
Beyond the Value of Travel Time: Examining the Effects of Shipper Logistics on Economic Investment Decisions Involving Freight Systems

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Economic Analysis Review

- Part 1 - Key Findings
- Part 2 – Shipper Interviews
- Part 3 – Regional Economic Impacts

Part 1 – Key Findings

Key Findings – Shipper Costs

- Shipper Surveys Estimate \$429.3 million in annual costs due to delays and service variability issues
- Delay costs (planned delays) account for \$283.5 million
- Reliability costs (unanticipated delays) account for \$145.8 million

Key Findings – Shipper Savings

- Proposed Plan 2 improvements will save shippers \$137.9 million annually
 - Delay-related savings will be \$28.5 million
 - Reliability-related savings will be \$109.4 million (~79.3% of total shipper savings)
- NPV of \$1.423 billion over 20 years
 - Estimated on same basis as public & carrier NPV computations in Houston Freight Rail Study
 - Assumes a discount rate of 7%

Key Findings – Benefits and Costs

Savings significantly improve HRFS B/C ratio

	Without Shipper Savings	With Shipper Savings
Plan 2 Costs	\$330.4	\$330.4
Benefits		
Public	\$ 98.0	\$ 98.0
Private	\$ 73.0	\$ 73.0
Shipper	\$ -	\$ 1,423.0
Total	\$ 171.0	\$ 1,594.0
B/C Ratio	0.52	4.82
<i>all values in \$ millions</i>		

Key Findings – Economic Impacts

- Shipper savings will increase total annual 8-county region output by \$226.6 million
- Increased output means ~610 new jobs and \$32.0 million per year in increased wages
- Increased value added (change in gross regional product) is \$66.9 million
- Improves reliability for ~8% of nation's freight rail traffic

Key Findings – Shipper Surveys

- Interviewees were asked 28 questions on three topics:
 - Railroad operations
 - Rail infrastructure
 - Port Terminal Railroad Association Operations
- Summarized responses from 15 shippers representing 8 industry groups

Shipper Responses - Highlights

- **Rail Operations:**
 - More collaborative planning required to cut shipper costs & improve carrier operations
- **Rail Infrastructure:**
 - Shippers need better understanding of how proposed Plan 2 improvements help individual shippers
- **PTRA Operations:**
 - Organizational and management practices limit effective absorption of volume fluctuations
 - Result is inefficient interchange with Class I carriers

Part 2 – Shipper Interviews

Interview Process

- Conducted 15 interviews representing 8 rail commodity shipping sectors
- Developed rail cost data for quantitative analysis
- Conducted survey of shipper perspectives on regional rail operations for 3 topics:
 - Rail carrier operations (10 questions)
 - Infrastructure (8 questions)
 - PTRAs operations (10 questions)

Summary of Rail Carrier Operations

- Variability in service (reliability) results in serious cost problems for shippers
 - No consensus on cause (infrastructure vs. operations)
- Consequences for shippers are primarily costs for excess private railcar fleet size and material inventories
- Shippers would support 7-day per week tendering
- Favor District's role as facilitator/arbitrator and as evaluator of proposed infrastructure plans

Infrastructure

- Uniform dissatisfaction with infrastructure quality
- Competitiveness closely tied to infrastructure quality and investment
- Expansion and private industrial investment closely tied to performance of rail system
- Chronic congestion in specific areas cited as key concern
- Shippers strongly favor improving rail capacity (weight-on-rail/double-tracking) versus grade crossing improvements

PTRA Operations

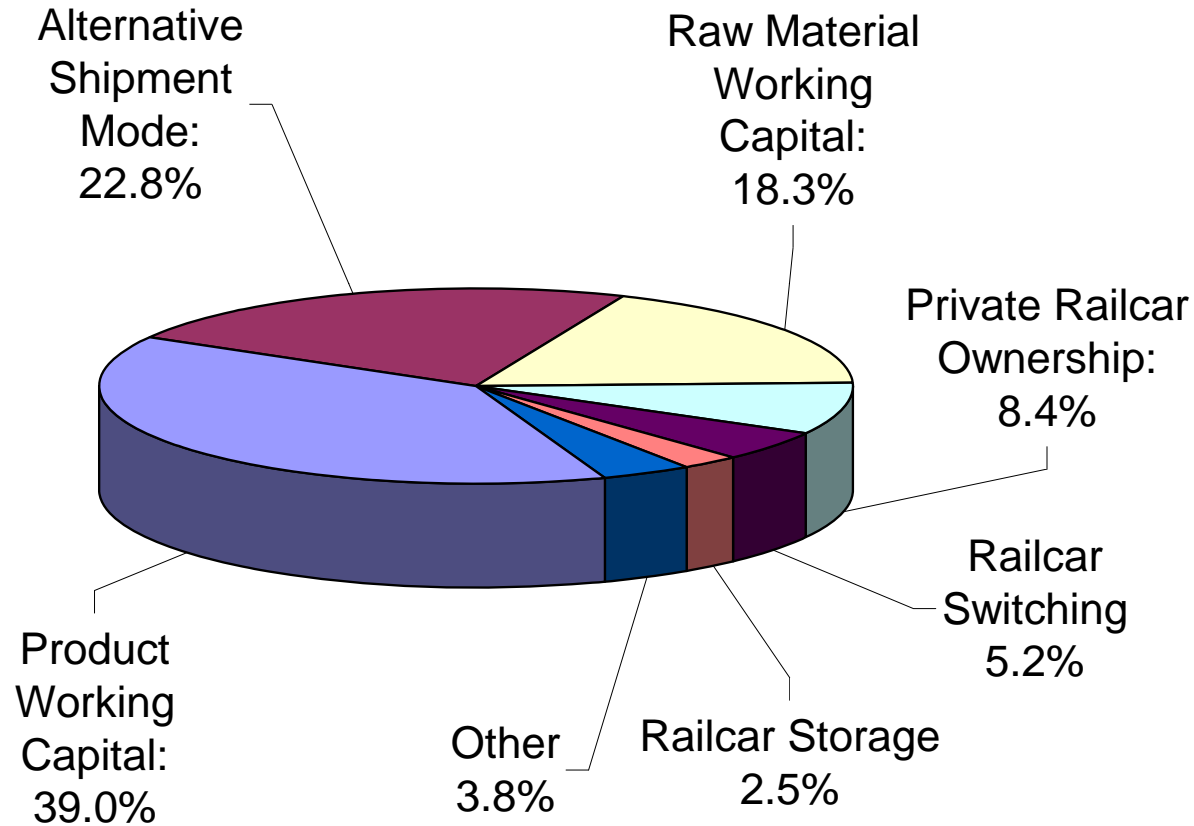
- Primary concerns are operating practices and performance monitoring/management
- Capacity constraints limit response to volume fluctuations and variation (reliability) of Class I operations
- Concern about integrity of Class I/Interchange block upon release by shippers
- Support (and feel that they need) an independent switching agent for POH and shippers

Part 3 – Regional Economic Impacts

Estimated Shipper Costs

- Delay Costs: \$283.5 million
- Reliability Costs: \$145.8 million
- Total: \$429.3 million

Shippers Costs – Rail-Dependent Industries



Types of Economic Impacts

- **Direct**
 - Direct cost savings attributable to reduced delay and improved reliability
- **Total**
 - Indirect and induced effects of shipper savings on suppliers and competitiveness
 - Measured by increased regional output, value added, jobs and wages.

Regional and Shipper Plan 2 Savings

- **Potential Shipper Savings:**
 - Reduced Delay: \$ 28.5 million
 - Improved Reliability: \$109.4 million
 - Total Shipper Savings: \$137.9 million
- **Total Regional Economic Impacts:**
 - Total Regional Output: \$226.6 million
 - New Employment: 610 jobs
 - Increased wages: \$ 32.0 million
 - Value Added (GRP): \$ 66.9 million

Benefit Cost Analysis

- Total costs compared to public and private (carrier) benefits
 - Benefits evaluated using 20-year NPV of annual cost savings
 - NPV of Public + Private Benefits = \$171 million
- HRFS did not account for shipper savings
 - NPV of shipper savings = \$1.423 billion
- Including shipper benefits changes B/C ratio

HRFS B/C Calculations

- Total costs remain the same:
 - Plan 1 = \$91.4 million
 - Plan 2 = \$239.0 million
 - Total Costs = \$330.4 million
- Total benefits not including shipper savings:
 - Private (Carriers) = \$ 73 million
 - Public = \$98 million
 - Total Benefits = \$171 million
- B/C Ratio = 0.52

Shipper Savings Improve Plan 2 B/C

- Total costs remain the same at \$330.4 million
- Total benefits including shipper savings:
 - Private (Carriers) = \$ 73 million
 - Public = \$98 million
 - Shippers = \$1.423 billion
 - Total Benefits = \$1.594 billion
- B/C Ratio = 4.82

Planning Implications of Shipper Savings

- Rail-dependent shippers realize significant cost savings not included in prior benefit/cost analysis
- Shipper savings dramatically change benefit/cost evaluations
 - Raises Plan 2 B/C above 1
- Shipper savings are important factors in evaluating other HRFS planning alternatives

QUESTIONS?