Oregon Department of Transportation

Bridge Limitation Study

Third Oregon Symposium on Integrated
Land Use & Transport Models

July 23, 2002

MAGNITUDE OF THE PROBLEM

Bridge Deficiencies:

6,500 Bridges in Oregon (40% ODOT maintained)

5% nearing design life

50 year design, average age 39 yrs

8% detected cracking

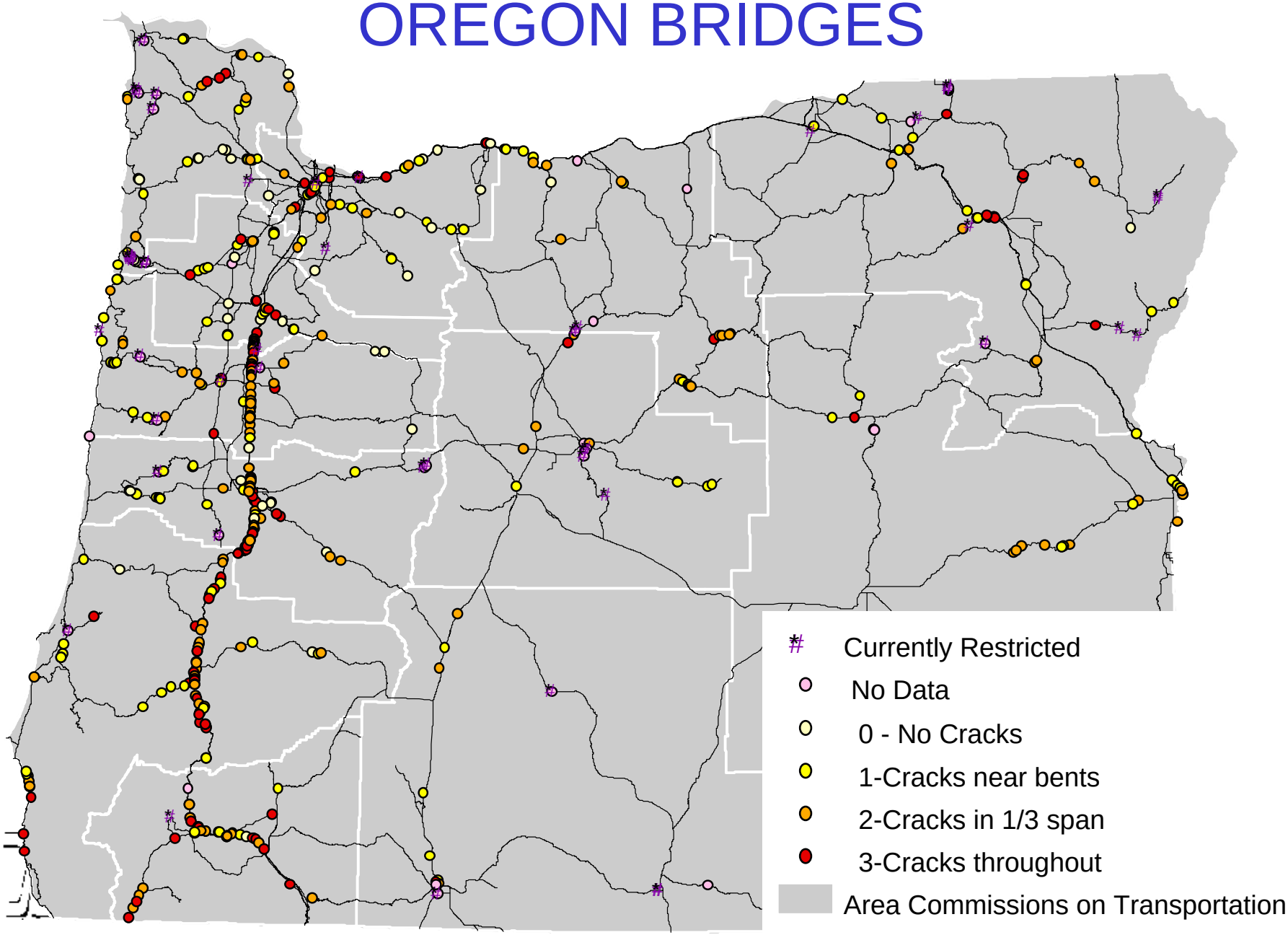
10% slated for repair/replace

Price Tag:

$109M/year (in 2000$) over 10 years ($1B+)

Double current funding level.

OREGON BRIDGES



TYPICAL APPROACH

- ODOT Problem
- Focused Engineering solution
  - maintain mobility
  - minimize bridge repair/replacement costs
  - “Worst first” approach to improvements
- Little focus on impact to other state issues
  - economy
  - environment
  - sustainability
  - livability
  - connectivity

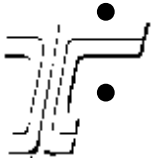
PROPOSED APPROACH
(using integrated analysis)

- Oregon Problem
- Economic Crisis
- Optimal economic and technical solutions
  - maintain mobility
  - minimize bridge repair/replacement costs
  - Costs to key industries
  - Costs to communities
  - Costs to local/national transport sectors
- Opportunities for integrated strategic policy solutions
  - Stimulate economic development
  - Limit impacts on community livability
  - Sustainable growth

WHO IS IMPACTED?

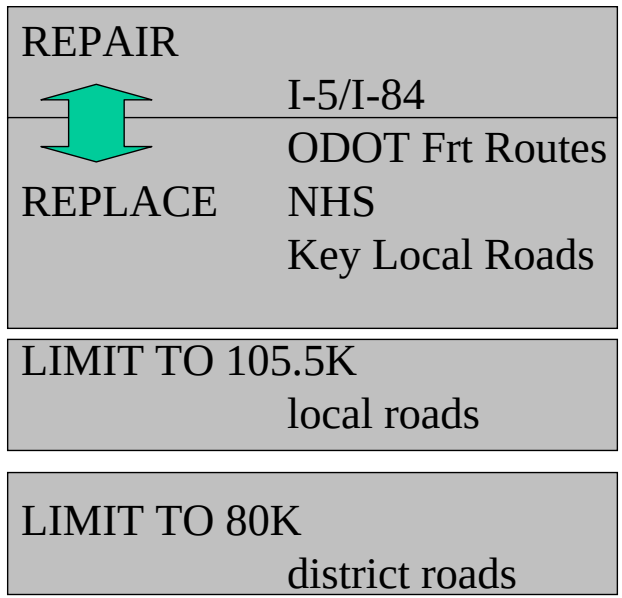
Bridge load limitations affect:

- Very heavy goods transport (over 80,000 lbs)
  - operational cost
  - manufacturing/locations
  - warehousing/transfers
- Industry
- Communities
  - Migration of industry/population
  - Land consumption patterns
  - Disruption to Downtowns
  - Air/Water Quality Impacts
- Roadway on new routes
- Consumers
- Environmental, livability, and sustainability



ALTERNATIVES

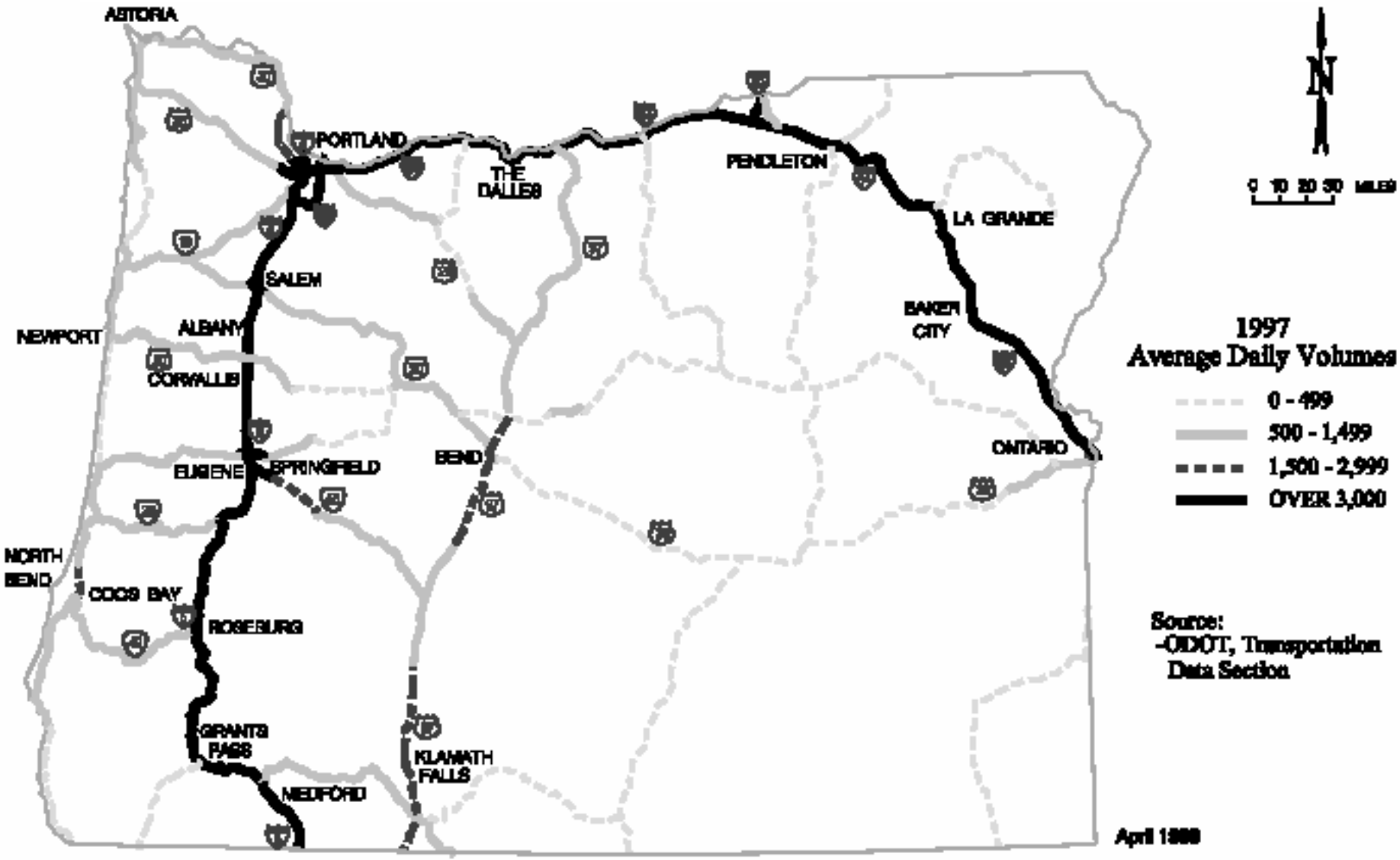
- No Change (fix worst first)
- Base Case: Maintain Existing Freight Mobility
- Corridor-based combinations
- Fix All Bridges



Evaluate
for each alternative:

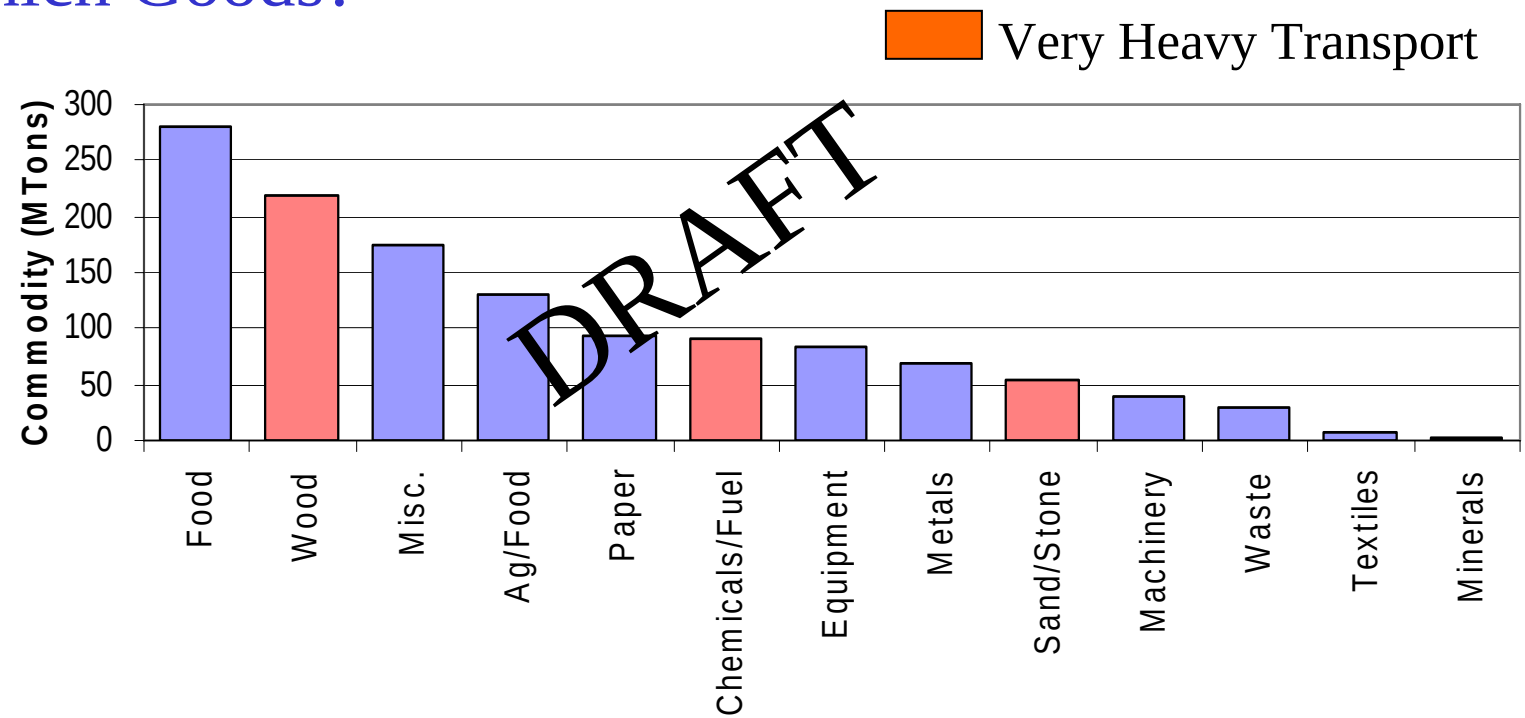
Bridge Improvement Costs
Economic/Community Costs

KEY FREIGHT ROUTES



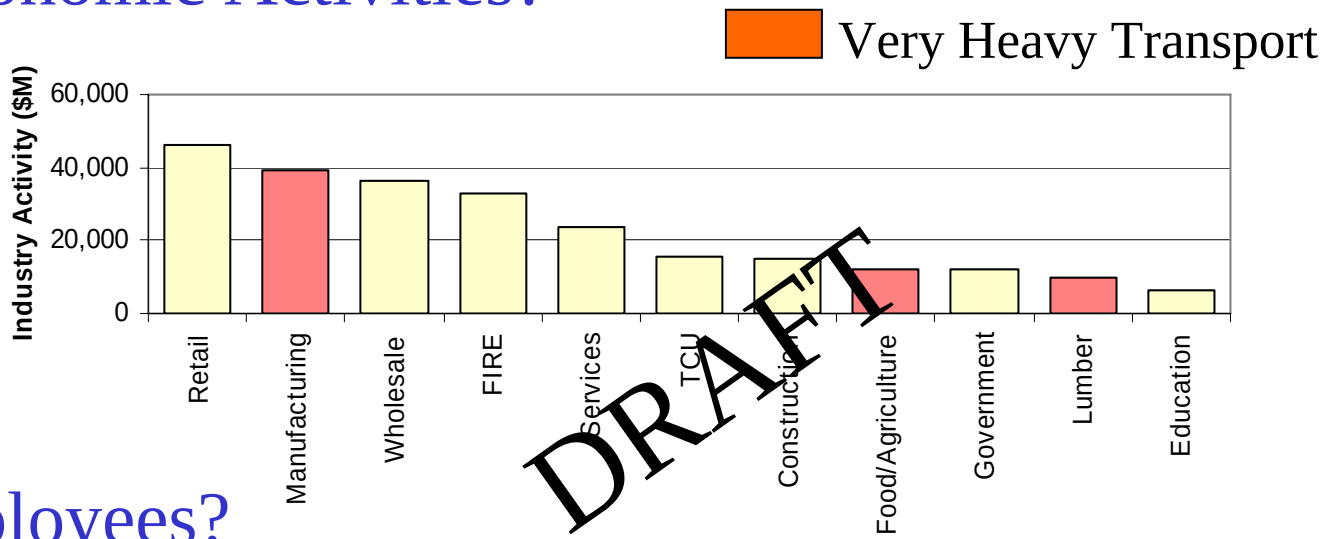
OREGON ECONOMIC IMPACTS

Which Goods?

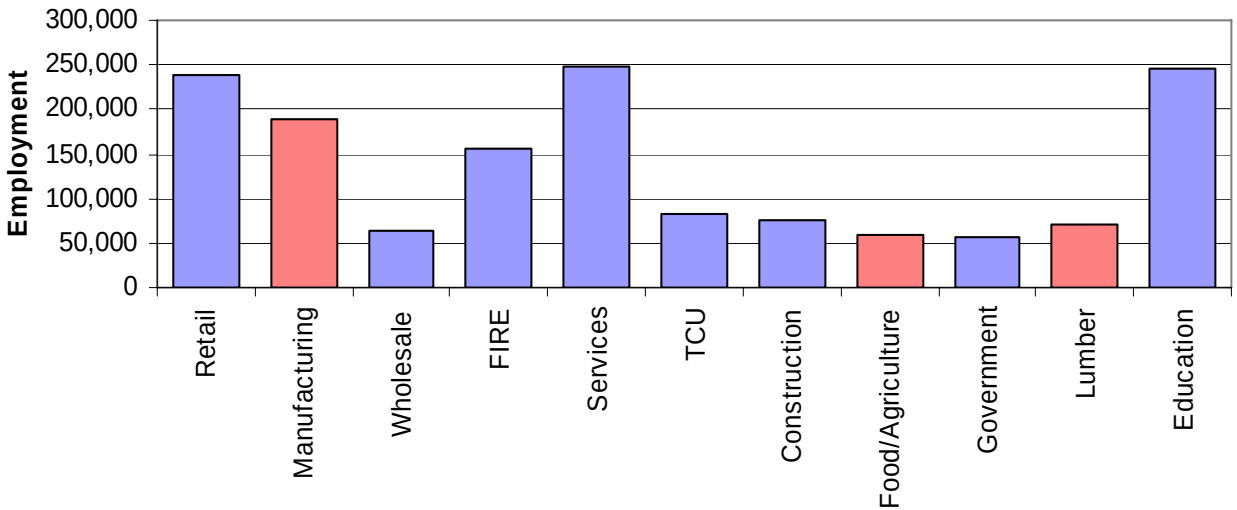


OREGON ECONOMIC IMPACTS

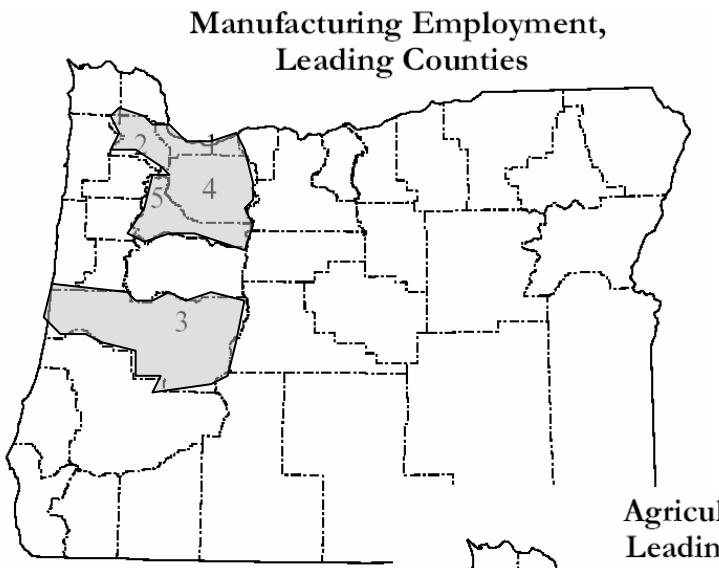
Which Economic Activities?

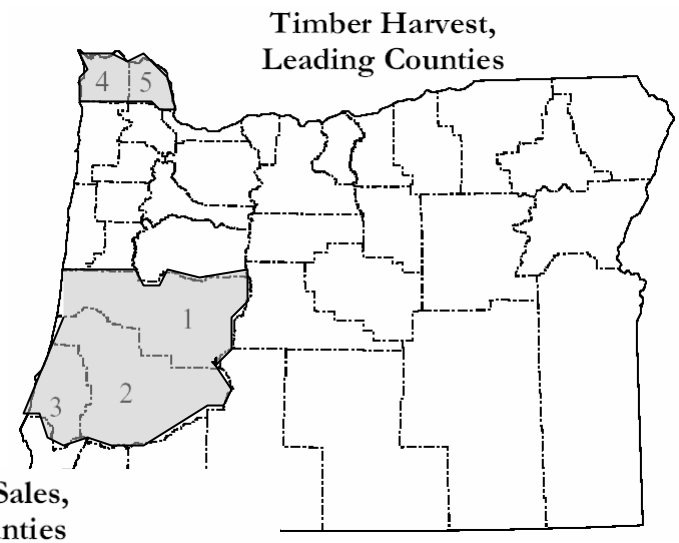


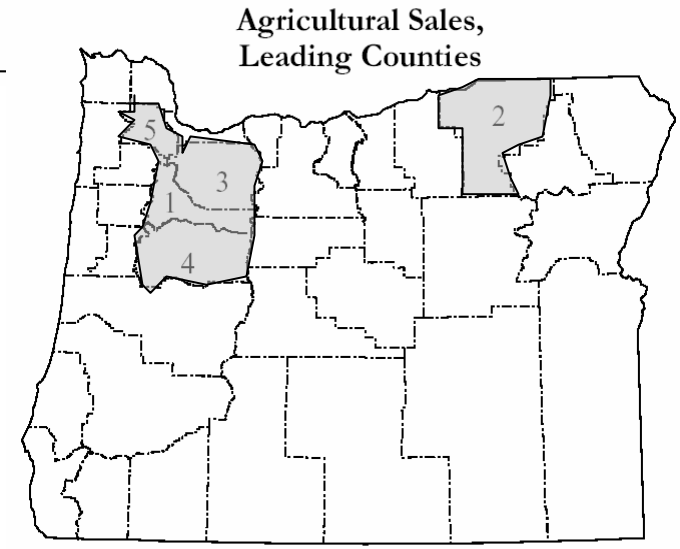
What Employees?



LOCATION OF KEY INDUSTRIES





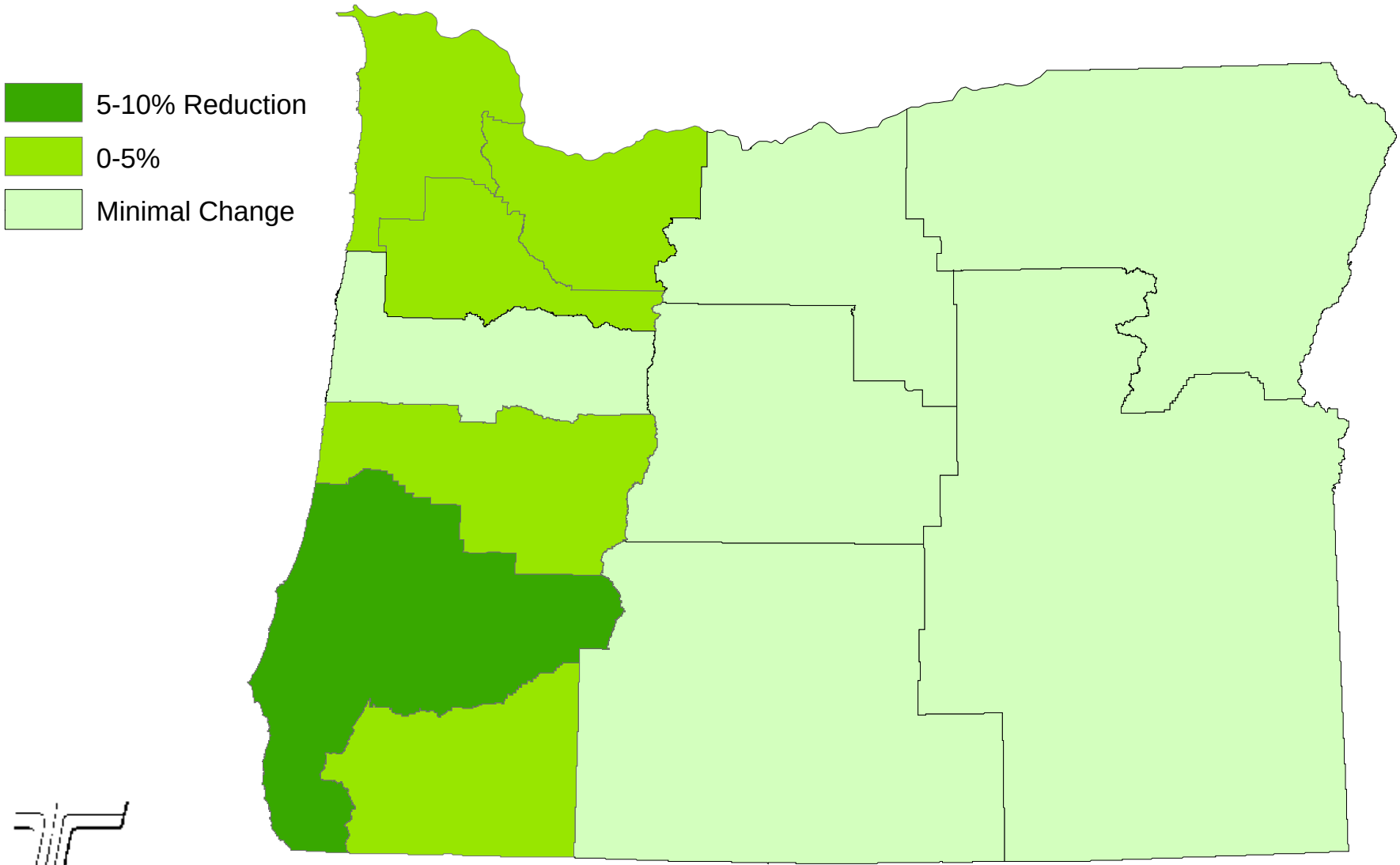


MODELING METRICS

- Transport Costs
  - Distance/time
  - Shipping
- Production Costs
- Employment/Households
- Roadway volumes (freight trips and tons)
- Energy Consumption
- Emissions

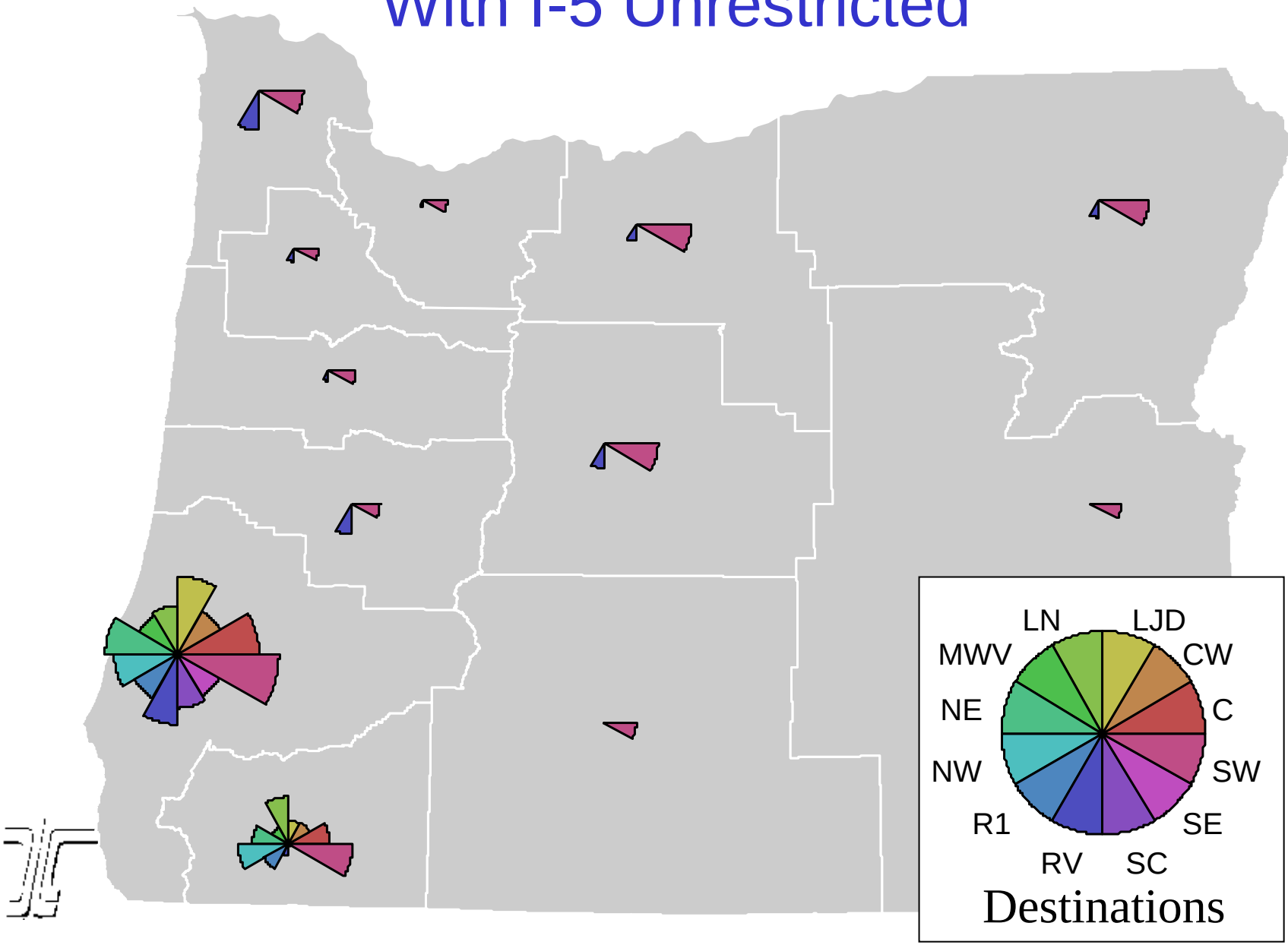
Proportional differences relative to Base Case scenario

SHIPPING COSTS

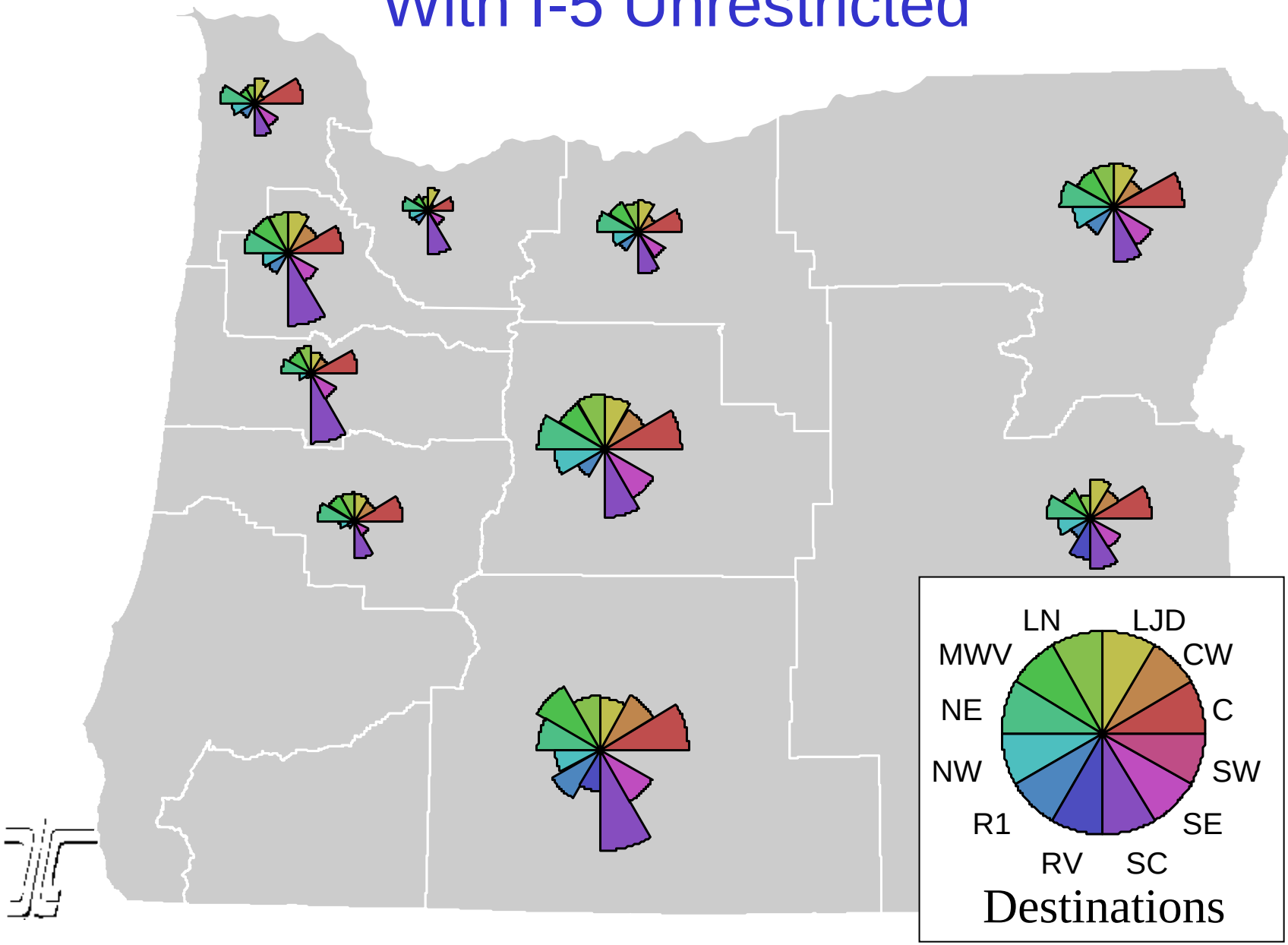


Source: Preliminary TRANUS model output, July 2002

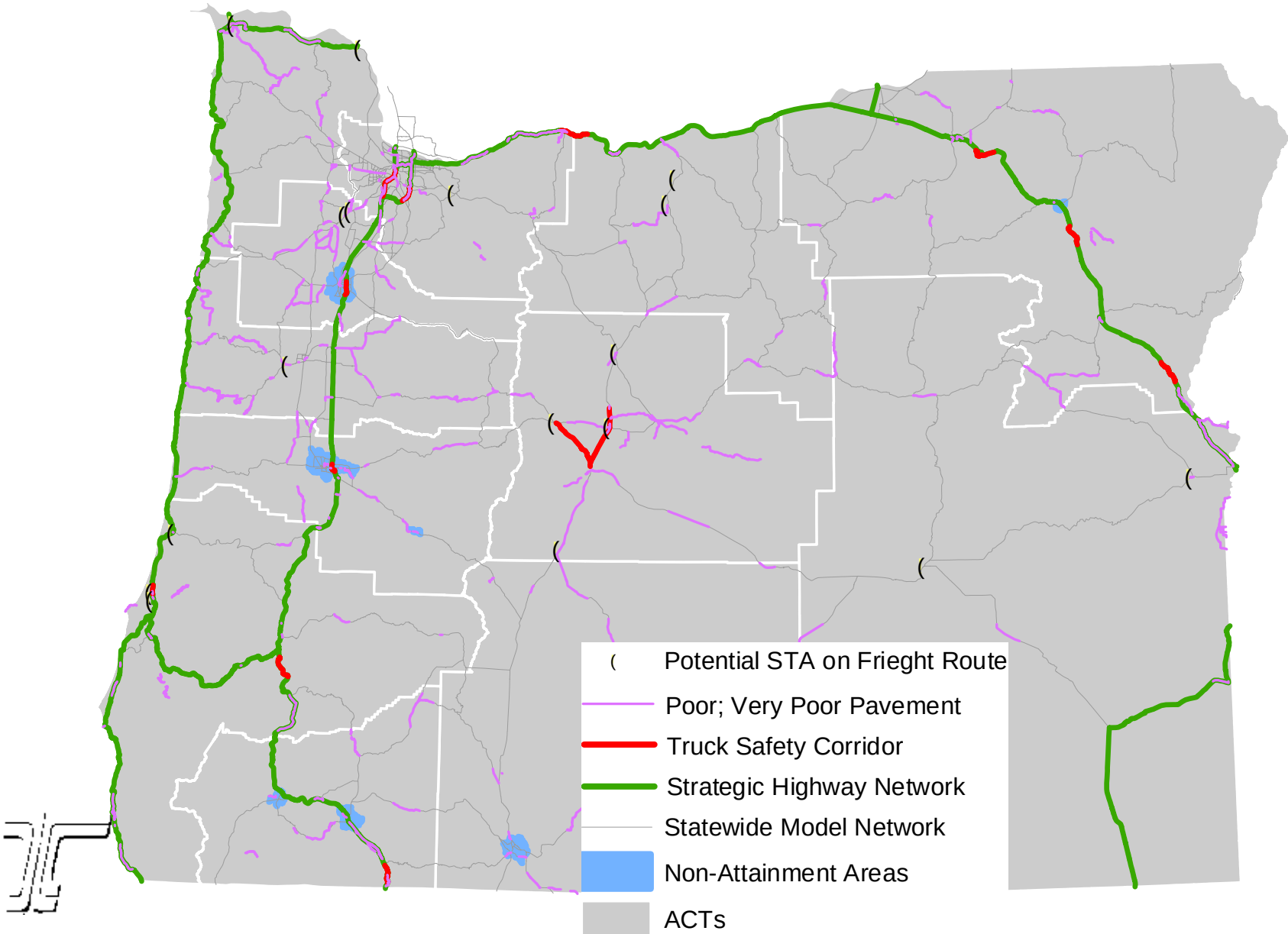
Truck Flow Gains
With I-5 Unrestricted



Truck Flow Losses
With I-5 Unrestricted



FREIGHT SYSTEM CONDITIONS



ANALYSIS TEAM

- Oregon Transportation Commission (OTC)
  - Select approach
  - Recommend to Legislature
- ODOT Bridge Options Team
  - Mobilize staff for data/analysis
  - Evaluate staff analyses
  - Recommend to OTC
- Project team
  - Propose project approach/alternatives for study
  - Conduct analyses

SCHEDULE

Late July	Complete initial model runs
Mid-August	Complete modeling and roadway analysis
September	Complete economic, land use, environmental, local impact analyses
On-going	Review with ODOT Senior Mgmt/OTC
January	Finalize presentation for legislature