

Eastern Washington Intermodal Transportation Study Scope of Work

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for

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Eastern Washington

Intermodal Transportation Study Area



AT A GLANCE

Eastern Washington Intermodal Transportation Study Scope of Work

■ Element 1.0

Project Organization

- ✓ Prepare detailed work plan
- ✓ Steering Committee review of work plan
- ✓ Establish Advisory Committee members
- ✓ Convene meeting to review project scope
- ✓ Finalize work program
- ✓ Implement interim reporting and review process
- ✓ Implement public involvement process

■ Element 2.0

Forecast Service Needs

- ✓ Prepare base maps
- ✓ Document eastern WA freight movements
- ✓ Forecast transportation needs of key industries
- ✓ Profile selected intercity passenger travel needs
- ✓ Forecast need for expanded community transit

■ Element 3.0

Evaluation of System Capacity

- ✓ Determine current intermodal infrastructure
- ✓ Profile competitive trade-offs among modes
- ✓ Assess competition between freight and people
- ✓ Assess complementary relationships between people and freight
- ✓ Identify funding and management challenges

■ Element 4.0

Pinpoint System Improvement Options

- ✓ Identify corridors of special policy interest
- ✓ Identify alternatives for corridor improvements
- ✓ Assess the impact on economic competitiveness and mobility
- ✓ Conduct sensitivity analysis for selected policies
- ✓ Recommend public policy alternatives

I. Overview of the Scoping Document

This document presents a detailed Scope of Work to guide implementation of the Eastern Washington Intermodal Transportation Study. Included is a description of project management and staff responsibilities, a detailed work plan and timetable for implementation.

The proposed work plan is organized around four broad project objectives:

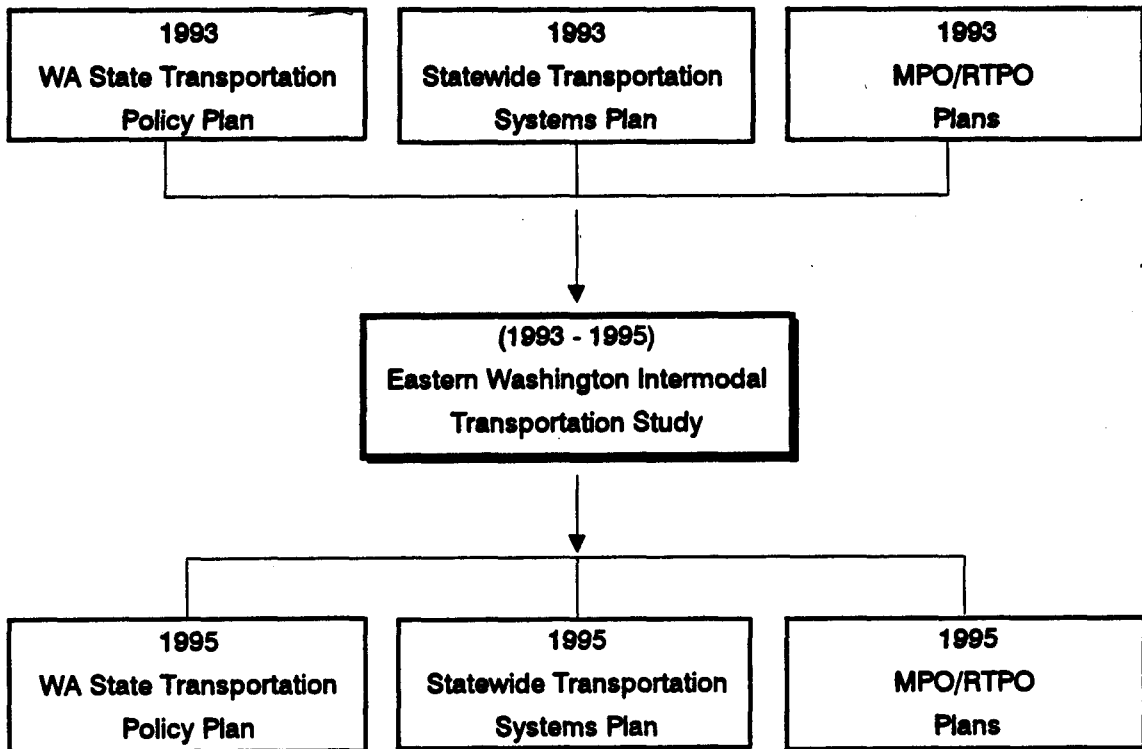
- Ensure the project addresses both regional and statewide transportation planning priorities (including interstate and international issues where appropriate).
- Forecast eastern Washington freight and passenger transportation service needs over the next 30 years.
- Evaluate the capacity of the current multimodal and intermodal infrastructure to meet projected needs.
- Pinpoint transportation system improvement options critical to economic competitiveness and future mobility in eastern Washington.

A detailed three-year work plan for accomplishing each of these four objectives is outlined on the following pages. Completion of the proposed tasks will result in an extensive transportation data base for eastern Washington. This data base will be utilized in assessing a wide range of transportation policy questions of importance to WSDOT, the Washington State Legislature, MPOs, RTPOs, transit providers, public ports, local governments as well as private transportation and business interests.

As illustrated by the chart appearing on the following page, the Eastern Washington Intermodal Transportation Study will draw on information currently being developed by state and regional transportation activities. Careful attention will be given to ensure that this study will produce information and data helpful to the development of future state and regional transportation policies and plans.

This document represents an initial draft for review by key WSDOT policy officials as well as a wide range of eastern Washington transportation interest groups. Revisions to the final Scope of Work will be made as appropriate.

Coordination with State and Regional Transportation Plans



The Eastern Washington Intermodal Transportation Study will draw on information currently being developed by state and regional transportation activities. The Intermodal Study will produce information helpful to the development of future state/regional transportation plans.

II. Project Management and Staffing

The structure for project management and staffing of the Eastern Washington Intermodal Transportation Study is depicted on page 5. This structure is designed to establish project guidance from top WSDOT policy makers at both the regional and statewide level. At the same time the structure provides the opportunity for broad involvement of public and private sector transportation users and providers.

Steering Committee

The Steering Committee will provide overall direction and make policy decisions pertaining to the design and implementation of the project. This committee will include Jerry Lenzi (DA, District 6); Richard Larson (DA, District 5); Don Senn (DA, District 2) and Charles Howard (Planning Manager, WSDOT). Jerry Lenzi will serve as chair of the Steering Committee. Norm McKibben will serve as an ex officio Steering Committee member representing the Washington State Transportation Commission. The Steering Committee will provide up front guidance to ensure the project meets both regional and state-level planning needs of the Washington Department of Transportation.

Advisory Committee

An Advisory Committee representing eastern Washington transportation interest groups will be formed as a part of this project. Likely Advisory Committee members include: representatives from the Washington State Department of Transportation, Legislative Transportation Committee, Washington State Department of Trade and Economic Development, Regional Transportation Planning Organizations, Metropolitan Planning Organizations, key economic development agencies, Port Districts, cities, counties and providers of freight and transit services. This committee will ensure the project is sensitive to the specific needs and issues facing transportation interest groups in eastern Washington. The committee will review major work products as they are developed and make recommendations to the Steering Committee. An initial task of the Advisory Committee will be to assist the Steering Committee and Project Director in defining the final work program for the Eastern Washington Intermodal Transportation Study.

Project Director

Dr. Ken Casavant, Professor of Agricultural Economics, will be responsible for day-to-day direction and guidance of the project. This will include facilitating timely preparation of all work products; developing management

recommendations for review by the Steering Committee; hiring and oversight of all project personnel including contractors; and communicating with WSDOT officials, eastern Washington transportation interest groups and other individuals as appropriate.

Project Associate

A full-time associate will be hired to assist the Project Director in completing work products in a timely and quality fashion. The associate will be experienced in managing large scale research projects and professionally qualified to assist with all aspects of the work program. In addition to the full-time project associate, graduate students will be available to assist in completing work program tasks when their use is appropriate.

Research Assistance

In addition to the full-time project associate, a number of research assistants will be available to assist in completing work program tasks when their use is appropriate. Potential research assistants include both graduate students and other qualified professionals.

Contractor Assistance

Some work tasks will best be completed by public and nonprofit organizations currently working within eastern Washington. Others may require the specialized expertise of private individuals and firms. The Project Director will issue and manage subcontracts as appropriate for successful completion of the project.

Project Management and Staffing

Steering Committee

Mr. Jerry Lenzi, Chair
Mr. Richard Larson
Mr. Don Senn
Mr. Charles Howard
Mr. Norm McKibben, Ex Officio

Advisory Committee

Includes broad-based representation from both users and providers of transportation in eastern Washington

Project Director

Dr. Ken Casavant

Project Associate

Dedicated full-time position

Contractor Assistance

As needed for successful completion of project

Research Assistance

Graduate students and other qualified individuals as needed

III. Work Plan

■ Element 1.0: Project Organization

Objective: *Ensure the project addresses both regional and statewide transportation planning priorities (including interstate and international issues as appropriate)*

PROJECT ORGANIZATION SUMMARY OF MAJOR TASKS	
✓ Task 1.1	Prepare detailed work program
✓ Task 1.2	Steering Committee review of work plan
✓ Task 1.3	Establish Advisory Committee
✓ Task 1.4	Convene meeting to review project scope
✓ Task 1.5	Finalize work program
✓ Task 1.6	Implement public involvement process
✓ Task 1.7	Implement public involvement process

Task 1.1 *Prepare detailed work program*

This document represents the first of six organizational tasks recommended for the project. Specifically, this document details work tasks, research products and procedures for accomplishing stated project objectives. The work plan provides a starting point for discussion and will be refined through tasks that follow in later phases of the project organization element.

Task 1.2 *Steering Committee review of work plan*

The Project Director shall submit a recommended work plan for review and comment by the Steering Committee. The purpose of this initial review is to ensure that the proposed work plan addresses both regional and state-level

transportation planning priorities as perceived by the Washington State Department of Transportation. Following comments by the Steering Committee, the Project Director will negotiate and implement any necessary modifications to the work plan prior to further public review.

Task 1.3 Establish Advisory Committee

An early organizational task is to identify and invite individuals to serve on the Advisory Committee. In consultation with District Administrators from each of the three participating WSDOT regions, the Project Director will establish an appropriate project Advisory Committee. Organizations likely to be represented on the committee include: the Washington State Department of Transportation, Legislative Transportation Committee, Washington State Department of Trade and Economic Development, Regional Transportation Planning Organizations, Metropolitan Planning Organizations, key economic development agencies, Port Districts, cities, counties and providers of freight and transit services.

Task 1.4 Convene meeting to review project scope

A meeting bringing together Steering Committee members, Advisory Committee members and project personnel will be convened at an early stage of the project's organization. All meeting participants will receive a written copy of the draft work plan at least two weeks prior to the kick-off meeting. The primary purpose of this meeting is to ensure a mutual understanding of the proposed work tasks, project approach and anticipated research products. Input will be sought on ways the work plan could be modified to better meet the research information needs of eastern Washington's diverse transportation interest groups. An additional focus will be discussing opportunities to coordinate with ongoing and planned eastern Washington transportation research projects. Examples include: local planning projects sponsored by MPOs and RTPOs; WSDOT studies such as the State Policy Plan, State Systems Plan and High Speed Ground Transportation Study; Trade Association studies such as the Washington Public Port and Transportation Systems Study or Washington Wheat Commission grain transportation project; and special projects sponsored by the Legislative Transportation Committee.

Task 1.5 Finalize work program

After evaluating comments and input obtained from participants at the project review meeting, the Project Director will prepare a final program of work for the Eastern Washington Intermodal Transportation Study. The work plan will be modified, as appropriate, to accommodate research information needs of local transportation interest groups. However, it is recognized that some eastern Washington transportation research needs may not be addressed within the

practical boundaries of this project. Consequently, final judgment for the project's scope of work will rest with the Project Director in consultation with the Steering Committee.

Task 1.6 *Implement interim reporting and review process*

Interim reporting and review of work products will be an ongoing project task. The Project Director will develop an appropriate reporting and review process in consultation with the Steering Committee and Advisory Committee. Regularly scheduled meetings of the Steering Committee are anticipated. Advisory Committee meetings will likely be scheduled to coincide with completion of major work products and the beginning of new tasks. An important goal of each meeting will be to ensure coordination with ongoing eastern Washington transportation projects at the local level as well as with major statewide transportation studies.

Task 1.7 *Implement public involvement process*

A systematic public involvement process will be established and systematically carried out over the course of the project. This process will utilize periodic mailings, and if appropriate conferences/workshops, to keep the public informed and to solicit additional input on project activities. Contacts developed through preparation of the State Transportation Policy Plan will be utilized to create an initial mailing list for the public involvement phase of this project. The initial mailing list will be broadened to include additional individuals who express interest over the course of the project.

■ Element 2.0: Forecast Service Needs

Objective: *Forecast eastern Washington freight and passenger transportation service needs over the next 30 years*

FORECAST SERVICE NEEDS SUMMARY OF MAJOR TASKS

- ✓ Task 2.1 Prepare base maps
- ✓ Task 2.2 Document eastern Washington freight movements
- ✓ Task 2.3 Forecast transportation needs of key industries
- ✓ Task 2.4 Profile selected intercity passenger travel needs
- ✓ Task 2.5 Forecast need for expanded community transit

Task 2.1 Prepare base maps depicting primary freight and passenger generators for the eastern Washington region and individual counties

Base maps depicting primary freight and passenger generators will be an important visual reference for analysis and discussion throughout the course of the project. The following subtasks are intended to develop initial maps as a starting point for depicting major freight and passenger corridors based upon information available at the present time. The maps provide a foundation document that will be revised and updated over the course of the project as better information becomes available.

Subtask 2.11 Prepare preliminary county maps

County maps will depict the following information:

- primary intercity passenger routes
- intercity bus routes
- primary intercity truck routes
- haul roads (as defined by the WA. State Cost Responsibility Study)
- rail lines
- airports
- barge connections
- unit train centers
- major grain elevators
- defined RTPO transportation routes

To the extent possible, critical transportation routes outlined on county maps will be further described by measures of current use. Examples of relevant measures are traffic counts by vehicle type, weight/volume of commodities transported and level of service. Recent changes in use due to the opening of a major facility or abandonment of an area rail line will be identified and documented. Seasonal variations in freight and passenger movements will also be noted.

The first step in preparing draft maps will be assembling highway maps and planning information currently available from MPOs, RTPOs, county transportation planners and WSDOT district offices. For larger counties served by an MPO as well as in several rural counties, information necessary for preparing county level base maps is readily available. However, it is anticipated that this information will be less accessible for many of the smaller eastern Washington counties.

While limited in scope, several recent statewide studies provide documentation of major freight routes in eastern Washington counties. The State Rail Plan provides maps of all Washington rail corridors and documents the current use of each rail line. The Washington Public Ports and Transportation Systems Study initially identifies major truck routes and the Washington Cost Responsibility Study highlights haul roads in each county. Information on passenger movements is generally less available. While traffic counts are available for many state roads, very little is known about the movement of traffic on many county roads.

As a starting point for preparing base maps in counties with limited planning information, the project team will prepare preliminary maps utilizing secondary data available from statewide studies and personal interviews of individuals knowledgeable about the local transportation system. Maps will be prepared

using either a GIS or CADD system format as appropriate. These preliminary maps will be further refined by activities in Subtask 2.12.

Subtask 2.12 Refine county level maps and planning data

Assistance from eastern Washington RTPs and MPOs will be sought to further refine and upgrade transportation planning data in counties where information is currently limited. Specifically, the project will hire regional transportation planners to refine available data through personal interviews of area transportation interest groups including county and local government representatives, port managers, regional transit providers, emergency service managers, area economic development organizations, major shippers and industry representatives (agriculture, timber, manufacturing, etc.).

Preliminary county-level GIS/CADD maps will be modified to reflect new information gained through local interviews. It is anticipated that the accuracy of planning data will be further improved over the course of the project as rural RTPs become better established. For example, many RTPs will likely undertake detailed county-level traffic counts to more accurately document current freight and passenger movements. Preliminary base maps prepared for this project will be updated as additional information becomes available.

Subtask 2.13 Prepare regional-level map of critical corridors

County-level GIS/CADD maps will be aggregated to depict major freight and passenger corridors for the eastern Washington region. This map will be compared with transportation routes outlined in previous statewide studies noted under Subtask 2.11. Any differences will be explained and reconciled prior to further review.

The map of regional freight and passenger corridors along with county-level maps will be presented for review by the project Advisory Committee. Final alterations to the base maps will be made as appropriate. The revised base maps will be submitted to the Steering Committee as the first work product.

Task 2.2 Document freight movements on eastern Washington highways, rails, waterways and air corridors

The second major task of the service needs assessment is to document the origin and destination of commodities moved on eastern Washington freight corridors. Knowledge of specific commodity transportation routes is essential for effective transportation planning. For example, this data is needed for ongoing planning of the National Highway System (NHS). While general commodity flow data is available for trucks, barge traffic and rails, the data is not

detailed enough to accurately depict specific routes within eastern Washington. Information on the origin and destination of commodities shipped by air freight is even more limited.

Subtask 2.21 Conduct detailed origin and destination study for commodities shipped by truck

The greatest level of effort for Task 2.2 will be devoted to developing information on the origin and destination of commodities shipped by truck on eastern Washington highways. This emphasis recognizes the growing importance of highway freight travel and the relative complexity in predicting major routes.

Only limited data is presently available for commodities shipped by truck in eastern Washington. The primary source of published truck data is the Tran-Search data base maintained by Reebie and Associates. This data base contains commodity movements for 750 different commodities by seven modes including (truck, rail and barge) for 183 Business Economic Areas nationwide. While data is available to accurately depict commodity movements between regions, it does not provide a level of detail to forecast specific routes traveled.

This subtask will implement a systematic process to document the origin and destination of commodities shipped on selected eastern Washington truck routes. A comprehensive survey of all major truck routes in eastern Washington is beyond the scope of resources available for this project. Consequently, systematic criteria will be developed to narrow the list of potential truck routes to a number manageable under this study. Examples of possible criteria used in selecting highway segments for study include truck counts, volumes transported, and the importance of the route in accessing key trade centers or intermodal facilities. Base maps and planning information collected during Task 2.1 will be utilized in identifying final routes for study.

To the extent possible, origin and destination surveys will be carried out at weigh stations and border crossings. This provides the least disruption to traffic and simplifies the process. If necessary, the WSDOT and the Washington State Patrol will be requested to assist in setting up road side interview stations. If setting up special interview stations becomes necessary, it is likely that passenger vehicles will also be stopped and surveyed (Subtask 2.43).

Origin and destination interviews will include at a minimum: vehicle type, weight/volume and type of commodity transported, place of origin, and place of destination. After collecting necessary data, a complete origin and destination matrix will be developed depicting specific commodity flows by route. Special attention will be given to origins and destinations which represent connections to eastern Washington intermodal facilities.

Subtask 2.22 Refine commodity origin and destination information available for rail, barge and air freight

Rail and Barge:

The ICC waybill sample described as the Tran-Search data base under Subtask 2.21 represents the best commodity flow information available for eastern Washington rail and barge traffic. Additional data is available from industry trade publications such as "The Great Waterway" or the "Weekly Railroad Traffic Report". This data has been refined somewhat and provided in greater detail for eastern Washington as summarized in the 1991 Rail Plan and 1991 Public Port Study.

The problem of predicting routes associated with specific commodity movement by rail or barge is less difficult than for trucks simply because there are less alternatives. However, detailed origin and destination information for commodities traveling by rail to and from specific locations in eastern Washington is not available.

Published commodity flow data for rail and barge traffic will be supplemented by personal interviews at major shipping points in eastern Washington. Eastern Washington Ports and major truck/rail intermodal centers will be the primary targets for interviews. Origin and destination for trucks developed during Subtask 2.21 will be useful in identifying important truck/rail intermodal centers.

Surveys will be similar to information collected from truckers during Subtask 2.21. However, interviews will also collect additional information on market and industry trends associated with transporting specific commodities. This information necessary for Task 2.3 will be collected simultaneously with origin and destination information to avoid repeat interviews.

Air Freight:

Air freight is an increasingly important component of eastern Washington's freight transportation system. In particular, air freight is used for the transport of perishable agricultural products and plays a key role in transporting small packages and just-in-time delivery for regional manufacturers and retailers.

The role of eastern Washington airport facilities as a center for intermodal freight connections is also expanding. Yakima airport is now an international port of entry. The largest customers for the new port of entry are not air freight but rather international shipments trucked to Yakima from marine facilities in the Puget Sound. Yakima airport is also in the process of applying for Foreign Trade Zone status providing incentive for new industries assembling components produced in foreign countries. Moses Lake is considering a similar

port of entry and Foreign Trade Zone program. The Yakima and proposed Moses Lake facilities both have potential to become major intermodal centers serving rail, truck and air.

An evaluation of commodity flows through eastern Washington airports may also include Sea-Tac, Boeing Field and Portland International. These airports are critical connectors for most eastern Washington airports.

The project team will conduct interviews with airport managers at all major eastern Washington airports as well as larger airports that provide international and national connections. The content of the interviews will be similar to questions asked to rail and barge connection managers.

Subtask 2.23 Profile eastern Washington commodity flows by major freight corridors and modes of transport

Origin and destination information developed from previous subtasks will be profiled in a written summary. Examples of planning information expected from the origin and destination task include:

- Specific commodities that dominate freight travel in eastern Washington
- Principal destinations of commodities produced in eastern Washington
- Primary modes and routes used to transport commodities to their destination
- Origins of major eastern Washington commodities
- Differences in modal choice and routes depending on origin
- Origin of freight imported into eastern Washington
- Primary modes and routes used to import freight into the region
- Major intermodal connections and their relative importance

The summary report represents the final work product for Task 2.2.

Task 2.3 Forecast transportation needs of key eastern Washington industries

Origin and destination studies provide a snapshot picture of commodity flows at a specific moment in time. Forecasting commodity flows into the future requires much more detailed information including expected market shifts, degree of flexibility between alternative modes of transport, impact of new freight movement technologies, rate structures of competitive transport modes and impact of new environmental policies. It is not feasible to collect this extensive information for all commodities that move on eastern Washington freight

corridors. The task proposed here will, however, develop an extensive freight transportation data base for a selected group of key eastern Washington industries. This information will be utilized in projecting future commodity flows and associated transportation service needs for each selected industry.

Subtask 2.31 Establish criteria and identify key industries

An essential task will be to develop appropriate criteria and select key industries for detailed study. Examples of possible criteria include: economic impact within the eastern Washington economy, dependence of the industry on the regional transportation system, degree of presence within eastern Washington, possible increase in freight movements due to North American Free Trade Agreement and future market potential for products produced by the industry. Examples of potential key industries include:

- Grain products
- Fresh fruits and vegetables
- Frozen and processed foods
- Hazardous materials
- Logs
- Wood chips
- Lumber
- Aluminum
- Paper products
- Mined products
- Chemical products
- Manufactured electronics
- Solid waste

This list represents a reasonable starting point for discussion and is not intended to reflect all key industries located in eastern Washington. Success in completing Task 2.3 will require reducing the list of potential key industries to a manageable number for in-depth research. Results from the eastern Washington freight origin and destination study will provide useful input into the process of selecting key industries as will input from the Policy and Advisory Committees.

Subtask 2.32 Develop transportation data base for key industries

After selecting a manageable number of key industries for further study, a detailed transportation data base will be developed for each industry selected. The data base will be developed from a variety of sources including origin and destination data collected as a part of Task 2.2, published trade data, past studies and personal interviews with shippers, firms and industry experts.

Examples of potential information to be included in the data base are:

- **Geographic location of industry freight generators (storage facilities, production facilities, retail outlets, etc.).**
- **Geographic location of major suppliers**
- **Current product markets**
- **Economic contribution of commodities**
- **Market changes expected in the future**
- **Projected industry growth**
- **Critical environmental issues**
- **Primary modes and routes of transport by major industry freight generators**
- **Potential for flexibility among modes of transport**
- **Cost competition between alternative modes if available**
- **Current use of intermodal facilities**
- **Transportation changes likely to result from local rail abandonment or reduced access to barge transport during certain seasons (if applicable)**
- **Current transportation constraints (e.g. shortage of rail cars, damaged highways, congestion in key locations, poor access to intermodal facilities)**
- **Importance of passenger links for transport of workers, customers and personnel**

Subtask 2.33 Profile both current and projected transportation service needs for key industries

The transportation data base developed in Subtask 2.32 will be utilized in preparing a profile of transportation service needs for each key industry. Examples of information potentially to be included in the profile are:

- **Expected growth for commodities shipped to major markets.**
- **Principle transportation modes and routes most likely used to deliver products to markets from major eastern Washington facilities.**
- **Essential transportation routes and modes used to deliver key production inputs or inventories supporting the industries' operation.**
- **Relative importance of passenger transportation links such as transit or highway access for workers and airports for travel by customers, management and sales people.**

- Likely transportation impact of future market changes (e.g. increased trade with Canada and international markets, reduced supply of raw logs from western Washington and Oregon forests, reduced U.S. market share for major agricultural products, growing demand for value-added agricultural and natural resource products).
- Truck routes and haul roads most impacted by potential rail abandonment or reduced river access.
- Use of intermodal facilities and their importance in future industry competitiveness.
- Expected commodity movement impact of new transportation technologies (longer combination vehicles, on-the-shelf warehousing, double-stack trains and just-in-time inventory).

Individual and customized profiles will be prepared for each key industry selected for detail study. The specific content of each profile will likely vary depending upon issues most important to selected industries.

Task 2.4 Profile selected eastern Washington intercity passenger travel needs

This task will profile selected intercity passenger transportation needs in eastern Washington by focusing on representative case studies. Case studies will be selected to be representative key eastern Washington passenger transportation routes of special concern to policy-makers and planners. Examples include:

- Long distance intercity passenger corridors (e.g. I-90, SR 395)
- Routes used by Canadian shoppers
- Routes used by regional commuters (e.g. feeder routes from suburban and rural communities to Spokane)
- Highways leading to major tourism destinations (e.g. SR 2, SR 97)

County level planning information assembled during Task 2.1 along with input from the Policy and Advisory Committees will be utilized in the specific intercity passenger routes for case study.

Subtask 2.41 Document origin and destination of passenger vehicles traveling on selected highway segments

A systematic process for conducting roadside interviews of passenger vehicles traveling on selected highway segments will be established. The approach recommended parallels the origin and destination study described for commodity movements (Task 2.2). Well-utilized rest stops and Canadian ports of entry will be considered for interview sites when appropriate. It is anticipated that most roadside interviews will require assistance of WSDOT and the Washington State Patrol to establish roadside interview stations. As previously indicated, special roadside interview stations may possibly collect information for both truck and passenger traffic.

The roadside interviews will collect information possibly including:

- Vehicle type (car, light truck, F.V., truck, van, semi)
- Number of occupants
- Origin
- Destination
- Most recent trip
- Purpose of trip (recreation, work, shop, eat, go home, school, personal, delivery , pick-up)

After collecting necessary data, a complete origin and destination matrix will be developed depicting specific passenger traffic flows by route and trip purpose for each selected highway segment.

Air and passenger rail modes may also be considered for some case studies (e.g. long distance intercity travel). If appropriate, passenger car origin and destination studies will be supplemented by personal interviews of major air carriers and Amtrak station managers. The purpose of these supplementary interviews will be to develop information on air and rail travel between cities of interest in selected case studies. Present Amtrak activities by the state of Washington will be included.

Subtask 2.42 Profile both current and projected passenger transportation service needs for selected case studies

Information developed through Task 2.41 will be utilized in developing a profile of both current and projected passenger transportation service needs in the context of case studies of interest to policy-makers and planners. Examples of potential issues that could be addressed through detailed case studies include:

- Major generators and destinations of long-distance passenger travelers utilizing eastern Washington highways.

- Projected impact of expanded Canadian trade for major highway segments in northeast Washington.
- Routes most likely to be impacted due to tourism growth in eastern Washington.
- Implications of suburban and rural residential growth for highways leading to major eastern Washington employment and service centers.

Task 2.5 Forecast the need for expanded community transit systems in eastern Washington

At the present time, eastern Washington has only four regional and three city transit systems. Four additional eastern Washington counties (Kittitas, Yakima, Grant and Stevens) are considering formation of regional systems. However, the vast majority of eastern Washington is served by private non-profit community transit systems or no transit at all. Task 2.5 provides an analysis of the need for expanded transit in eastern Washington. Work completed under this task is intended to supplement and not duplicate transit planning projects supported by eastern Washington MPOs and RTPOs.

Subtask 2.51 Assess desired level of transit service in selected counties

Several eastern Washington counties will be selected for detailed assessment of transit needs. Counties selected for detailed study will be representative of the diverse service levels presently available within eastern Washington. Potential categories for case studies are:

- An isolated rural county not currently served by any major transit provider (e.g. Adams).
- An isolated rural county currently served by a major rural transit provider and new PTBA (e.g. Stevens served by Rural Resources and Borderline Stage).
- A metropolitan county where only a portion of the county is served by the metropolitan transit system (e.g. Benton, Spokane).

These detailed studies will be designed to complement and enhance ongoing transit planning by eastern Washington RTPOs and MPOs. Specifically, the project will include focus group interviews of potential transit users and area providers (business leaders, county and city officials, health care providers,

senior organizations, schools, churches, emergency services, port managers, economic development committees, farm organizations, etc.). Potential issues to be discussed during focus group interviews include:

- Areas of county where service is most needed.
- Probable riders (commuters, seniors, people with disabilities, shoppers).
- Destinations desired by potential users.
- Frequency of service desired.
- Type of service that would encourage use (door-to-door, fixed route, regularly scheduled service, on-demand service).
- Extent of use that can realistically be expected.

In addition to focus group interviews, the analysis will include compilation of land use and commuting data available from county planning offices, transportation offices and Census data. Particular attention will be paid to growing residential centers, demographic shifts such as low income families moving away from urban employment/service centers to surrounding rural areas and pockets of senior citizens or individuals without cars. Data collected through Subtask 2.51 will be developed into county-level case studies for use by local and state-level transportation planners.

Subtask 2.52 Identify areas of eastern Washington currently served by a transit system and the level of service provided

This subtask will inventory current geographic coverage for transit service in eastern Washington and level of service offered. Examples of community transit providers that currently serve rural regions of eastern Washington are: the Whitman County Council on Aging in Whitman, Asotin and Garfield Counties; LINK in Chelan and Douglas Counties; People to People serving a multi-county region out of Yakima and Rural Resources serving the Tri-County Region north of Spokane. Also Spokane Transit and Benton-Franklin Transit serve a portion of the rural population in their respective regions. In addition, there are a number of smaller transit providers serving specialized functions such as elderly and handicapped transport.

WSDOT is currently undertaking an inventory of all existing transit systems serving the state of Washington. This information will be important input to determining which communities of eastern Washington are currently served by transit systems. While much of eastern Washington has access to some type of a transit service, the level of service available is often minimal, even in areas

served by a major provider. To gain a better understanding of the transit service available to eastern Washington residents, personal interviews of community transit providers and selected users will be conducted throughout eastern Washington.

Information gained through this subtask will be utilized to develop a profile of eastern Washington counties currently served by transit providers and the level of service available in each area. This work product will provide an assessment of current gaps in the eastern Washington community transit system.

■ Element 3.0: Evaluation of System Capacity

Objective: *Evaluate the capacity of the current multimodal and intermodal system to meet projected service needs*

Evaluation of System Capacity Summary of Major Tasks

- ✓ Task 3.1 Determine current intermodal infrastructure
- ✓ Task 3.2 Profile competitive trade-offs among modes
- ✓ Task 3.3 Assess any competition between freight and people
- ✓ Task 3.4 Assess any complementary relationships between people and freight
- ✓ Task 3.5 Identify funding and management challenges

Task 3.1 Determine current strengths and weaknesses of eastern Washington's intermodal infrastructure

Intermodal connections are increasingly important for efficient movement of commodities and people within eastern Washington. Examples of critical intermodal connections include:

- Truck and rail connections to inland waterways
- Truck connections to unit train centers
- Rail to truck connections for piggy-back and container cargo
- Inland waterways connecting truck and rail via barge to ocean ports
- Airport connectivity to highways and rail
- Intermodal transit centers

It is anticipated that the previous analysis (Element 2.0) will provide substantial insights into intermodal transportation needs of eastern Washington shippers and travelers. Task 3.1 will build upon previous research tasks to identify infrastructure service needs and assess implications for the efficient intermodal movement of commodities and people within eastern Washington.

Subtask 3.11 Identify and evaluate critical eastern Washington intermodal connections

The base maps prepared under Task 2.1 will provide preliminary information on the location of key intermodal facilities and associated highways, rail lines and waterways. This subtask will begin with an update of initial base maps including more detailed information on existing intermodal infrastructure when appropriate. Previous industry interviews conducted in Task 2.3 will likely provide a great deal of information on existing infrastructure systems. However, any information gaps will be filled in by additional personal interviews of regional planners and other knowledgeable individuals.

The second focus for this subtask will be a detailed performance assessment of critical eastern Washington intermodal connections. The first step of the process will be establishing appropriate criteria and selecting specific intermodal facilities for study. Examples of possible criteria include volume shipped from the facility, potential for market expansion, economic importance of commodities shipped and presence of unique facilities (e.g. refrigerated cargo transfer at the Port of Pasco or Foreign Trade Zones in Yakima and Moses Lake). This subtask will review critical intermodal passenger facilities such as Wenatchee and Spokane. Base maps and origin and destination data developed through Element 2.0 will be utilized in identifying potential facilities for detailed study.

The assessment conducted under this subtask will include both an examination of selected intermodal facilities and the capacity of key modal routes used in reaching facilities. The work product will include projections of future use of each intermodal facility and likely infrastructure investments that will be needed to support efficient flow of commodities and/or people to their final destinations.

Subtask 3.12 Identify missing links in eastern Washington's current intermodal system

Subtask 3.12 will identify missing links in eastern Washington's intermodal system. Missing links are defined broadly to include both nonexistent infrastructure and inadequate infrastructure hampering system capacity due to problems such as congestion or shipping delays. Examples include:

- Highway segments that do not meet service objectives defined by the Statewide Transportation Systems Plan
- Locations with persistent shortage of rail cars or container facilities
- Inadequate access roads to ports, airports or other intermodal facilities
- Abandoned rail segments (e.g. Stampede Pass, regional railroads)

- Inadequate storage facilities dock or rail-side
- Undependable access to navigable waterways
- Congestion at SeaTac airport reducing eastern Washington air access

Industry and shipper interviews conducted in Task 2.3 will be utilized in developing a preliminary list of missing links to eastern Washington's intermodal network. Additional input will be sought from regional WSDOT offices, RTPPO and MPO managers as well as Advisory Committee members to further develop the list of missing intermodal links. The critical missing links will be displayed visually on base maps and described in a written summary.

Subtask 3.13 Assess economic benefits of completing missing intermodal links and the cost of potential alternatives

From the list of missing links identified under Subtask 3.12, several will be selected for detailed analysis. The analysis conducted under this subtask will assess economic benefits of completing missing links selected for detailed study. Generalized costs of completing missing links will also be estimated and compared against potential benefits.

In some cases there may be lower cost alternatives compared to completing the missing link. For example, alternatives to completing a deficient or missing roadway segment could include reload or transshipment facilities, altered locations of storage facilities or rail/waterway improvements that would bypass the deficient road section. Generalized costs will be estimated for reasonable alternatives when they exist.

Task 3.2 Profile competitive trade-offs among modes and the implications for future freight movements within eastern Washington

While efficient transportation systems are built upon interdependent modal applications, they are also shaped by competition between modes. The development of an efficient eastern Washington transportation system involves making choices between alternative modes. An important eastern Washington example is choosing between preserving rail or improving highway access to major waterway grain transshipment points. A second example is choosing between expanded highway infrastructure in the Puget Sound and improving air or high speed rail access between SeaTac and eastern Washington (presumably making some business locations in eastern Washington more feasible alternatives). These choices are even more complex due to the

interdependence between public and private transportation policy decisions. This task evaluates the competitive trade-offs among transportation modes providing a foundation for making intermodal policy choices.

Subtask 3.21 Evaluate and compare cost structure for freight movement by truck, rail and barge in eastern Washington

Industry and shipper interviews conducted under Task 2.3 will provide documentation of current freight charges and cost structure for truck, rail and barge traffic in eastern Washington. Information gathered during this earlier task will be supplemented with published data sources and additional interviews of knowledgeable experts as necessary. Utilizing the refined data base, a matrix of cost by mode for representative origins and destinations will be developed. The potential impact of cost structure on transportation decisions will be illustrated through representative scenarios. Representative scenarios will be chosen based on origin and destination and key industry studies completed under Element 2.0. For example, one scenario may be the movement of grain from Davenport to Portland, Oregon. The cost of transporting grain using several alternative routes and modes would be compared. The sensitivity of transportation choices to changes in relative cost would be illustrated by varying the cost of one modal choice while keeping the cost of other modes constant. The specific freight movement scenarios developed for Subtask 3.21 may be revisited to illustrate the impact of private and public policy choices under Subtask 3.23.

Subtask 3.22 Analyze the importance of maintaining multi-modal competition for freight rates charged to eastern Washington shippers

Many eastern Washington shippers have access to several alternative transportation modes or combination of modes. Even though one mode or combination typically dominates shipments from a given site, the option of several shipping choices is generally considered by shippers as important for maintaining competitive local freight rates. For example, the loss of local rail service could potentially result in higher truck/barge rates from a given site because shippers have less alternatives. On the other hand, the loss of local rail service could stimulate competitive development of alternative shipping scenarios (such as a new unit train center in a nearby community) resulting in even lower shipping costs.

This subtask will analyze the likely impact of reduced modal choices on shipping rates charged at the local level. The analysis will include case studies of several sites that have been impacted by loss of a local rail line or reduced barge service.

Subtask 3.23 Assess private and public policies that impact the economic competitiveness of alternative transportation modes

Intermodal transportation choices involve a complex combination of public and private policies. While highways are constructed and maintained by the public, the trucks that travel highways are private. However, public policies such as restrictions on long combination vehicles, weight limits, fees and fines each affect the competitive position of truck transportation relative to other modes. The rail industry within the state of Washington is predominantly privately owned and operated. However, in several cases public ports have stepped in to preserve key rail lines (e.g. Port of Pend Oreille). Waterways and navigation locks are managed by the federal government, while barge owners are private. Environmental issues such as the Endangered Species Act, National Ambient Air Quality Standards Act, Clean Air Act of Washington, wetlands preservation and selection of hazardous waste sites each have the potential to impact intermodal competition.

This subtask will examine selected private and public policies and their impact on competitiveness among modes. Examples of policies that potentially may be considered are:

- Preservation of critical rail links within eastern Washington
- Permitting longer combination vehicles on Washington interstates
- Modal funding issues
- Just-in-time inventory
- On-the-shelf warehousing
- Double stacked trains
- Canadian Free Trade Agreement
- North American Free Trade Agreement
- Endangered Species Act
- Protection of critical scenic areas
- Environmental concerns

Public and private policies such as these will be examined to determine their potential impact on intermodal competitiveness and to the extent possible freight rates. If appropriate, representative scenarios developed under Subtask 3.21 will be utilized to illustrate the impact of key policy changes on shipping costs and routes. For example, the implications of permitting longer combination vehicles for shipment of grain from Davenport to Portland would be illustrated.

Task 3.3 Assess areas of competition between freight and people movement in eastern Washington

At times, the more efficient movement of freight may result in less efficient movement of people. This task examines elements of competition between freight and people movement in eastern Washington.

Subtask 3.31 Estimate the economic cost of freight shifts onto highways that result from abandonment of rail lines or closure of waterways

Partially due to rail line closures and public policy shifts, highways are receiving a larger share of freight transportation business in eastern Washington. The expectation of future rail line abandonment and the potential of reduced seasons for inland waterways suggests this trend will likely continue in the future. The shift of freight traffic from rails to highways can have a dramatic impact on passenger travel. Examples include increased traffic congestion at pressure points on the highway system, increased repair costs on vehicles which suffer from rougher roads, safety concerns and less optimal driving conditions. From the standpoint of the taxpayer, the shift of freight from rail to highways can mean increased costs due to the need to upgrade major truck routes or haul roads and higher road maintenance costs. Consequently, the true cost of freight rail loss in eastern Washington is larger than its direct impact on the freight sector.

This subtask will estimate the economic cost of increased freight travel on selected highways. Potential costs to be considered include:

- Increased repair costs for vehicle owners.
- Additional fuel costs if passenger routes are shifted to avoid heavy truck routes.
- The cost of highway upgrades and increased maintenance.
- Increased energy use on highways compared to alternative rail routes.

Subtask 3.32 Identify and evaluate highway segments with inadequate capacity to support future freight and passenger movement

There exists several major highway pressure points within eastern Washington where freight and passenger traffic is projected to significantly impact or exceed highway capacity within a 30 year time frame. Several important pressure points including SR 395 between the Tri-Cities and Ritzville and the Spokane North/South Freeway are currently being addressed. Additional pressure points include Canadian trade routes north of Spokane, SR 395 in the vicinity of the Tri-Cities and Walla Walla County, the Spokane viaduct (I-90) and the East Wenatchee Highway. Traffic corridors including I-90, I-82, I-182, SR 12, SR 26,

SR 2, SR 195, SR 17, SR 125, SR 20, SR 2, SR 97 and others all are anticipated to develop pressure points requiring significant improvements as a result of increased freight and passenger travel. Additional eastern Washington highway pressure points include state routes that pass through central business districts of smaller communities and also significant county roads.

This subtask will identify and evaluate critical highway pressure points. Origin and destination information as well as industry projections developed for Element 2.0 of this project will be utilized to identify likely pressure points. Potential alternatives for relieving pressure points will be evaluated for selected cases.

Subtask 3.33 Analyze potential conflicts between the movement of hazardous materials and safety within eastern Washington

Movement of hazardous materials becomes a potential safety hazard. The Hanford facility represents the largest hazardous materials generator within eastern Washington. In particular, nuclear waste shipments to eastern Washington from out-of-state sources may increase with development of facilities at the Hanford reservation. Many eastern Washington manufacturing processes generate hazardous by-products. For example, Northwest Alloy in Stevens County ships substantial hazardous by-products out of the area for further processing or disposal.

Special attention to eastern Washington hazardous material routes is important to maintaining safe passenger travel within the region. This subtask will identify major hazardous material routes within eastern Washington and evaluate alternatives to improve safety to the environment.

Subtask 3.34 Assess potential competition for funding between freight and passenger interests and identify implications for transportation planning

With the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), competition for funding between freight and passenger interests has increased. ISTEA encourages direct competition for federal funds among passenger and freight transportation interests. In particular, Surface Transportation Program (STP) block grant funding can have a variety of uses including transit capital programs. Under the ISTEA Prioritization and Programming Study (PAPS), shippers, such as local ports, will compete for funding of local access roads with transit authorities desiring additional buses and even preservationists wanting to restore an old railroad depot.

This subtask will inventory available public funding for both freight and passenger travel improvements. The analysis will identify areas of competition

as well as areas shared in common for funding of needed intermodal improvements within eastern Washington.

Task 3.4 Assess complementary relationships between freight and people movements

Efficient intermodal transportation systems build upon the complementary relationships between freight and passenger travel. This task investigates two specific elements of this complementary relationship.

Subtask 3.41 Investigate the role of commercial air service and ground passenger transportation for industrial location decisions in eastern Washington

A freight system alone is not enough to support the transportation needs of a new industry. The factory requires workers who must commute to work via the highway system. Increasingly, convenient access to air passenger travel is becoming a priority for industries locating in eastern Washington. Industries that do business nationally and internationally need commercial air service to transport executives, sales staff and customers.

This subtask will analyze the role commercial air service and ground passenger transportation play in eastern Washington industrial location decisions. The research may include interviews of firms that recently located within eastern Washington and, to the extent possible, firms that chose to locate elsewhere. Firms selected for interviews will be representative of differing levels of service throughout eastern Washington (e.g. Spokane area, Walla Walla, Colville).

Firms will be asked about the role local air and ground passenger transportation access (or lack of access) played in their final location decisions. For those that chose not to locate in eastern Washington, additional questions will focus on passenger transportation improvements (e.g. local transit, better commuter schedules, reduced traffic) that might have led to a decision to locate within eastern Washington.

Subtask 3.42 Assess economic advantages of intermodal facilities shared by passengers and freight

Transportation systems require substantial capital investment for development, enhancement and maintenance. Economies can be achieved by sharing facilities between passenger and freight. In the case of rail, passenger service would generally not be feasible without a strong freight component to the system. For some eastern Washington airports, it is the combination of small package freight and passenger service that supports feasible operation. One

without the other would suffer. Passenger vehicles benefit from user fees collected from trucking companies and the reverse is also true. Long distance tour boats traveling to Columbia and Snake River Ports utilize the same navigational locks as do freight barges.

This subtask will assess the economic advantages of intermodal facilities shared by both passengers and freight. In particular, the analysis will highlight facilities (e.g. airports, improved road segments, river tours, rail services) that would not be feasible without this interdependent use of common facilities.

Task 3.5 Identify potential funding and management challenges

Subtask 3.51 Evaluate Implications of Growth Management for transportation planning in eastern Washington

Transportation planning is a key element of Washington State's Growth Management Program. Consequently, this program has substantial implications for the future of eastern Washington's transportation system. In particular, Growth Management gives more responsibility to the local level for transportation planning. Like ISTEA (discussed under Subtask 3.33), Growth Management places emphasis on local consensus decision making including a broad spectrum of interest groups. Even those counties that do not accept the option of participating in Growth Management are impacted as they have been requested to join with Growth Management counties through Regional Transportation Planning Organizations.

For eastern Washington's metropolitan centers, local responsibility and participation in long range transportation planning is not new. However, for eastern Washington's rural counties, Growth Management raises the challenge of broad-based transportation planning for the first time. This subtask will examine in detail regional and state-level transportation policy challenges associated with implementation of Growth Management requirements. Issues likely to receive special attention include capacity for effective local planning in small rural counties, developing appropriate level of service criteria for smaller counties, managing conflict of goals among local interest groups and region-wide coordination for efficient system development.

Subtask 3.52 Identify potential barriers to funding necessary transportation improvements

Previous tasks completed under this project element will identify critical transportation improvement needs for eastern Washington. This final subtask will focus on potential barriers to funding necessary improvements.

Examples of potential barriers include:

Limited availability of funds: According to the State Transportation Policy Plan, likely future revenues will fall far short of transportation improvement needs. Public resistance to tax increases are likely to place limitations on opportunities to raise new revenues.

Constitutional limitations on use of state funds for private benefit: The ability of the state to provide direct financial assistance to private transportation providers is limited by the constitution. Consequently the state can only be a minimal partner in influencing private transportation policies that impact the future of the public system.

Sparse eastern Washington population base: The rural nature of eastern Washington creates special challenges in developing and funding critical system improvements. Dispersed ridership for potential transit systems, smaller population impacts, limited ability to raise local matching funds and the lack of adequate infrastructure for significant economic impact are examples of special rural challenges. Despite major needs, these challenges make it more difficult to justify transportation funding requests.

Unique structure of eastern Washington's nonprofit community transit groups: While limited in availability, federal and state funding for nonprofit transit programs has been flexible enough to allow development of an entrepreneurial group of nonprofit community transit providers. With growing competition for limited transit dollars, the future of funding for these organizations is uncertain. There exist numerous barriers to successful funding and managing of transit systems serving less densely populated rural areas. The advantages and disadvantages of forming county-wide (or multi-county) Public Transportation Benefit Areas should be assessed.

State funding for small airport improvements is limited: Small eastern Washington airports are unable to raise user fees at the same level as larger airports. State funding available for airport improvements is limited.

■ Element 4.0: Pinpoint System Improvement Options

Objective: Pinpoint transportation system improvement options critical to economic competitiveness and future mobility in eastern Washington

PINPOINT SYSTEM IMPROVEMENT OPTIONS SUMMARY OF MAJOR TASKS

- ✓ Task 4.1 Identify corridors of special policy interest
- ✓ Task 4.2 Identify alternatives for intermodal corridor improvements
- ✓ Task 4.3 Assess the impact on competitiveness and mobility
- ✓ Task 4.4 Conduct sensitivity analysis for selected policies
- ✓ Task 4.5 Recommend public policy alternatives

Task 4.1 Identify eastern Washington transportation corridors that are of special policy interest

The first work task for this final project element is to identify eastern Washington transportation corridors that are of special policy interest. The corridors selected will be the subject of further policy investigation during work tasks that follow. Examples of potential corridors include:

- Highway freight corridors
- Intermodal corridors serving eastern Washington's international grain shipments
- Canadian trade routes
- Regional commuting corridors
- Major inter-city passenger corridors
- Hazardous materials routes
- Important eastern Washington tourism corridors
- Corridors of Congressional significance

The specific corridors chosen for detailed case study will be identified in consultation with the Policy and Advisory Committees. Information developed over the course of the project will be utilized to describe intermodal competition, missing links, pressure points, types of vehicles using the corridor, projected growth in traffic counts and changing use of the corridors.

Task 4.2 Identify alternatives for potential corridor improvements

The next task will be to identify alternatives for potential corridor improvements. Appropriate alternatives will depend upon the issues and specific corridors under consideration. Examples of potential alternatives include:

- Upgrade an entire corridor from two-lane to four-lane
- Upgrade only a portion of the corridor to four-lane
- Develop or expand a community transit program
- Improve airport connections
- Improve intermodal river connections
- Achieve all-weather status for priority haul roads
- Preserve a critical low-density rail line
- Complete a missing highway segment
- Redirect an existing corridor to avoid a heavily populated area
- Relocate existing storage facilities
- Construction of reload or transshipment facilities
- Expanded capacity at Spokane and SeaTac airports
- Improve east/west rail link

These represent only a sample of potential alternatives that could be discussed for a given freight or passenger corridor section. Careful discussion will be required to reduce potential alternatives to a manageable number for more detailed study.

Task 4.3 Assess the impact of proposed system improvement alternatives on economic competitiveness and mobility within eastern Washington

After identifying alternatives, the next task will be assessing their impact on economic competitiveness and mobility. Once again, the specific measures of economic competitiveness and mobility most appropriate will vary depending upon the corridors and issues under consideration. However, examples of potential measures of impact include:

- Reduced transportation costs for key eastern Washington industries
- Improved mobility
- Creation of new market opportunities
- Economic benefits for remote rural communities
- Impact on regional economic growth
- Reduced congestion and time savings
- Improved safety
- Time savings

Based on measures such as these, the contribution of selected alternatives to economic competitiveness and mobility within eastern Washington can be compared and evaluated. Attention will be paid to specific eastern Washington industries and communities most likely to be impacted by selected system improvements. The evaluation may also consider potential positive impacts for western Washington associated with transportation improvements on the east side of the state (e.g. stronger statewide industries, improved linkages to eastern Washington suppliers and markets, reduced congestion, more efficient utilization of Puget Sound Ports).

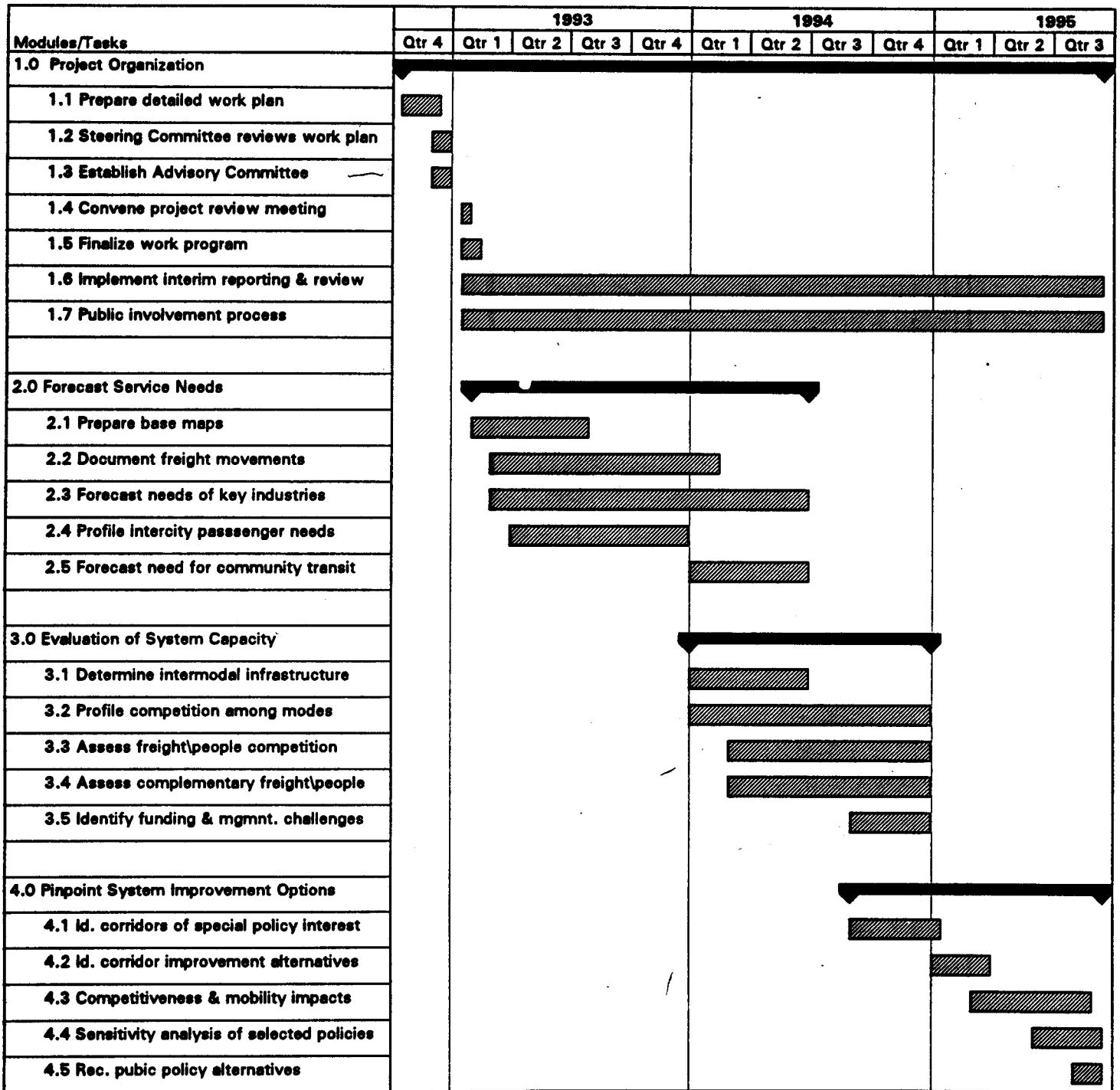
Task 4.4 Conduct sensitivity analysis for selected private and public transportation policies

The potential impact of eastern Washington transportation system improvements will depend partially on broader transportation policies established by government as well as private providers of transportation services. This task will evaluate the sensitivity of positive impacts identified under Task 4.3 to potential private and public transportation policy decisions. The purpose of this evaluation is to determine the extent potential benefits from system improvements would be enhanced or reduced by selected policies.

Task 4.5 Recommend public policy alternatives for improving economic competitiveness and mobility within eastern Washington

The final project task will draw from research results to identify critical public policy alternatives to improve future economic competitiveness and mobility within eastern Washington. These alternatives will be directed to the policy planning needs of WSDOT, the Washington State legislature as well as local MPOs, RTPOs, transit providers and Port Districts. Policy recommendations are likely to address a broad range of topics ranging from funding to management strategies to specific infrastructure improvements. These recommendations will represent the final work product of the Eastern Washington Intermodal Transportation Study. However, the data base developed over the course of the project will represent an important long-term resource for transportation policy research within eastern Washington and the state as a whole.

Timeline for Implementation



IV. Summary of Projects

The specific work tasks outlined by previous pages of this document are organized into twelve specific projects. Brief summaries of each project appear on pages 37 through 45. An approximate timeline for completing each project appears on page 46.

Project # 1: Develop county level and region-wide project base maps (Subtasks: 2.11, 2.12, 2.13)

Product: County-level maps and a region-wide map depicting major passenger and truck routes, haul roads defined by the Washington Cost Responsibility Study, rail lines, airports, barge connections, unit train centers and other major traffic generators. Region-wide maps will encompass all counties, RTPOs and MPOs located in WSDOT Districts 2, 5 and 6. To the extent possible, highway data reflected by base maps will include measures of use such as traffic counts by vehicle type, weight/volume of commodities transported and level of service classifications. The maps developed under this project will be developed in a GIS format to permit interactive analysis and map updates as future projects are completed.

Approach:

- 1) Inventory and assemble all relevant transportation planning data currently available for eastern Washington counties (local data as well as previous statewide studies).
- 2) Prepare preliminary county and regional-level maps using either a CADD or GIS system. Initial maps will be based upon transportation planning data currently available.
- 3) If necessary, refine preliminary CADD/GIS maps through personal interviews of selected planners, shippers and transportation providers with specific knowledge of local-level transportation flows.
- 4) Revise preliminary CADD/GIS maps with new information gained through personal interviews.
- 5) If appropriate, develop research strategies and guidelines to help smaller counties and RTPO's improve local transportation data. However, the research goals and available budget do not permit significant primary data collection for development of base maps.

Project # 2: Origin and Destination study of eastern Washington freight movements (Subtasks: 2.21, 2.22, 2.23)

Product: Detailed information on freight commodity flows moving through and within eastern Washington including dominant commodity types, principal origins and destinations, primary routes, and intermodal relationships.

Approach:

Truck Freight O & D Study

- 1) Establish objective criteria and select highway segments for detailed study. Examples of possible criteria include truck counts, volumes transported, and the importance of routes in accessing major trade centers and intermodal facilities.
- 2) Develop sampling and interview methodology for selected highway segments.
- 3) Implement interviews at truck stops and ports of entry when possible or special roadside interview stations when necessary.

Rail, Barge and Air Freight O & D Study

- 1) For each mode, determine gross freight flows by commodity and route using published TranSearch data base.
- 2) Refine published commodity flow data with a supplementary mail survey of eastern Washington shippers and follow-up personal interviews as necessary.

Development of O & D Matrix by Commodity, Mode and Primary Routes

The origin and destination information would be analyzed and summarized as described by Subtask 2.23 in the Scope of Work.

Project # 3: Model commodity flows for selected industries (Subtasks: 2.32, 2.33, 3.11, 3.21)

Product: A spatial equilibrium model predicting shifts in commodity transportation flows resulting from significant market demand shifts, technological change and/or alternative public policy decisions.

Approach: This section represents the largest project commitment including several major supply and demand side tasks described by the Scope of Work. Key elements of the research approach include:

- 1) Establish criteria and select a limited number of key industries for detailed study.
- 2) Conduct mail survey and follow-up personal interviews of major shippers within each key industry (described by Subtask 2.32).
- 3) Utilize data developed through the freight O & D study and detailed industry interviews to model both current and projected demand for transportation services for key industries (described by Subtask 2.33).
- 4) Determine current intermodal infrastructure facilities and routes (Subtask 3.11).
- 5) Develop detailed data base on cost structure for freight movement by alternative mode for selected origins and destinations (Subtask 3.21).
- 6) Develop an LP model describing commodity flows within eastern Washington. The objective function for the model would be to select the route and mode of transport which minimizes shipping costs subject to a infrastructure constraints and market constraints. Other subprojects will provide opportunities for refinement and specific applications of this model.

Project # 4: Analyze the impact of selected private and public policies on intermodal cost structure and competition (Subtasks: 3.22, 3.23)

Product: Cost parameters of the spatial equilibrium model developed by Project 3 will be defined by existing private and public transportation policies. Project 4 begins to introduce dynamic elements to the model by analyzing the impact of changing private/public policies on intermodal cost structure and indirectly, competitiveness.

Approach:

- 1) Develop private sector cost functions associated with transporting selected commodities between representative origins and destinations. Specific private sector cost functions should be developed for each mode (trucking, rail and water). The cost functions should be specified in appropriate form for econometric estimation and analysis.

2) Utilizing appropriate econometric techniques, estimate the impact of competition on transport costs for each of the major modes (Subtask 3.22). It is anticipated that most necessary data will be available from data collection phases in Project 3.

3) To the extent it is feasible within the available budget, confirm and refine econometric estimates with case studies of several sites that have been impacted by the loss of a local rail line or reduced barge service.

4) Identify policy variables likely to impact private sector transportation cost functions (examples identified under Subtask 3.23). Analyze the impact of public policy changes on private industry cost functions using previously developed econometric equations. This task may require additional data collection from transportation industry sources.

5) Utilize econometric results to refine spatial equilibrium model developed under project 3.

Project # 5: Determine linkage between transportation and economic development (Subtasks: 3.41, 3.42)

Product: A simple industrial/business location model to assess the relative importance of transportation for industrial/business location decisions. Transportation systems to be studied include transit, public transportation, freight systems (highway, rail, barge and air).

Approach:

1) Work with the Washington Department of Revenue to develop a list of new business and industry locations within the state of Washington.

2) Conduct a mail survey of newly located firms assessing factors that were most important to their choice of location (include transit, public transportation, and freight systems).

3) Develop and estimate a simple industrial/business location model to assess the relative importance of selected transportation systems for firm location decisions.

Project # 6: Public and private cost of freight shifts onto highways that result from abandonment of rail lines or closure of waterways (Subtask: 3.31)

Product: Quantitative estimate of public/private costs associated with freight shifts onto highways that result from abandonment of rail lines or closure of waterways.

Approach:

- 1) Develop conceptual framework for quantifying potential costs of freight shifts onto highways for rail or water (See Subtask 3.31).
- 2) Review existing engineering studies to develop an appropriate data base on both private and public costs associated with road deterioration, rerouting of trucks, increased congestion, etc.
- 3) Select case examples of potential rail abandonments or closure of waterways within the eastern Washington region.
- 4) Use commodity flow model developed under Project 3 to predict truck routes most likely to be impacted by selected closures or abandonments.
- 5) Quantify both public and private costs associated with selected closures or abandonments.

Project # 7: Evaluate eastern Washington hazardous materials routes (Subtask: 3.33)

Product: Documentation of major eastern Washington hazardous materials routes and potential improvements needed.

Approach:

- 1) Develop a listing of major hazardous materials sites or receivers within eastern Washington. Include out-of state sources that are currently or are considering shipping hazardous/nuclear waste into eastern Washington.
- 2) Conduct combination mail/personal interviews of operating personnel at hazardous materials sites. The content of interviews should focus on major origins and destinations of hazardous materials products, routes and modes of transport utilized, current problem areas and expected changes in the future.

3) Using base maps and planning data developed by earlier subprojects, identify pressure points where hazardous materials movements may potentially impact population centers and motoring public.

4) Develop recommendations for infrastructure improvements as appropriate.

Project # 8: Case studies for selected intercity passenger travel issues (Subtasks: 2.41, 2.42)

Product: Determine the extent selected intercity passenger transportation trends will impact future infrastructure needs in eastern Washington. Case studies will be selected to be representative of key eastern Washington transportation routes/issues of special policy concern.

Approach:

1) In consultation with the Policy and Advisory Committees, select specific routes/issues for case study. Examples of possibilities include: Routes used by Canadian shoppers; long-distance intercity passenger corridors (e.g. I-90, SR 395); routes used by regional commuters; highways leading to major tourism destinations. Available budget and degree of policy interest will determine the number of case studies selected.

2) Develop/Implement appropriate O & D sampling and interview methodology for each selected highway segment. The appropriate interview methodology will vary from case to case. For example, tourism route interviews could be conducted at major destination points. Well-utilized rest areas are possible interview stations for long-distance studies. Ports of entry can be utilized for Canadian shoppers, etc.

3) If appropriate for a given case study, conduct personal interviews at major eastern Washington airports and Amtrak stations to develop origin and destination information for passengers using air or train travel.

4) Utilize O & D information in an analysis appropriate for each selected case study. Examples of potential analytical goals are noted under Subtask 2.42 in the Scope of Work.

Project # 9: Develop options to improve transit service within eastern Washington (Subtasks: 2.51, 2.52)

Product: Qualitative estimates of expected transit service needs within eastern Washington and recommendations on how transit service can best be organized to meet future needs.

Approach:

- 1) Select up to three eastern Washington counties representative of diverse transit service levels presently available within eastern Washington. Conduct focus group interviews within each selected county to assess both local transit issues and expected demand for future service (Subtask 2.51).
- 2) Review WSDOT inventory of eastern Washington transit providers. Identify major gaps in geographic coverage and different service arrangements (public, private, mix of public and private, fixed-route, demand systems, brokerage functions, etc.).
- 3) Conduct mail survey and follow-up personal interviews with eastern Washington transit providers. Interviews are intended to assess major issues important to the future of eastern Washington transit including: funding, competition with highway interests, demand problems, intermodal connections, appropriate service arrangements and so forth.
- 4) Develop potential options to improve transit service within eastern Washington.

Project #10: Benefit/Cost analysis for selected infrastructure improvements (Subtasks: 3.12, 3.13, 3.32)

Product: Quantitative comparison of economic benefits and costs associated with selected infrastructure improvements.

Approach:

- 1) Identify specific infrastructure improvement projects for detailed case studies. Options include building new infrastructure such as Wawawai Road or enhancing existing infrastructure such as building an all-weather highway segment or rerouting a highway to avoid a congested area. More examples of potential cases are listed under Subtask 3.12 and Subtask 3.32 in the Scope of

Work. The number of case studies considered under this subproject will likely be determined by the available budget and the extent of policy interest in potential cases

2) Develop appropriate framework and methodology for cost-benefit analysis. To the extent possible, benefits assessed for each case should include: reduced transportation costs, creation of new market opportunities, impact on regional economic growth and potential benefits (jobs, income, local taxes, etc.) for remote rural communities. Both private and public costs should be estimated and compared against benefits.

3) Collect necessary data and carry-out benefit/cost analysis for each selected case.

Project # 11: Identify critical funding and management challenges (Subtasks: 3.34, 3.51, 3.52)

Product: Documentation of critical funding and management challenges important to the future development of eastern Washington's transportation system and potential solutions.

Approach:

1) Refine list of potential funding and management challenges identified by Subtasks 3.34, 3.51 and 3.52 in the Scope of Work.

2) Develop a structured interview format addressing key eastern Washington transportation funding and management issues.

3) Conduct focus group interviews using a structured format. Focus groups should include representatives from RTPOs/MPOs, shippers, providers of transportation services, local government officials and other knowledgeable individuals.

4) Utilize results from focus group interviews to document critical funding and management challenges. Assess implications for eastern Washington's transportation system and potential solutions.

Project # 12: Conduct policy research to pinpoint system improvement options (Tasks: All tasks listed under Element 4.0.)

Product: Specific recommendations for eastern Washington system improvements with emphasis on public policy alternatives (Element 4.0 of the workplan).

Approach: The content and policy research approach to be utilized for this final subproject is difficult to predict in advance. In general, the topics of policy research will flow from previous subprojects. It is anticipated that the commodity flow model developed by Project 3 and enhanced by other subprojects will be utilized extensively in researching specific policy topics.

Project Summary

Proposed Projects	1993				1994				1995			
	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	
#1: Develop base maps	▨											
#2: O&D study for eastern Washington freight	▨											
#3: Commodity flow model for key industries	▨											
#4: Impact of policies on intermodal cost/competition					▨							
#5: Transportation & economic development linkages	◊				◊							
#6: Cost of freight shifts onto highways					▨							
#7: Evaluate eastern WA hazardous materials routes	▨											
#8: Case Studies for intercity passenger travel issues	▨											
#9: Develop options to improve transit services					▨							
#10: Benefit/Costs of infrastructure improvements					◊							
#11: Identify critical funding/management challenges						▨						
#12: Pinpoint system improvement options									▨			

Cesavant & Assoc.



Subcontracts



Ces w other faculty

