

Eastern Washington Intermodal Transportation Study Update

February 1994

Number 1

Background and Project Goals

Eastern Washington is served by an extensive highway, rail, air and water transportation system. Vital commerce and passenger mobility within the state of Washington depends upon the continued efficient operation of this network. The Eastern Washington Intermodal

Transportation Study (EWITS) is developing information to help shape the multimodal network necessary for the efficient movement of both freight and people into the next century.

EWITS is a six year study funded jointly by the Federal government and the Washington State Department of Transportation as part of the Intermodal Surface Transportation Efficiency Act of 1991. Dr. Kenneth Casavant of Washington State University is director of the study. The Gillis

Group, a private consulting firm based in eastern Washington, provides the WSU project team with research and management assistance. A state-level Steering Committee provides overall direction pertaining to the design and implementation of the project. The

Steering Committee includes Jerry Lenzi, Chair (WSDOT, District 6); Richard Larson (WSDOT, District 5); Don Senn (WSDOT, District 2), Charles Howard (WSDOT, Planning Manager) and Jay Weber (Douglas County Commissioner). Linda Tompkins represents the Washington State Transportation Commission on the Steering Committee. An Advisory Committee with representation from a broad range of transportation interest groups also provides guidance to the study. (See page 8.)



Ken Casavant and Bill Gillis discuss preliminary findings with representatives of the EWITS Steering Committee

Four broad objectives of the Eastern Washington Intermodal Transportation Study:

- *Facilitate existing regional and statewide transportation planning efforts.*
- *Forecast future freight and passenger transportation service needs for eastern Washington.*
- *Identify gaps in eastern Washington's current transportation infrastructure.*
- *Pinpoint transportation system improvement options critical to economic competitiveness and mobility within eastern Washington.*

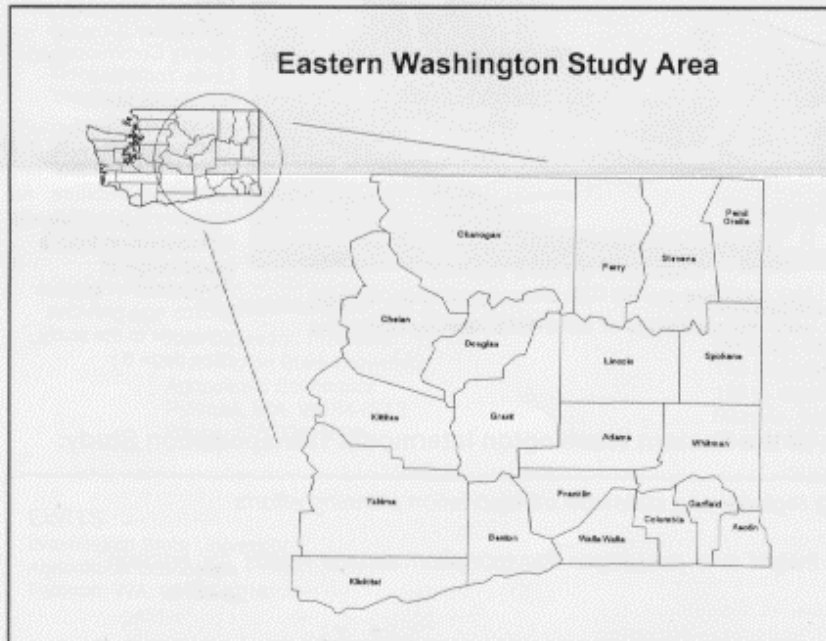
Overview of Key 1993/1994 Projects

Freight Origin and Destination Study

A detailed assessment of eastern Washington freight movements is underway. This task includes a detailed assessment of the origin and destination of freight moving on eastern Washington's highways, rail-lines and inland water ways. Attention is also given to key intermodal connections between highways, air, water and rail facilities. Supplemental funding provided to EWITS by the Washington State Department of Transportation enabled the study of truck freight movements to include the entire state. (See story beginning on page 3).

Farm To Market Transportation System

The EWITS research team has also begun a detailed analysis of eastern Washington's farm to market transportation system. Initial efforts are focused on grain movements within the region. Future efforts will include other eastern Washington farm commodities such as fruit and vegetables. Utilizing advanced computer aided technologies, the research team will identify key highways, rail facilities and waterway routes utilized to transport eastern Washington farm commodities to their ultimate markets. Implications of possible changes such as abandonment of rail lines and seasonal river closings will be analyzed. (See story beginning on page 6.)



Future EWITS Projects

The three projects described on this page will be completed within the next 12 months. Future EWITS projects include: impact of transportation policies on intermodal costs and competition; cost of freight shifts onto

Economic Linkages Study

The economic linkages study analyzes the importance of interstate highways, rail facilities, air service and other components of the transportation system to the location decisions of new business. Special attention is also given to the impact on the local economy of a state route that bypasses mainstreet. (See story on page 7.)

highways; case studies of intercity passenger travel issues; evaluation of eastern Washington hazardous material routes; options to improve eastern Washington transit service; benefit/cost analysis for selected infrastructure improvements; and program guidelines and policy options to address critical eastern Washington transportation needs. Details of these projects will be presented in future editions of the Eastern Washington Intermodal Transportation Study Update.

Freight Origin and Destination Study

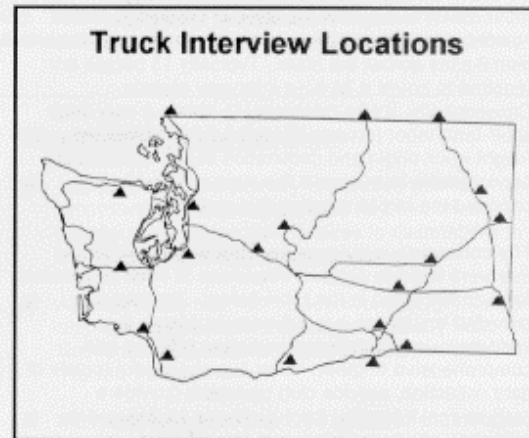
Goals and Benefits

The EWITS origin and destination study will pinpoint highway and related transportation improvements critical to the freight shipment needs of Washington's business and industry. Supplemental funding provided by the Washington State Department of Transportation enabled the study of truck freight movements to include the entire state.

The freight origin and destination study will benefit the state of Washington in complying with ISTEA planning requirements and contribute to the Washington State Transportation Policy Plan, Statewide Transportation Systems Plan as well as MPO/RTPO plans. The following are examples of specific contributions that will result from the study:

- *Documented information on freight movements to target limited resources towards infrastructure improvements most important to Washington's economy.*
- *A better understanding of the industries most reliant on Washington's highways. This information will be an important aid for predicting future infrastructure demands associated with both growing and declining industries.*
- *Improved pavement management systems resulting from more accurate information on specific routes utilized by freight carriers and the type of commodities hauled over those routes.*
- *Essential routes serving deep water ports, international airports and Canadian shippers to target infrastructure improvements towards projects that enhance Washington's international competitiveness.*
- *Improved efficiency of Washington's intermodal infrastructure systems resulting from delineation of essential highways linked to Washington's rail, air and barge intermodal centers.*
- *Information to better define needs on Washington's National Highway System.*

Project Approach



The primary focus of the freight origin and destination study is on truck movements along major Washington highways. As a part of this study, truck drivers are being interviewed at 30 different locations throughout the state of Washington including 21 Washington State Patrol Weigh Stations, 2 Canadian border locations and the Oregon Port of Entry at Umatilla. Special one-time interviews were also conducted at 4 Canadian border locations above Spokane and also along SR 195 near the Lewiston grade (see above map.) The interviews will be carried out four times over a one-year period to reflect seasonal differences in freight movements. The summer and fall interview rounds are already complete.

Cooperation from the Washington State Patrol Commercial Vehicle Enforcement Office and Customs Offices from both the United States and Canada is an essential ingredient to the success of this research effort. Officers at the designated locations flag trucks off the highways and conduct routine enforcement activities. Once stopped, truck drivers are asked to complete a brief two minute personal interview. Specific questions asked of each driver include information about the trucking company, vehicle weight, type of commodity being carried and the origin and destination of the vehicle.

A statistical sampling procedure is used to ensure accurate representation of statewide truck freight flows. A total of approximately 7,000 truck drivers are interviewed during each survey round.

Service Clubs Provide a Key to Success of the Truck Origin & Destination Study

To obtain an accurate seasonal profile of truck movements throughout the state of Washington, it is necessary to conduct interviews simultaneously at more than 6 sites across the state. Typically 15 people are required to cover a 24 hour interview session. Consequently, it was necessary to obtain a very large short-term labor force to successfully complete the freight truck origin and destination study. Community service clubs from across the state of Washington provided the key to meeting this challenge.

The community service clubs (primarily Lions Clubs) that were hired to conduct interviews at each designated location are listed in the table below. Training was provided to each club in advance to ensure the interviews were conducted in a safe, efficient and comprehensive manner. After two successful rounds of data collection, service club members provide a professional interview force available for future data collection efforts in March and May of 1994.

Club members generally work in interview teams of five. Several "survey crew" signs were provided by the WSDOT District 6 office for use in this project. The sign is placed just prior to the scalehouse (or border crossing) to inform drivers that an official survey is being conducted. After drivers complete required enforcement procedures, selected trucks are directed to an assigned interview area by service club members.

Overall cooperation and participation by truck drivers has been excellent. Statewide, 97 % of the truck drivers who were asked to participate agreed to an interview.



Lions Club member interviewing truck driver at the Plymouth Port of Entry

Analysis of Truck Freight Data Underway

Completed interview questionnaires collected from truck drivers throughout the state have been made available to the Gillis Group for data entry and detailed analysis. The data will be incorporated into a Geographic Information System to enable mapping of key commodity routes and other issues of importance to statewide and regional transportation planning. Preliminary results from the initial truck origin and destination survey are on page 5. A detailed report providing a summary of results from the summer round of truck interviews will be available early in 1994.

Data on Rail and Water Freight Flows Provide a Comprehensive Picture

While trucks are the primary focus of the EWITS freight origin and destination study, data on rail and water freight movements are also under development to provide a comprehensive picture of commercial shipping in the eastern Washington region. The Washington State University Agricultural Economics Department has developed an extensive rail and water freight data base from the ICC waybill sample and the Corps of Engineers Waterborne Commerce data. Additional data on air freight will be developed as appropriate. This data base will be utilized to provide a total picture of eastern Washington freight movements on all modes of transportation. Special attention will be given to key intermodal connections that support commerce in the state of Washington. The information will also be used to assess the effects of potential drawdowns along the Snake River waterway system.

Service Clubs Conducting Interviews

Club Name	Interview Location
Goldendale Lions Club	Goldendale
Harborview Lions Club	Douglas Port of Entry
Kalama Lions Club	Kelso/Vancouver Port of Entries
Lacey Lampglighers Lions Club	Brady (2 sites)
Mil Creek Lions Club	Everett (2 sites)
Naches Lions Club	Cle Elum (2 sites)
Port Angeles Lions Club	East Port Angeles
Richland Lions Club	Pasco
Ritzville Lions Club	Tukio (2 sites)
Seattle-Rainier Lions Club	Federal Way (2 sites)
Shadle Park Lions Club	Spokane Port of Entry/Deer Park
Walla Walla Eastgate Lions Club	Walla Walla
Walla Walla-Burbank Lions Club	Plymouth/Umatilla Port of Entries
Washuona Lions Club	Othello
Wenatchee Central Lions Club	Peshastin
Crowlie Kwanas	Oroville/Osoyoos Port of Entries

Examples of Preliminary Findings From the Truck Origin and Destination Study

The following preliminary results from summer truck interviews illustrate the types of information that is currently under development to aid statewide and regional transportation planning. These preliminary findings focus on several key freight corridors (see map on page 3 for site locations). A detailed summary of truck freight movements throughout the state of Washington will be available early in 1994.

Southbound U.S 395 at Deer Park

- Wood products account for more than one-half of the truck cargo traveling southbound.
- Canadian trucks (primarily wood products and fertilizer) are responsible for about 25% of southbound truck cargo.
- Average cargo weights for trucks originating in Canada are approximately 15,000 pounds heavier than for trucks of U.S. origin.
- Over one-third of trucks carrying cargo are headed to destinations outside the state of Washington.

Southbound U.S. 395 at Umatilla

- Washington agricultural commodities (potatoes, processed foods, fruits and vegetables) account for nearly one-half of the total cargo shipped south on U.S. 395 through Umatilla.
- Approximately two-thirds of freight trucks passing through Umatilla originate in eastern Washington. The remainder originate from the Puget Sound Region or outside the state of Washington.
- U.S. 395 through the Tri-Cities is one of the state's major long distance truck routes. Drivers passing through Umatilla report destinations in 28 states.

Eastbound I-90 at Tokio

- Approximately two-thirds of eastbound I-90 cargo at Tokio is intended for destinations outside the state of Washington.
- 21% of trucks traveling eastbound through the Tokio weigh station originate from the Puget Sound Region. An additional 24% originate from Oregon and California.

Westbound I-90 at Cle Elum

- Interstate 90 is the primary route used to ship processed foods, potatoes, fruit, hay and other eastern Washington commodities to destinations in the Puget Sound Region and overseas.
- Approximately one-half of westbound freight trucks originate from eastern Washington, mostly from Spokane, the Columbia Basin, Wenatchee and Yakima Valleys.
- Interstate 90 is widely utilized by out of state trucks traveling to the Puget Sound Region region. Westbound truck drivers report origins from 35 states and Canada.
- About 18% of westbound freight truck are making intermodal connections at Puget Sound Region marine terminals.

Northbound I-5 at Federal Way

- More than 4,000 trucks per day travel I-5 northbound near Federal Way.
- Nearly two-thirds of northbound trucks have destinations in the Seattle area. The remainder are generally going north to Everett, Bellingham and British Columbia.
- Approximately 6% of cargo is destined for marine terminals, 2% for air freight facilities and 2% for rail freight centers in the Seattle area.
- Nearly one-third of northbound trucks at Federal Way originate from Tacoma. Among empty northbound trucks, 12% originate from Tacoma marine terminals.
- About 450 northbound trucks travel through the Federal Way area during peak morning commuter hours of 7:00 a.m. to 9:00 a.m.

Farm to Market Transportation System

Goals and Benefits

Agriculture is the economic mainstay for much of eastern Washington. The farm to market transportation system is the cornerstone of a vital agricultural economy. This system includes agricultural haul roads, the primary county, state and federal highway network, rail lines, inland waterways and a host of loading, transfer and storage facilities utilized by the agricultural industry.

The EWITS Farm to Market System Study results will be incorporated into statewide and regional transportation plans to support the needs of Washington's farms and agri-business firms. The following are specific contributions that will result from the study:

- *A comprehensive data base reflecting the complete haul road, highway, rail and inland waterway network as well as the storage and intermodal distribution system serving eastern Washington agriculture will aid future planning.*
- *Economic models developed by the study will enable quick-response evaluation of the economic consequences of system changes such as a rail-line abandonment, seasonal river closures or expansion of the all-weather highway network.*
- *Improved information will be available to target enhancements for key haul roads, highways, rail and water port facilities most essential to eastern Washington's agriculture.*
- *Documented information will be available to evaluate the impact of transportation policies on intermodal costs and competition.*

An Extensive Data Base is in Place

Aided by the Washington Wheat Commission, the Department of Agricultural Economics at Washington State University has already developed an extensive data base for the EWITS Farm to Market Transportation Study. This data base includes a comprehensive inventory of 2,500 farm storage facilities located in eastern Washington. A survey of grain elevator owners provides detailed information on shipping and operating costs, use of alternative transportation modes, and primary marketing channels used by eastern Washington shippers. Data from the ICC Waybill and U.S. Army Corps of Engineers Waterborne Commerce



Casavant discusses grain movements with Glen Squires, WA Wheat Commission Director of Project Management

series provides comprehensive documentation of rail and water shipments within eastern Washington. Future efforts will include expanding the farm to market data base with information pertaining to other key eastern Washington commodities such as fruit and vegetables.

Advanced Computer Technologies Support Innovative Analysis

A Geographic Information System (GIS) is currently under development at Washington State University. This technology will provide a geographic profile of key highway, rail and waterway routes used by eastern Washington's agriculture industry. The combination of GIS technology and economic modeling will enable the research team to demonstrate on visual maps changes in transportation flows that would likely occur as a result of policies such as seasonal river closings or a decision to increase the number of all-weather highways in eastern Washington. The same technology enables the analysis of statewide freight movements (described on page 4). The GIS system will provide a valuable tool for both statewide and regional transportation planning.

Economic Linkages Study

The EWITS Economic Linkages Study fulfills two major objectives: (1) to assess how specific transportation system improvements are likely to impact location choices made by owners of new manufacturing and retail businesses and (2) to document the impact of state route main streets in smaller communities and to predict local economic changes that are likely to occur when a state route bypasses main street. The Economic Linkages Study was completed in 1993. To receive a full report describing results from the study contact Ken Casavant or Bill Gillis at the address listed on page 8 of this newsletter. The following are highlights.

Information Gathered From More Than 600 New Washington Businesses

A telephone survey of more than 600 businesses and industries locating in the state of Washington between January 1990 and January 1993 was conducted for EWITS in July of 1993. Questions focused on why business people chose their location for a new office or facility. Particular emphasis was given to the current use of alternative transportation modes and how the availability of transportation systems impacted their business location decision.

Results of the EWITS New Business Survey were analyzed by The Gillis Group and Washington State University's Department of Agricultural Economics. The following are key findings from the study:

- Over 75 % of Washington's new businesses utilize truck motor freight or package delivery services to ship their products or receive supplies
- An efficient air freight system is of increasing importance to the development of manufacturing, retail and service businesses within the region.
- Intermodal connections to marine and inland barge transportation is essential to eastern Washington's export oriented manufacturing businesses.
- Eastern Washington manufacturing industries are the most likely among new businesses to cite rail transportation as important.
- About 50% of Washington's new businesses use telecommunications (fax and computer modems) as a means to transport products or receive supplies.



Jim Wedell, Port of Whitman Manager, provides insights on local economic needs

Case Studies Document the Impact of State Route Main Streets and Bypasses

Detailed case studies of seven eastern Washington communities with state route main streets and state route bypasses were also conducted as a part of this study. The case studies provided insights on strategies to maximize the positive economic impacts as well as minimize possible detrimental impacts of state route mainstreets and state route bypasses of small towns. The following are key findings from the case studies:

- State route main streets enable the development of certain specialized businesses that would otherwise not be economically feasible in small towns.
- Downtown business districts in communities with a well developed local customer base are less adversely impacted by a state route bypass than communities highly dependent on drive-by traffic.
- Bypass routes that improve access to major trading centers can open up new opportunities for small towns.
- Careful advanced planning will maximize positive economic impacts as well as reduce possible detrimental impacts associated with state route bypass routes.
- Annexing property around new interchange developments can mitigate tax base losses associated with possible business closings and downtown land use changes resulting from a bypass.

EWITS Steering Committee

Jerry Lenzi, Administrator
WSDOT District 6

Richard Larson, Administrator
WSDOT District 5

Charles Howard, Jr., Manager
WSDOT Planning Office

Jay Weber, Commissioner
Douglas County

Don S. Senn, Administrator
WSDOT District 2

Linda Tompkins
WA State Transportation
Commission

EWITS Advisory Committee

Amy Arnis, Branch Manager
Policy Development, WSDOT

Eric Berger, Deputy Ex. Dir.
County Road Admin. Board

Mark Chamberlain, Mgr., Ind. Dev.
Port of Moses Lake

Jerry A. Ellis, Director
Economic Development Affairs, WSDOT

Karl Johansen, Exec. Director
Whitman County Council on Aging

Dean Judd
Washington Assn. of Counties

James M. Kuntz, Manager
Port of Walla Walla

Bruce Loy, Director
Yakima Valley Airport

Keith Mathews, Ex. Dir.
Yakima Valley Growers

Glenn Miles, Transp. Mgr.
Spokane Regional Transp. Council

Don Morton, Director
Benton-Franklin Council

Mike Murray, Director
Grant County Public Works

Don Phillips, Transp. Chair
WA Assn. of Wheat Growers

Peter M. Smith, Director
Quincy Public Works Dept.

Jack Thompson, Director
Palouse EDC/RTPO

Leonard Cash, P.E.
WSDOT District 6

Mark Urdahl, Transp. Mgr.
Port of Chelan

Scotty Watson
WA Good Roads Assn.

Jim Weddell, Manager
Port of Whitman County

Lon Wyrick, Director
Yakima Valley COG

Jerry Bryant, Engineer
Stevens County Public Works

For Additional Information About EWITS Contact:

Project Director

Ken Casavant, Professor
Washington State University
Agricultural Economics
Pullman, WA 99164-6210
Phone: 509-335-1608

Project Manager

Bill Gillis, Ph.D.
The Gillis Group
108 N. Adams Street
Ritzville, WA 99169
Phone: 509-659-1712

EWITS

Washington State University
Agricultural Economics
Pullman, WA 99164-6210