal	City of Cle Elum	Yes	5,500	4	2007
Davenport	City of Davenport	Yes	7,000	16	2007
De Vere Field	James De Vere	No	3,245	5	
Desert Aire	Desert Aire Owner's Assoc.	No	2,750	11	2006
Easton State	WSDOT Aviation	No	<300	0	
Ephrata Municipal	Grant Co. Port District No. 9	Yes	135,140	26	2004
Grand Coulee Dam	Grant Co. Port District No. 7	Yes	13,000	7	2006
Grant County	Port of Moses Lake	Yes	102,479	95	2005
J-Z	Town of Almira	No	20	0	
Lind Municipal	City of Lind	No	8,000	2	
Moses Lake Municipal	City of Moses Lake	No	21,500	41	
New Warden Municipal	City of Warden	No	4,300	3	1995
Odessa Municipal	City of Odessa	Yes	9,000	10	2006
Othello Municipal	Port of Othello	Yes	30,000	22	2006
Pru Field	City of Ritzville	Yes	6,200	5	2003
Quincy Municipal	City of Quincy	No	3,800	6	
Wilbur Municipal	City of Wilbur	Yes	9,300	14	2006
Wilson Creek	Town of Wilson Creek	No	140	1	2006
Totals:			342,879	264	

1. Based Aircraft Counts are Based on Current FAA Form 5010 Data.

Northwest MedStar provides frequent air ambulance service to nine QUADCO Airports shown in Table 10, although all airports in the region can be used as pickup points. This on-demand service provides a vital link between local medical facilities and more capable medical centers in Seattle, Spokane, and the Tri-Cities. A representative from Northwest MedStar expressed an interest in having Automated Weather Observation System (AWOS) equipment installed at the airports they frequent. These systems provide real-time local weather critical to the safety of their short-notice landing and takeoff operations.

Table 9. Airport Operations Summary

Airport	2005 Annual Operations	Operations Breakdown (see Note 1)					
		Military (%)	Air Taxi (%)	Commuter (%)	Local General Aviation (%)	Itinerant General Aviation (%)	Total General Aviation (%)
Bowers Field	60,445	1	3		54	42	100
Cle Elum Municipal	5,500				36	64	100
Davenport	7,000				71	29	100
De Vere Field	3,245	1.5	1.5		77	20	100
Desert Aire	2,750				9	91	100
Easton State	<300					100	100
Ephrata Municipal	135,140				72	28	100
Grand Coulee Dam	13,000				38	62	100
Grant County	102,479	30	5	10 (see Note 2)	22	33	90
J-Z	20				100		100
Lind Municipal	8,000				88	12	100
Moses Lake Municipal	21,500				23	77	100
New Warden Municipal	4,300				77	23	100
Odessa Municipal	9,000				66	34	100
Othello Municipal	30,000				83	17	100
Pru Field	6,200				21	79	100
Quincy Municipal	3,800				18	82	100
Wilbur Municipal	9,300				57	43	100
Wilson Creek	140				21	79	100

1. Aircraft Operations are Based on Current FAA Form 5010 Data.

2. Scheduled service to Grant County was discontinued on 9-1-06

Table 10. Airports With Frequent Air Ambulance Use

- Bowers Field	- Odessa
- Davenport	- Othello
- Ephrata	- Pru Field
- Grand Coulee	- Quincy
- Grant County	-

One airport, Easton State Airport, is open only during summer months. However, it is considered by the State to be a critical asset used as a stopover for flights transiting nearby mountain passes. The airport also serves as a base for search-and-rescue and firefighting operations.

Airport Capital Improvement Project Needs

Airport Capital Improvement Project (CIP) needs were developed for the QUADCO airports over a ten-year planning period, 2007 to 2016. These projects were divided into two 5-year phases to match the data commonly found in airport master plans. Table 11 depicts an estimate of the CIP needs for the QUADCO airports.

Table 11. Airport Capital Improvement Program

Phase I: Program Years 2007-2011					
Airport	Total	Federal	State	Local	Projects
Bowers Field	\$300,000	\$285,000	\$7,500	\$7,500	Taxilane and Apron Reconstruction
Cle Elum Municipal	\$600,000	\$332,500	\$8,750	\$258,750	Construct Hangars, Runway Reconstruction
Davenport	\$150,000	\$142,500	\$3,750	\$3,750	Runway Safety Area Clearance, Land Acquisition for Runway Extension
De Vere Field	\$ 50,000	-	-	\$50,000	Pavement Maintenance
Desert Aire	\$938,300	-	\$598,845	\$339,455	Construct Taxiway, Extend Parallel Taxiway, Relocate Runway, Rehab. Runway Lighting, Nav aids, Apron Construction, Runway Rehabilitation
Easton State	\$100,000	-	\$100,000	-	Master Plan, Pavement Maintenance
Ephrata Municipal	\$150,000	\$142,500	\$3,750	\$3,750	Pavement Maintenance/Rehabilitation
Grand Coulee Dam	\$500,000	-	-	\$500,000	Fuel System, Hangars
Grant County	\$13,419,976	\$12,749,350	\$335,313	\$335,313	Taxiway Reconstruction, Pavement Maintenance
J-Z	-	-	-	-	None
Lind Municipal	\$150,000	-	-	\$150,000	Runway Lighting, Utilities
Moses Lake Municipal	\$100,000	-	-	\$100,000	Master Plan, Pavement Maintenance
New Warden Municipal	\$200,000	-	-	\$200,000	Master Plan, Runway Rehabilitation, Nav aids
Odessa Municipal	\$150,000	\$142,500	\$3,750	\$3,750	Pavement Maintenance
Othello Municipal	\$5,667,000	\$5,383,650	\$141,675	\$141,675	Pavement Maintenance, Runway Relocation, Taxiway Overlay
Pru Field	\$300,000	\$285,000	7,500	\$7,500	Widen/Rehabilitate Runway, Approach Clearing
Quincy Municipal	\$ 50,000	-	-	\$50,000	Pavement Maintenance
Wilbur Municipal	\$1,203,100	\$983,725	\$109,688	\$109,688	Land Acquisition, Pavement Maintenance, Widen/Extend Runway
Wilson Creek	\$130,494	-	\$101,854	\$28,640	Planning, Runway Overlay, Safety Area Imp., Taxiway Design
Total Needs 2007-2011:	\$24,158,870	\$20,446,725	1,422,375	\$ 2,289,771	

Denotes NPIAS Airport

Table 11. (Continued)

Phase II: Program Years 2012-2016					
Airport	Total	Federal	State	Local	Projects
Bowers Field	\$150,000	\$142,500	\$3,750	\$3,750	Pavement Maintenance
Cle Elum Municipal	\$650,000	\$332,500	\$8,750	\$308,750	Terminal Building, Taxiway Construction, Fencing
Davenport	\$1,000,000	\$950,000	\$25,000	\$25,000	Runway Extension, Pavement Maintenance
De Vere Field	\$50,000	-	-	\$50,000	Pavement Maintenance
Desert Aire	\$672,000	-	\$178,400	\$493,600	T-hangars, Aircraft Parking, Fuel System, Terminal Building, Pavement Maintenance
Easton State	\$50,000	-	\$50,000	-	Pavement Maintenance
Ephrata Municipal	\$150,000	\$142,500	\$3,750	\$3,750	Pavement Maintenance
Grand Coulee Dam	\$350,000	\$332,500	\$8,750	\$8,750	Parallel Taxiway, Aircraft Parking Apron
Grant County	\$11,578,000	\$10,999,100	\$289,450	\$289,450	Pavement Maintenance, Electrical System Upgrades, Runway 4 ILS
J-Z	-	-	-	-	None
Lind Municipal	\$50,000	-	-	\$50,000	Pavement Maintenance
Moses Lake Municipal	\$50,000	-	-	\$50,000	Pavement Maintenance
New Warden Municipal	\$50,000	-	-	\$50,000	Pavement Maintenance
Odessa Municipal	\$150,000	\$142,500	\$3,750	\$3,750	Pavement Maintenance
Othello Municipal	\$389,000	\$355,300	\$9,350	\$24,350	Taxiway Rehabilitation, Tie-Downs
Pru Field	\$150,000	\$142,500	\$3,750	\$3,750	Pavement Maintenance
Quincy Municipal	\$50,000	-	-	\$50,000	Pavement Maintenance
Wilbur Municipal	\$1,043,000	\$922,450	\$60,275	\$60,275	Pavement Maintenance, Industrial Land Acq., Nav aids, Utilities, Maint. Equipment
Wilson Creek	\$565,850	-	\$181,058	\$384,792	Construct Taxiway, Terminal Building, Maintenance, Access Road
Total Needs 2012-2016:	17,147,850	14,461,850	\$826,033	\$1,859,967	
Denotes NPIAS Airport					

Data for the CIP estimate was derived from airport master plans whenever possible. The information was also verified during conversations with airport representatives. When CIP data was not available, or was incomplete, an estimate of airport projects was made based on similar airports and an understanding of likely airport needs. Airport pavements benefit greatly from routine maintenance. A crack seal applied every 3 to 5 years, and a slurry or other rehabilitation process applied every 5 to 7 years, can greatly extend the life of airport pavements. This maintenance cycle was assumed on airports for which CIP data was not available.

A conversation with a representative of J-Z Airport indicated no projects were planned in the near future. The airport sees little traffic (less than 20 reported annual operations) and the turf runway requires relatively little maintenance.

Funding Sources

Funding improvement projects is a challenge common to most of the airports in the Quad County region. Projects that are FAA eligible are supported by shared funding, where 95 percent of the total cost is covered by an FAA grant and 5 percent is covered by the Airport. NPIAS airports receive approximately \$150,000 per year in Non-Primary Entitlement funds from the FAA, dependent upon Congress's yearly reauthorization. Though projects are FAA eligible, this does not ensure that funds will be available or granted to the project by the FAA. The Washington State Department of Transportation Aviation Division can also provide airport grants. These grants are dependent upon available funding and are not guaranteed. In the instance that grants from the FAA and the State fund a project, 95 percent of the project cost is covered by the FAA grant, 2.5 percent of the cost is covered by the State and 2.5 percent is covered by the Airport. Costs for projects that are not eligible for FAA or state funding are applied to developers (as applicable) or to the airport. Though obtaining the local matching funds can still be a challenge, the grant funding allows most of the NPIAS airports to undertake projects beyond routine maintenance, such as improving and expanding facilities and promoting airport growth. Projects that are not eligible for FAA funding include hangar construction and rehabilitation, private hangar and building development, industrial property acquisition, and utility extensions for development.

Non-Motorized Modes

Separate off-road facilities for pedestrian and bicycle use are sparse throughout the region and is limited to points within city limits and in the immediate vicinity of larger urban areas of Moses Lake and Ellensburg. These two cities have higher population densities and a system of sidewalks and bike paths that serves these needs. Trails and Non-Motorized Plans for the Cities of Moses Lake and Ellensburg are included in Appendix C.

In many of the communities sidewalks are the only type of facility for non-motorized transportation. Efforts to increase the quality and quantity of sidewalks have been made in recent years, particularly with the Surface Transportation Program - Enhancement funds made available by the federal government. For example these funds are currently being used by the Town of Wilson Creek to construct a one mile trail that will connect their park with other sidewalks to complete a 2 mile loop serving the Town.

The City of Ellensburg has a substantial amount of foot traffic and bicycle traffic due to the Central Washington University population. In order to improve their pedestrian and bicycle system the City of Ellensburg published a "Non-Motorized Transportation System Plan", in 1997, which identifies pedestrian and bicycle deficiencies as well as a series of recommendations. This City is continually making improvement based on the plans recommendations.

The John Wayne Pioneer Trail is a state managed regional recreational facility within Kittitas County. This trail is 110 miles in length extending from Cedar Falls near North Bend to the Columbia River before Beverly Bridge and attracts 166,000 visitors each year. Within Kittitas County There are 10 locations along the trail that allow visitors to connect to the trail. The City of Ellensburg is continually working on closing the gap in its portion of the trail between the east and west edges of the City. When completed this trail would link up

with the City's pedestrian-bicycle trail which runs through the Central Washington University campus.

Coal Mines Trail is a multi use recreational trail located along a 100-foot railroad right-of-way from Cle Elum through Roslyn to Ronald. This trail accommodates walking, hiking, jogging, bicycling, horseback riding and horse-drawn wagons. One objective is to connect the trail through South Cle Elum to the John Wayne Pioneer Trail.

Given the relatively light traffic volumes on many of the roadways in the region, bicycle travel is considered a relatively safe activity. The Washington State Department of Transportation also produces a State Bicycle Map that indicates the average daily traffic on all state highways and also shows which state highways have shoulders less than two feet in width. Bicyclists wishing to travel in the area are encouraged to consult this state map

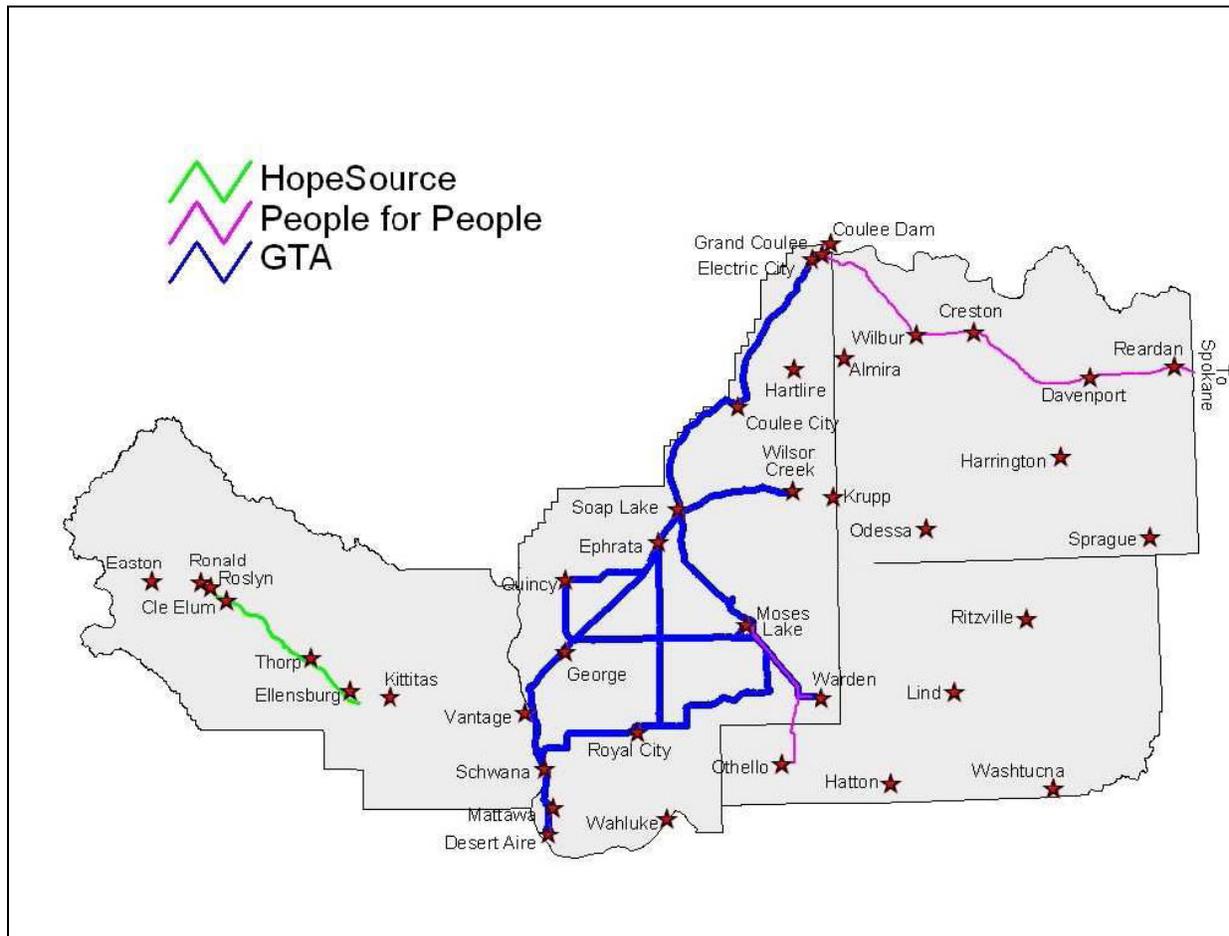
Transit

In 2006 the "Coordinated Public Transit Plan - Human Services Transportation Plan" for the QUADCO region was updated. It is adopted as part of this RTP by reference and is summarized here. Several types of profit in non-profit organizations provide transit service for the QUADCO region. Among these organizations several services are available including fixed routes, deviated routes, paratransit, park and ride, van pool, dial-a-ride and medical services. The majority of the non-profit services are provided through grant from the Washington State Department of Transportation (WSDOT). Figure 9 illustrates areas served by transit routes within the QUADCO Region.

The region is served by Northwest Trailways, a private provider that runs daily providing intercity fixed route between Moses Lake, Ephrata, Quincy, Wenatchee, and Ellensburg. This service provides a connection to Greyhound Bus Line at Moses Lake and Ellensburg. Other regional services include Amtrak which provides passenger rail service from Ephrata. Also the Airporter Shuttle provides bus service from Ellensburg to the Seattle Amtrak Station and SeaTac Airport.

Grant County has the only Public Transit Benefit Area in the four-county region. The Grant Transit Authority (GTA) provides fixed, deviate routes and paratransit services. GTA has a fleet of 17 Coaches, two mini-buses, and five vans available for van pooling. GTA has approximately 180,000 boarding's per year between all of its services and continues to strive to accommodate the community needs. GTA has been able to provide special needs transportation with grant funding from WSDOT that expires in June, 2007. Park and Ride lots are also provided by the WSDOT for GTA. Currently Grant County has one lot in George and three in Moses Lake.

Figure 9. Transit Service in the QUADCO Region



People For People provides paratransit services in Grant, Lincoln and Adams Counties to special needs population as well as a free intercity bus routes in Lincoln and Adams counties for the general public. One route connects Coulee Dam, Grand Coulee, Wilbur, Creston, Davenport, Reardan and Spokane in Lincoln County while the second route connects Moses Lake, Warden and Othello in Grant and Adams counties. People For People provides approximately 40,000 rides annually. People For People operates with 22 ADA accessible mini-buses a 24 passenger coach and one ADA accessible mini-van. Eight more mini-buses and two more mini-vans have recently been purchased in order to meet the needs of the community. This service is provided by a grant from the WSDOT for special needs individuals and the general public. This funding expires in June, 2007.

HopeSource also provides a transit service in the four-county region for Kittitas County. HopeSource provides both dial-a-ride and deviated service connecting Ronald, Roslyn, Cle Elum and Ellensburg as well as a fixed route service to Central Washington University students in Ellensburg. The annual ridership of HopeSource is 25,000. This service is funded by the WSDOT that will expire in June, 2007.

Other agencies that provide transportation services include DSHS, Head Start, Columbia Basin Health Association, MedStar, Special Mobility Services, Volunteer Chore Services, Elmview, Central Washington Mental Health, Aging and Adult Care of Central Washington,

Developmental Disabilities, and Division of Vocational Rehabilitation. Department of Social and Health Services with the Medical Assistance Administration provide transportation, but it is only for Medicaid eligible clients with an approved medical service.

In 2006 the Four County Community Transportation Planning Team prepared a “Coordinated Community Transit - Human Services Transportation Plan” for QUADCO. As part of this plan a list of prioritized projects were developed in order to be incorporated into the QUADCO Transportation Plan. A list of prioritized transit projects is included in Appendix D.

As part of developing the transit plan, the Four County Community Public Transportation Planning Team conducted several public meetings and surveys in order to identify the needs of the community. As a result, five areas of transit were identified as lacking transportation.

1. **Older adults** lack transportation for health care, social services, nutrition, shopping, banking, social events, religious services, and visitations with friends or family in health care facilities.
2. **Persons with disabilities** lack access to employment, health care, social services recreations and social events.
3. **Low-income individuals** lack access to social services, health care, job search, education, and training opportunities. The working poor lack transportation for employment, shift-work, and taking children to child care.
4. **Youth** lack transportation for after-school activities, summer activities, recreation, child care, alternative schools, and post-secondary education.
5. **Accessible transportation services** is lacking for vulnerable populations to use existing services.

In order to meet the need of the community the Four County Community Transportation Planning Team reviewed the needs assessment and developed the priorities to achieve coordinated, effective, and cost efficient transportation that meets priorities of the special needs population. The following goals and objectives were developed to provide the framework for developing transportation strategies and projects in Kittitas, Lincoln, Grant, and Adams counties.

Provide access to transportation that strengthens communities and promotes self-sufficiency and general welfare of special needs populations.

1. *Increase transportation services to the special needs populations.*
2. *Promote safe and accessible transportation services for special needs populations by educating and advocating specific benefits to the consumers.*
3. *Accommodate consumer needs by linking and coordinating transportation and human services for efficient utilization of resources.*

Performance Standards

The level of service (LOS) standards establish a gauge for evaluating the relative performance of existing systems and planning for future systems to meet current and future needs. Level of service is defined in the Highway Capacity Manual as a qualitative measure describing operational conditions within the traffic stream or on the transit system, and the perception by motorists and/or passengers. A “level of service” generally describes these conditions in terms of such factors as speed and travel times, freedom to maneuver, traffic interruptions, comfort and convenience, and safety.

Consistent with state level of service standards, the QUADCO establishes Level of Service “C” as the standard for all rural facilities and LOS “D” for all urban facilities included in the regional roadway network.

Cities and Counties throughout the region also use national standards published by the American Association of State Highway and Transportation Officials as well as the Local Agency Guidelines established by the Washington State Department of Transportation. These standards cover a wide variety of construction and operational standards.

QUADCO Region's Key Issues

The region has its own unique need for the movement of freight and people for economic reasons, medical, recreational, and other social needs. There are several internal and external factors and key issues that affect the ability of the multimodal system to efficiently serve the economic and social needs of the region.

As evidence that the region truly has important transportation issues, a group called TRANSCO was formed in 2006. The group is comprised of public and private entities including WSDOT, BNSF, cities, counties, and many private businesses primarily around the Moses Lake area to identify common transportation issues to the sub-region. Their stated mission is to: "Identify, prioritize, fund and build key transportation projects that contribute to the economic vitality and quality of life of our area." The group has identified specific projects and needs with respect to Trails, Rails, Roads and Runways. An informational brochure is included in the Appendix E.

The economic viability of the Columbia River as a transportation system is being challenged and railroads are continuing their abandonment of rail lines. Both of these systems are critical in moving freight through the region. The trucking industry is much more efficient now than it has been in the last three decades, but the road infrastructure is not adequate in many areas to support the increased axle weights and year-round use of the road. Also, the geometrics of some roadways do not provide the appropriate widths for trucks to safely operate.

Outlined in this Chapter of the RTP is a discussion of the key transportation issues with respect to providing a multi-modal transportation system to serve the QUADCO Region. The following Chapter describes the Statewide Issues identified through development of the Washington Transportation Plan 2007 - 2026 (WTP) and the correlation between the regional issues and the statewide issues.

Maintenance and Preservation

Over the next 20 years maintenance of existing roadways and bridges will be vital to the region. These roadways connect communities throughout the region and to the rest of the state and provide important means to carry agricultural products from fields to highways, rail service as well as inland water ports. As important as rail and barge transport modes are to the region for providing competition between freight hauling modes, without well maintained roadways, access to these other modes would not exist.

The number of roadway miles and bridges was documented earlier in the RTP. Several roadways will need reconstruction work and many bridges will need to be replaced. Replacement of bridges fill an important role in maintaining the viability of roadways that provide important connections to major highways and other routes that connect fields to freight hauling facilities. Funding for maintenance of roadways and bridges will far exceed all other expenditures for transportation facilities in the region in order to ensure that the transportation system is effective.

Timing of maintenance and preservations investments is important to achieve the lowest life-cycle costs. This issue and the cost to preserve the City and County roadway

infrastructure (which makes up over 85% of the roadway mileage in the region) is discussed in more detail in a subsequent chapter.

Roads

Several types of road surfaces exist with each providing unique functional benefits and costs. Cities and Counties must maintain all of their roadways, not just those that are part of the Freight and Goods System or those that are functionally classified. The traveling public demands maintenance of all roads. Rising construction material costs have required increasingly strategic approaches to selecting the most cost effective surface type. A new line of thinking that is becoming common practice is to apply the most cost effective surface treatment at the time of resurfacing. The 2007 WTP reported that 16% of city roadways have poor or very poor pavement condition. This percentage will continue to grow as current funding levels remain constant.

As identified earlier in Table 4, 56% of the roadways in the QUADCO Region are gravel or unpaved. Among these roadways 13% are considered arterial roadways. Most of these gravel and unpaved roads do not meet current design standards and are considered deficient roadways due to the surface type and/or width. The need to improve these roadways, especially the unpaved arterials, should be considered a high priority. This issue will be discussed in more detail in a later chapter.

Bridges

Aging bridges represent a growing problem that must be monitored closely, most bridges have served transportation needs far longer than builders anticipated. As discussed earlier in the Regional Transportation System chapter, there are over 60 bridges that are deficient in the region.

Small Structures

Maintenance and preservation of small structures is also an issue. Bridge structures larger than 20 feet in length are eligible for federal-aid, however those structures less than 20 feet do not have a dedicated funding source and are maintained. As identified on a statewide basis in the WTP, recent culvert failures highlight the need for an inventory and condition survey to help determine the level of future investment necessary to prevent roadways from collapsing. There are 419 small structures in the QUADCO region.

Irrigation systems in large portions of the QUADCO region provide the life-blood to sustain the agricultural productivity that the region is known for. These irrigation ditches cause challenges in at least two ways:

- Roadways that need to cross these canals often require small structures to be built. Many of these small structures have been in place for over 50 years when the Columbia Basin Project was developed and have served their useful life.
- Irrigation run-off from fields collects adjacent to roadways which causes additional maintenance costs and deterioration in the sub-base of the roadway.

Safety

The issue of safety is considered a high priority for both the QUADCO Region and the Washington State Department of Transportation. Traffic safety is both a local, regional and statewide issue which requires the collaboration of law enforcement and transportation

agencies at each level. As identified in the 2007 WTP (pg 17) “significant emphasis is placed on roadway design at all jurisdictional levels statewide, resulting in projects that reduce fatalities and disabling injuries caused by collision. Emphasis is also placed on improving regulation, increasing interagency collaboration, and promoting ongoing research aimed at finding ways to make our transportation system safer.” Safety issues are discussed in more detail in a subsequent chapter of the RTP as well. Table 12 shows the number of accidents that have occurred in the QUADCO region from 2003 - 2006.

High Risk Safety Corridors

Due to the topography of the region and the age of some of the roadways, some segments or corridors have narrow travel lanes and shoulders, poor sight distance and alignments. Among these roadway segments and corridors which have a high accident rates the following issues from the WTP (pg. 19) should be considered when making improvements to these roadways.

Roadway safety projects may focus on the following types of improvements:

- Reducing head-on and across-median crashes
- Improving design and operation of highway intersections
- Recurring congestion related crashes
- Reducing bicycle and pedestrian crashes
- Reducing speed limits to fit changing uses and conditions impacting the roadway.

Roadside factors are also considered in roadway design. An ideal highway has roadsides and median areas that are flat and unobstructed by hazards. Hazards such as side slopes, fixed objects, and water present varying degrees of danger to the vehicle and its occupants.

There are several intersections in the region that have poor sight distances and adverse approach angles making it difficult for trucks to turn onto main highways safely. Due to the increasing amount of truck traffic on these roadways this issue will continue to be a concern to the region. In many cases irrigation systems adjacent to roadways cause sight distance problems because the embankments for the canals are higher than the roadway.

Access Management

The Washington State Department of Transportation controls access to all Washington State Highways in order to preserve the safety and efficiency of these highways as well as to preserve the public investment. The WTP explains the benefits of access management: “As connections to state routes increase, the collision rate also rises. By actively regulating, consolidating, relocating and eliminating connections, roadway safety increases. Access management enhances economic vitality, the movement of freight and goods, and the movement of people.” (WTP pg 17) Access Management is a tool being used nationwide to preserve the capacity, functionality and investment as well as improve the safety of roadways.

Access Management does pose some challenges for local jurisdictions in providing access to areas zoned for development near state highways. In many instances frontage roads along state highways where access rights have been purchased would facilitate traffic operations and safety in areas zoned for development. Some jurisdictions are experiencing higher traffic volumes on local roadways as a result of not having access to state facilities. Challenges in retrofitting county and city roadways where access is not provided and no frontage roads were put in places is also an issue.

Table 12. Accident Summary

	2003		2004		2005		2006		Total	
	Collision	Fatality								
Adams										
Combined Cities	79	-	64	-	86	-	99	-	328	-
County Road	91	-	96	1	88	5	73	2	348	8
State Road	236	11	224	3	263	7	212	1	935	22
Total	406	11	384	4	437	12	384	3	1,611	30
Grant										
Combined Cities	344	2	380	-	449	1	444	1	1,617	4
County Road	336	12	316	5	365	7	298	12	1,315	36
State Road	623	11	503	10	576	10	600	7	2,302	38
Total	1,303	25	1,199	15	1,390	18	1,342	20	5,234	78
Kittitas										
Combined Cities	279	1	317	-	326	2	315	1	1,237	4
County Road	138	4	132	3	177	3	154	-	601	10
State Road	689	8	701	9	849	8	860	11	3,099	36
Total	1,106	13	1,150	12	1,352	13	1,329	12	4,937	50
Lincoln										
Combined Cities	14	-	12	-	12	-	13	-	51	-
County Road	37	1	34	-	43	1	30	-	144	2
State Road	155	-	152	1	149	3	162	3	618	7
Total	206	1	198	1	204	4	205	3	813	9

Source: WSDOT Collision and Data Analysis Branch

Freight and Goods System

The movement of freight and goods is a vital component to the economy of the region and state. The WTP recorded that freight volumes are rising twice as fast as Washington State's overall population and traffic growth (pg 24). As an agricultural based region, the freight and goods system is used to transport produce off of the farms to markets via roadways, rail and ports. It should be noted that Lincoln County has recently studied the Freight and Goods System of roads with the results to be published later in 2007.

All Weather Roads

The need to upgrade the freight and goods system roads to all weather road standards continues to increase as the market demand for on-time delivery of goods increases. An existing chokepoint in the regions transportation system is the yearly closure of many County roads to loaded truck traffic. Seasonal "load limits" or "closures" are commonly applied to the system around the second or third week in January and last until the end of March or longer. The load limits effectively shut down the truck traffic to any load greater than an empty semi-truck or tractor-trailer arrangement. Without the application of load limits on the roads, they would be irreparably damaged. The extent of the Freight and Goods System that is impacted by season weight restrictions is shown in Figure 6.

Road closures represent a major impediment to the transport of agricultural products to destinations out of the area. Although much of the area has widespread "home storage" or local grain storage facilities, this represents a major negative impact on the local economy.

The problem also extends beyond the agricultural market, to local industries. Supplies and shipment of finished goods is limited by the inadequate roadway system.

Local shipping of grains and other products would positively impact the local economy if funding could be secured to reconstruct roadways to “all-weather” travel by loaded trucks.

As the market demand for on-time delivery of goods increases there will also be a higher demand for better connectivity between the counties. This will allow for better connection from significant roadways and distribution areas to the local cities.

Changing Agricultural Base

Also, the agricultural base and practices continue to change for QUADCO region. In Different types of commodities are being produced further to the north in Grant County as well as Douglas County north of the region. Hay and potatoes are being produced and in some cases are being stored in facilities situated on roadways which do not meet the all-weather standards. Therefore these areas are not able to distribute goods during seasonal road closures. Also the development of Cold Storage plants throughout the region allows fruit producers to ship their products year round. This is creating another demand on the wintertime road closures.

I-90 near Snoqualmie Pass

I-90 is well documented to experience severe congestion. It is of a statewide issue identified in the WTP that “Eastern Washington agricultural growers and processors all cite severe winter weather closures on I-90 at Snoqualmie Pass as Eastern Washington’s top freight priority.” (pg. 26) With I-90 as the backbone and the primary east-west roadway facility in the QUADCO region, many products move north-south to I-90, then move west to the Seattle area and the ports of Seattle and Tacoma for worldwide distribution. When I-90 is closed due to weather conditions, or is severely congested due to heavy traffic, then freight from the region can not reach it’s destination in a timely manner. Many perishable items are shipped to west-side ports and if congestion causes delays products can be lost.

North-South Freight Corridor Needs

Several entities within the QUADCO region identified the need for improvements to north-south transportation facilities. Specifically, the need for a 4-lane north-south facility that connects Grant County (and points to the north) to the Columbia River ports to the south is needed. The WTP indicates that approximately 85% of all Eastern Washington wheat is shipped to Asia through Columbia River ports, but farmers struggle to get products through the state’s freight system.” (pg. 25) A WSU study indicated that the growth in north-south travel has moved more towards the center of the state. An important component of this future corridor is to secure or reserve right-of-way before opportunities are lost in order to avoid what has happened in other corridors throughout the state and nation where options are no longer available or very costly. A likely candidate for this is SR 17 which has been discussed for widening for a number of years. SR 17 is on the National Highway System between US 395 south of the region and I-90 near Moses Lake. Improvements to this corridor have been made for safety purposes, and some widening is occurring through the Moses Lake area, with the 4-lane widening to the north towards Ephrata recently being approved. This issue would continue to address a high accident corridor and, next to pavement maintenance/preservation, and the importance of I-90 would likely top all other key issues in it’s importance to the region.

Columbia River Basin Expansion

The United States Bureau of Reclamation is evaluating the possibility of expanding the Columbia River Basin project to utilize the natural flow of Crab Creek in Grant County. This could potentially open up an additional 200,000 acres for agricultural development in Adams and Grant Counties to irrigation. The roadway and freight needs caused by this additional production would be significant.

Sub-Standard roadways

Many roadways within the region are currently sub-standard to current design standards for the region. The need to improve these roadways is constantly increasing as the need for freight and agricultural product in the region increases. Some of the roadways within the region have been built at a time when standards were lower and have not been improved or upgraded to the current roadway standard since their initial construction. Due to the rural nature of the region and the agricultural background these roadways were typically designed for a lower volume of traffic. Many of the roads are gravel roads with narrow travel lanes.

Another issue facing some of the faster growing cities includes sub-standard roads which are being annexed into the cities. As these roads become annexed into the city they become reclassified and subject to the city standards. One issue facing the cities is that they are not able to improve all of the annexed streets to a city standard; therefore their percentage of sub-standard roads keeps increasing as growth continues to occur in the region.

Funding

Funding for transportation improvements is a huge issue throughout the region, state and nation. As mentioned in the Maintenance section above, timing of improvements is important to achieve the lowest life-cycle costs for maintenance. If maintenance activities are deferred, then what could have been a relatively low cost activity becomes a much higher cost preservation need or in some cases a need for reconstruction. Although there have been increases in the Washington State gas tax in recent years, these increases have not kept up with inflation and the increased costs associated with roadway maintenance, preservation and construction efforts.

Local Funds

A recurring theme throughout the region's cities was that there is no dedicated funding source for roadway maintenance and preservation similar to the County Arterial Roadway Preservation Program (CAPP) administered by the County Road Administration Board (CRAB). Cities can not treat roads as a utility and collect fees for such. Cities are not forced to use gas tax distributions on roadway maintenance and preservation, thus roadway improvements must compete locally for general funds that cover many other needs such as law enforcement, schools, human services, parks, etc. As a result, maintenance activities often are postponed because other more visible city projects are given priority. Another big issue with the smaller towns in the QUADCO region is the fact that they do not have a large retail base. Much of their shopping is done in the larger regional marketplaces. As such, their town budgets are small and elected officials must make very difficult decisions in providing services for their communities.

Federal Funds

Another common funding issue is that federal funding sources that help City and County projects are increasingly difficult to obtain and use for a number of reasons:

- Reductions in some programs, especially the Surface Transportation Program
- Some programs, such as Bridge Replacement and Safety, call for and select projects infrequently. Projects may be programmed for much of the entire life of the Federal Legislation nearly to the amount of the authorized limitations.
- Statewide competitiveness often make it more difficult for rural types of jobs to score well against roadways in urban areas that carry more vehicles. This does not diminish the fact that rural roadway serve a vital role in the state economy of carrying agricultural products to the worldwide market.
- Continually increasing administrative requirements make federal funds very difficult and costly to use.

Railroads

Abandonment of Short-line rail service

In the 1950s Washington had approximately 5,000 miles of railroad; today that number is down to around 3,100. Over time, the larger carriers have pared their systems of lines with low traffic densities to reduce their costs. Once spun off by the larger railroads, the lines are run by public or private entities.

More than half of the state's rail system has traffic with densities less than five million gross ton-miles per mile. These lines are known as short-line or branch railroads. Short-line railroads often find themselves in a vicious cycle as described in the [Washington State Freight Rail Plan](#), pp. 2-15. They often do not generate enough revenue for appropriate track maintenance. Accumulated deferral of these expenditures leads to a gradual deterioration of the track, ties, and base. These lead, in turn, to reduced train speeds and inefficient operations. As costs of operation escalate, service deteriorates, shippers convert to other modes, deferred maintenance costs rise to a staggering total, and the line ends up in trouble, possibly abandoned.

These lines are important because they handle local traffic that, if not moved by the railroads, would either move by truck over state and local roads, or would cease to move. When the latter happens, it can cause businesses to close or relocate. These lines also provide a relatively inexpensive option for moving goods. In addition, when lines are lost, they often have a negative impact on an area's ability to attract new businesses and industry. (Source: WSDOT Rail website.)

There are many benefits to providing rail service to agricultural producing areas of the State of Washington, especially the QUADCO region. Many of these are documented in the Grain Train experience, included in Appendix F, and summarized below:

- Shipping by rail is cheaper than by truck
- Rail reduces the number of trucks on the roadway system which reduces congestion and fuel consumption and improves air quality
- Transporting heavy products by rail reduces highway repair and maintenance costs
- Short line railroads move local traffic that might cease to move or cause businesses to relocate

A detailed study of Eastern Washington Grain-Hauling Short Line Railroads was performed for WSDOT in 2003 to analyze the economic viability of the Palouse Coulee City (PCC) railroad and to value the public benefits of preserving the PCC system. The study determined that,

in private ownership, the system is not self sustaining and is highly susceptible to abandonment. Among other things, the study found that preserving this rail system keeps more than 29,000 heavy truckloads per year off state and county roadways, and that over the long-term the annualized net public benefits of avoided highway truck damage are \$4.16 million. Other benefits of the rail line include \$6.4 million of wages and benefits in affected rail dependent industries that could be lost and \$11.1 million WSDOT supports the placing of this rail line in public ownership. The Executive Summary of the Study is included in Appendix G.

As part of the State of Washington's interest in maintaining and improving economic viability, the State Legislature appropriated \$7.35 million in funds for WSDOT to acquire and rehabilitate the Palouse and Coulee City Railroad (PCC). These nearly 400 miles of rail line provide most of the local rail service for rural eastern Washington.

Maintaining the viability of short-line railroads and minimizing the future abandonment of additional railroads is a very important issue to the QUADCO region. Rail transport is more economical than trucking and also provides alternative shipping methods to barging which keeps the transportation system healthy by providing shippers competitive alternatives for the movement of freight. If barging on the Columbia River is reduced for any reason, rail transport will become increasingly important to the region.

According the WTP (pg 15) short line rail tracks are owned by private operators and are facing large rehabilitation needs. As the need for improvements to these rail lines increase the cost for improvement becomes too much for the owner to maintain the track and forces them to abandon the rail line. The national standard of track maintenance is \$6,000 to \$8,000 per mile per year and will require ongoing capital and possibly operational assistance. These rail lines serve as a valuable transportation resources that should be preserved.

Rail Bottlenecks

The WTP indicates that BNSF line over Stevens Pass is constrained through the QUADCO region and congested west of Wenatchee with 23 trains per day and a sustainable capacity of 28 trains. The amount of international consumer goods moving through the ports of Seattle and Tacoma is estimated to triple by 2025. It is anticipated that by year 2026 the average trains per day will be 46. (see WTP pg 25). Most of these containers are shipped through the state to/from the Midwest via rail, but there is not enough east-west rail capacity to handle a three fold increase in volume. A map of Railroad Mainlines, average train counts and capacities is included in the Appendix H.

A new innovation in multimodal container shipping allows trains to carry two containers on top of each other. Although due to the clearance need for double stack containers, this option is limited to the Stevens Pass tunnel under the cascades, Stampede Pass restricts double stack containers. Also another bottle neck for rail is the need to construct grade separated intersections throughout urban areas. As the population throughout the state and region continues to increase rapidly, areas will become more urbanized creating an increase in traffic at grade intersections therefore increasing the demand to construct a grade separated intersections.

Unit trains

Rail volumes along the Washington State main rail lines have increased substantially in the recent years causing a strain on the capacity of the primary routes. Due to this demand the market is changing to a "hook and haul" system and eliminating the short haul connections

and distribution from the main line and relying on truck and short liens to provide these services through transload facilities. (See WTP pg 28.)

This new unit train system requires fifty or more cars to be hooked on the main line train before it will stop. Since most small company elevators are not going to be able to put together enough cars to make a unit train. It is viable for the regions to utilize the transload facilities within the region by improving the short haul rail lines to and from these facilities and by improving the roadway between these facilities.

Moses Lake Rail Service

In an effort to support economic development, the City of Moses Lake and the Washington State Department of Transportation are investigating the possibility to improve rail service to industrial areas northeast of the City. By building a more direct line from the Wheeler area (east of the City) to the Airport (northwest of the City), industrial areas in between could be better served. This would also provide the opportunity to use portions of the existing circuitous rail route through downtown Moses Lake for other purposes. The feasibility study has been completed. There are 5 segments or phases and WSDOT's study indicates that the cost to construct these segments will range from \$1.8 million to \$70 million. Environmental documents are being prepared, however additional funding will be required to build any of the segments.

Vitality and Importance of the Snake River

A major factor that may impact the multimodal system is the Endangered Species Act that may require the breaching of dams or a drawdown of river levels on the lower Snake River thereby significantly reducing barge service eastern Washington. Because of said Act, the Sockeye and Chinook Salmon have been declared endangered species in the Snake/Columbia River system. The above prospective will cause significantly more truck traffic moving on roads not adequate for such weights and volumes, and mixing with automobiles and busses to an extent that has not been experienced before. Not insignificant is the contribution that these dams make to the production of electricity for the western United States that would be impacted by the breaching of dams.

Many studies have been performed in recent years by WSDOT, the Eastern Washington Intermodal Transportation Study (EWITS) at Washington State University, the Army Corp of Engineers and others regarding a drawdown of the Snake River. Studies have included issues such as the following:

- Potential impacts to Sockeye and Chinook Salmon migrations
- Other methods to improve salmon passage at the dams
- Impacts of a river drawdown on the transportation of grains
- Impacts of a river drawdown on energy consumption and Environmental Emissions
- Impacts on roadway networks due to greater trucking needs.

Regardless of the ultimate outcome of the Endangered Species Act on the Columbia and Snake Rivers, transport on the river has been affected by silting. The flow of silt and debris down the free flowing portions of Snake and Clearwater Rivers above Lewiston, Idaho over several years has begun to leave its mark. Much of this silt has built up behind the Lower Granite Dam and has reduced the depth of the river, thus reducing the depth at which barges can travel and limiting the amount of cargo that can be taken on board. Many barges

are leaving the Ports of Lewiston, Clarkston and Wilma at half capacity. It is important to the future of barge transport on the Snake River that dredging be considered in order to restore the river depth to original levels and improve the efficiency of barge transport.

Even with the importance of the grain train discussed above, the importance of the Snake River to the region and the ability to barge significant amounts of grain from the region to national and international markets is summarized in the following facts and comparisons outlined below.

- 1 barge = 37.5 hopper rail cars
- 1 barge = 150 25-ton semi-trucks
- transport by barge uses less fuel/ton-mile (514) than either rail (202) or truck (59)
- If trucks were used to ship the 156,900 tons of wheat that the first two grain trains have carried to Columbia River and Puget Sound ports, it would have added 4,482 heavy truck loads to Washington State highways.
- By comparison, if barge traffic were halted it would take an additional 120,000 rail cars, or more than 700,000 semi-trucks annually to carry the cargo now being moved by barge on the Columbia-Snake river system

Policy makers and others in the region need to continue to stress the importance of the Columbia/Snake River system to the economic viability of the region and the multimodal transportation system. The QUADCO region is opposed to the removal of the Dams on the Snake River.

Stormwater

Recent regulatory changes and philosophies, including State Stormwater Management Guidance and EPA Phase II requirements have placed a much higher emphasis on how cities and counties manage stormwater associated with transportation system elements. This increased effort has applied to both regular maintenance and construction activities. With the changes have come increased costs in implementing our maintenance and construction programs, however little or no additional transportation funding has been made available to address the situation. This in turn has resulted in further dilution of the existing funding. It is essential that additional funding be identified that is directly tied to the transportation system to provide for planning and executing stormwater management activities. These new requirements create the need in many cases for additional public right-of-way.

Airports

Airports are part of the Washington State multi-modal transportation system and serve as an essential public facility. There are four key issues with respect to air transportation services provided in the Region.

Commercial Air Service

In the past the region enjoyed scheduled passenger service through Moses Lake's Grant County International Airport. Service was subsidized by the Essential Air Service Program (EAS), a federal program designed to maintain a minimal level of scheduled air service to communities which otherwise would not be profitable. However, the subsidy for Grant County International Airport was terminated in August 2006 and scheduled service was discontinued on September 1,

2006. For residents of the QUADCO region to access commercial passenger service various options exist with differing levels of desirability depending on their origin within the region: SEATAC airport in Seattle, or Yakima for Kittitas County; or, for Grant and Adams Counties, either the Tri-Cities airport in Pasco to the south or the Spokane Airport to the east would be the likely candidates. For Lincoln county service would most likely be out of the Spokane Airport.

Maintenance and Preservation of Runways

Ongoing maintenance and preservation activities for the regions runways and taxiways is another key issue. WSDOT completed a pavement condition evaluation for all airports statewide. As discussed earlier, there are nearly \$41 million of pavement and safety needs anticipated at the regions airports over the next 10 years.

Compatible Land Uses

The Washington State legislature has enacted legislation that requires cities and counties to develop regulations to protect airports from the siting of incompatible land uses adjacent to airports. Reasons for incompatibility include public safety, noise concerns, heights of structures, uses that attract wildlife, and generation of obstructions to visibility such as smoke or dust. Incompatible land uses can include residential, commercial and educational and other land uses that put pressure on airports to relocate. While the QUADCO Region is predominately a rural, agricultural region, many of the airports are increasingly surrounded by land uses that are not compatible with airports. According to the Washington State Long Term Air Transportation Study (LATS), only 41% of Washington airports are currently zoned appropriately to limit incompatible land use. Additionally, the LATS indicates that only 40% of Washington airports are protected by height hazard zoning. The QUADCO Region airports are in much better shape, in terms of adequate zoning, with 14 of the 19 airports zoned appropriately. In addition, one airport, Wilson Creek Airport, is in the process of obtaining an airport overlay zone. This results in 79% of the QUADCO airports being covered by appropriate zoning that limits height hazards and incompatible land uses. The airports that do not appear to be covered by adequate zoning restrictions are Cle Elum Municipal, DeVere Field, Easton State, and Lind Municipal.

It is recommended that all airport sponsors include their airport in local zoning and comprehensive plan documents. Those airports currently covered by such documents should review their airport needs and ensure the regulations are adequate.

Airport Layout Plans

Twelve of the 19 airports have completed Airport Layout Plans (ALP) in the past 5 years. One airport has an ALP that is over 10 years old and the other 6 airports do not have ALPs. These documents help to identify airport needs with respect facility requirements determined by the number and types of planes using the airport and often examine nearby land uses. Those airports that have not developed ALPs should develop them to identify future needs and potential future nearby incompatible land uses and to be eligible for potential state funding for improvements.

Small Town Roadway Connections

As regional issues were discussed with representatives from member jurisdictions two issues with respect to city connections within the region were discussed.

Connections to State Highways

Many of the small towns in the region rely heavily on their connections to nearby state highways. Challenges at the intersections of local roads with state highways are often problematic due to sight distances, lack of turn lanes, substandard turn radii for trucks and in some cases height clearances for trucks. One example of this is in the City of Othello at the Broadway Avenue intersection at SR 26. Partial funding has been obtained to address the issue but the project may fall by the wayside due to lack of full funding.

Connections to County Roads

A second issue for city streets is the amount of truck traffic that occurs entering the cities on county roads crossing jurisdictional boundaries from farms outside of town while on their way to state highway facilities. Often these city streets are not built to withstand the heavy vehicles nor are they of sufficient width to meet standards for truck traffic.

Non-Motorized Facilities

The used of and need for non-motorized facilities is an emerging issues in the QUADCO region. Many smaller communities are demonstrating a need for bicycle and pedestrian facilities to serve their populations. In Grant County alone, 4 different annual bicycling events have begun in the last 6 years.

Transit

Providing for the transit dependant in the region is a growing need as well. A summary of the recently prepared Coordinated Public Transit Plan - Human Services Transportation Plan was provided earlier. Several needs and priorities were discussed. Five areas of transit were identified as lacking transportation and are reiterated here.

1. **Older adults** lack transportation for health care, social services, nutrition, shopping, banking, social events, religious services, and visitations with friends or family in health care facilities.
2. **Persons with disabilities** lack access to employment, health care, social services recreations and social events.
3. **Low-income individuals** lack access to social services, health care, job search, education, and training opportunities. The working poor lack transportation for employment, shift-work, and taking children to child care.
4. **Youth** lack transportation for after-school activities, summer activities, recreation, child care, alternative schools, and post-secondary education.
5. **Accessible transportation services** is lacking for vulnerable populations to use existing services.

Growth

Kittitas County

Although the QUADCO region is known best for agricultural production, there are areas within the region that are experiencing challenges due to population growth. Kittitas County is not far removed from the Seattle Metropolitan area and has many visitors in the mountainous areas in the northern and western portions of the County. In some cases county roadways in the mountains that provide access to snowmobile trails are being clogged by vacationers parking along side the road.

Suncadia resort near Roslyn is developing 6,000 to 8,000 acres with three 18 hole golf courses, 40 miles of trails and approximately 3,000 second home units and home sites. Such development will surely strain the existing roadway facilities in that portion of the region.

The City of Ellensburg, with Central Washington State University, is growing and has need for a third interchange with I-90. Growth has been seen in recent years of those who live in Ellensburg and commute to the Seattle area. As such, demand for additional developable lands is being considered and the City council is investigating ways to improve access to adequately zoned property near the west interchange of I-90 which would also need an additional railroad crossing to access the remainder of the City.

Moses Lake Area

The City of Moses Lake has the largest population in the region and is centrally located as well. It is experiencing population and employment growth and is well situated on the I-90 corridor to accommodate growth in agricultural and industrial processing. In addition to the railway modifications being sought as discussed above, other major transportation improvements would facilitate growth in this portion of the region. Two primary candidates are:

- A connection from I-90 to SR 17 west of Moses Lake would serve growth on that side of the lake as well as provide alternate routes to the north and relieve congestion on SR 17 through Moses Lake.
- An additional bridge over Moses Lake would improve access between the southeast and northwest portions of the City. Currently there is one state highway and one local road that cross the lake, thus causing both facilities to operate under congested conditions many hours of the day.

The importance of SR 17 to the region should also be reiterated. As discussed in the Freight and Goods System section earlier, the need for a 4-lane north-south roadway east of the Cascade Mountains is growing. Identifying and reserving needed right-of-way should be pursued before opportunities are lost. Such a 4-lane facility would not only serve growing freight needs but would serve significant general travel needs as well, and alleviate growing congestion in the Moses Lake area.

Quincy Area

The Quincy area is experiencing the beginning of a new era for the City. Primarily due to the presence of major high speed communication fiber optics facilities nearby, major data centers by Yahoo, Microsoft, Intel and Intuit are all in various stages of construction of millions of square feet, and hiring workers. Population and employment forecasts shown earlier are not likely to reflect the anticipated growth in population due to the growth in the tech sector demonstrated by the groundbreaking of several facilities in Quincy. These additional employees will need services and spur growth of school needs, shopping and other services. All of this growth will place demands on the roadway network in the area. An estimated 1400 new homes are anticipated in the next few years. The City recently expanded the Urban Growth Area which to more than double the size of the City.

Correlation of Region's Key Issues with Statewide Issues

Washington Transportation Plan

The Washington Transportation Plan (WTP) 2007-2026 was adopted by the Washington State Transportation Commission in November of 2006. The purpose of this plan is to serve as a guide to provide strategies which will guide decisions and investment needed to develop Washington's transportation system for the future. The WTP was divided into two phases; the first phase collected data on the transportation system and documented existing conditions. This data was used to develop nine Key Statewide Issues which systematically assess the state's needs. The Statewide Key Issues are further summarized below:

- **System Preservation** - focus is on taking care of the existing transportation system - all modes - and doing it in a cost effective way, managing our assets with a "fix it first" attitude before it needs to be replaced.

Fundamental Issue - What will it take to make sure that the elements of the transportation system that we take for granted today will still be in place when we need them in two, six or twenty years?

- **Safety** - focus is on design features such as turn lanes, rumble strips, improved shoulders and roadsides for rural roads, maintenance activities like snow removal. Bike and pedestrian facilities can reduce the number of those types of accidents.

Fundamental Issue - How do we make transportation systems and facilities throughout the state safer for their users?

- **Transportation Access** - focus is on transportation for those who physically or financially can not provide for themselves. Strategies and issues revolve primarily around transit.

Fundamental Issue - Where basic transportation services are indispensable for all citizens' social engagement, how is a "safety net" for transportation needs to be provided every citizen in every community?

- **System Efficiencies** - focus is on getting the most out of our existing transportation investments through operational strategies, from basic maintenance activities to sophisticated technologies. Also includes park-and-rides for transit.

Fundamental Issue - How can we best work toward optimizing how efficiently we derive the benefits of our current transportation system facilities and those we are able to create in the future?

- **Bottlenecks and Chokepoints** - focus is on providing select capacity improvements that will help to get the most out of the transportation system in areas that are congested.

Fundamental Issue - What opportunities for investment in new facility and system assets can help address system chokepoints and bottlenecks, the most effective near-term solution through expanding capacity to move people and goods in shorter times and more reliable times?

- **Moving Freight** - for all modes of transportation this issues is critical to the Washington economy. Washington is a gateway for international markets. The importance of trucking, rail and waterways is emphasized.

Fundamental Issue - How are the special needs of freight movement to be incorporated into the state's transportation plan?

- **Strong Economy and Good Jobs** - Targeted transportation economic development projects should focus on retaining existing jobs or probably new jobs to help ensure success. WSDOT also indicates that the discussion for this issue is closely related to the discussions about Moving Freight and Bottlenecks and Chokepoints. Improving safety, reducing delay and lowering operating costs are basic user benefits.

Fundamental Issue - What investments in new facility and system assets can help support the state's economic vitality and strengthen the job picture?

- **Health and the Environment** - focus is on the impact that transportation systems have air quality, water quality, noise, etc. that influence human health and species protection. Such things as emissions, stormwater runoff, limiting vehicle miles traveled, etc. are included.

Fundamental Issue - How can transportation investments be developed, implemented and used in ways that at the same time enhance our citizens' transportation goals and our citizens' goals for healthy communities and a well-protected environment?

- **Building Future Visions** - this issue takes a longer look at transportation issues and facilities, even though funding levels are limited. Where are future facilities and what technologies are needed in order to address needs.

Fundamental Issue - What are the visions of transportation system futures - shared and unshared - that should shape today's transportation planning to help create pathways to the future?

More detailed research was conducted to better understand the WTP process and the statewide issues as identified through that process. Much effort has been expended by many state employees and others to reach out to understand the transportation issues and challenges facing the state of Washington. Three particularly pertinent documents with respect to the statewide issues and Washington's counties are included in the Appendix I:

- Summary of Statewide Key Issue Papers
- Interim Briefing to the Transportation Commission 4/22/2004
- Local Roadways: The County System 10/19/2004

Important things that WSDOT heard across the state (as summarized in the Briefing to the Transportation Commission, page 16 of Appendix I) indicates the following:

- County road levy and the current share of the gas tax cannot meet current funding needs.

- Most rural counties do not have an adequate tax base to fund general government needs let alone local transportation improvements.
- Local options cannot generate enough funds to provide for construction maintenance and preservation programs.
- Recent statewide initiatives have repealed local transportation funding tools.

The Washington Association of Counties also presented to the Transportation Commission a summary of issues, including (see page 13, 18 of Appendix I):

- The current state funding programs through WSDOT, TIB and CRAB are not keeping up with the need.
- Counties are trying to balance competing needs between safety, preservation and maintenance and falling short on all three.
- Additional funding should be flexible enough to allow local elected's and professional staff to manage diverse demands.

The second phase of the WTP, involved identifying and prioritizing specific program investments and developing the plan update. As part of this phase, the Transportation Commission evaluated the nine key issues described above and developed “Five Investment Guidelines” which were used to select investment targets. The Five Investment Guidelines are described as follows:

1. **Preservation** - preserve and extend prior investments in existing transportation facilities and the services they provide to people and commerce;
2. **Safety** - target construction projects, enforcement and education to save lives, reduce injuries, and protect property;
3. **Economic Vitality** - *Strong Economy and Good Jobs, Moving Freight*: improve freight movement and support economic sectors that rely on the transportation system, such as agricultural, tourism and manufacturing;
4. **Mobility** - *Transportation Access, System Efficiencies, Bottlenecks and Chokepoints, Building Future Visions*: facilitate movement of people and goods to contribute to a strong economy and a better quality of life for our citizens;
5. **Environmental quality and health** - *Health and the Environment*: bring benefits to the environment and to our citizens' health by improving the existing transportation infrastructure.

Since there are several high-priority unfunded system needs state wide, the purpose of these five investment guidelines is to set overall priorities and form a basis of the WTP. In order to determine the most beneficial investment, the Commission prioritized them by the highest priorities.

Explanation of Regional Issues to Statewide Issues Correlation

Although regional issues facing the QUADCO Region discussed above in some cases are unique to this region, they correspond well with the nine broad statewide issues that have been identified through the WSDOT Statewide Transportation Plan. Table 13 on the following page has been prepared to show the relationship of regional issues to the five investment guidelines used by the Transportation Commission in the development of policies and approaches addressing statewide transportation needs.

Certainly there are other correlations between regional and statewide issues that can be made, or that may become more evident as time passes or more detailed studies are performed. However, for the purposes of this document, those relationships that appeared to be the strongest have been identified.

Table 13. Correlation of Regional Key Issues to Statewide Issues

Regional Key Issue	Five Prioritized Investment Guidelines								
	1. System Preservation	2. Safety	3. Economic Vitality			4. Mobility			5. Environmental Quality
	System Preservation	Safety	Moving Freight	Strong Economy and Good Jobs	Transportation Access	System Efficiencies	Bottlenecks and Chokepoints	Building Future Visions	Health and the Environment
Maintenance and Preservation	√	√	√	√		√			√
Safety	√	√	√	√		√			√
Freight and Goods System	√	√	√	√		√	√	√	√
Sub-Standard Roadways	√	√	√	√		√		√	√
Funding	√		√	√		√	√	√	
Railroads	√		√	√		√	√	√	√
Vitality and Importance of Snake River	√		√	√		√	√	√	√
Stormwater	√	√							√
Airports/Air service			√	√	√			√	
Small Town Roadway Connections	√	√	√	√	√	√	√	√	√
Non -Motorized Facilities		√		√	√	√		√	√
Transit	√	√		√	√	√		√	√
Growth	√		√	√				√	√

Pavement Maintenance/Preservation

As described earlier in the Key Issues section, taking care of existing transportation facilities is a most important task. Preserving the investment already made in the regional transportation system is vital. If pavement preservation activities are postponed, a significantly higher cost could accrue. As such, a more detailed analysis of the pavement maintenance and pavement preservation efforts of the counties was undertaken. It was challenging because of the constraints of the data available, and the fact that each jurisdiction reports expenditures differently. It has reaffirmed that the charge to maintain and preserve the county roadway network is demanding -- each county faces distinct challenges because the needs are different and the roadway networks are put together differently. This section will endeavor to identify the difficult task that public works departments have of providing a serviceable roadway network within a limited budget for those rural county roadways serving diverse needs.

Pavement Management

Those responsible for determining appropriate allocation of public funds to various programs and projects have a difficult job indeed. With limited funding they must determine the amount of funds to distribute to numerous worthwhile endeavors such as schools, law enforcement, human services, transportation and other public works activities, and other public functions that ensure the health and general welfare of the populace. Data available from the Washington State Auditors office indicates that on average Counties in Washington State spend approximately 17% of their funding on Transportation Transit and Maintenance and Operations with an additional 7% on Transportation Capital; approximately 25% goes towards Law and Justice while approximately 16% is dedicated to general government and 12% to Health and Human Services.

Likewise, Public Works departments have similar challenges on a more focused agenda to balance budgets with needs. Data from the WSDOT Road and Street Report indicates that on average state wide county transportation expenditures are approximately 36% for maintenance, with 40% on construction activities, 14% on administration, 4% on traffic policing, 2% on debt service and 4% on other activities.

Many different activities compete for the same funding sources. Knowledgeable professionals make the best decisions they can with available information. Sometimes emergencies arise created by natural events that require adjustments to previously planned programs for addressing public works needs and projects.

In order to make the best decisions possible for the maintenance and preservation of a roadway network, it can not be overemphasized the importance of a Pavement Management System (PMS). A PMS may be very complex with sophisticated computer models, or may be done primarily by hand. All four counties currently use a PMS following the County Road Administration Board requirements. Pavement and roadway condition data are essential to make the best use of available funds. A PMS empowers the governing agency with a systematic approach to performing budget analysis and deciding what repair strategies are most appropriate for which roadways in order to efficiently use available funds.

A PMS typically entails 5 steps that are repeated as necessary every two to three years:

- Mapping (GIS) Road Network
- Pavement Condition Inventory
- Identify Maintenance & Repair Needs
- Analyze repair strategies and establish annual funding levels
- Implement annual program.

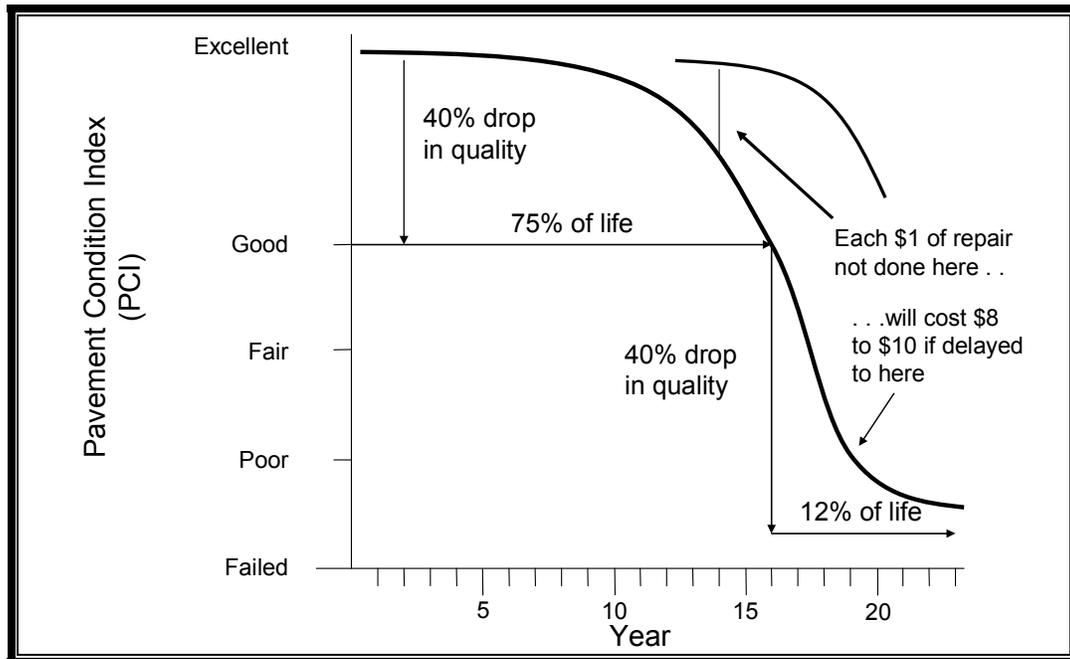
A systematic procedure should be used each cycle to collect pavement condition inventory information. This provides an up-to-date inventory for better decision making and allows pavement performance to be tracked over time. Several different types of pavement distress can occur, each with different types of potential repair strategies. Often a computer program is used to determine the remaining service life (RSL) for each roadway segment based on the governing distress (the distress that results in the lowest RSL). The RSL represents the years remaining until complete failure of the roadway surfacing. Complete failure occurs when a road segment has an RSL value of 0 and reconstruction of the road section (pavement, base, etc.) is required since the road segment has deteriorated to a point that other repair strategies would not be beneficial. The road is passable, but the surface is possibly turning to gravel, extreme fatigue is visible, sections of pavement may be detached or appear to be islands on the base material.

By evaluating the RSL distribution for the road network, allocation of funds to the appropriate repair strategies can begin. It is important that the repair strategy is focused on the goal of maintaining an average system RSL of 10-12 years which represents a level that can be reasonably sustained.

The goal of the analysis is to determine the best distribution of funds, among the available repair strategies, that should be completed each year to produce an average system RSL of 10 to 12 years at the least cost. Failure to maintain pavement at the necessary levels results in a decrease in the RSL and a correspondingly greater future cost to increase the average RSL to the desired level. Figure 10 emphasizes the importance of routine roadway maintenance activities prior to severe deterioration of pavement condition.

Repair strategies are chosen based on the condition of the road segment. Road surfaces RSL will dictate the repair strategy that should be used. Each repair strategy has multiple repair methods. The repair method used to implement a repair strategy should be based on the standard practices of the City/County. A new strategy is prepared for a two year period and updated to re-evaluate the pavement condition every two years thereafter. There are five generally accepted repair strategies explained below.

Figure 10. Typical Pavement Deterioration Curve



Deferred Action is always a viable option when developing a repair strategy. Most road networks will include a wide spectrum of RSLs for individual road segments. For the first few years after original construction, roadways should require very little maintenance. Likewise, when road segment RSLs becomes less than 3, routine and preventative maintenance will no longer improve the RSL. Reconstruction becomes the only alternative that will improve the RSL for road segments that have deteriorated to this stage. Reconstruction costs are very high and often not available in the maintenance funds. Therefore maintenance for certain roadways will be deferred until adequate funds are available to produce beneficial results that improve the road network system as a whole.

Routine Maintenance is usually driven by existing defects in the road surface. This maintenance can be used to prevent further deterioration of the roadway. Road segments that have RSLs greater than 7 to 10 years can benefit from routine maintenance. Examples of possible routine maintenance treatment alternatives include: crack sealing, cold patches, dig-out and cold patch, and fog coating.

Preventative maintenance is used to stop the deterioration on roadways before the surface distresses become a serious problem. This strategy provides the most benefit to a roadway if implemented before the RSL is below 7. Examples of possible preventative maintenance treatment alternatives include: sand seal, scrub seal, single chip seal, slurry seal, micro-surfacing.

Rehabilitation includes repair alternatives such as overlays and recycling. This strategy should be reserved for road surfaces that have a RSL between 1 to 7 years. The implementation of this strategy can require intense scheduling and will require allocation of a significant portion of the budget. This strategy should be reserved for road segments that fit into a major planning scheme. A possible candidate for such a strategy would be a road segment that is bordered by a newly constructed portion of that road and improving the

segment would increase the overall performance of the road. Examples of possible rehabilitation strategy treatment alternatives include: plant mix seal, thin hot mix overlay <2in., hot surface recycling, rotomill and overlay.

Reconstruction includes repair alternatives such as complete removal and replacement of a failed pavement section. Improving the road horizontal and vertical alignment, guard rail and drainage are all elements of a reconstruction strategy. This strategy will require considerable funding and lead time to allow for proper design. Reconstruction of a road segment is going to increase the RSL to nearly 20 years. Therefore, this strategy is reserved for roads that are at the end of their design life. Examples of possible reconstruction strategy treatment alternatives include: Thick Overlay (3 inch depth), Rotomill & Thick Overlay, Base Repair with Pavement Replacement, Cold Recycling & Thick Overlay, or Base and Pavement Replacement.

Table 14 displays the benefit different treatment strategies provide in increased RSL over the existing roadway segments RSL along with typical material costs for such treatments.

Table 14. Typical Pavement Treatment Costs and Increased Remaining Service Life

MAINT. TYPE	TREATMENT TYPE	TREATMENT COST		BENEFIT OF TREATMENT (in yrs.) BASED ON RSL EXISTING							
		Per Sq. Yd	Per mile*	0	1-3	4-6	7-9	10-12	13-15	16-18	19-20
Routine	Crack Seal	\$.70	\$11,500	0	0	0	0	1	2	3	4
Preventative	Single Chip Seal	\$1.75	\$28,750	0	1	3	5	5	5	5	5
Rehabilitation	Thin Hot Mix Overlay (<2")	\$6.00	\$98,560	0	4	6	7	7	7	7	7
Reconstruction	Thick Overlay (3")	\$7.50	\$123,200	12	12	12	12	12	12	12	12
Total Reconstruction	Base & Pavement Replacement	\$18.00	\$500,000 - \$1 M **	20	20	20	20	20	20	20	20

* Cost per mile includes only material costs and assumes 28 foot wide pavement surface (12' travel lanes with 2' shoulders), additional cost would be associated with wider lanes or shoulders. Substantial additional cost is associated with mobilization, traffic control, striping, or other site specific efforts.

* Per Square Yard Treatment Costs are based on 2007 costs for County Roads. Treatment costs for cities are typically higher and can be as much as double the cost per mile due to additional roadway width and traffic issues.

** Total Reconstruction can be very expensive and a large range of costs is being experienced by many jurisdictions. The primary reason for such high wide ranging cost is the fact that when total reconstruction activities are undertaken a roadway must be built to current standards of width, horizontal and vertical alignment.

For each treatment type, the treatment improves the RSL of a segment based on the segments current condition. As an example, crack sealing adds no additional life to a pavement that has a RSL of 9 or less. Above 9, crack sealing adds from 1 to 4 years, depending on the current pavement condition. Another example is chip sealing. Chip sealing is one of the most widely used preventative maintenance treatments. Chip sealing roads with RSL of 7 or greater increases the roads RSL by 5 years. However, applying a chip

seal to a road with a 4 to 6 RSL only adds 3 years, and applied to a road with a 1 to 3 RSL only adds 1 year. It can be seen that applying chip seals to roads with RSLs of 6 or less is not a cost effective approach.

County Routine Maintenance Activities

The importance of maintaining the transportation system was discussed above in the existing transportation section of the RTP as well as in the Key Issues section. This section will briefly describe several of the routine transportation system maintenance activities that go on regularly. Some are directly related to taking care of pavements or roadway surfaces while others are not but serve a vital function to ensure the safest operation of the transportation network possible. Many of these activities are performed by county crews:

- Gravel and Dirt roadways are graded
- Rock is added to gravel roadways regularly
- Pavement cracks are sealed to prevent more serious degradation in later years
- Potholes in paved surfaces are repaired
- Shoulder maintenance including guardrails, grading, roadside vegetation
- Signage and pavement markings
- Drainage ways such as roadside ditches and culverts. This effort is critical in that if water does not move it can seriously damage the roadway below the surface.
- Bridge maintenance
- Snow removal
- Traffic Services
- Litter Cleanup

Table 15 provides a summary of expenditures for each county over the previous 5 year period. It must be understood that county engineers and others make the best use of funding that they can with available information. Table 15 indicates only the expenditures on the types of activities listed above, but does not attempt to identify unmet needs. There are likely many miles of county roadways that are being untreated because more serious problems exist elsewhere. Each roadway must often wait its turn in priority order.

Table 15. Historical Expenditures for Roadway Maintenance and Preservation

Year	Adams County	Grant County	Kittitas County	Lincoln County
2000	\$4,285,390	\$6,017,562	\$3,089,874	\$3,762,610
2001	\$3,210,588	\$5,842,221	\$2,780,426	\$3,555,798
2002	\$3,454,826	\$6,263,228	\$2,883,730	\$4,066,562
2003	\$3,267,939	\$6,258,113	\$3,014,915	\$4,030,233
2004	\$3,643,907	\$7,052,091	\$3,022,883	\$4,146,916
2005	\$3,631,275	\$7,611,159	\$3,443,953	\$4,309,894
Total	\$21,493,925	\$39,044,374	\$18,235,781	\$23,872,013
Average/Year	\$3,582,321	\$6,507,396	\$3,039,297	\$3,978,669
Center-line Miles	1778.5	2526.8	561.8	1992.3
Average/Mile	\$2,014	\$2,575	\$5,410	\$1,997

Source: WSDOT Financial Planning and Economic Analysis

Examination of Table 15 quickly reveals that considerable funding is required in order to perform the routine maintenance activities described above. Funds reported in Table 15 do not include construction funds for new roads or reconstruction of roads that have failed pavement, nor bridge replacement funds. These are typically only accomplished when grants which require local matching funds are obtained.

The amount of funding spent on snow removal, which can vary greatly from year to year, has a direct effect on the level of effort that can be put toward other maintenance activities.

Expenditures for non-paved roadways is considerable given the amount of mileage that each county has of graveled roadways. When you consider that non-paved surfaces require more frequent maintenance activities, it is easier to understand the maintenance costs for these critical roadway connections for county farms.

Also significant in the maintaining of the roadway system is the number of structures less than 20 feet in length. The replacement of these structures does not have a designated funding source and can expend a significant portion of county maintenance funds.

Pavement Preservation and Maintenance

Pavement preservation activities primarily include chip sealing of roadways that have deteriorated so much that a new surface must be put in place. Although crack sealing is often done immediately prior to chip sealing, chip sealing involves much more. Although different treatment methods can be used, the basic concept is that additional road thickness is added. Sometimes old roadway surface is milled away and removed or recycled in order to place the new surface on the best bed possible without completely reconstructing the roadway. Typically, for older roadways, it is most beneficial to perform pavement preservation activities every 5 to 7 years. If pavement preservation activities are not performed regularly every 5 - 7 years then pavement deterioration will occur at an increased rate and the cost to repair the pavement goes up substantially as discussed earlier.

Table 16 shows the historical expenditures by county to preserve arterial pavement and what they have been able to accomplish with funds spent. Data is unavailable to determine the level of effort spent on non-arterial paved surfaced. Table 4 earlier showed that non-arterial paved surfaces are most prevalent in Lincoln County with over 280 miles of such roadways - primarily because of some urbanized areas within the county. Adams County has 123 miles of non-arterial paved surfaces while Grant County has 86 miles and Kittitas County has less than 5.

Examination of Table 16 shows two key issues:

- Although each counties allocation of money received from the County Arterial Preservation Program (CAPP) are relatively consistent throughout the years, the total eligible expenditures for some counties are sporadic. This is most likely due to the counties contributing more to the program in order to perform certain preservation activities.
- Over the last 6 years the percentage of arterial roadway pavements that have been treated ranges from 51% in Adams County to over 84% in Grant County. This is an important number in that 85% to 120% of paved surfaces should have been treated

during this 6 year period in order to minimize long-term preservation costs and maximize the useful life of the roadway.

Table 16. County Arterial Preservation Program Historical Expenditures and Accomplishments

Year	Eligible Arterial System Centerline Miles	Total Eligible Expenses (x \$1,000)	CAPP contribution (%)	Arterial Roadway Treated			
				Seal-coat (miles)	Overlay (miles)	Total (miles)	Percent
Adams County							
2000	531.9	121.2	100.0	19.6	0.0	19.6	3.7%
2001	545.5	123.1	61.4	58.2	0.0	58.2	10.7%
2002	545.3	126.0	64.4	20.8	0.0	20.8	3.8%
2003	545.4	153.0	62.4	59.8	0.0	59.8	11.0%
2004	545.5	834.8	70.4	72.0	0.0	72.0	13.2%
2005	545.5	674.9	88.8	47.9	0.0	47.9	8.8%
Six Year Total		\$2,033	76.8	278.3	0.0	278.3	51.1%
Six Year Average		\$339	74.6	46.4	0.0	46.4	8.5%
Average Annual Expenditures per mile (x \$1,000)							\$0.621
Grant County							
2000	818.5	554.7	33.8	121.6	16.5	138.1	16.9%
2001	817.3	923.6	57.3	96.4	5.7	102.1	12.5%
2002	823.8	893.0	51.3	89.0	7.9	96.9	11.8%
2003	830.8	940.0	76.5	119.9	0.0	119.9	14.4%
2004	831.1	1912.8	47.0	117.7	6.3	124.0	14.9%
2005	831.1	2288.1	40.1	105.0	10.7	115.7	13.9%
Six Year Total		\$7,512	49.4	649.6	47.1	696.7	84.4%
Six Year Average		\$1,252	51.0	108.3	7.9	116.1	14.1%
Average Annual Expenditures per mile (x \$1,000)							\$1.506
Kittitas County							
2000	305.9	2536.8	34.6	39.7	0.9	40.6	13.3%
2001	305.3	1536.2	0.0	25.1	0.0	25.1	8.2%
2002	305.2	1699.6	40.1	34.4	5.4	39.8	13.0%
2003	306.5	1221.3	0.0	38.4	0.0	38.4	12.5%
2004	306.2	695.7	0.0	35.3	0.0	35.3	11.5%
2005	306.1	969.5	0.0	58.7	0.0	58.7	19.2%
Six Year Total		\$8,659	18.0	231.6	6.3	237.9	77.8%
Six Year Average		\$1,443	12.5	38.6	1.0	39.6	13.0%
Average Annual Expenditures per mile (x \$1,000)							\$4.715

Table 16. (Continued)

		Lincoln County					
2000	377.4	920.3	63.2	47.3	2.7	50.0	13.2%
2001	373.3	584.6	95.7	34.2	0.0	34.2	9.2%
2002	373.3	1626.3	50.5	52.5	0.0	52.5	14.1%
2003	373.3	753.6	42.4	35.2	0.0	35.2	9.4%
2004	373.3	422.8	95.1	29.8	0.0	29.8	8.0%
2005	374.4	936.2	43.8	21.3	3.3	24.6	6.6%
Six Year Total		\$5,244	59.0	220.3	6.0	226.3	60.5%
Six Year Average		\$874	65.1	36.7	1.0	37.7	10.1%
Average Annual Expenditures per mile (x \$1,000)						\$2.334	

Source: County Road Administration Board Annual Reports

Clearly the available funding to preserve pavements in some counties is inadequate to meet the need and in the not so distant future many roadways that have not received preservation treatment will be beyond possible preservation and require total reconstruction. This will involve substantial investment in order to keep important roadways on the freight and goods system from deteriorating to a point where they either need to be reconstructed for millions of dollars per mile, or are left to revert to gravel.

It should be noted that cities prefer overlays as their pavement preservation activity for arterial roadways. A better result is obtained with less frequent application and is more suited for urban areas with pedestrians and higher traffic volumes. Overlays are not always achievable, however, due to the significantly higher cost. Some overlays are performed but many cities often have to use chip seals in order to treat more roadways within their annual budget. Smaller cities are dependent on counties to perform reimbursable work while county crews are doing preservation work and counties primarily use chip seals for preservation activities. WSDOT also indicated that the higher cost of various treatments also significantly affects how they do business in recent years.

The following table was prepared to show the level of effort that would be needed in order to provide best practices of pavement maintenance and preservation for the jurisdictions in QUADCO, the calculations are based on 20 year maintenance plan with crack seals being performed every 3 years and chips seals every 7 years. The cost is based on an average cost per square yard. For the Counties, \$0.70 per square yard was used for crack seals and \$1.75 was used for chip seals. While the Cities cost per square yard were around 8.6% higher at \$0.76 for Crack Seals and \$1.90 for Chip Seals. Detailed calculations for each City and County are included in Appendix J.

Table 17. 20 Year Pavement Maintenance/Preservation Cost

MUNICIPALITY	Miles	Crack Seal		Single Chip Seal	
		20 year cost	average cost per year	20 year cost	average cost per year
Adams					
City (all combined)	78.00	\$ 7,280,000	\$ 364,000	\$ 8,023,000	\$ 401,150
County	649.43	\$ 42,262,000	\$ 2,113,100	\$ 65,074,000	\$ 3,253,700
Total	727.43	\$ 49,542,000	\$ 2,477,100	\$ 73,097,000	\$ 3,654,850
Grant					
City (all combined)	280.90	\$ 26,217,000	\$ 1,310,850	\$ 28,894,000	\$ 1,444,700
County	1395.45	\$101,367,000	\$ 5,068,350	\$154,515,000	\$ 7,725,750
Total	1676.35	\$127,584,000	\$ 6,379,200	\$183,409,000	\$ 9,170,450
Kittitas					
City (all combined)	102.26	\$ 9,544,000	\$ 477,200	\$ 10,518,000	\$ 525,900
County	493.15	\$ 31,666,000	\$ 1,583,300	\$ 48,479,000	\$ 2,423,950
Total	595.41	\$ 41,210,000	\$ 2,060,500	\$ 58,997,000	\$ 2,949,850
Lincoln					
City (all combined)	82.72	\$ 7,721,000	\$ 386,050	\$ 8,508,000	\$ 425,400
County	440.36	\$ 32,248,000	\$ 1,612,400	\$ 49,165,000	\$ 2,458,250
Total	523.08	\$ 39,969,000	\$ 1,998,450	\$ 57,673,000	\$ 2,883,650

Notes:

- City road widths assumes a 32 foot wide road.
- City road miles are taken 2005 WSDOT Revenue & Expenditures Summary.
- County road width and miles are actual amounts from the County Road Log.
- County road widths vary depending on actual road width
- Crack seal cost estimate assumes \$0.70 per sq.yd. for counties and \$0.76 for cities
- Chip seal cost estimate assumes \$1.75 per sq.yd. for counties and \$1.90 for cities
- Crack seal assumes a 3yr maintenance plan
- Chip seal assumes a 7yr maintenance plan

Also, based on the Table 4, the following Table 18 was prepared to calculate the cost to pave all of the existing gravel arterials so that they comply with the QUADCO design standard. It was assumed that the surface type of the roadway would be BST due to the fact that 90% of all paved county roads have a BST surface. Also an average roadway width of 26' was used. See Appendix L for the detailed engineers opinion of cost summary.

Table 18. Cost to Pave Current Gravel Arterials

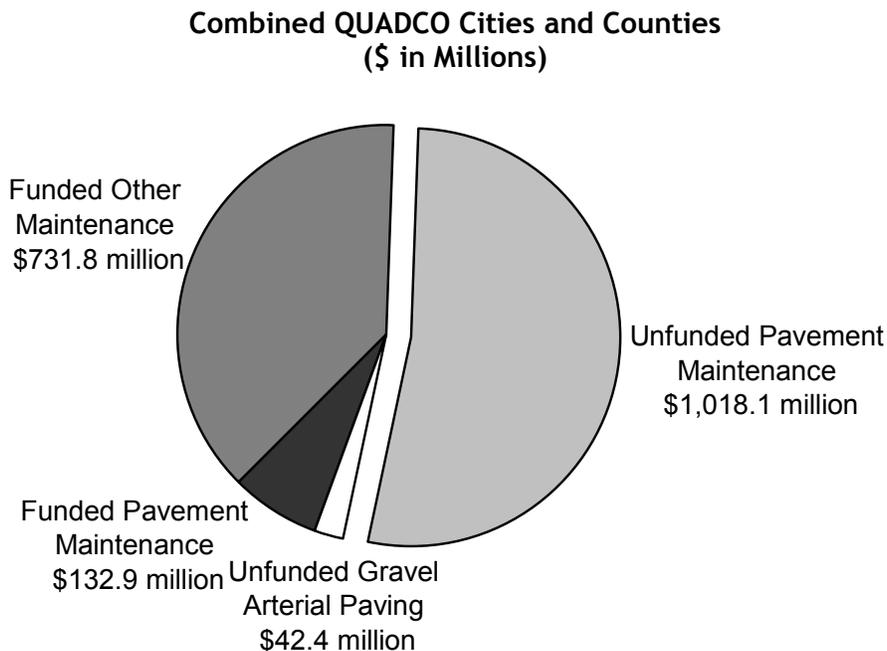
	County			
	Adams	Grant	Kittitas	Lincoln
Miles	123.36	86.47	4.06	280.25
Cost/Mile	\$ 52,629	\$ 52,629	\$ 52,629	\$ 52,629
Total	\$ 6,492,000	\$ 4,551,000	\$ 214,000	\$ 14,749,000

After review of the historic maintenance and preservation expenditures and future maintenance and preservation costs the pie charts shown in Figure 11 were developed to identify the 20 year funding needs for the QUADCO region. As a result, based on the 20 year revenue forecast by the WSDOT Financial Planning and Economic Analysis division, the QUADCO region is expected to receive \$864.7 million dollars in maintenance and preservation funds. Of those dollars \$132.9 million is proposed to be used to fund pavement maintenance projects through the CAPP and RAP programs while \$731.8 million is for other maintenance described at the beginning of this chapter.

Due to the large amount of road miles within each County, especially Grant County, the forecasted revenue for maintenance and preservation of the county roads is not enough to meet the needs of the region. As shown in the Figure, the QUADCO region will need an additional \$1,018.1 million dollars in funding in order to keep up with a routine maintenance and preservation program described above. Also, to be able to pave all of the gravel county arterials to a BST roadway surface, the region will need an additional \$42.4 million dollars. As a result the 20 year maintenance and preservation forecast for the region identifies that 55% (\$1,060.5 million) of the pavement maintenance projects for the region will be unfunded.

By comparison, the WTP calls for \$6.05 billion to preserve, maintain and operate City streets - statewide - as an Unfunded High Priority (pg. 72), while an unfunded medium priority identified on page 78 is for only \$41 million to preserve county roads and ferries. Clearly the funds called for by the WTP are grossly inadequate even if all of the \$41 million were spent on roadway within the QUADCO region.

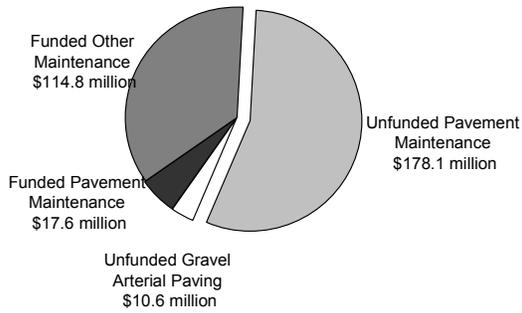
Figure 11. 20-Year Funding Needs for Maintenance and Preservation of City and County Roads



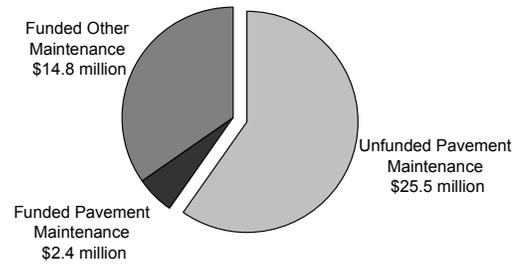
Source: WSDOT Financial Planning and Economic Analysis
County Road Administration Board.

Figure 11. (Continued)

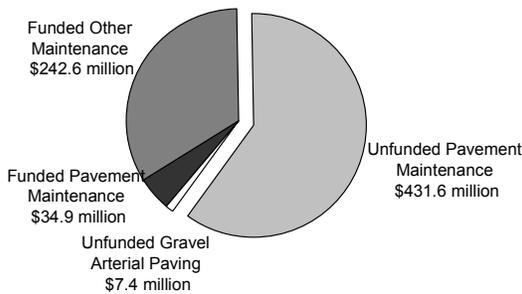
Adams County



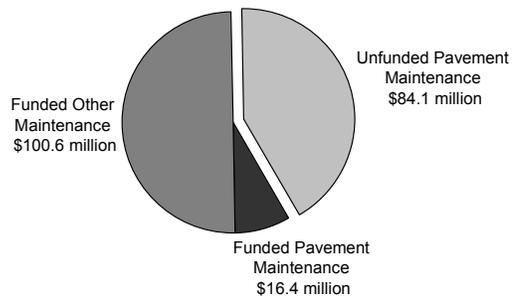
Adams County - Cities



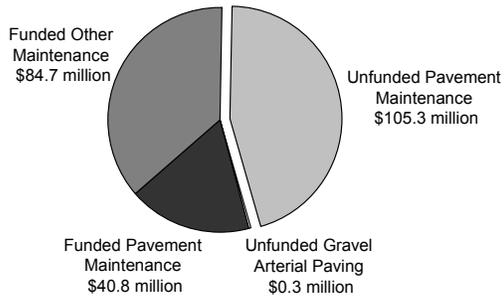
Grant County



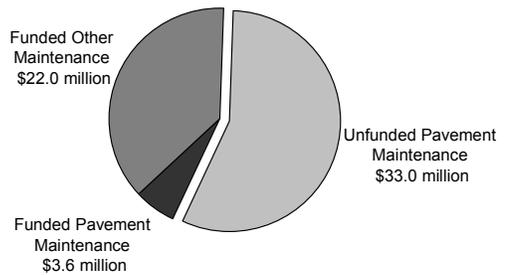
Grant County - Cities



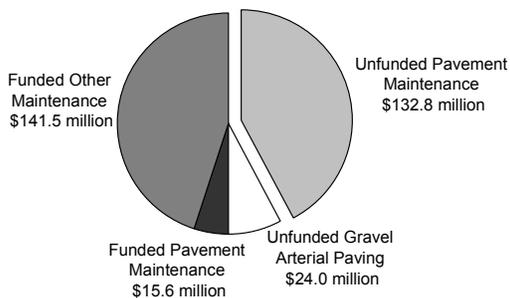
Kittitas County



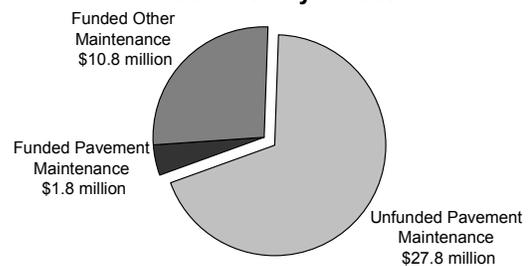
Kittitas County - Cities



Lincoln County



Lincoln County - Cities



Safety and Roadway Geometric Deficiencies

As identified in the Key Issues section above, safety is an important aspect of the transportation system. Table 19 is a summary of the accident rates on both county and state roadways. The average accident rate for rural state highway collectors is 1.57 per million vehicle miles of travel.

Table 19. QUADCO Accident Rates Summary

County Roads

	County				Total
	Adams	Grant	Kittitas	Lincoln	
Total Miles	1778.5	2526.8	561.56	1992.3	6859.1
Total VMT	234.71	1022.2	329.87	210.15	1797
Total Accidents (2002 - 2006)	348	1315	601	144	2408
Accidents/ MVMT	1.483	1.286	1.822	0.685	1.34

Interstate Highways

	County				Total
	Adams	Grant	Kittitas	Lincoln	
Total Miles	46.65	54.46	104.65	16.18	221.94
Total VMT	205.91	244.24	792.38	93.483	1336
Total Accidents (2002 - 2006)	327	507	2273	143	3250
Accidents/ MVMT	1.588	2.076	2.869	1.53	2.433

State Highways

	County				Total
	Adams	Grant	Kittitas	Lincoln	
Total Miles	200.69	310.68	89.98	275.73	877.08
Total VMT	180.48	359.52	89.141	117.84	746.97
Total Accidents (2002 - 2006)	608	1795	826	475	3704
Accidents/ MVMT	3.369	4.993	9.266	4.031	4.959

TOTAL State Highways

	County				Total
	Adams	Grant	Kittitas	Lincoln	
Total Miles	247.34	365.14	194.63	291.91	1099
Total VMT	386.38	603.76	881.52	211.32	2083
Total Accidents (2002 - 2006)	935	2302	3099	618	6954
Accidents/ MVMT	2.42	3.813	3.516	2.924	3.338

A way to improve the safety of the roadways is to make improvements in areas where safety and roadway deficiencies exist. Because of the topography of the region, many of the roadways have frequent horizontal and vertical alignment changes as they bend around the hills and follow rivers and streams through the valleys. Initial construction of these roadways was achieved without many cuts and fills to straighten alignments and improve sight distances. Also, travel lanes are often narrow and shoulders are sometimes non-existent, very narrow or in disrepair. Several intersections in the region have poor sight distances and adverse approach angles making it difficult for trucks to turn onto main highways safely.

Many accidents on rural highways could be preventable if roadways were built to current standards. If there is no shoulder along a roadway there is very little margin for error. Additional roadway width would allow drivers more time to take corrective measures. Table 20 identifies the current roadway design standard for the QUADCO region and compares each county's current road dimensions in order to determine the amount of deficient roads. As a result it was identified that most low volume county roads particularly in Lincoln and Adams County are graveled. Therefore they have a relatively high deficiency rating. Other deficiencies noted were based on roadway width and surface type. Table 21 identifies how many road miles are deficient in shoulder width and what the cost would be to improve the shoulders to the current standard. In conclusion, improvements made to the current deficient roads could assist in decreasing the number of accidents within the region.

Table 20. County Roadway Design Standard and Deficiencies

<u>Performance Measure</u>	<u>Design Standards</u>					
	<u>Principal Arterials</u>	<u>High Vol. Minor Arterials</u>	<u>Low Vol. Minor Arterials</u>	<u>High Vol. Collectors</u>	<u>Inter. Vol. Collectors</u>	<u>Low Vol. Collectors</u>
Peak Hour Volume	2,200	>400	<400	>200	<200	<40
ADT	22,000	>4000	<4000	>2000	<2000	<400
Rural Geometrics (1)	12/8/100	12/4/80	11/3/80	11/3/60	11/2/60	11/1/60
Urban Geometrics (1)	13/8/100	12/8/80	12/8/80	12/7/60	11/7/60	11/6/60
Thru Lane Width	12	12	11	11	11	11
Surface Type	BST/ACP	BST/ACP	BST/ACP	BST/ACP	BST/ACP	BST/ACP
Left Paved Shoulder	8	4	3	3	2	1
Right Paved Shoulder	8	4	3	3	2	1

(1) Lane Width/Shoulder Width/Right-of-Way

Table 20. (Continued)

<u>Performance Measure</u>	<u>Principal Arterials</u>	<u>High Vol. Minor Arterials</u>	<u>Low Vol. Minor Arterials</u>	<u>High Vol. Collectors</u>	<u>Inter. Vol Collectors</u>	<u>Low Vol. Collectors</u>
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Adams County

Total

total miles	-	-	3.25	59.97	1713.28	1776.50
miles of deficient rds	-	-	0.25	19.00	1408.54	1427.80
average def.	-	-	8%	32%	82%	80%

Grant County

Total

total miles	-	4.39	35.94	422.41	2064.06	2526.81
miles of deficient rds	-	1.28	5.28	112.22	1454.46	1573.23
average def.	-	29%	15%	27%	70%	62%

Kittitas County

Total

total miles	-	2.06	12.51	157.70	389.52	561.79
miles of deficient rds	-	1.02	0.00	62.42	270.85	334.29
average def.	-	50%	0%	40%	70%	60%

Lincoln County

Total

total miles	-	-	-	28.64	1963.62	1992.26
miles of deficient rds	-	-	-	9.47	1583.05	1592.52
average def.	-	-	-	33%	81%	80%

Table 21. Shoulder Improvement Costs

Adams County

Grant County

Deficient Width	Miles Deficient	Cost/0.10 Mile	Total Cost
2'	80.77	\$ 11,394	\$9,203,000
4'	201.44	\$ 17,954	\$36,167,000
6'	16.27	\$ 24,514	\$3,989,000
8'	0.03	\$ 31,051	\$ 9,000
10'	0.26	\$ 37,588	\$ 98,000
12'	0	\$ 44,147	\$ -
14'	0	\$ 55,550	\$ -
		TOTAL	\$49,466,000

Deficient Width	Miles Deficient	Cost/0.10 Mile	Total Cost
2'	271.79	\$ 11,394	\$30,968,000
4'	150.7	\$ 17,954	\$27,057,000
6'	10.5	\$ 24,514	\$2,574,000
8'	2.77	\$ 31,051	\$ 860,000
10'	0.6	\$ 37,588	\$ 226,000
12'	0.56	\$ 44,147	\$ 247,000
14'	0.09	\$ 55,550	\$ 50,000
		TOTAL	\$61,982,000

Table 21. (Continued)

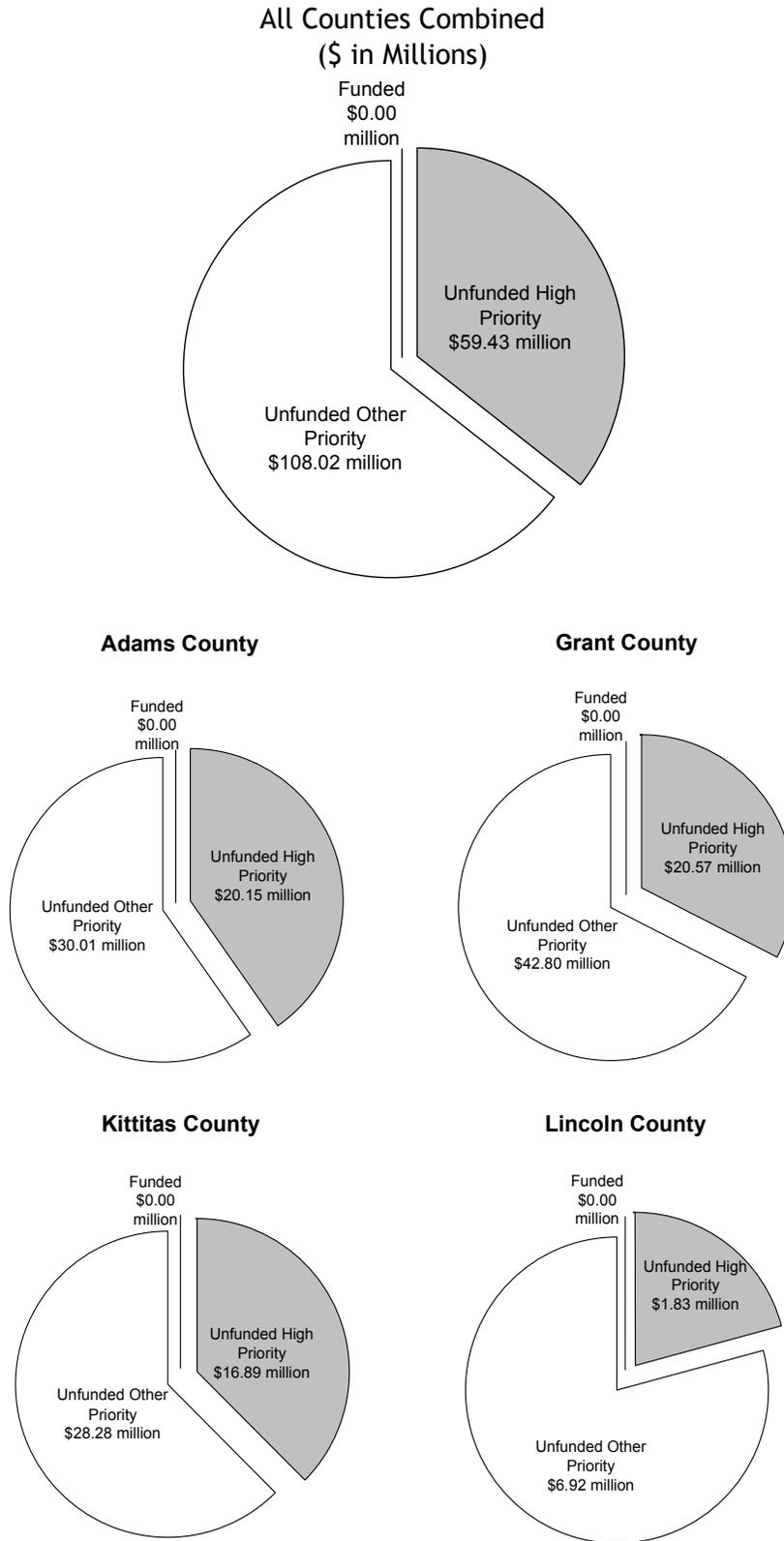
Kittitas County				Lincoln County			
Deficient Width	Miles Deficient	Cost/0.10 Mile	Total Cost	Deficient Width	Miles Deficient	Cost/0.10 Mile	Total Cost
2'	101.73	\$ 11,394	\$11,591,000	2'	28.65	\$ 11,394	\$3,264,000
4'	115.77	\$ 17,954	\$20,786,000	4'	11.95	\$ 17,954	\$2,146,000
6'	43.48	\$ 24,514	\$10,659,000	6'	9.65	\$ 24,514	\$2,366,000
8'	5.52	\$ 31,051	\$1,714,000	8'	0	\$ 31,051	\$ -
10'	0	\$ 37,588	\$ -	10'	0	\$ 37,588	\$ -
12'	0.09	\$ 44,147	\$ 40,000	12'	0.36	\$ 44,147	\$ 159,000
14'	0	\$ 55,550	\$ -	14'	0	\$ 55,550	\$ -
		TOTAL	\$44,790,000			TOTAL	\$7,935,000

More detailed examination was undertaken of accident data secured as part of this RTP update. County roadways with a higher accident rate than the county wide average accident rate were identified. Lists of these corridors in each county are included in Appendix M. Figure 12 identifies the 20 year funding minimum needs for safety improvements within the QUADCO region. The QUADCO region needs \$167.45 million dollars to improve the roadway safety for the county roads. As shown in the Figure, three separate improvement priorities are identified based on the accident rates for the roadways. Unfunded High Priority projects are those roadways which had an accident rate higher than the county average, while the unfunded other priority projects are those which require shoulder improvements.

The Unfunded High Priority projects include implementing low cost improvements such as signage, rumble strips and other safety devices to help increase driver awareness and safety. For the purposes of this study an estimate of \$2,000 per mile was used. Shoulder improvements include those listed above in Table 21 which would widen the shoulders of the existing deficient roadways to meet the regions current design standards. For the purposes of this study, shoulder improvements for roadways with an above average accident rate were identified as a High Priority project.

Of the safety projects, \$59.43 million is needed for High Priority areas while an additional \$108.02 million is needed to improve Other Priority areas. This compares to the Unfunded High Priority of \$200 million identified in the WTP (pg. 73) to improve rural two-lane county roads by implementing low-cost safety improvements.

Figure 12. Safety Improvement Costs



Financial Plan

Analysis of Funding Capabilities:

The responsibility for determining the application of funding for transportation projects (programming) in rural areas is significantly different from urban areas. In urban areas over population 50,000, a federally mandated regional Metropolitan Planning Organization performs the programming function. In rural areas there is no such federal mandate and individual state and local jurisdictions are required to program for their own specific projects.

Each jurisdiction in the region funds its projects through a variety of sources. Often the source of funding is determined by the type of the project. The various forms of funding mechanisms are described in Appendix N.

While some funding sources are directly allocated each year and thereby generally predictable, most sources, particularly those administered to WSDOT for state highways, have no direct allocation and must be “earned” or justified project-by-project on a state-wide or district-wide basis. These funds are available either by direct competition or through a prioritization method established by the administering jurisdiction. Consequently, development of funding capability forecasts for regional projects will be best focused on each participating jurisdiction’s six-year Transportation Improvement Program (TIP). The programming document required by WSDOT and the Federal Highway Administration shows how and where state and federal funds are to be spent.

Table 22 was prepared to show historic revenue sources for transportation expenditure levels for various project types by county and all cities combined in each county. Detailed information is included in Appendix O.

The top priority of the region is to maintain existing roadways, performing routine resurfacing and patching, snow removal, etc. as necessary. A relatively small amount of funding will be spent on major capital improvements such as roadway reconstruction or additions to the roadway network through widening of existing roads or new facilities.

The Regional Transportation Program is included as part of this Regional Transportation Plan by reference and is assembled each year by the QUADCO lead agency. For future updated of this plan, once 20 year needs have been identified for county roads, a more specific analysis of potential funding sources for the various projects should be performed.

Application of Future Funding to Needs:

There are clear distinctions in both the type of project necessary and the extent of work applied to each project. Typically, the vast majority of projects are limited to maintenance on both state and county roads. Those projects normally consist of patching, oiling or chip seal coating, and asphalt concrete overlays. Periodically for state routes, and more rarely on county roads, cold or hot mix resurfacing projects are done.

Further complicating funding issues are the varying sets of construction standards and regulations that apply to federal, state and local projects. As an example, while federal funding may be more readily available for state and county projects, the extensive list of

federal project standards and conditions tend to drive project cost significantly higher than state or locally funding work. As a result, the cost of any given project, regardless of priority, may range widely from as little as a few thousand dollars per mile to over one half million dollars per mile.

Expected Revenues

To program funds for projects, local jurisdictions and the RTPO must have an indication of expected revenues. This may be determined from experience or through written notice of a grant approval. Appendix O shows the 20 year projected transportation revenue forecast by jurisdiction. Assuming similar future federal apportionments, the estimated annual revenue for counties in QUADCO will remain the same for planning purposes.

Regional Project Recommendations

The projects submitted to the lead agency each year under this plan are deemed to be of importance to the QUADCO Region Regional Transportation Plan. See the Appendix P for the QUADCO Agencies Transportation Improvement Programs (TIP) (Appendix P is updated annually and retained on file with the Lead Agency annually. To request a current copy contact the Lead Agency).

The QUADCO RTPO has determined that each agency's TIPs when developed consistent with this plan will represent the members projects that have regional implications and will result in the best use of limited funds on projects of regional significance for the good of the region. Member agency's are encouraged to share their TIPs with adjacent member agency's so cross jurisdictional coordination and planning may occur within the QUADCO RTPO area. (As permitted Six Year TIPs may include additional projects for planning purposes even if funding is not being requested.)

This plan is a tool recommended to be used by those participating jurisdictions to assist them in developing 6 year TIPs that consider at a minimum the common regional transportation goals, policies and objectives that make up this regional planning effort. For cities and counties this recommendation should be viewed, as a positive option that recognizes their own needs as well as their neighbors and the region as a whole. The same perspective is true for WSDOT with additional consideration that state legislation requires incorporation of these recommendations into WSDOT plans for transportation improvements on state routes within the region.

The regional plan shall be implemented through mutual agreement of all members of the RTPO.

Identification of Alternative Solutions

It is recognized that some regionally prioritized needs will be difficult to program. In these cases consideration of alternative sources of funding or another means of meeting those needs must be found. Each unfunded project, by priority, should be carefully evaluated to identify any specific features that could be funded under special grants or programs and those sources should be pursued by both the responsible jurisdiction and the RTPO to obtain such available funding. These include the Enhancement, Statewide and Safety elements of the Surface Transportation Program of the federal Transportation Equity Act for the 21st Century (TEA 21).

A further alternative is to identify common project needs by type and work to promote the creation of a program element to address the specific need. An example of this alternative can be seen in the most recent development of the Rural Economic Diversification Support Program promoted by the RTPO, member counties and WSDOT to address the severe economic hardships brought on rural communities when essential freight routes are closed due to seasonal conditions.

All alternatives should be considered and the most viable should be vigorously pursued to the successful resolution of the need. Some alternatives may not appear to meet the apparent need but should be evaluated until its application is shown to be inapplicable.

Table 22. Forecasted 20-year Funding by County and Source

Funding Type	Adams County	Adams Cities	Grant County	Grant Cities
Property Tax	27,451,874	4,172,601	144,203,822	18,054,672
State Motor Fuel Tax	122,227,164	5,760,614	188,240,168	27,225,713
Federal Revenues	36,782,106	336,784	30,686,422	3,145,121
Base Total	186,461,144	10,269,998	363,130,412	48,425,506
General Fund				
Appropriations	7,478,754	10,381,870	2,306,118	41,172,286
Other Local Receipts	3,317,544	11,756,314	7,962,206	64,632,594
Other State Funds	14,395,370	4,941,698	22,860,542	31,559,872
Total Estimate	211,652,812	37,349,880	396,259,278	185,790,258

Funding Type	Kittitas County	Kittitas Cities	Lincoln County	Lincoln Cities
Property Tax	72,210,581	2,536,977	27,578,323	2,466,095
State Motor Fuel Tax	60,970,768	13,946,882	121,626,676	3,697,724
Federal Revenues	24,319,257	807,125	30,827,717	34,754,651
Base Total	157,500,606	17,290,984	180,032,717	40,918,470
General Fund				
Appropriations	3,540,172	25,873,144	6,806,976	9,811,102
Other Local Receipts	19,136,980	17,817,184	6,930,200	881,614
Other State Funds	17,306,970	15,703,252	13,273,728	13,473,076
Total Estimate	197,484,728	76,684,564	207,043,621	65,084,262

Forecasts of Revenue are based on historical revenues spent on transportation expenditures during the period 1996 - 2006. Data provided by WSDOT.

See Appendix O for more detailed information

Regional Implementation Priorities

In the QUADCO region each jurisdiction is responsible for identifying, planning, programming and constructing any transportation projects within the scope of their responsibility. The RTPO has no specific authority to fund or direct transportation improvements. The involvement of each jurisdiction in the RTPO (with the exception of WSDOT) is voluntary and consequently the results of the regional planning process necessarily takes the form of recommendations for consideration in each jurisdiction's overall program responsibilities.

Consequently, this plan is a tool to be used by those participating jurisdictions to assist them in programming efforts. For cities and counties these recommendations should be viewed as positive options that recognize both their own needs as well as their neighbors and the region as a whole. The same perspective is true for WSDOT with the additional consideration that state legislation requires the incorporation of these recommendations in WSDOT plans for transportation improvements on state routes within the region.

The regional plan shall only be implemented through mutual agreement among all members of the RTPO. Implementation of the Regional Plan following its adoption will consist of the following elements:

(The strategies provided here have been developed based on issues identified in Goals, Policies, and Objectives Section and the need to develop common or similar standards for regionally significant coordination. They are intended to be used to facilitate an agencies 6-year TIP project selection.)

- **Improve transportation system safety (Safety).** Select projects, which improve safety characteristics such as increasing sight distance, improving curve radii, and improving rail crossings have a qualitatively higher rating than those that do not. Moreover, it is important that projects, which do not necessarily improve safety, do not compromise the safety of the transportation system otherwise.
- **Implement projects with the highest investment value (Investment Value).** Any project should be economically viable. Funding should be readily available during the life of Plan. The project should meet the criteria specified for the funding source and should be as competitive as possible with similar projects elsewhere. The project should offer a viable solution to a recognized problem and do so in a cost-effective manner.
- **Ensure system continuity (System Continuity).** The Quad County regional transportation system is linked to the transportation systems of adjacent jurisdictions and any project that facilitates that linkage provides value to both this region and the statewide system as a whole. System continuity is a characteristic, which ensures that access between facilities and areas is maximized, and that the capacities, conditions and other attributes of each planned element are considered.
- **Eliminate deficiencies that reduce system efficiency (System Efficiency).** Projects that increase capacity or otherwise increase the ability of persons and goods to move unhindered and without delay are examples of system efficiency.
- **Provide multimodal solutions to transportation problems (Multimodal Solutions).** This includes projects which utilize more than one mode or which provide more opportunities to choose between modes.

Appendix A

QUADCO RTPO BOARD MEMBERS

Appendix B

DETAILED AIRPORT RUNWAY DATA

Appendix C

CITY OF MOSES LAKE AND ELLENSBURG TRAIL SYSTEM PLANS

Appendix D

PRIORITIZED LIST OF TRANSIT PROJECTS

Appendix E

TRANSCO INFORMATIONAL BROCHURE

Appendix F

SUCCESSFUL GRAIN TRAIN PROGRAM ADDS A THIRD TRAIN

Appendix G

EASTERN WASHINGTON GRAIN-HAULING SHORT-LINE RAILROAD, EXECUTIVE SUMMARY

Appendix H

RAILROAD MAINLINE TRAIN COUNTS AND CAPACITIES

Appendix I

WSDOT WTP SUMMARY MATERIALS

Appendix J

PAVEMENT MAINTENANCE/PRESERVATION DETAILED FORECAST FOR CITIES AND COUNTIES

Appendix K

DETAILED ENGINEERS OPINION OF PROBABLE COST TO ADD SHOULDERS TO MEET DESIGN STANDARDS

Appendix L

DETAILED ENGINEERS OPINION OF PROBABLE COST TO CONSTRUCT BST ROADWAY OVER EXISTING GRAVEL ROAD

Appendix M

HIGH PRIORITY SAFETY CORRIDORS

Appendix N

FUNDING MECHANISMS

Appendix O

DETAILED HISTORIC EXPENDITURES AND REVENUE FORECASTS

Appendix P

QUADCO AGENCY TRANSPORTATION IMPROVEMENT PROGRAMS

(UPDATED ANNUALLY AND BOUND SEPARATELY)