

Use of Freight and Business Impact Criteria for Evaluating Transportation Projects

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Topics

1. The Regional Economy and Transportation
2. Transportation Connections and Regional Productivity
3. How Other States are Evaluating Transportation Investments to Support Economic Growth
4. Elements to Consider for the Portland Region and Oregon Statewide Planning



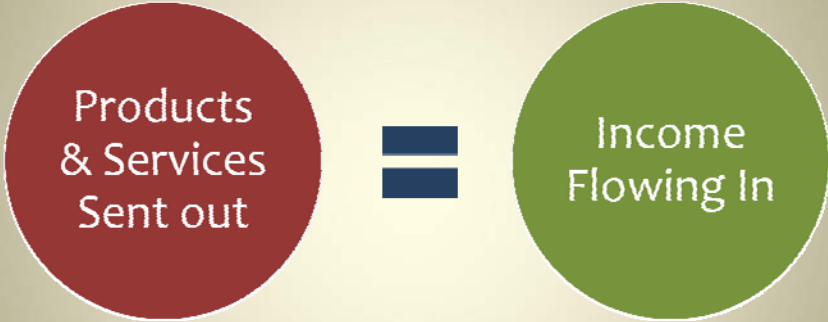
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Base of the Economy

Jobs Created by \$ Inflow



Traded (Export) Industries



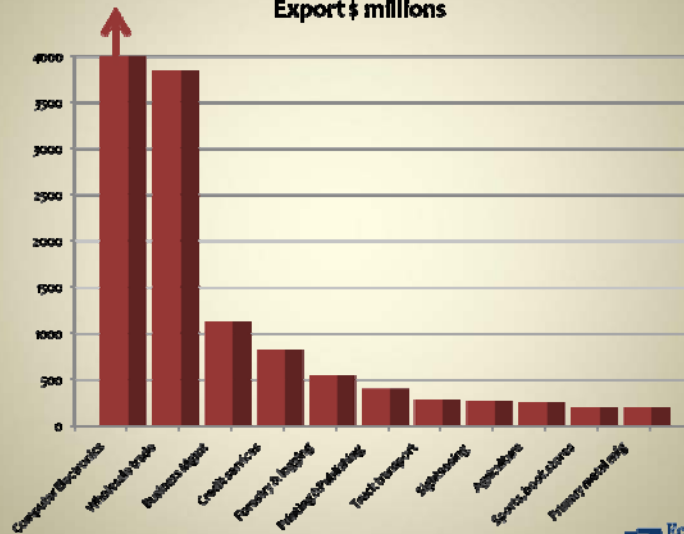
- Products and Services Sent to Rest of Nation and World

The Region's Traded Industries

Sector Description	Regional Supply (\$mil)	Regional Demand (\$mil)	Product Outflow (\$mil)	Supply / Demand Ratio	Location Quotient
Computer & Electronics	\$15,262	\$7,234	\$8,028	2.1	4.9
Wholesale trade	\$8,711	\$4,870	\$3,841	1.8	1.7
Business Mgmt	\$2,963	\$1,833	\$1,130	1.6	1.6
Credit services	\$1,582	\$759	\$823	2.1	1.4
Forestry & logging	\$935	\$390	\$545	2.4	6.0
Publishing & Printing	\$2,367	\$1,873	\$494	1.3	1.4
Truck transportation	\$1,262	\$1,013	\$249	1.3	1.1
Sightseeing , rel transport	\$423	\$208	\$215	2.0	0.8
Agriculture	\$646	\$436	\$210	1.5	1.1
Book & specialty stores	\$218	\$153	\$65	1.4	1.3
Primary metal mfg	\$1,252	\$1,206	\$46	1.0	1.9

Shipments Out of Region

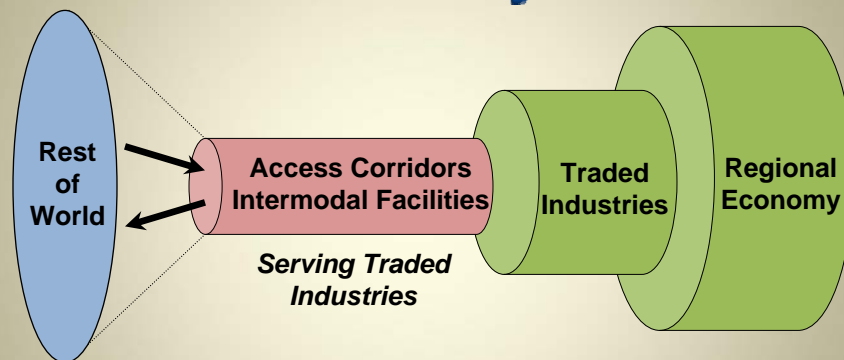
Export \$ millions



How Traded Industries Use Transportation

Sector Description	Primary Mode(s)*	Secondary Mode(s)*
Agriculture	Truck (73%)	Rail (20%)
Forestry & logging	Truck (75%)	Rail (8%)
Printing activities	Truck (75%)	Rail (12%)
Publishing industries	Postal (36%), Truck (35%)	LTL (11%)
Primary metal mfg	Truck (68%)	Rail (21%)
Computer & Electronics	Truck (49%)	Air (16%), LTL (13%)
Wholesale trade	LTL (58%)	Postal (20%)
Book & specialty stores	LTL (48%)	Postal (28%), Truck (13%)
Truck transportation	Truck (74%)	-
Sightseeing transport	Sightseeing (76%)	-
Credit Services	LTL (68%)	Postal (12%), Air (11%)
Business Mgmt	Truck (45%), Postal (43%)	-

The Transportation-Dependent Economy



Rail Freight Corridors

- Direct BNSF and UP double stack trains with on-dock service.
- Most frequent train departures and greatest capacity growth in Pacific NW.



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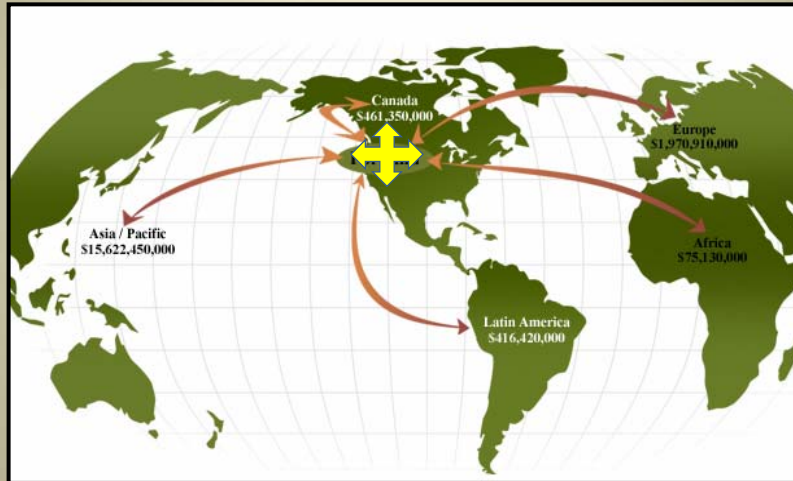
Highway Access Corridors

- I-5 is the major trade spine between Canada and Mexico.
- I-84 is the major route to Midwest markets.
- These routes move 2 – 3X the normal % of trucks.



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Air & Sea Gateway Access

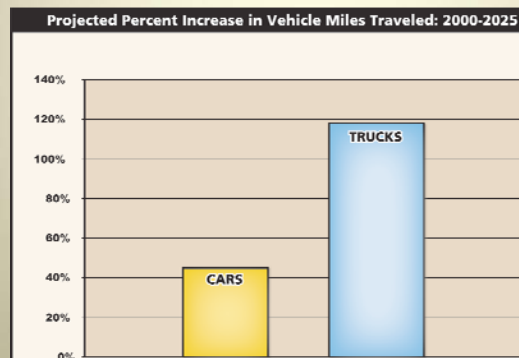


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Rapid Truck Growth

Impacts of Internet Growth...

- Overnight Courier Deliveries
- Expanding Buyer-Supplier Markets
- Longer Distance, Integrated Supply Chains



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Role of Evaluation



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Not All Transportation Investment Has the Same Payoff



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Need: Focus Investment:

*..Where the Economy Is Most Vulnerable
and Investment Impact Is Most Critical*



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Evaluation Considerations (1)

Step 1. Identify routes and facilities that have a large potential for economic impact.

Screening Criteria

- Serves hwy or rail corridors and industrial centers
- Serves distribution/warehousing routes and centers
- Connects to airport, marine port or land gateways
- Serves convention, tourism, banking and commerce that brings in visitors, money



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Evaluation Considerations (2)

Step 2. Measure the sensitivity of economic activities to those facilities.

Sensitivity Criteria

- Vehicle Mix/Purpose – service to freight and visitors
- Origin-Destination – serves flows to outside regions
- Intermodal Connectivity – ground to air/sea gateways
- Economic Connectivity –to industrial, warehouse and export business services



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Evaluation Considerations (3)

Step 3. Estimate potential economic benefit from making improvements (or loss if not made).

Types of Changes

- Travel Time to intermodal terminals, global gateways
- Predictability (stability) of travel time
- Size of same-day delivery market
- Access restrictions on truck use



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Three Step Process

Identify routes and facilities that have a large potential for economic impact



Measure the sensitivity of economic activities to those facilities



Estimate potential economic benefit from making improvements (or loss if not made)

Econ Criteria in Rating Systems

Criteria	OH	WI	MN	MO	VA	Scot
<i>Transportation Drivers of Economic Impact</i>						
Multi-modal & intermodal facilities	X	-	X	X	X	X
Connectivity to key statewide corridors	-	X	-	X	-	X
Supports desired land development clusters	-	X	-	X	-	X
Predictability of travel times	-	-	X	-	-	X
Connectivity or access to global markets	-	-	X	-	-	-
Concentration of trucks for goods movement	-	-	-	-	X	-
Enhances competitiveness of shipping rates	-	-	X	-	-	-
Reduces bottlenecks and size/wt. impediments	-	-	X	X	-	-
Supports economic development initiatives	-	-	-	X	-	-
Supports redevelopment of old industrial areas	X	-	-	-	-	-
Location in economically distressed area	X	-	-	X	X	-
<i>Economic Growth Outcomes</i>						
Job Creation – supports industry attraction	X	X	-	-	-	X
Job Retention – supports existing industry	X	X	-	-	-	X
Public-private participation in funding	X	-	-	-	-	-

Wisconsin Rating Values

Measure	Component	%	Wt.
Economic Development	Existing business save travel cost	10%	40%
	Connections on State or NHS Network	10%	
	Increase productivity	20%	
	Accommodate business growth sectors		
Facilitates exports that bring in outside dollars			
Traffic Flow	Level of Service		20%
Safety	Crash rate; severity; ped/bike impacts		20%
Environmental	Natural, physical resources	5%	10%
	Socio-economic, cultural resources	5%	
Community Input	Public support or opposition		10%

Missouri Rating Values

<p>Economic Competitiveness – 15 points</p> <p>Strategic Economic Corridor 40%</p> <p>Supports Reg Econ Devel Plans 30%</p> <p>Level of Economic Distress 30%</p>	<p>Safety – 30 points</p> <p>Safety Index 80%</p> <p>Safety Concern 20%</p>
<p>Congestion Relief – 30 points</p> <p>Level of Service 40%</p> <p>Daily Usage 30%</p> <p>Functional Class 30%</p>	<p>Quality of Communities – 5 pts</p> <p>Complies w/Land Use Plans 50%</p> <p>Connectivity between Cities 50%</p>
<p>Efficient Freight Movement– 5 points</p> <p>Truck Volume 60%</p> <p>Freight Bottlenecks 20%</p> <p>Intermodal Freight Connectivity 20%</p>	<p>Environment Protection – 5 pts</p> <p>Environmental Impact 100%</p>
<p>Access to – 5 points</p> <p>Vehicle Ownership 75%</p> <p>Eliminate Ped/Bike Barriers 25%</p>	<p>System Function – 5 pts</p> <p>Bridge Condition 40%</p> <p>Pavement Condition 40%</p> <p>Substandard Road Features 20%</p>

Virginia Rating Values

Efficient movement of people and goods > Level of service > Volume to capacity ratio > Passenger car equivalents	29%
Safety and security > Crash rate	23%
Retain and increase business & employment > Avg. daily volume of tractor-trailer trucks for goods movement > Local unemployment rate (economically disadvantaged area)	18%
Quality of life and environmental impact > Potential environmental or cultural impacts > Utilization of existing right-of-way	15%
System preservation and efficient system mgmt > Interchange spacing/mainline adequacy > Inclusion of HOV, bicycle, pedestrian facilities > Bridge deficiencies > Cost effectiveness of proposed recommendation	15%
Multimodalism > Highway component of multimodal investment network	bonus points

Economic Model Factors

Transportation Economic Development Impact System

- cost of commuting
- cost of freight movement
- Schedule reliability
- breadth of same-day delivery market
- breadth of labor market
- access drive time to airport
- access drive time to marine port
- access drive time to intermodal terminal
- access time to international gateways
- level of service at ports and terminals
- constraints on classes of vehicles

Impact Differs by Industry

*Vancouver, BC Region
 Chicago, IL Region
 Houston, TX Region
 Massachusetts EOT
 Wisconsin DOT
 Kansas DOT
 Maine DOT*

Allocating Scarce Resources

1. We cannot build our way out of congestion
2. No “*one size fits all*” solution for different classes of passenger and freight travel
3. Economic threats to job loss are very real
4. Infrastructure systems need sound financial investment
5. “Smart Investment” can support future jobs and income for area residents by keeping the region cost-competitive in changing markets

Analytic Issues – Missed Factors

- National competitiveness and job quality are concerns far beyond traffic flow efficiency
- Overseas and cross-border freight trade enables growth not predicted by economic trend models;
- Intermodal freight connections enable efficiencies that are not captured in single mode analyses;
- Freight reliability affects schedule/shift costs that reverberate through the economy
- Freight corridor functionality affects business locations and can shift land use patterns



Policy Issues: Rising Fuel Prices

Impact on daily passenger travel is to reduce car VMT and encourage transit ridership.

But freight impact can be more complex...

- the spatial pattern of competition is shifted, but not necessarily the internet-coordinated technology of supply chains and distribution channels
- Asian import/export mix (at airport and seaport) may shift, but not necessarily overall volumes
- Rail/truck mix may shift for long-distance travel over the long run, but new rail freight typically involves truck for local pickup and delivery anyway

Context Matters

- Freight and business impacts can be quite different from passenger car and household impacts.
- Goals to support economic competitiveness can lead to different investment priorities than sole reliance on traffic flow goals and land use goals.
- There is a clear need to balance goals and recognize tradeoffs, which also requires an ability to distinguish and measure impacts on freight and business.
- There are measurement and analysis tools to assess freight and business impacts through quantitative and qualitative methods. They need to be applied.

Future Direction

- Towards a Consistent Framework

Recognize freight and business issues and their complexity

Factor them into a complete prioritization scheme
(quantitative and qualitative)

Make smart investment decisions that produce + economic return

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Examples

- **Minnesota** – Benefit-cost analysis of efficiency combined with separate screening of economic (business) and environment/community factors
- **Ohio** – Joint effort of DED with DOT to rate projects by consistency with industry targets
- **Wisconsin** – separate ratings by economic development, environment & engineering staffs

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