BACKGROUND AND PROJECT GOALS

In this fifth year of the six-year EWITS project, the Steering and Advisory Committees have chosen to continue to support the 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.

This six-year study is in Phase II, the multi-faceted second half of the study. The study is funded jointly by the federal government and the Washington State Department of Transportation. Dr. Kenneth Casavant of Washington State University serves as the director of the study, guided by the Steering Committee and an Advisory Committee from the region. The Advisory Committee has representation from a broad range of transportation interest groups (see page 2).

EWITS Steering Committee

Jerry Lensi, Chair
WSDOT, Eastern Region

Richard Larson
WSDOT, South Central Region

Don Senn
WSDOT, North Central Region

Charles Howard
WSDOT, Planning Manager

Eric Berger, Executive Director
County Road Administration Board

Pat Patterson
Washington State Transportation Commission

SUCCESSFUL SUMMITS CREATE STRONG INTEREST

"There is no silver bullet—no single solution... but we have found some common ground and started the dialogue..." said Legislative Transportation Committee (LTC) Chair Rep. Karen Schmidt. Schmidt's remarks followed a series of "transportation summits" sponsored by the LTC and the Washington Transportation Policy Institute. Three summits were held in Bellevue, Silverdale and Yakima.

Kenneth Casavant, project director of EWITS and a member of the Washington Transportation Policy Institute Board of Directors, led off the Eastern Washington Summit in Yakima. He used EWITS research findings to focus on the transportation of commodities by rail, truck and water. Other issues discussed at the highly successful summit meetings included congestion, freight and personal mobility, needed state and local funding alternatives and overall priorities and governance (related issues are discussed inside the Update).

Karen Schmidt

CHALLENGES LIE AHEAD FOR EWITS RESEARCHERS

Phase II of EWITS, as directed by the Steering and Advisory Committees, is continuing to respond to recent requests and issues. Studies currently underway include a county-by-county specific truck origin and destination report (one will be released for each county). Forest products' road needs is the subject of three ongoing reports. Rail movements in and out of Washington are currently being summarized and evaluated. Other responses deal with on-farm and commercial grain storage, energy impacts of policy, rural transit, and continued development of a regional policy model.
Note from the Project Director

A Pair to Be Proud Of

Two transportation students in the Department of Agricultural Economics have been selected National Fellows of the East Transportation Foundation. Eric Jessup and Ken Erikson, who have been major contributors to EWITS research during their graduate work, received all expense paid attendance at the select Transportation Policy Education Conference, a weeklong meeting of 20 top graduate students with top Administration and Congressional officials responsible for formulating and carrying out transport policies, as well as with industry leaders who are major influences in the process.

The two students, known for having a zest for life (see photo) are good friends and colleagues. Eric, currently a Ph.D. student and also recent winner of the Regional Outstanding Student of the Year Award from U.S. Department of Transportation, has about 20 journal and research publications and numerous honors. Ken Erikson recently finished his master’s degree and is now an economist with U.S. Department of Agriculture. Even this early in his career, he has five publications and has served as both an undergraduate and graduate teaching instructor. He is a member of the Longshoremens Union and operated his own landscape service when attending school. Yes, these are two busy and productive students; indeed, this is a pair EWITS can be proud of.

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The UPDATE newsletter is published to disseminate information from the Eastern Washington Intermodal Transportation Study.

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GIS Grain Flow Model Application: Estimating Value of Rail Car Access

Harvest time in Eastern Washington is usually accompanied with much discussion among grain producers and elevator operators about rail car shortages. Obtaining access to the much demanded grain rail cars is often difficult and alternative (higher cost) transportation methods are often required for transporting grain to market. The increased shipping cost, as a result of rail car shortages, impacts producer profits negatively and generates more truck traffic on roads and highways. Individually, producers are well informed about the per bushel differential between shipping grain via rail and the next best alternative, but information on the value of having access to rail cars (or alternatively, the cost of not having access to rail cars) for the whole eastern Washington region, and the differences in value associated with different geographic locations has been unclear prior to the development of the GIS grain flow model.

The rail car shortage problem for grain shipments is one of the multitude of applications of the GIS grain flow model developed from EWITS. This grain flow model accounts for all shipments of grain (both wheat and barley) from production locations to final markets at Portland, Oregon or cattle feedlots in the Columbia river basin region. The model provides a very realistic view of how grain from eastern Washington is actually transported to market, including all intermediary destinations such as elevators and river ports and use of truck, rail and barge modes. Transportation routes are determined using a least cost minimizing linear program with constraints on the volume of grain allowed to be shipped via rail. Rail capacity constraints are initially set to historic levels to determine the value of rail car access. Sensitivity analysis is then performed, increasing and decreasing the rail capacity constraints, to identify changes under more (less) severe rail car shortage scenarios.

According to this recent study, the value of having access to rail cars (cost to the shipper if he/she is forced to use the next cheapest shipping alternative) varies from $1.10 per rail car per shipment in the most optimistic car availability scenario to $129 per rail car in the most restrictive car availability situation. The value of rail car access also depends on location and varies with distance to the river. For counties near river port facilities, the value of rail car access is estimated at $15 per rail car whereas counties further from the river reach as high as $396 per rail car.

The study uses an unconventional but innovative approach to investigating the annual occurrence of rail car shortages in Eastern Washington. By combining the two technologies for commodity flow modeling, considerable gains are realized in modeling flexibility and robustness. A full description of the methodology and results is provided in EWITS Working Report 45.

Advisory Committee is a Dynamic, Changing Group

The Advisory Committee to EWITS reflects the region's interest and expertise. A polling of the advisory committee resulted in these changes. We express our appreciation and good luck to former advisory committee members who have gone on to new assignments: Jim Weddell, Scotty Watson, Dennis Hamblet, Amy Armin, Leonard Cash and Ted Trepantier.

New additions to the advisory committee reflect the special approach and advice that is sought for the final phase of the effort. New advisory committee members include Randy Bostrom, Manager, Port of Whitman County; Glen Squires, Washington Wheat Commission; and Karen Lander, Boise Cascade.
River Drawdown Issue Very Complex

Regional residents involved with, and affected by, salmon recovery efforts in the Northwest realize the complexities involved with debating the competing interests between fish and man.

Since 1980, the Pacific Northwest has spent more than $2 billion trying to save the native fish from extinction, resulting in a multitude of strategies designed to improve salmon survival. "Our strategy, known as a "river drawdown," involves lowering the water level, thereby increasing river flow and hopefully, the salmon's odds of survival. Unfortunately, barge traffic might cease during drawdown periods, causing potentially adverse impacts on grain farmers who rely heavily on barge transportation and on state and local highways as river bound commodities take to the highways.

However, for mostly barge reliant commodities such as wheat and barley, the impact on roads and highways could decrease with a river drawdown, as long as rail cars are available. The recent study considered two different drawdown scenarios: a two-month and four-month drawdown in the Snake River. Total roadway wear after a two-month or four-month drawdown is less than prior to the drawdown. Instead of heavy truck loads being transported long distances to river ports, more intense, shorter truck trips from farm to elevator and from elevators without rail to those with rail access will result without barge transport. But if rail car constraints are a problem and only half the diverted truck-barge traffic may be absorbed by rail, then roadway wear increases after a drawdown as large grain volumes are trucked to Pasco, Washington. The study accurately characterizes the importance of a multi-modal transportation system and how constraints on modal usage impacts the remaining system.

EWITS also has developed a policy tool designed for debates of this nature, and especially for this region. A combined Geographic Information System (GIS) and Generalized Algebraic Modeling System (GAMS) model of wheat and barley flows from production locations to final markets can now answer further questions involving such drawdown debates.

Rural Transit Receives EWITS Attention

Mobility has been a strong theme of the EWITS research plan, mobility that broadly addresses the movement of goods, services and people. Initial EWITS work focused primarily on freight mobility but a scoping project done by Sawyer and Associates Consulting outlined four recommended study areas for Washington: 1) The assessment of rural mobility needs with a quantitative assessment of demand, service and amount needs; 2) A determination of degree, conditions and alternatives for intercity mobility; 3) Evaluation of the relationships between rural mobility and economic opportunity, using case study approaches; and 4) The current, potential and appropriate use of information technology in personal mobility for rural areas.

This scoping report, when reviewed by the EWITS steering and advisory committees, resulted in the current project jointly sponsored by EWITS, Washington State Transportation Center (TRAC) and Transportation Northwest (TransNow) of the University of Washington Transportation Center. The project's goal is to test new models and workbook, the project's B-3, as to its usefulness and applicability in calculating potential demand for public transportation in rural areas.
**Canadian Trucks Are Heavier!**

Utilizing its extensive statewide origin-destination database, EWITS has verified what many grain producers, merchandisers, and transportation officials have long suspected: Canadian trucks are heavier! Not only are they heavier, they are less likely to be empty. These results suggest that the Canada truck population has a more sizeable impact per vehicle on Washington roads and highways than other trucks. Highlighting grain shipments, the EWITS project focused on five northeastern Washington counties including Okanogan, Ferry, Stevens, Spokane, and Pend Oreille counties due to the substantial Canadian truck traffic entering this Washington region. Trucks in these northeast counties were found to be heavier when compared to the average payload of all trucks in the state, and Canadian-based trucks were heavier when compared to either all trucks or only trucks interviewed in the five northeastern counties.

Thirty percent of all trucks operating in Washington were empty compared to only 24 percent of trucks operating in the five northeastern counties. However, only 17 percent of Canadian-based trucks operating the five northeastern counties were empty. Canadian trucks are also 4.39 percent heavier than all trucks in the state and 11.31 percent heavier than trucks in the five northeastern counties.

**US-Canada Trade Receives Regional Media Attention**

A recent EWITS study by Ericson and Casavant examined the potential growth in trade under NAFTA and focuses on the potential impact on Washington roads. The researchers, strongly supporting the need for and benefits of US-Canada trade to the Washington economy, document that a 30 percent increase in such trade can be expected over the next eight years. Commercial trips into Washington from Canada increased 13 percent in 1994 and another 6 percent in 1995. Commercial traffic leading the other direction increased 4 percent each of those years.

The study, which was written about in 19 regional newspapers and covered by two TV stations and four radio stations, also determined that Washington is heavily a bridge state with 70 percent of all truck movement in the state (81 percent on SR 995) having neither a Washington origin or destination. It was Canadian products moving to other parts of the United States or US products moving to Canada from other states. Thus, Washington is providing infrastructure for products that aren’t part of the state’s economy.

The second phase of the study will combine these traffic projections by corridor and commodity with damage functions from the Washington State Department of Transportation’s Pavement Management System to determine what investment will be needed to support this growing trade volume.
The research reports of EWITS, now numbering 15, have been joined by a series of working papers. These working papers, designed for quicker research turnaround and response to requests, have been written on seven different topics thus far. A listing of all publications and copies are available from the project director, Ken Cusumano at the address and phone number found on page 2.

"Profiles in Tonnage" is Now Available

As a result of an extensive two-year assessment of freight truck movements on major Washington highways, EWITS Research Report #9 offers a colorful portrait of profiles in tonnage. Employing over 300 people at 28 strategically located sites across the state, over 30,000 truck drivers were interviewed and probed for information about where they started, what they were hauling, where they were headed, and what roads they were going to use to reach their destination.

Approximately 8 million truck trips transporting 90.1 billion tons of cargo occur on Washington highways each year. The economic value of this cargo is estimated at over $1,466 billion annually with over 500 different communities serving as either origins or destinations for truck trips on Washington highways. However, the study also highlighted the state's importance in the national and international transportation system with 25% of all truck traffic originating outside the state borders. Many trucks originating in Washington are also destined for places outside the state with 23% of trucks originating in Western Washington and 33% of trucks originating in Eastern Washington destined for locations outside the state.

The Transportation Industry is Important to Eastern Washington's Economy!

A new EWITS study measures the economic contribution of transport industries relative to other sectors in Eastern Washington's economy. According to the study, Eastern Washington has led the state in economic growth since 1990, and the growth has become increasingly more broad-based and diversified in non-farm related sectors.

Transportation services and industries have contributed much of the growth in Eastern Washington, linking markets for both manufactured and agricultural based products. As these markets and industries have grown, so have the transportation services connecting and supporting Eastern Washington's economy. In 1992, total operating revenues of Eastern Washington transport services amounted to $1.2 billion, nearly four percent of the total Eastern Washington regional output of $33.5 billion. Trucking and railroad transport were the dominant modes with $631.6 million and $205.6 million in revenues, respectively, with water transport generating $9.6 million. Highway construction generates another $834 million in labor earnings of $25 million.
COLUMBIA / SNAKE RIVER SERVES VITAL TRANSPORTATION, ASSEMBLY AND DISTRIBUTION ROLE

Eight locks and dams along the Columbia-Snake river system provide barge transportation to Lewiston, Idaho, and access to ocean ports (and export markets). Transportation cost savings, especially for bulk commodities traversing long distances, often favor barge shipment over rail and truck transport from both a shipper cost and environmental impact perspective. River navigation can also be both complementary and competitive with truck transport, attracting commodity shipments via truck to river ports and inhibiting longer haul truck shipments to ocean ports in Portland, Oregon. Lower energy requirements translates into cheaper per unit transportation cost and considerably less environmental pollutants.

Upriver commodity movements are found to be more distributive in nature, consisting of mostly fuel and fertilizer products. Downriver flows, however, serve to assemble and consolidate commodities, predominately grains and forest products, for shipment to Portland, Oregon. The average annual tonnage of upriver commodity flows reaches 2 million tons while downriver flows reach over 8 million tons per annum according to EWITS Report #12.

DOUBLE EXPOSURE AT SPRING-JOINT PLANNING CONFERENCE AND PUBLIC TRANSPORTATION CONFERENCE FOR EWITS

The accomplishments of the EWITS multiyear, federally funded study were showcased in a stand-alone session of the 1996 Joint Spring Planning Conference in Spokane. Chaired by Jerry Lenzi, chairman of the EWITS steering committee, the session reviewed the goals, methodologies (including adaptive management research procedures) and multiple studies currently being completed in the study. Graduate students, research associates and principal investigators detailed the results of the studies and laid out how those results could be and are being used to improve the state's transportation systems.

Dr. Casavant also presented a talk on the new rural transit demand estimation study at the Washington State Public Transportation Conference in Spokane. This new project (see related article, page 4) emphasized how manuals and findings of previous work under the Transit Cooperative Research Program of the Federal Transit Administration would be tested and applied in the state of Washington.

Ken Casavant making presentation to Transportation Commission.
EWITS Information Continues to be Sought Out

The phone rings, a request is made, and either a full set or a specific copy of EWITS publications is on its way to another user. Implementation and application of EWITS research findings is a primary goal of the project. Over 450 copies of reports have been sent out. County officials and consultants are the main requestors of information, but EWITS has been reaching a broad and varied audience. Some ways EWITS research material has been implemented include:

International
- Jerry Lenzi, chair of the EWITS steering committee, and Ken Casavant presented two papers on EWITS structure and findings at the World Conference on Transportation Research in Sydney, Australia.
- Ken Eriksen and Ken Casavant presented a paper on NAFTA trade and highway usage at the Canadian Transportation Research Forum in Winnipeg, Manitoba.
- Eriksen and Casavant presented a paper on "NAFTA and Sustainable Transportation" at the OECD Conference in Vancouver, British Columbia.

National
- Two articles were published in the Transportation Research Record of the Transportation Research Board.
- A paper was presented at the GIS-T Conference.
- Two presentations were delivered at conferences on planning methodologies, sponsored by TRB.
- Two presentations were given at the National Conference on Intermodalism.
- Two papers were given at the annual TRB meetings.
- "Mention" in the NCHRP report.
- Presentation given to Freight Mobility Task Force.
- Publications listed in USDOT’s SMART project.

Regional
- Two papers were presented at meetings of the Pacific Northwest Regional Economic Conference.

State
- Two presentations were given to the Washington State Transportation Commission.
- Presentation given to the Washington State Agricultural Outlook Conference.
- Two presentations were given to Governor Locke’s transition team.
- Presentation given to the summit meetings.

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