SECTION 7

MWRRI QUALITY AUDIT REPORT
OCTOBER 2005

Phase I – MWRRI Quality Audit Report

October 2005

PREPARED FOR

Steering Committee - Midwest Regional Rail Initiative

PREPARED BY

HNTB Corporation
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Phase I – MWRRI
Quality Audit Report

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Summary
Midwest Regional Rail System Quality Audit

1. Introduction

Since the inception of the Midwest Regional Rail System in 1997, elements of MWRRS studies have included operations analysis, demand forecasting, financial planning, market and economic assessment, institutional planning and public financing. As part of the previous study phases Transportation Economics and Management Systems, Inc. (TEMS) prepared and updated the MWRRS Plan. The most recent update is the *Executive Report, The Midwest Regional Rail System (September 2004)* and supporting technical documents. HNTB Corporation prepared the infrastructure costs estimates in this most recent plan update. Under the current phase of MWRRS (Phase 6), HNTB Corporation recommended that key assumptions of the MWRRS Financial Plan undergo testing through an outside quality audit and identify risks to the successful implementation of the MWRRS.

The Midwest Regional Rail Initiative Steering Committee and HNTB Corporation hosted a two-day quality audit workshop in October, 2005 to review findings and assumptions on:

- Ridership and revenue,
- Operating costs,
- Capital costs, and
- The Financial Plan.

Participants in the outside audit team included:

Ray Ellis -- AECOM Consulting
Bruce Williams – AECOM Consulting
Walter Schuchmann -- RL Banks and Associates
Linda Bohlinger – HNTB, Los Angeles Office

Other key participants included:

Alex Metcalf – TEMS
Chip Kraft – TEMS
Charlie Quandel - HNTB
Bob Moore – HNTB
Mike Franke – Amtrak
John Cikota – FRA (via telcon)
MWRRI – State Representatives

In summary, the quality audit found the technical work done to develop the MWRRS ridership and revenue forecasts, operating cost forecasts, capital cost estimates and financial plan to be sound. The risk analysis associated with the audit found the highest risks to be related to external factors

including: negotiations with freight railroads on access and capacity needs, federal and state funding availability, institutional development, development of needed train control technologies, and dispatching coordination issues. The risk analysis concluded that the MWRRI strategy of phasing the system build-out initially in the most developed and high-density Phase I corridors -- Chicago-Detroit, Milwaukee, and St. Louis-- mitigated risks placing them all in the medium or low categories.

This Technical Memorandum summarizes the audit methodology and findings from the workshop. An attachment to this memorandum provides additional supporting data from the workshop, including meeting minutes from the workshop, detailed information on review methods, presentation materials and the initial Report on Findings.

2. Review Process

A more detailed summary of review processes for each audit session is attached at the end of this memorandum.

a. Ridership/Revenue – the audit team reviewed assumptions, methodologies and analytical procedures, and assessed whether results are reasonable. The review of assumptions considered external factors not under control of the MWRRI program, policy assumptions made by the MWRRI and technical assumptions used in analyses.

   The audit team conducted a qualitative evaluation of analytical procedures used to develop projections. The evaluation was based on professional experience and an assessment of whether TEMS had appropriately accounted for assumptions and factors in its methodology.

   Finally the audit team qualitatively evaluated the ridership and revenue results. The evaluation focused on computational accuracy, comparisons to similar situations, comparisons to historical experience on other corridors and sensitivity to uncertainty.

b. Operating and Maintenance Costs – The audit team developed a list of the most influential operating cost elements and qualitatively assessed each element. The audit team evaluated a range of factors that could significantly influence the cost of each element.

c. Capital Costs – The audit team evaluated the adequacy of capital cost estimates used, the associated construction schedule, the degree to which infrastructure improvements addressed known capacity needs and bottlenecks on the MWRRI network, and access to freight lines used.

d. Financial Plan – The audit team used the same approach outlined for the ridership/revenue audit noted above.

3. Findings

The meeting minutes and Report on Findings in the Attachment provide detailed discussion of the conclusions of the audits.

a. Ridership/Revenue – The audit team confirmed that given the same assumptions, an alternative model system will produce results within 20% of the TEMS projections. However, there are several assumptions required for successful implementation of the MWRRS Financial Plan. The most substantial risks to ridership projections are:

   - Lower than expected transfers at stations, and
   - Lower ridership from feeder buses.

b. Operating and Maintenance Costs – The audit team flagged a number of questions about operating and maintenance costs that need additional review should MWRRS proceed into implementation. Among the highest risks to operating cost assumptions are fuel and crew costs exceeding projections. Other elements, such as maintenance and on-board services costs, were found to have a low risk to cost projections.

c. Capital Costs – The audit team found no major problems with MWRRI capital costs estimates and the methodology used. It noted that freight rail agreement with capacity improvements and the schedule for implementing them on freight-owned corridors, especially where freight labor forces will be used, are significant risk concerns.

d. Financial Plan – To obtain federal funding for the MWRRS, the FRA requires operating ratios greater than 1.0, and a benefit/cost ratio greater than 1.0. The Financial Plan achieves these goals through important implementation and funding assumptions. The underlying assumptions to realize the Financial Plan's success are the need to implement MWRRS as a system, and directly starting service at a 110 mph. Furthermore, the MWRRS states are assuming an 80/20 federal/state match. While start up operating losses would occur in the short term, they would be managed by:

   - Implementing the strongest routes first, and
   - Using a TIFIA loan to capitalize the remaining startup losses, using system operating surpluses of later years to repay the loan.

The audit team identified and evaluated the risks to these assumptions. The constraints with the highest risk of impacting the Financial Plan are:

- A federal 80/20 funding program is not available,
- Annual federal funds of $400 million are not available,
- States would need to cover additional capital costs if $400 million annual federal funds are not available,
- A multi-state institutional mechanism is not in place to receive and manage MWRRS funds, and
- States may not agree to concurrently fund MWRRS routes.

4. Risk Register

Two factors drive the Financial Plan:

- Ridership and revenue projections
- Operating and maintenance costs.

Overall, the audit team concurred with methodologies used to develop MWRRS projections and costs. However, there are substantial risks to realizing the assumptions supporting these factors. Major changes in the assumptions could alter the projections and economics associated with the MWRRS. These assumptions are:

- Ridership and revenue projections assume the construction of the entire system and introduction of new service and trip times according to the proposed project phasing schedule, and the predicted response from travelers to a fully integrated Midwest Regional Rail System.
- Operating plans for passenger train frequencies, schedules, and speeds are achievable through cooperative agreements with the freight railroads, commuter railroads and labor unions.
- Infrastructure improvements are dependent upon the freight railroads' and commuter rail operators' commitment to the construction schedule.
- Funding for planning, construction, and equipment procurement is available to support the implementation schedule.
- Funding support for operations is available during the start-up and implementation period.

After reviewing the projections and costs, the MWRRS audit team compiled a Risk Register, listing the Financial Plan elements and the key assumptions associated with each element. Next, the team identified the level of risk to the successful implementation of the assumptions.

The audit team defined risk levels as follows (See Report on Findings in Attachment):

High Risk
Major disruption is likely. A different approach is required and documented in a written treatment plan. Priority program management attention is required to avoid or minimize risk.

Medium Risk
Some disruption, a condition where the risk consequence would affect project quality objectives, cost, or schedule, and/or the probability of occurrence is high enough to be a concern. A different approach may be required and a written treatment plan is required. Program management attention required.

Low Risk
Minimum impact is expected. Assumptions are monitored by program manager to ensure risk remains low. A mitigation plan not required.

The table on the following pages summarizes the elements that can influence the success of the MWRRS Financial Plan and the estimated level of risk to the plan. As indicated in the third column, there are several high and medium risk elements to implementing the MWRRS. As noted earlier, the highest risks to be related to external factors such as freight railroad negotiations on access and capacity, funding, institutional arrangements and train control and dispatching.

As the initial Report on Findings notes, the intent of developing the risk table (or, Risk Register) is to begin developing a treatment plan to reduce risks to an acceptable level. As a follow up to the initial Risk Register, the MWRRI Steering Committee discussed alternatives to reduce the risks to implementing the MWRRS. The Steering Committee determined that implementing Phase I of the MWRRS could reduce the risk to implementing the entire system. Phase I consists of the Chicago-St. Louis, Chicago-Detroit and Chicago-Milwaukee-Madison routes. The key advantage of implementing Phase I is that risks are substantially reduced because service is in place throughout most of the MWRRI corridors. The fourth column in the Risk Register illustrates how risks are substantially reduced by first implementing Phase I of the MWRRS. The Steering Committee concurred to move forward with more focus on implementing Phase I by developing a detailed scope of services for a Phase I EIS, its cost and work plan, along with a draft purpose and need statement. Concurrently the Steering Committee continued completion of other deliverables in Phase 6, including a GIS data model and a PEIS template scope of services and work plan for any combination of MWRRS corridors.

The Steering Committee will continue to explore additional means to reduce risk to implementing the MWRRS through subsequent phases.

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MWRRI PHASE 6 RISK REGISTER

Element	Description	Risk Level- Entire MWRRS	MWRRS Phase 1	Reason for Change in Level	Mitigation Plans - TBD
Operating Costs	The fuel costs will significantly exceed the projections	High	Low	EIS will make new projections on fuel costs	
Access Utilization	Negotiations with freights will yield costs that impact implementation schedule and real estate costs	High	Low	Passenger service currently operating on freight ROW or will operate on state owned ROW	
Federal Funding	80/20 federal/state funding program similar to the highway program will not be available for the MWRRS	High	Medium	Demonstration funds may be available.	
Federal Funding	The annual amount of $400 million in federal funding will not be available	High	Low	$400 million is not required for Phase 1	
Federal Funding	$400 million annually needed to implement the entire system will not be matched by all states	High	Low	States involved in Phase 1 will need to make a commitment with order for equipment	
State Funding	If $400 million in federal funds are not annually appropriate, states funds will not be available to fill the funding gap.	High	Low	Wisconsin, Michigan, and Illinois have operating systems. Wisconsin needs capital funding to expand to Madison.	
Institutional	The States will not agree in a timely matter to form a joint power authority or compact needed to implement the Business Plan	High	Low	Not required for start-up of Phase 1 because each state has existing passenger service	
System Capacity	Capacity issues at the Chicago Union Station will not be solved	High	Low	Phase 1 will add 3 trains from North and 10 trains to South	
System Capacity	Capacity issues between Chicago and Rondout will not be resolved in a timely manner	High	Low	Phase 1 technical analysis in support of the EIS will resolve issue with final sign-offs from Metra	

System Capacity	Capacity issues between Kansas City and St Louis will not be resolved in a timely manner	High	N/A	Not part of Phase I	
System Capacity	Capacity issues at the St. Louis terminal will not be resolved in a timely manner	High	Medium	Fewer trains to St. Louis in Phase I	
System Capacity	Capacity issues between Chicago and Porter will not be resolved in a timely manner	High	Medium	Capacity issues will continue to impact Michigan trains without improvements.	
Travel times	Multiple dispatchers can impede travel time	High	Low	Phase 1 will be dispatched as currently done. No change.	
Operating Ratio	The Business Plan is based on the need to attain an operating ratio of 1.17 in 2014 and 1.36 in 2025. Non-attainment of these ratios will result in subsidy payments by states	High	Low	Subsidies will be required during ramp-up. States currently pay subsidies.	
Systems	Train Control System - availability of PTC	High	Medium	ITCS available in Michigan and could be used in Watertown to Madison segment if necessary	
Ridership within 10% of the estimate	Ridership of the MWRRS will not be within 10% of the ridership shown in the Business Plan	Medium	Low	Current ridership indicates that Phase 1 will achieve its objectives	
Revenue	The combination of fares and ridership will not achieve the projections shown in the Business Plan	Medium	Low	Financial plan for Phase 1 only will be prepared as part of the EIS	
Operating Costs	The crew costs will significantly exceed the projections	Medium	Low	EIS will make new projections on crew costs	
State Funding	One State will refuse to fund a corridor that impacts another states operation or build out of the corridor	Medium	Low	Phase 1 are independent or quasi-independent state corridors and refusal of one state to fund will not impact other states	

Subsidies	TIFIA loans will not be available to cross subsidize initial operating losses of the MWRRS	Medium	Low	Cross subsidies are not envisioned for Phase 1	
Implementation Schedule	Construction will not be staged properly to implement the schedule	Medium	Low	Phase 1 EIS will have updated projections based on more freight involvement	
System Capacity	Capacity issues between Rondout and Milwaukee will not be resolved in a timely manner	Medium	Low	Phase 1 will include a technical analysis on capacity issues to get sign off required from CPR for ROD	
System Capacity	Capacity issues between Cleveland and Toledo will not be resolved in a timely manner	Medium	N/A	Not part of Phase I	
System Capacity	Capacity issues at the Toledo terminal will not be resolved in a timely manner	Medium	N/A	Not part of Phase I	
System Capacity	Capacity issues between Chicago and Aurora will not be resolved in a timely manner	Medium	N/A	Not part of Phase I	
Travel times	The overall travel times will not be achieved	Medium	Low	Chicago to Porter capacity improvements	
Small package revenue	Failure to achieve $150 million in small package revenue will negatively impact the Business Plan	Medium	Low		
Ridership	The projection for transfers at stations will not be realized	Medium	Low		
Revenue	The ticket prices assumed in the Business Plan will not be realized	Medium	Low		
Ridership	The feeder buses will not yield the projected MWRRS ridership	Medium	Low		
Ridership within 25% of the estimate	Ridership of the MWRRS will not be within 25% of the ridership shown in the Business Plan	Low	Low		

Operating Costs	Equipment maintenance costs, which are 29% of the operating costs, will significantly exceed the estimated costs shown in the Business Plan	Low	Low		
Operating Costs	The track maintenance and cyclical capital costs will significantly exceed the projections	Low	Low		
Operating Costs	On board service (OBS) costs will significantly exceed the projections	Low	Low		
Capital Costs	Capital costs will significantly exceed projections	Low	Low		
System Capacity	Capacity issues at the La Crosse, WI river crossing will not be resolved in a timely manner	Low	Low		
Equipment	The number of train sets projected will not satisfy the system frequencies required	Low	Low		

ATTACHMENTS

Attachment 1 – October 26-27, 2005 Quality Audit Workshop Meeting Materials

Attachment 2 - Minutes of Quality Audit Review Workshop

Attachment 3 – Report on Findings

ATTACHMENT 1

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ATTACHMENT A

MWRRI PHASE 6
STEERING COMMITTEE MEETING

October 26-27, 2005

FRA Regional Office
200 W. Adams Street, Suite 310
Chicago, IL

AGENDA

1.	Introduction	10:00 to 10:30 AM
	1.1 Washington Update	
2.	Project Deliverables	10:30 to 10:45 AM
	2.1 Project Management Plan 2.2 Report on Findings	
3.	Schedule	10:45 to 11:00 AM
4.	Quality Audit Review/Ridership and Revenue	11:00 to 3:00 PM

4.1 Initial Briefing and Review Process
4.2 Review Assumptions

4.2.1 External Factor Assumptions
4.2.2 Policy Related Assumptions
4.2.3 Technical Assumptions

4.3 Review Methodology
4.4 Assess Reasonableness of Results

4.4.1 Conceptual Accuracy
4.4.2 Comparison of Other Situations
4.4.3 Comparison to Historical Expense
4.4.4 Uncertainty

5. Quality Audit/ Operations and Maintenance Plan 3:00 to 5:00 PM

    5.1 Access Fees
    5.2 Feeder Bus Program Costs
    5.3 Marketing Costs (including reservations and ticketing)
    5.4 Maintenance of Equipment
    5.5 Operator Profit
    5.6 Transportation Costs
    5.7 Stations Operating Costs (including facilities, services, and parking)
    5.8 Administrative Costs

Dinner scheduled for 6:30 to 9:00 PM

6. Quality Audit/Financial Plan 8:30 to 12:00 PM

    6.1 Initial Briefing and Review Process
    6.2 Review Assumptions

        6.2.1 External Factor Assumptions
        6.2.2 Policy Related Assumptions
        6.2.3 Technical Assumptions

    6.3 Review Methodology
    6.4 Assess Reasonableness of Results

        6.4.1 Conceptual Accuracy
        6.4.2 Comparison of Other Situations
        6.4.3 Comparison to Historical Expense
        6.4.4 Uncertainty

7. Public Informational Outreach Method 1:00 to 2:00 PM

    7.1 Needs of States
    7.2 Critical State Schedules

8. Next Step of Quality Review 2:00 to 2:30 PM

    8.1 Prepare Draft Documentation
    8.2 Steering Committee Review
    8.3 Revision and Follow-up Review
    8.4 Presentation of Final Results

9. Summary and Next Meeting 2:00 to 3:00 PM

ATTACHMENT B

RIDERSHIP / REVENUE WORKSHOP

Presented by TEMS

MWRRI STEERING COMMITTEE MEETING

October 26-27, 2005

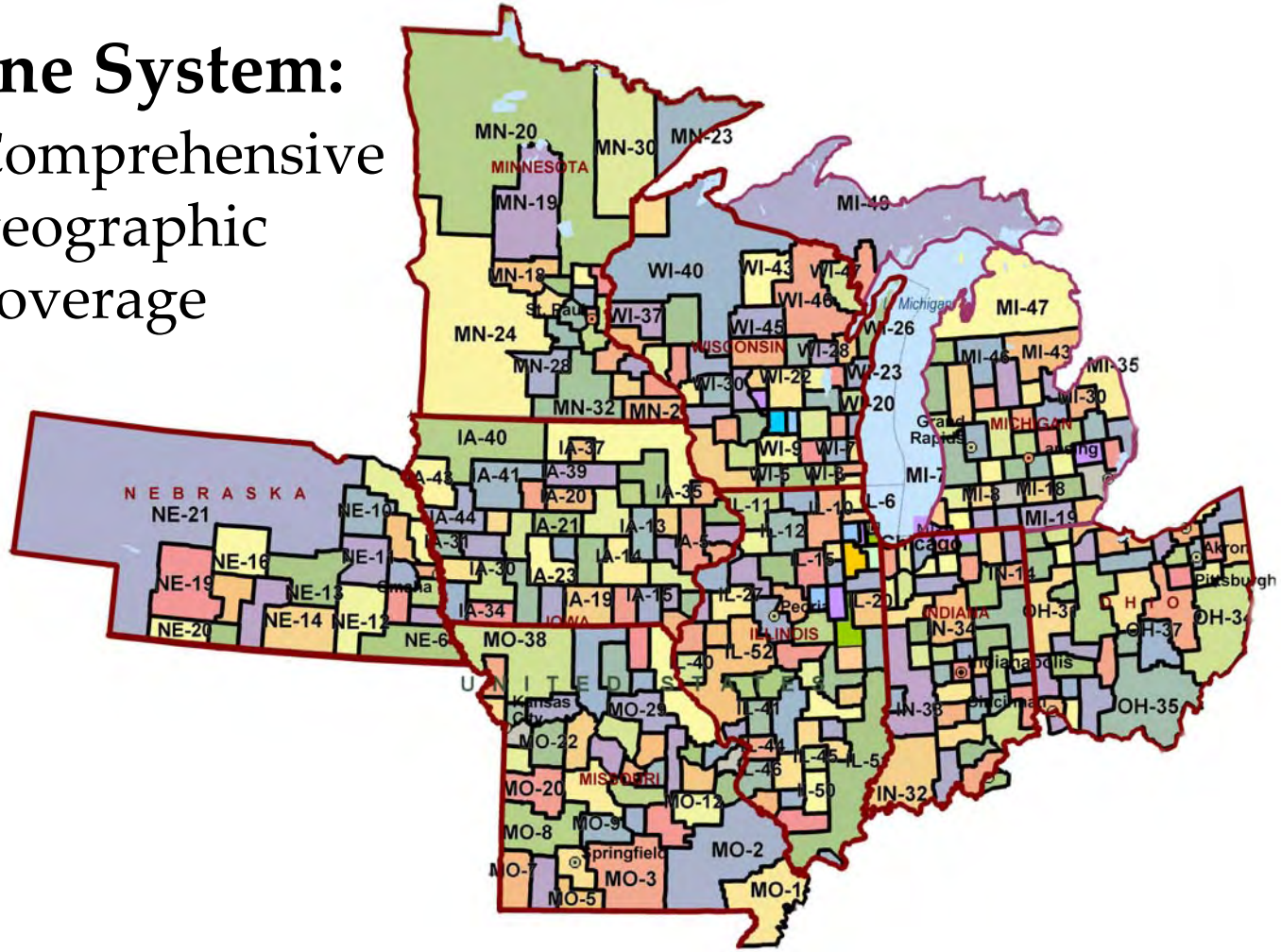
MWRRI Ridership / Revenue Workshop

- MWRRI Data base
- MWRRI Models
- MWRRI Forecasts
- MWRRI Validation
- TEMS Forecast Accuracy

MWRRI: Based on a very comprehensive database

Zone System:

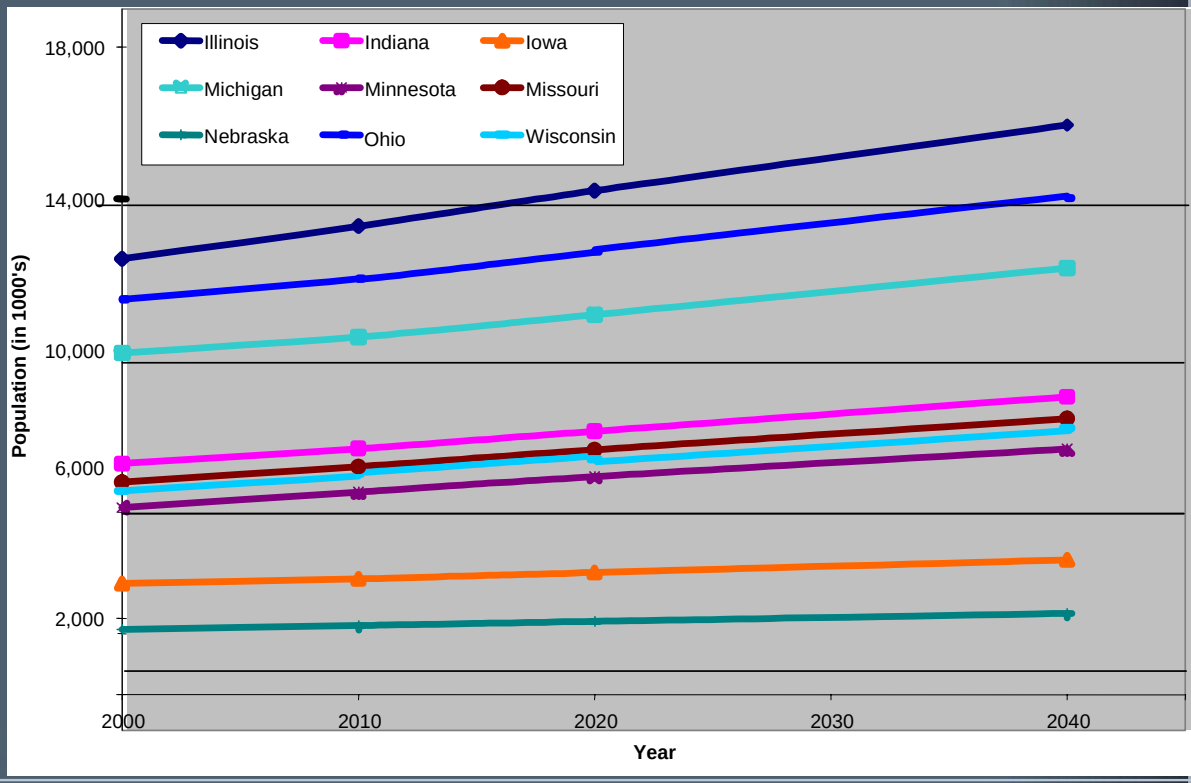
- Comprehensive geographic coverage



MWRRI: Based on a very comprehensive database

Socio Economic Data Source: Bureau of Economic Analysis & Woods and Poole

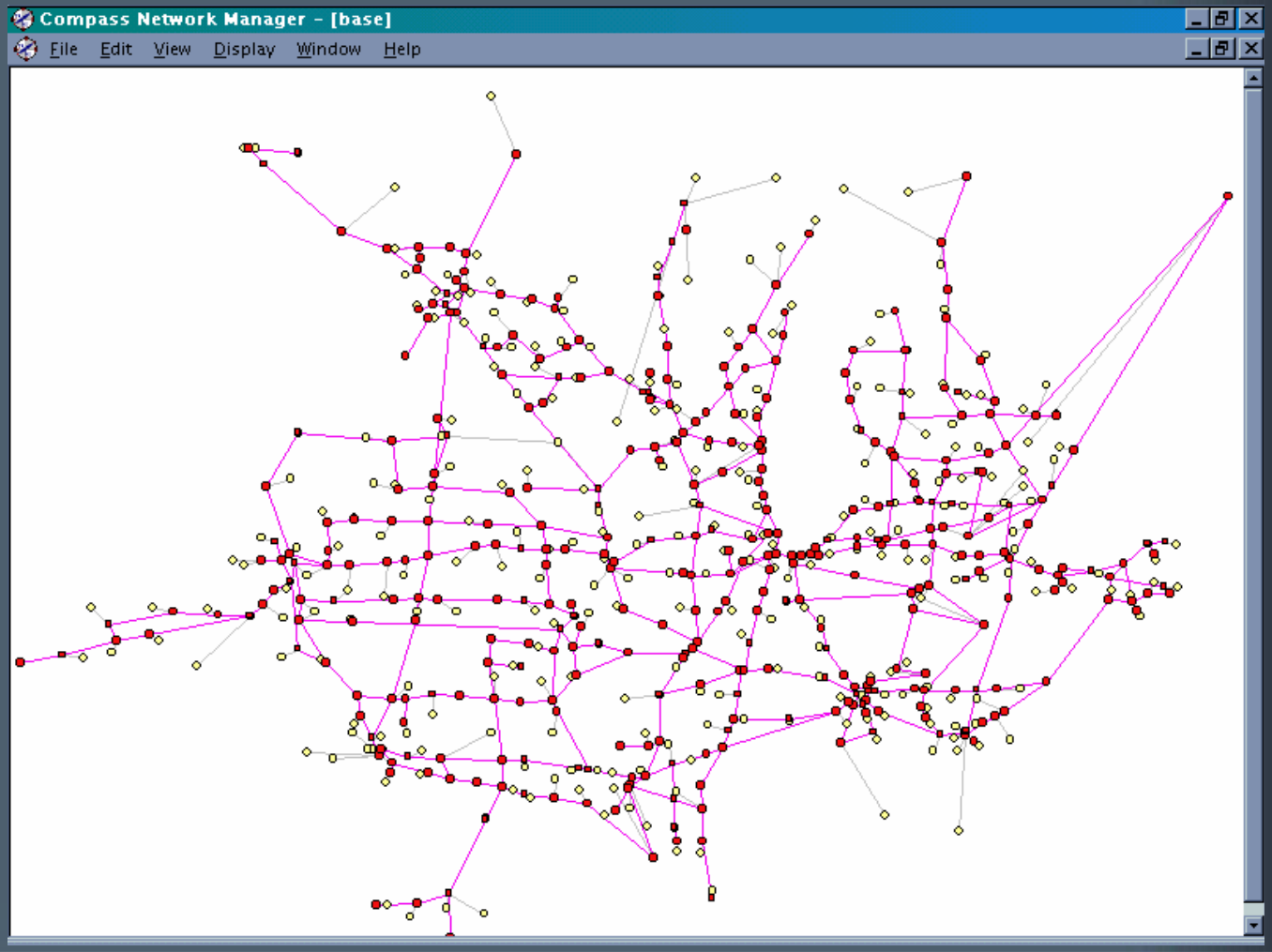
- Region has modest growth
  - Population 0.6
  - Employment 0.5
  - Income 0.9
  - Total growth 2000 to 2040 approx. 50% total



MWRRI: Based on a very comprehensive database

Networks:

Regional Network Systems for Auto/Air/Bus*

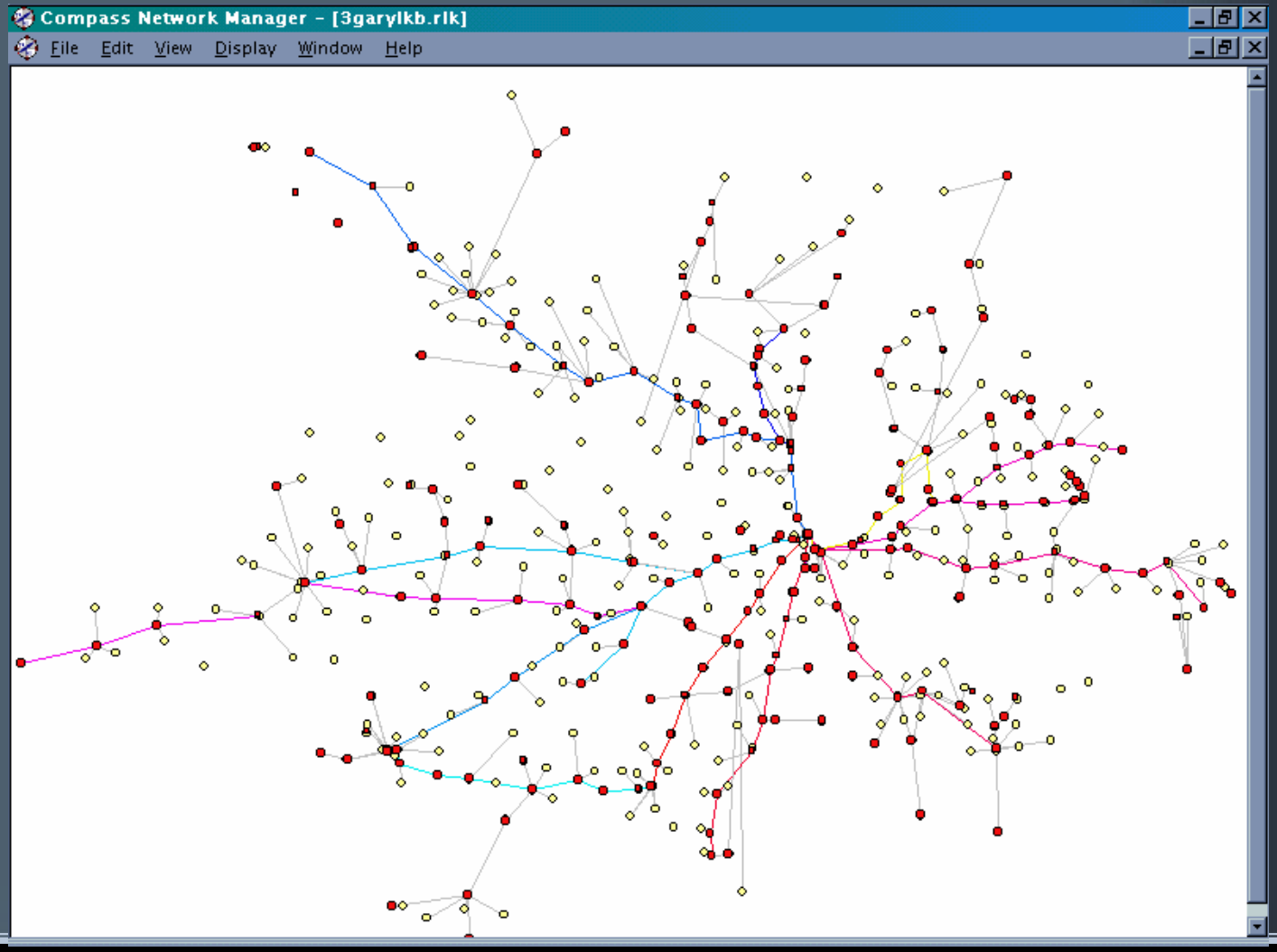


*Auto Network based on $1.25 per gallon

MWRRI: Based on a very comprehensive database

MWRRI:

Integrated Rail and Feeder Bus System- 100 stations



MWRRI: Based on a very comprehensive database

Stated Preference Surveys

- 1997 General Purpose Survey – 2038 surveys
- 1998 Branchline Survey – 1028 surveys
- 2002 Feeder Bus surveys – 1528 surveys

Total Stated Preference surveys = 4594

MWRRI: Based on a very comprehensive database

Findings

- **VOT comparable in Midwest with other locations**
  - Air VOT lowered by Southwest
  - Business 50%+ more than Non Business
  - Frequency higher in Air than Bus and Rail
  - Value of Reliability very high
  - Chicago Hub potential is high

Mode	*Trip Purpose*	*MWRRS 2001*	*MWRRS 1998 (Branch Line)*	*MWRRS 1997*	*Tri-State*	*Boston-Portland*	*Illinois*
Air	**Business**	**54**	**71**	**54**	**80**	**62**	**63**
	Non-Business	**27**	**47**	**27**	**42**	**24**	**40**
Auto	**Business**	**22**	**24**	**22**	**53**	**27**	**35**
	Non-Business	**16**	**18**	**16**	**32**	**16**	**20**
Bus	**Business**	**-**	**-**	**-**	**31**	**18**	**19**
	Non-Business	**14**	**13**	**10**	**27**	**15**	**11**
Rail	**Business**	**26**	**32**	**25**	**50**	**27**	**29**
	Non-Business	**15**	**20**	**18**	**35**	**15**	**20**

MWRRI: Based on a very comprehensive database

Utility Definition:

$$U_{ijp} = f(GCijp)$$

Where

GC_{ijp} = Generalized cost of travel between zones i and j for purpose p

$$GC_{ijmp} = TT_{ijm} + \frac{TC_{ijmp}}{VOT_{mp}} + \frac{VOF_{mp} \text{ x } OH}{VOT_{mp} \text{ x } F_{ijm}}$$

Where

TT_{ijm} + = Travel time between zones i and j for mode m (in-vehicle time + waiting time delay time + connect time + access/egress time + interchange penalty), with waiting, delay, connect and access/egress time multiplied by two to account for the additional disutility felt by travelers for these activities

TC_{ijmp} = Travel cost between zones i and j for mode m and purpose p (fare + access/egress cost for public modes, operating costs for auto)

VOT_{mp} = Value of Time for mode m and purpose p

VOF_{mp} = Value of Frequency for mode m and purpose p

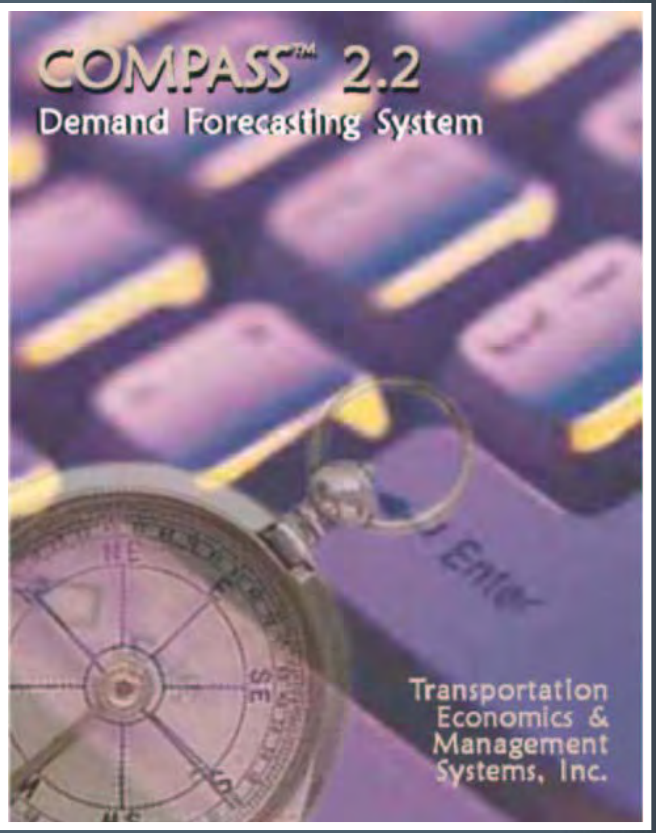
F_{ijm} = Frequency in departures per week between zones i and j for mode m

OH = Operating hours per week

MWRRI Model Performance: Model performance very strong

Model Structure

- long distance/short distance (<160 miles)
- main corridor/branch line
- business/non business



MWRRI Model Performance: Model performance very strong

Models are statistically very strong

Example 1: Total Demand – long distance main corridor

Total Demand Model Coefficients[1]

Long Distance Trips *(more than 160 miles driving distance)*

Business $\log(T_{ij}) = -13.4 + \underset{(146)}{0.710}\ SE_{ij} + \underset{(123)}{0.684}\ U_{ij}$ $R^2 = 0.91$

Where $U_{ij} = \log[\exp(-1.12 + 0.679\ U_{Pub}) + \exp(-0.00460\ GC_{Car})]$

Nonbusiness $\log(T_{ij}) = -13.4 + \underset{(176)}{0.710}\ SE_{ij} + \underset{(172)}{0.744}\ U_{ij}$ $R^2 = 0.92$

Where $U_{ij} = \log[\exp(-2.77 + 0.685\ U_{Pub}) + \exp(-0.00557\ GC_{Car})]$

[1] t-statistics are given in parentheses.

MWRRI Model Performance: Model performance very strong

Models are statistically very strong

Example 2: Modal Split: long distance – main corridor

Rail versus Bus Modal Split Model Coefficients[1]

Long Distance Trips *(more than 160 miles driving distance)*

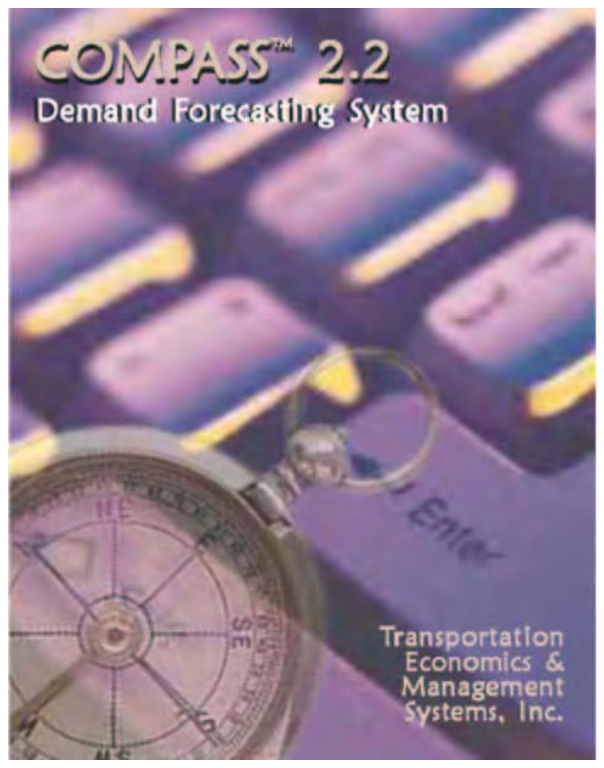
Business	$\log(P_{RAIL} / P_{BUS})$	=	3.76	-	0.00446	GC_{RAIL}	+	0.00413	GC_{BUS}	$R^2 = 0.62$
			(5.7)		(7.7)			(4.4)		
Nonbusiness	$\log(P_{RAIL} / P_{BUS})$	=	2.36	-	0.00297	GC_{RAIL}	+	0.00916	GC_{BUS}	$R^2 = 0.40$
			(11)		(16)			(9.5)		

[1] t-statistics are given in parentheses.

MWRRI Model Performance: Model performance very strong

Models Performance Results

- Model structure reflects current industrial practice
- Models are statistically sound, coefficients all have correct signs



MWRRI Forecasts
Sensitivity Analysis – Key Results

Existing Corridors e.g., Chicago-Detroit

- Base Traffic – 20-25 percent
- Induced Demand – 5-10 percent
- Service Factors – 30-40 percent
- On-Time Performance – 10 percent
- Feeder Bus – 5-10 percent
- Service Convenience – 3-5 percent

MWRRI Forecasts
Sensitivity Analysis – Key Results

Chicago Hub Synergy

- TEMS* - Annual Revenue – 24 percent
  - Annual Ridership – 20 percent
- FRA** - Annual Revenue – 35-48 percent
  - Annual Ridership – 37-49 percent

*** MWRRI Phase 2 forecast (1998)**

**** Commercial Feasibility Study (1997)**

MWRRI Forecasts–Ridership Comparisons

Ridership (Full Operation) Millions	TEMS Phase 3 (2010)	TEMS Phase 5 (2014)
Entire System (linked trips)	9.556	10.566
Chicago-Detroit -Port Huron-Grand Rapids	2.773	3.214
Chicago-Cleveland	0.896	1.170
Chicago-Cincinnati	0.784	.902
Chicago-Carbondale	0.421	.674
Chicago-St. Louis	1.500	1.473
St. Louis-Kansas City	0.637	.608
Chicago-Quincy-Omaha	1.026	1.260
Chicago-Milwaukee-Minneapolis- Milwaukee-Green Bay	3.193	3.357

MWRRI Forecasts–Revenue Comparisons

Revenue (Full Operation)	TEMS Phase 3 (2010) 2000$	TEMS Phase 5 (2014) 2002$
Entire System	477	528
Chicago-Detroit-Port Huron-Grand Rapids	110	113
Chicago-Cleveland	53	50
Chicago-Cincinnati	41	53
Chicago-Carbondale	19	22
Chicago-St. Louis	72	61
St. Louis-Kansas City	26	35
Chicago-Quincy-Omaha	37	53
Chicago-Milwaukee- Minneapolis-Milwaukee-Green Bay	113	141

MWRRI Model Validations

- FRA/KPMG vs MWRRI
- Amtrak Long-term vs MWRRI
- Amtrak Short-term vs MWRRI Start-up
- Florida vs MWRRI

Model Validation: Comparison with FRA* Results Forecast Year 2020

Corridor	Item	TEMS MWRRI	TEMS Comparable with FRA	FRA	% Diff.
Chic.-St. Louis	Riders	1.12	1.48	1.70	-13%
	Revenue	54	42	60	-30%
Chic.-Detroit	Riders	1.37	2.07	2.60	-20%
	Revenue	59	58	78	-26%
Chicago Hub	Riders	5.8	-	6.6	-12%
	Revenue	215	-	217	- 1%

Riders and revenue in millions.
*** High Speed Ground Transportation for America, September 1997**

Model Validation: Comparison with KPMG Peat Marwick Chicago-Milwaukee* Results

Forecast Year	Item	TEMS	KPMG	% Diff.
2010	Riders	.605	1.087	- 44%
	Revenue	14.1	33.0	- 57%
2020	Riders	.681	1.240	- 45%
	Revenue	15.8	37.0	- 57%

Notes: Riders and revenues in millions.
For comparison, fares set at $30 with trip frequency of 12.
*** Chicago Milwaukee Rail Corridor Study, May 1997**

June 16, 1998

TEMS

ModelValidation: The Need for "Apples to Apples" Comparisons

The "Amtrak" letter of August 6, 1999

- MWRRI over forecast compared to FRA and MBNA because MWRRI 2010 forecast for Chicago-St. Louis is for $66.07 million whereas FRA 2020 forecast is for $60 million.

  At 2010 with 9 trains and 3.36 trip time, MBNA forecast is $36 million and FRA $41 million.
- FRA report however gives hub impact of 35-48 percent for Revenues and Passenger miles. TEMS forecast also includes St. Louis – Kansas connection.
- TEMS 2020 Revenue forecast with 3.36 time and 13 trains is $78.96 million. FRA 2020 forecast with same service is at minimum $81-88.8 million.

Validation: The Need for "Apples to Apples" Comparisons

Chicago-St. Louis Results

2010-9 trains/3-36 time (Revenue)

- TEMS is $66 million
- FRA is $70 million (with hub)
- MBNA is $52 million (with hub)

TEMS estimate is conservative with respect to FRA, given adjustments for train frequency, growth and Chicago Hub and St. Louis Hub effect.

Comparison of MWRRS and Amtrak Midwest Forecasts

- Overall System Comparison
  - Costs
  - Length
  - Proposed Service
  - Ridership & Revenue
- Corridor Comparison
  - Chicago - Detroit
  - Chicago - Milwaukee - Minneapolis
- Transformation of Model Inputs and Reconciliation of Forecasts.
  - Ridership and Revenue projections with model input adjustments
- Conclusions

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Amtrak Overall System Comparison (cont.)

- Other Consideration
  - Amtrak capital costs are not for a 3000-mile system, but for a 3370-mile system that includes the 3C Corridor (Cleveland-Columbus-Cincinnati) and an extension from Indianapolis to Louisville.
  - TEMS estimates
    - 3C corridor - $710 million
    - Indianapolis to Louisville could well cost an additional $160 million.
  - The addition of these two costs would bring TEMS capital costs to $4.97 billion, an estimate very close to the Amtrak estimate.

Proposed Service

Corridor	Current Trip Time	Current Trains Per Day	Trip Time After Investment	
			Amtrak	TEMS
Chicago-to- Milwaukee	1 hour, 32 min	**6**	1 hour, 5 min	1 hour, 5 min
Chicago-to- Cincinnati	8 hours, 48 min	1	4 hours, 8 min	Express: 4 h, 8 min Local: 4 h, 29 min
Chicago-to- Minneapolis	7 hours, 56 min	1	5 hours, 44 min	Express: 5 h, 44 min Local: 6 h, 42 min
Chicago-to- St. Louis	5 hours, 45 min	3	3 hours, 50 min	Express: 3 h, 50 min Local: 4 h, 10 min
Chicago-to- Cleveland	6 hours, 32 min	3	3 hours, 57 min	Express: 3 h, 57min Local: 4 h, 31 min
Chicago-to- Indianapolis	6 hours, 30 min	1	2 hours, 40 min	Express: 2 h, 44 min Local: 3 h
Chicago-to- Detroit	5 hours, 46 min	3	3 hours, 40 min	Express: 3 h, 40 min Local: 4 h, 14 min

Proposed Service (continued)

	Future Trains per Day		Time Saved	
Corridor	**Amtrak**	**TEMS**	**Amtrak**	**TEMS**
Chicago-to- Milwaukee	16	16	27 min	27 min
Chicago-to- Cincinnati	6	5	4 hours, 40 min	4 ours, 39 min
Chicago-to- Minneapolis	6	6	2 hours, 12 min	2 hours, 14 min
Chicago-to- St. Louis	8	9	1 hour, 55 min	2 hours, 3 min
Chicago-to- Cleveland	8	8	2 hours, 25 min	2 hours, 48 min
Chicago-to- Indianapolis	6	6	3 hours, 50 min	3 hour, 46 min
Chicago-to- Detroit	9	9	2 hours, 6 min	2 hours, 5 min

Corridor Analysis*

- **Chicago-Detroit (with Michigan Branches) Corridor (2005)**
- **Chicago-Milwaukee-Minneapolis Corridor (2005)**

	Chicago-Milwaukee-Minneapolis Corridor		Chicago-Detroit Corridor	
	Amtrak	**TEMS**	**Amtrak**	**TEMS**
Annual Incremental Ridership (millions)	1.2	1.742	1.50	1.338
Annual Incremental Revenue (millions)	$65	$75	$73	$54.25
Average Ticket Price ($/passenger trip)	**$54.17**	**$43.07**	$48.67	$40.53
Number of Trains Daily	6	6	9	9

***FARE ANALYSIS**

April 30, 2001 Transportation Economics & Management Systems, Inc.

Transformation of Model Inputs, Reconciliation and Outstanding Differences

- Transformation of Model Inputs
  - Fare changes required to meet AMTRAK Scenario
    - TEMS increased its Chicago-Milwaukee-Minneapolis corridor fare to 26 percent higher than TEMS originally considered.
    - TEMS increased its Chicago-Detroit corridor fare to 20 percent higher than TEMS originally considered.
  - Eleven Corridors, Adding the 3C in MWRRS
    - Extra corridors (i.e. 3C & Indy – Louisville) included in the *Compass*© model inputs

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MWRRI Transformed Results

Ridership

	TEMS Initial Forecast	20% increase in TEMS' Fares	Amtrak Forecasts
	Ridership in 2010	Ridership in 2010	Ridership in 2010
MWRRS Ridership	9,555,814	7,982,745	9,000,000
3C Corridor (CLE-COL-CIN)	1,183,535	939,727	
Indianapolis-Louisville*		77,528	
Adjusted MWRRS	10,739,349	9,000,000	9,000,000

Revenue

	TEMS Initial Forecast	20% increase in TEMS' Fares	Amtrak Forecasts
	Revenue in 2010 (millions)	Revenue in 2010 (millions)	Revenue in 2010
MWRRS Revenue	$425.62	$426.66	$481.03
3C Corridor (CLE-COL-CIN)	$52.71	$50.23	
Indianapolis-Louisville*		$4.14	
Adjusted MWRRS	$478.33	$481.03	$481.03

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Corridor Results and Outstanding Differences

- Chicago – Detroit Corridor Ridership & Revenue

Year 2005 Forecasts	Amtrak	TEMS
Annual Incremental Ridership	1,500,000	1,234,955
Average Fare	$ 48.67	$ 48.67
Annual Incremental Revenue	$ 73,000,000	$ 60,105,236

- Chicago – Milwaukee – Minneapolis Ridership & Revenue

Year 2005 Forecasts	Amtrak	TEMS
Annual Incremental Ridership	1,200,000	1,426,255
Average Fare	$ 54.17	$ 54.17
Annual Incremental Revenue	$ 65,000,000	$ 77,260,235

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Conclusions

- Differences occur in the overall estimate of ridership and revenue as well as on the Chicago-Milwaukee and Chicago-Detroit with Branch corridors.
- Differences are largely reconciled when both studies apply the same parameters and TEMS adds the Indianapolis-Louisville and 3C corridors to the *Compass*© model inputs.
- While some differences clearly remain over issues such as price elasticity and possibly the definition of the Midwest operating plan, the revised TEMS ridership projections closely parallel Amtrak's.

Model Validation Conclusions

– MWRRI model - very close results to Amtrak long-term forecasts.

Short Term Amtrak vs MWRRI Startup

Midwest Regional Rail System

MWRRS Baseline (1996) Ticket Fares versus Amtrak (1999) Ticket Fares

		TEMS Base 1996	Present 1999*
Chicago, IL	Milwaukee, WI	**25**	19
Milwaukee, WI	Portage, WI	**30**	30
Portage, WI	La Crosse, WI	**23**	22
La Crosse, WI	ST. Paul/MPLS	**23**	22

Chicago, IL	St. Louis, MO	**37**	30

Chicago, IL	Hammond-Whiting, IL	**4**	4
Hammond-Whiting, IL	Kalamazoo, MI	**20**	29
Kalamazoo, MI	Detroit, MI	**24**	29

**Source:Based on average observed Amtrak website fares*

September 21, 1999

TEMS

Model Run of MWRRS Baseline using Amtrak (1999) Fares versus Amtrak Forecasts

Chicago-St Louis

TEMS	2000	2005	2006	2007	2008	2009	2010
Ridership	295	322	328	334	340	346	352
Ticket revenue	*6.21*	*6.78*	*6.90*	*7.02*	*7.14*	*7.27*	*7.40*
Amtrak							
Ridership	280	301.7	306.2				
Ticket revenue	6.1	7.26	7.52				

Chicago-Twin Cities

TEMS	2000	2005	2006	2007	2008	2009	2010
Ridership	485	526	535	544	553	562	572
Ticket revenue	*11.66*	*12.66*	*12.87*	*13.09*	*13.30*	*13.53*	*13.75*
Amtrak							
Ridership	492.4	530.4	538.4				
Ticket revenue	10.5	12.48	12.92				

Chicago-Detroit

TEMS	2000	2005	2006	2007	2008	2009	2010
Ridership	489	524	531	539	546	554	561
Ticket revenue	15.08	16.16	16.39	16.62	16.85	17.09	17.33
Amtrak							
Ridership	535	576	585				
Ticket revenue	13	15.45	16.01				

September 21, 1999

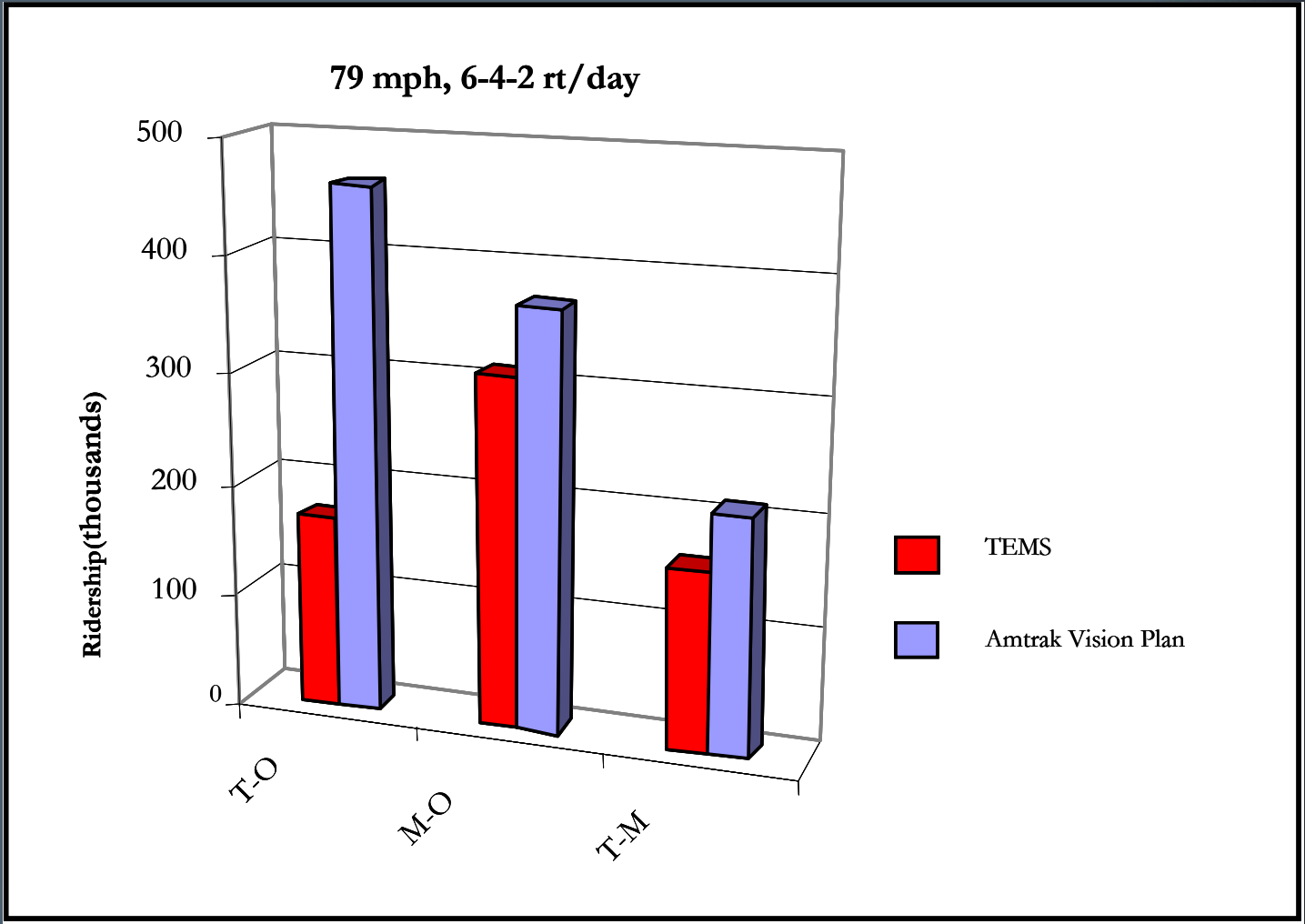
TEMS

Model Validation Conclusions

– MWRRI start-up model - very close results to Amtrak short-term forecasts.

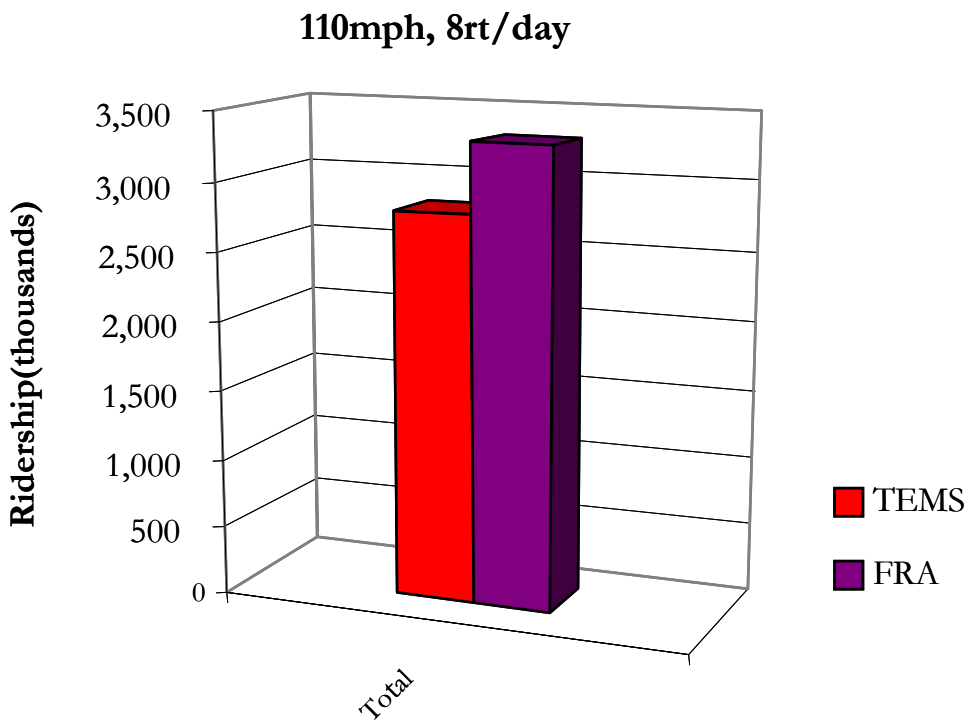
MWRRI compared to Florida Studies

79-mph Comparisons



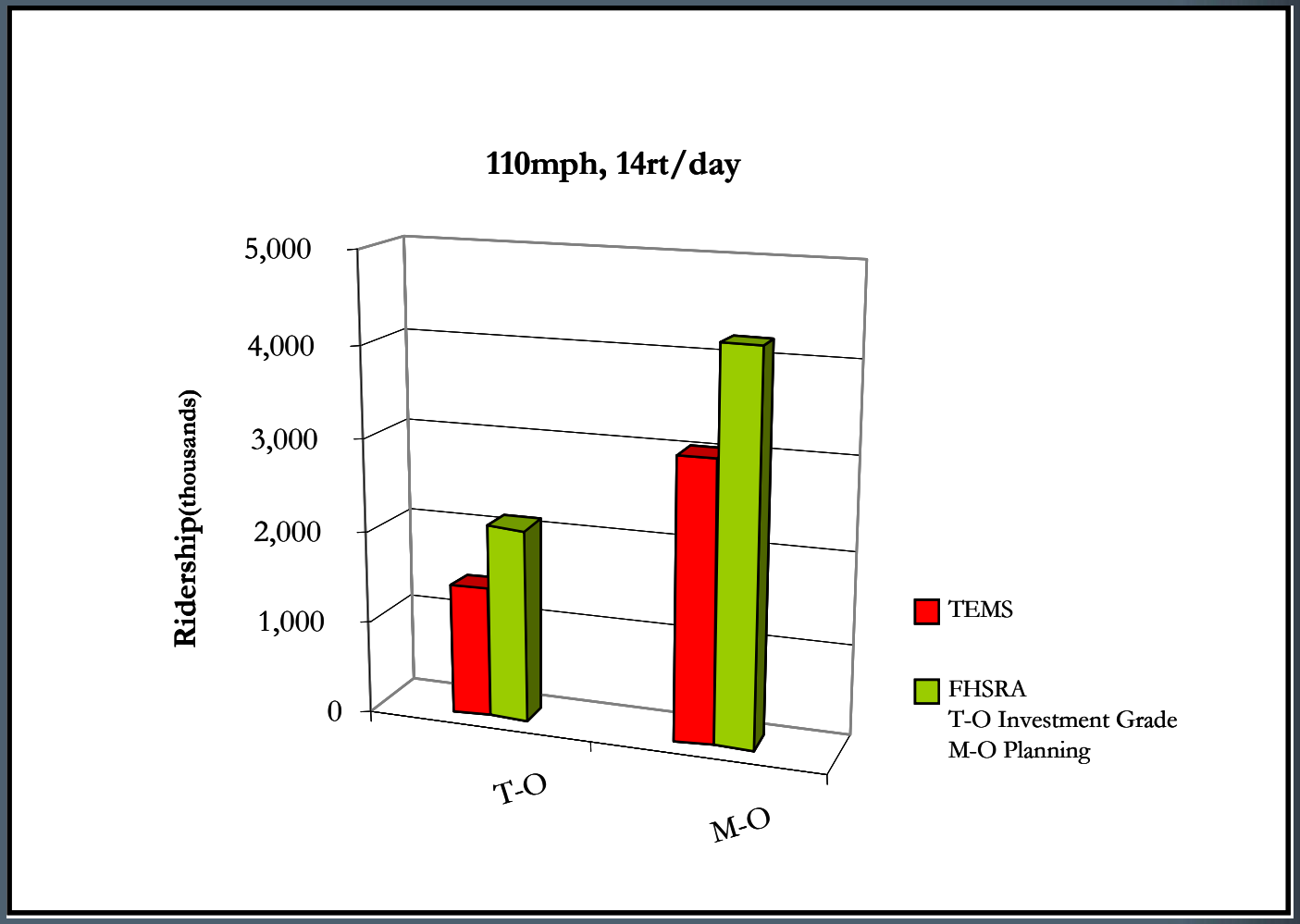
MWRRI compared to Florida Studies

110-mph Comparisons (1)



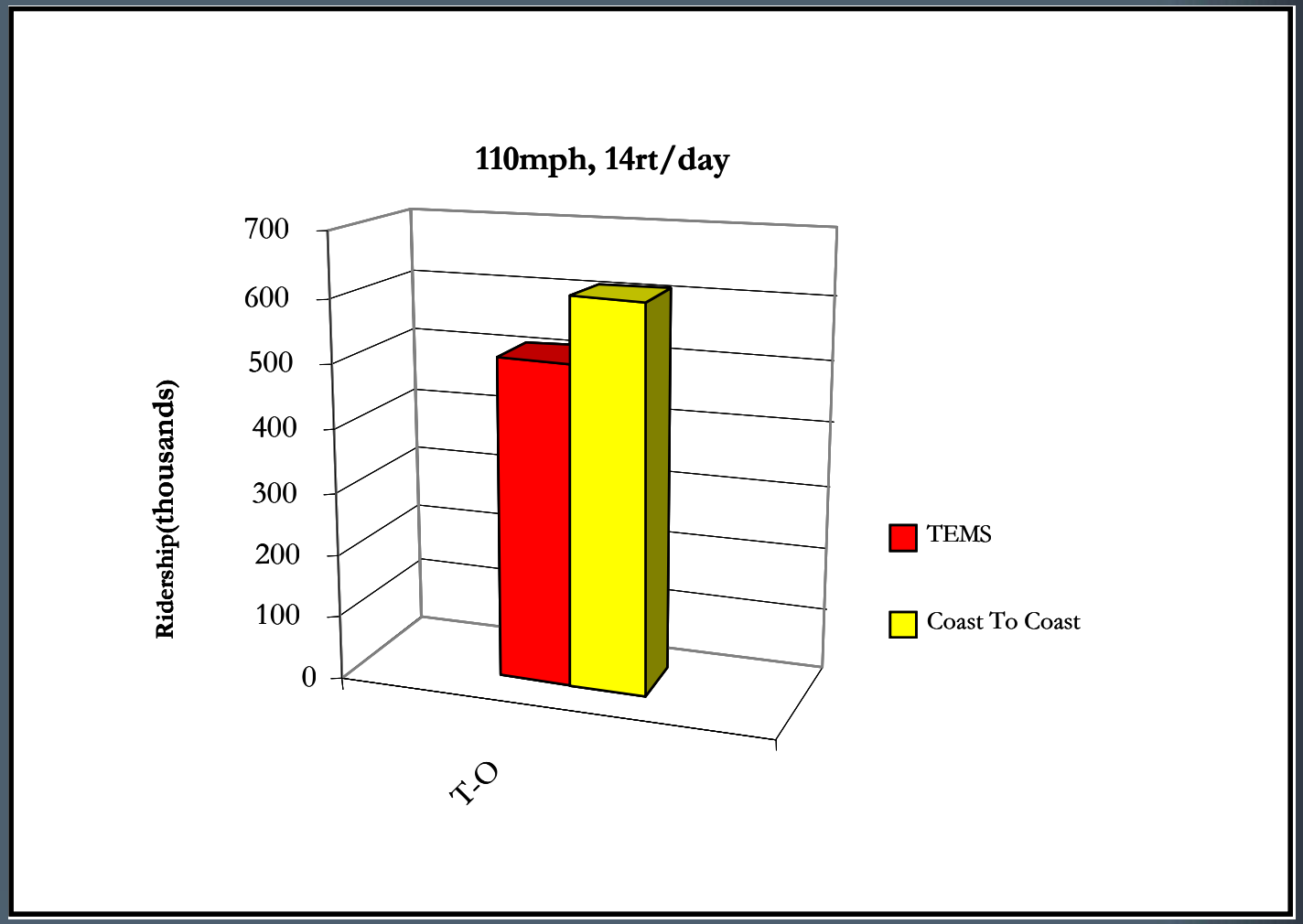
MWRRI compared to Florida Studies

110-mph Comparisons (2)



MWRRI compared to Florida Studies

110-mph Comparisons (3)



MWRRI Comparison of Forecasts

- Boston - Portland
- Oklahoma - Fort Worth
- TEMS Experience

The Downeaster: Service Overview

Source: http://www.amtrak.com

- Reservation Required
- Four Round Trips daily
- Boston – Portland fare = $21.00
- Route Length = 116 miles
- Therefore, Fare per mile = $0.18/mile

"I expect the service to cover operating costs within two years if we can raise prices from 18 cents to 24 cents per train mile"

Mike Murry – Executive Director

April 30, 2001 Transportation Economics & Management Systems, Inc.

The Downeaster: Service from Boston, MA, to Portland, ME

AMTRAK

The Downeaster

EFFECTIVE DECEMBER 15, 2001

Portland • Old Orchard Beach • Saco-Biddeford • Wells • Dover • Durham • Exeter • Haverhill • Boston

680	682	684	686	◄ Train Number ►					681	683	685	687
Daily	Daily	Daily	Daily	◄ Days of Operation ►					Daily	Daily	Daily	Daily
B R	B R	B R	B R	◄ On Board Service ►					B R	B R	B R	B R
Read Down				Mile	▼		Symbol	▲	Read Up			
6 05A	8 45A	2 00P	4 20P	0	Dp	Portland, ME (ET)	♿	Ar	12 30P	2 45P	9 00P	1 45A
[S]	[S]	[S]	[S]	12		Old Orchard Beach, ME	● ♿		[S]	[S]	[S]	[S]
[S]	[S]	[S]	[S]	16		Saco-Biddeford, ME	● ♿		[S]	[S]	[S]	[S]
6 41A	9 21A	2 35P	4 56P	32		Wells, ME	● ♿		11 42A	1 54P	8 09P	12 58A
7 02A	9 42A	2 56P	5 17P	48		Dover, NH	● ♿		11 22A	1 34P	7 49P	12 38A
[W] 7 11A	[W] 9 51A	[W] 3 05P	[W] 5 26P	54		Durham, NH	● ♿		[W] 11 15A	[W] 1 25P	[W] 7 39P	[W] 12 28A
7 30A	10 10A	3 24P	5 45P	65		Exeter, NH	● ♿		11 03A	1 15P	7 30P	12 19A
7 57A	10 37A	3 52P	6 08P	82		Haverhill, MA	● ♿		10 38A	12 53P	7 08P	11 53P
8 50A	11 30A	4 45P	7 05P	116	Ar	Boston, MA–North Station (ET)	♿	Dp	9 45A	12 00N	6 15P	11 00P

Services on these Trains

Coaches: Reservations required.
Coastal Club Service: Spacious, reserved seating (Business class) with complimentary delivery of non-alcoholic beverages and newspapers.
Cafe Service: Specialty regional menu.
Bicycles: A limited number of spaces are available to transport unboxed bicycles. Bicycles are handled at Portland, Wells and Boston only. Reservations are required and a service charge applies. The passenger assists in loading, securing and unloading the bicycle.

This service is financed through funds made available by the Northern New England Passenger Rail Authority.

Symbols and Reference Marks

- **A** Time Symbol for A.M.
- **ET** Eastern Time
- **N** Time Symbol for Noon
- **P** Time Symbol for P.M.
- **B** Coastal Club Service—Business class, reservations required.
- **R** All reserved train. Reservations required.
- Sandwich, snack and beverage service.
- ● Tickets cannot be purchased at this location. You may purchase your tickets on the train or from any Amtrak appointed travel agency. Please call 1-800-USA-RAIL to make special arrangements when boarding/detraining assistance is required.
- ♿ All station facilities are fully accessible to persons using wheelchairs.
- Smoking is not permitted on this train.
- [T] Service to commence on a date to be announced.
- [S] Seasonal stop.
- [W] Service to/from this station operates Fridays, Saturdays and Sundays only.

For reservations and information, call 1-800-USA-RAIL or your travel agent, or visit www.amtrak.com on the Internet.

Form W3/45M Stock No. 02303L

AMTRAK is a registered service mark of the National Railroad Passenger Corporation.

Schedules subject to change without notice.

Source: http://www.amtrak.com

April 30, 2001 Transportation Economics & Management Systems, Inc.

The Downeaster: Forecast

Boston – Portland Passenger Rail Service Before and After (yearly)	
	Passengers
Original Estimate	330,000
Ramp Up	160,000
January 2002 Annual Estimate	206,000
Annualized Estimate with Seasonality (25 percent)	257,500
Train time increase factor (15 percent)	295,550
Station factor (8 percent)	319,194
Feeder bus (4 percent)	331,962
Congestion factor (summer/holidays)	
Overcrowded factor (trains overloaded)	
Ticket factor (peak/off-peak)	

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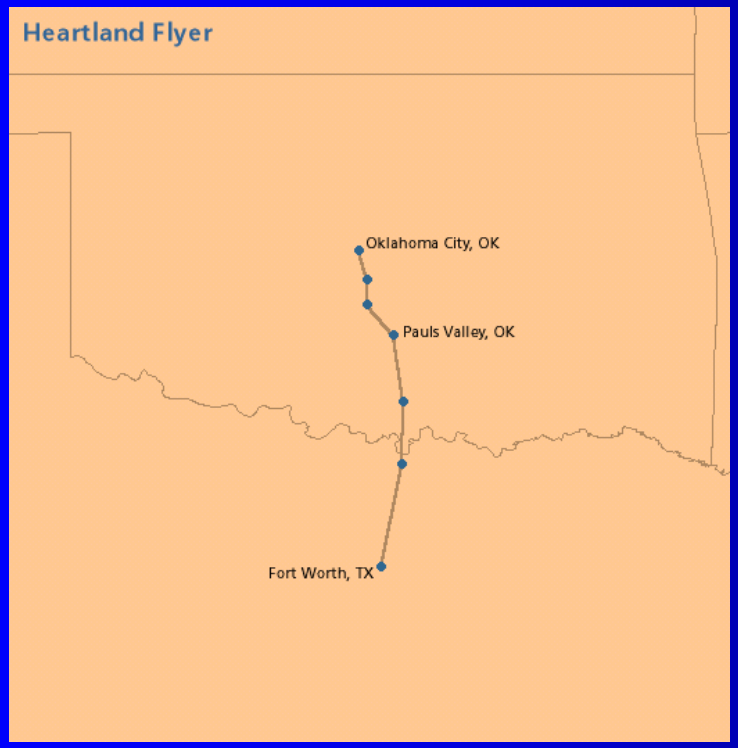
The Heartland Flyer: Service Overview



Source: http://www.amtrak.com

- Reservations Required
- Daily Frequency
- 206 miles

Oklahoma City to Fort Worth – 206 miles

The Heartland Flyer: Forecast

Oklahoma – Ft. Worth Passenger Rail Service Before and After (yearly)	
	Passengers per year
Original Estimate	62,000
Ramp Up	31,000
Year 1999 Annual Estimate	71,129
Year 2000 Annual Estimate	61,025
Year 2001 Annual Estimate	55,000
Year 2002 Annual Estimate	62,000

"The loss of ridership after September 11 was about 20 percent per month. We anticipate it will come back in 2002."

– John Dwalty, Oklahoma Department of Transportation

April 30, 2001 Transportation Economics & Management Systems, Inc.

TEMS Forecasting Results from Before/After Surveys

Oklahoma City-Fort Worth – Amtrak Service

- Actual traffic higher than forecast. i.e., 71,000 – 1999 and 65,000 – 2004 compared with the 62,000 forecast in 1998.

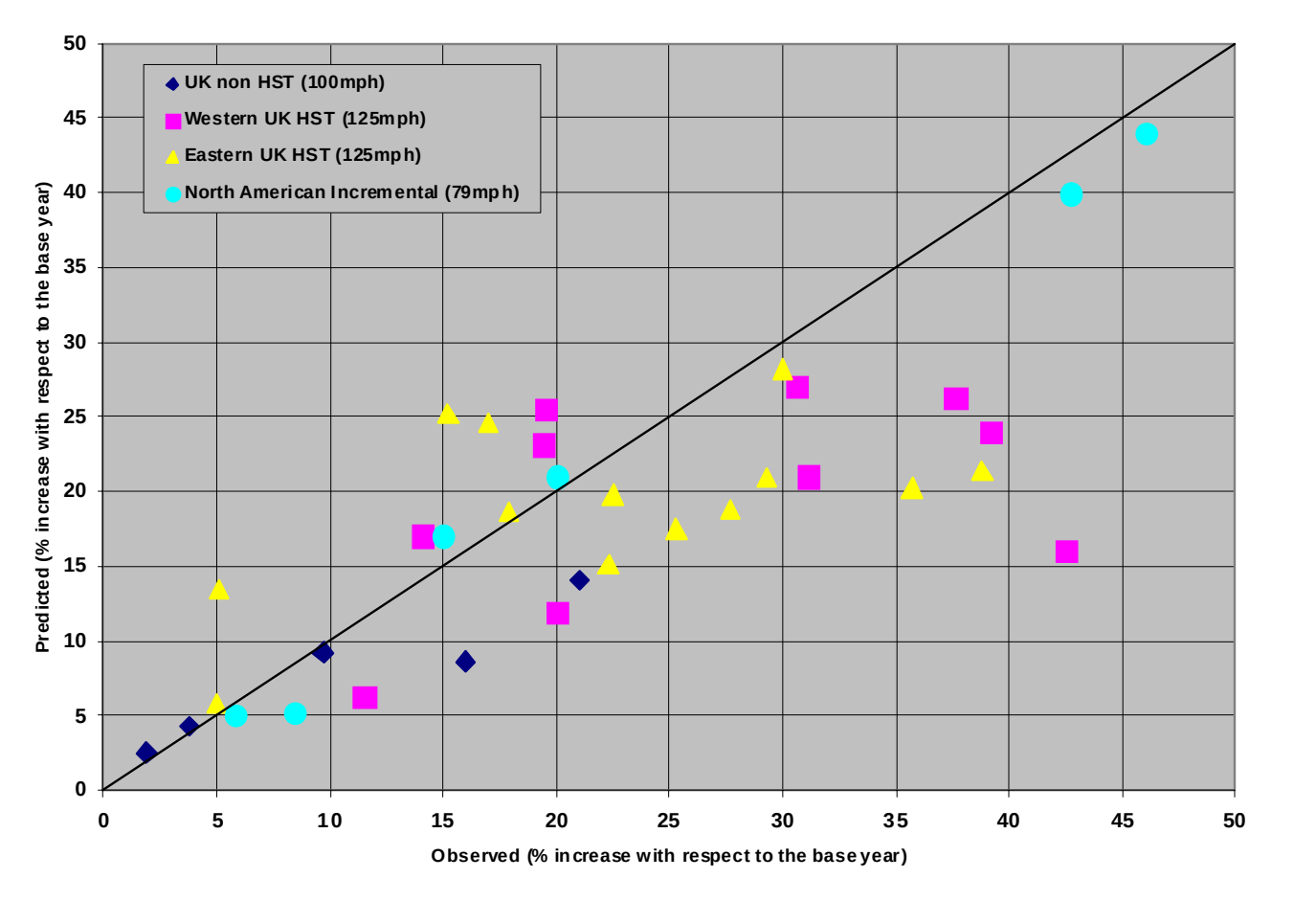
Montreal-Quebec City

VIA increased frequency and reduced service time. TEMS forecast 20.5 percent. Actual 21 percent.

- Steve DelBosco
Vice President-Marketing, VIA Rail

TEMS Forecasting Results from Before/After Surveys

UK and North American Experience



Thank you.

HNTB

ATTACHMENT C

Quality Audit Review Process for Ridership & Revenue and Financial Plan

- **Review Assumptions:** The audit team will consider the various assumptions that were used to structure the analysis and to develop the data, including:

  - External Factor Assumptions: These are assumptions which are not under the direct control of the MWRRI program management, but have a significant impact on MWRRI financial projections. These include assumptions related to service area population, employment, per capita income, and retail sales as well as assumptions related to Federal and State Aid to the MWRRI, interest and inflation rates, and contractual relationships with the host railroads.
  - Policy-Related Assumptions: These include assumptions made by senior MWRRI program management. Examples include assumptions regarding level of service, quality of service, construction schedules, fare levels, and design standards.
  - Technical Assumptions: Assumptions include type of analyses used and performance specifications.

- **Review Methodology:** The audit team will evaluate the methodology or analytical procedures used to develop the projections. In part, this review will be based on the audit team's knowledge of the success of various analytical approaches in comparable applications. The audit team will assess whether all of the assumptions and factors, which are material or the results, have been included in the methodology. The audit team will examine whether the results are appropriately sensitive to changes in the assumptions.
- **Assess Reasonableness of Results:** The audit team will consider the results of the analyses from the following perspectives (to the extent feasible given that TEMS considers it methodology proprietary and provides limited disclosure), including:

  - Computational Accuracy: The review will examine the results of the applications of the methodology to determine that the computations were correctly performed.
  - Comparison to Other Situations: Are the results of the projections similar to the actual experience in comparable situations in other intercity rail service corridors?
  - Comparison to Historical Experience in the proposed MWRRI Corridors: How do the projected results compare to historical experience in the MWRRI Corridors? Are they reasonably consistent or to what extent do they imply a significant change from comparable historical patterns?
  - Uncertainty: How sensitive are the results to various unknown factors? To what extent have these risks been tested?

ATTACHMENT D

Quality Audit Review Process for Operating Costs

Access Fees:
- Access fees were omitted from the analysis because of the impossibility of prior estimation. How serious an omission is this?
- What are the type and magnitude of costs that host railroads will bear were they to permit access?

Feeder Buses:
- Are there significant economies of scale in feeder bus operations that will affect the per-mile costs at different locations?
- Are there large expected variances in miles-per-bus year between localities?
- Are there significant differences in wage levels between localities?

Marketing Costs:
- Can a simplified fare system be maintained without compromising revenues?
- Are credit card fees credible?
- Is the percentage of travel agent sales and fee levels credible?
- How will internet sales affect the size and costs of the marketing organization?

Maintenance-of-Equipment (MOE):
- The nearly doubling of equipment maintenance cost in Phase 5 and partial rationale given therefore raises questions that suggest further investigation.
- Workforce productivity will require a close look. For example, Amtrak productivity versus that of its competitors, such as Herzog.
- Are MOE cost elements such as train cleaning appropriately correlated with planned quality of services to be provided?
- What trends are evident in MOE costs of modern passenger equipment, and do they justify higher or lower projections?

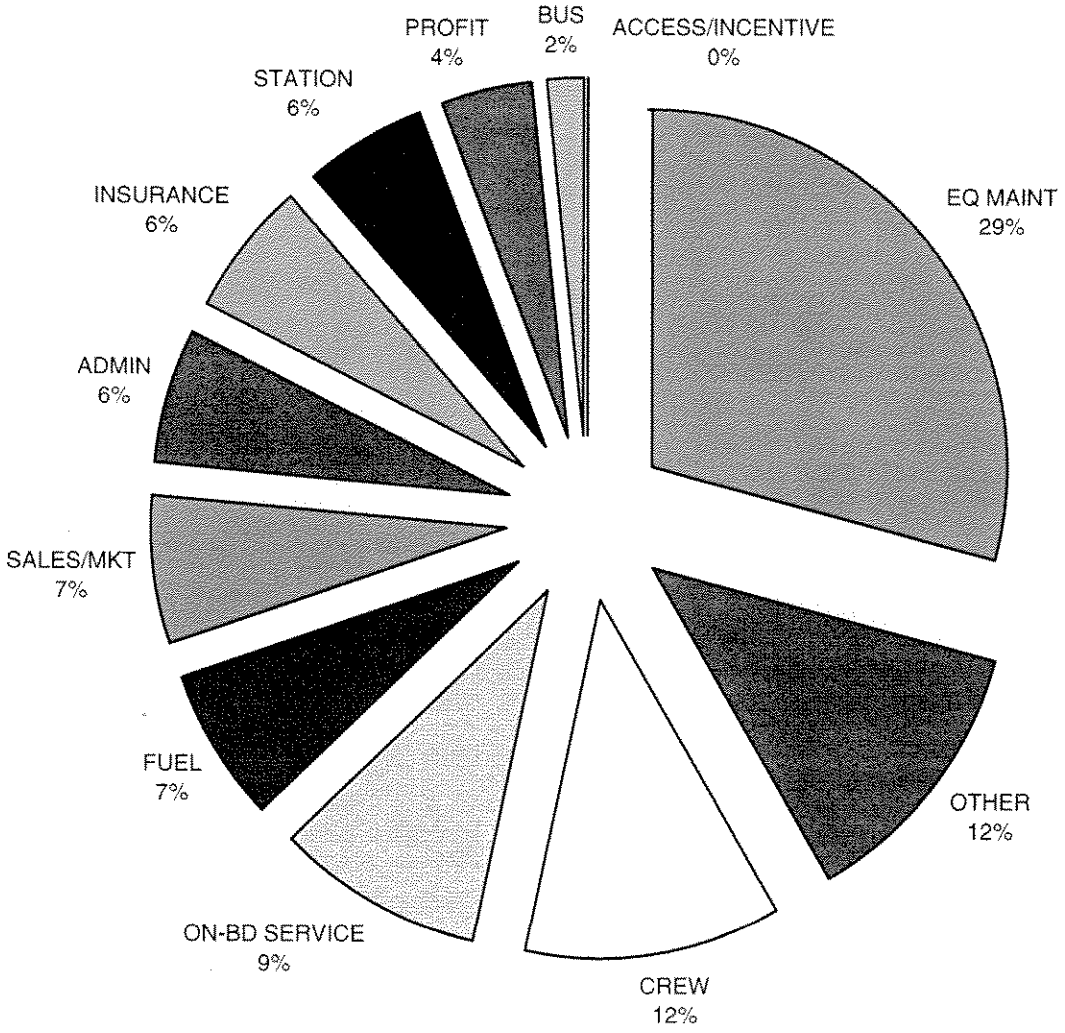
Operator Profit:
- How does estimated operator profit correlate with operator investment risk?
- Workforce productivity may be an issue here also. How competitive is the market for contract operators, and does it support arrangements based upon percentages of net operating income instead of percentages of costs?

Transportation Costs:
- Are wage rates appropriate to a contract operator environment?
- How should fuel costs be adjusted to reflect long term expectations in oil prices?
- Is likely operating system reliability appropriately factored into estimates?

Administrative Costs:
- Does the organization plan comport with today's most efficient passenger rail service providers? Are any of the administrative functions potentially delegable to the contract operator? Are there understaffed portions of the organization?

ATTACHMENT E

2025 OPERATING COSTS
MWRRI



ATTACHMENT F

BUSINESS PLAN REVIEW

MWRRI STEERING COMMITTEE MEETING

October 26-27, 2005

Presented by TEMS

Financial Objectives for Midwest Business Plan

- Satisfy FRA Criteria for Federal Funding:
  - Operating Ratio > 1.0
  - Benefit/Cost Ratio > 1.0
- Direction of State Secretaries:
  - Minimize Operating Subsidies
  - Capital Subsidies OK
  - Assume 80/20 Federal/State Match consistent with levels currently provided to highway projects

FRA Requirement for a "Positive Operating Ratio"

- Purpose:
  - A Private/Public partnership requirement for Commercial Feasibility
- Includes:
  - All direct train operating expenses, including both fixed and variable operating costs
- Excludes:
  - Capital-related costs including both interest and depreciation charges
- This differs from "Commercial Profit"
  - We say a 110-mph MWRRI system can generate an "Operating Surplus" under the FRA definition of self-sufficiency, but not that it will be commercially "Profitable."

MWRRI Business Planning was a multi-phase, multi-year process

- 1998 Plan evaluated three speed options: 79-mph, 110-mph and 125-mph.
  - Intensive market research and stated preference surveys were undertaken.
  - An initial demand forecast was developed for each speed option.
- The study determined that the 110-mph option was the most affordable and economically viable approach to meeting the Midwest's transportation needs.

MWRRI Business Planning was a multi-phase, multi-year process

- The 2000 Plan focused on 110-mph operations, resulting in considerable refinement to earlier operating and cost assumptions.
  - An Institutional workshop was held to develop alternatives for system financing and governance
  - A detailed financial plan, ramp-up plan, branch line analysis and an express parcel market assessment were also developed
  - An equipment vendor's workshop was held to refine vehicle life-cycle costs with Talgo, Bombardier and Adtranz participating
  - Additional cost parameters, such as for train crew and On Board service, were furnished by Amtrak
- The 2000 plan developed a complete assessment of MWRRI market potential, capital and operating costs, funding strategy, and cost-benefit analysis, and was signed-off by Amtrak and all the participating MWRRI states

MWRRI Business Planning was a multi-phase, multi-year process

- The 2004 Plan was an "incremental update" to the already-approved 2000 Plan, focusing primarily on addressing freight railroad concerns. This phase of work included:
  - Line capacity simulation work was performed to further refine the estimates for the capital cost of capacity improvements.
  - Route-specific track maintenance costs were developed using a methodology developed by Zeta-Tech.
  - A detailed feeder bus and express parcel operations plan were developed.
- As a result of the 2004 adjustments, the original 2000 train schedules and demand forecasts remained largely intact.
  - Operating costs increased slightly and capital costs increased significantly.

Financial Assumptions

Exhibit 10-9
Updated Financial Assumptions

Category	*Financial Assumptions*
Construction Period	10 years Phase 1 operations begin in 2008 Full operations - 2014 onwards
Capital Funding	$7.7 billion
Contribution to Reinvestment fund	5 percent of cash flow after TIFIA repayment
Interest income on Reinvestment fund	2 percent
Principal Deferment on GANs	2-5 years, as necessary
Issuance Cost	GANs – 1.0 percent of issuance amount
Interest Rates	
Grant Anticipation Notes (GANs)	5.0 percent
TIFIA Loan Assistance	5.5 percent
Annual Federal Grant Obligation	80 percent of capital cost
Annual Federal Grant Obligation	$400 million (moderate level)
Operating Losses During Ramp-Up	TIFIA assistance

Exhibit 10-10
Sources and Amounts of Funds Required
(Millions of 2002$)

	Amount
Federal Contribution	$3,403
State Contribution	$1,540
GANs	$2,756
TIFIA Loan	$427
Total Funds contributed	$8,127

Notes:

(1) Actual federal grants used during the construction period are only $3,403 million out of the total $6,160 million (80 percent) due to the $400 million annual disbursement cap.

(2) GANs in the amount of $2,756 million are completely paid back with late federal contributions not disbursed during the construction period due to the $400 million annual cap, thus making the total Federal contribution $6,160 million.

(3) TIFIA funds are used for financing ramp-up operating losses, initial working capital contribution, and GANs interest and issuance fees

A Strategy for Managing Start-Up Operating Deficits

- Implement the strongest routes first
  - As these routes start to generate operating surpluses, those surpluses are available to cross-subsidize start-up losses on other routes
- Use a TIFIA loan to capitalize the remaining startup losses, using system operating surpluses of later years to repay the loan
- This strategy only works if:
  - The MWRRS is implemented as a "system"
  - Directly implement a 110-mph service, to minimize operating losses that are always associated with 79-mph service

Moving directly to a 110-mph system

- To minimize the required level of operating support during system ramp-up, a State decision was made to move directly to a 110-mph system. Ramp-up factors were applied to ridership and revenues as follows:
  - 1st year: 50%
  - 2nd year: 75%
- This still produces small operating deficits during the early years of implementation.

Sensitivity Analysis on Start-up Deficits

Exhibit 10-5
Net Operating Revenue
(Thousands of 2002$)

Cash Flow (Thousands of 2002$)		*Implementation Period*						
Corridor	*Total Losses*	*Phase 1 2008*	*Phase 2 2009*	*Phase 3 2010*	*Phase 4 2011*	*Phase 5 2012*	*Phase 6 2013*	*Phase 7 2014*
Michigan	($53,395)	($21,286)	($13,256)	($10,836)	($8,018)	$2,112	$12,338	$17,506
Cleveland	($47,648)	$0	$0	$0	$0	($28,478)	($12,434)	($6,736)
Cincinnati	($10,243)	$0	$0	$0	$0	($10,243)	$7,998	$12,908
Carbondale	($11,256)	$0	$0	$0	($7,884)	($2,201)	($947)	($224)
St. Louis	($11,571)	($11,571)	$1,038	$4,986	$2,555	$11,859	$12,711	$14,234
Kansas City	($11,164)	$0	$0	$0	($9,022)	$2,927	($2,142)	$1,546
Quincy-Omaha	($55,299)	$0	$0	($5,199)	($15,167)	($13,802)	($15,430)	($5,702)
Green Bay-St. Paul	($5,533)	($5,533)	$4,187	$24,508	$34,438	$49,271	$50,023	$42,062
Total by Corridor	**($206,109)**							
Total by System	**($49,518)**	**($38,389)**	**($8,031)**	**$13,459**	**($3,097)**	**$11,446**	**$52,117**	**$75,595**

Start-up Loss **with** Cross-Subsidy $49.5 million

Start-up Loss **without** Cross-Subsidy $206.1 million

MWRRI Operating Plan and Costs

- MWRRI costs, except for track maintenance, were largely developed as part of the "2000 Plan" effort and were signed off and agreed by the States, Amtrak and Paine-Webber.
- The MWRRI operating plan was extensively improved and refined during the "2004 Plan" to address specific concerns identified by the freight railroads, States and Amtrak. Some of these include:
  - Freight Line Capacity
  - CUS Station Capacity
  - Sizing and Location of Maintenance Bases
  - Equipment Fleet Size Requirements with respect to Equipment Maintenance Cycling
  - Express Parcel Service
- The MWRRI report includes a full evaluation of Midwest parcel shipping potential, but at the request of the States and Amtrak, express parcel service revenues were not included in the development of the MWRRI business plan.

MWRRI Cost Results

Exhibit 10-20 - Total Fixed and Variable Costs*

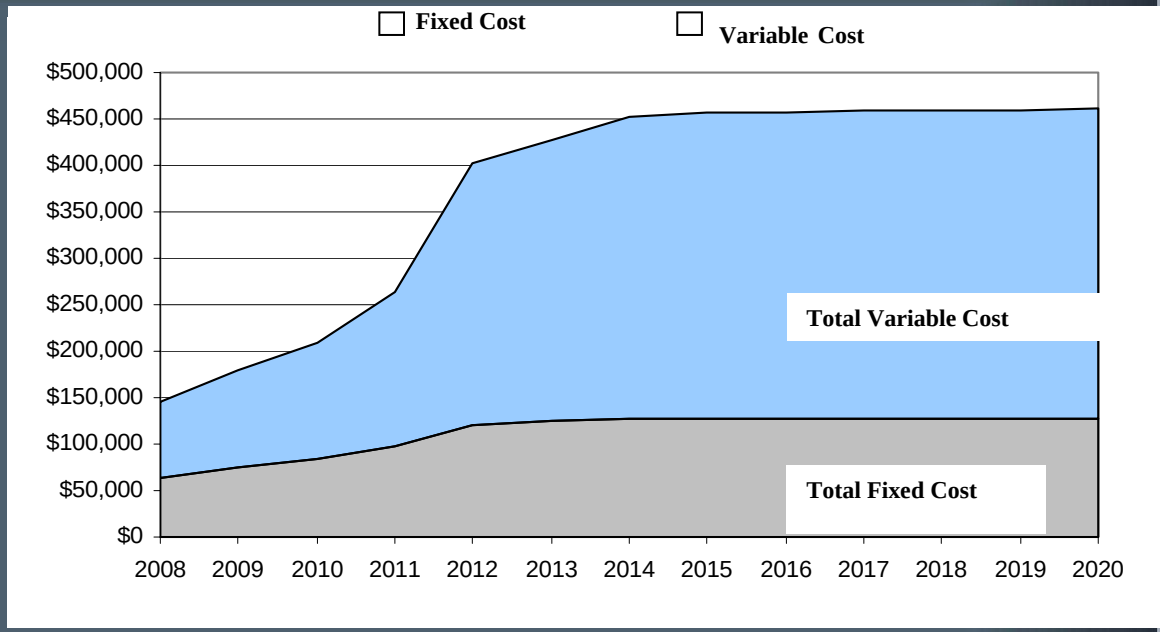
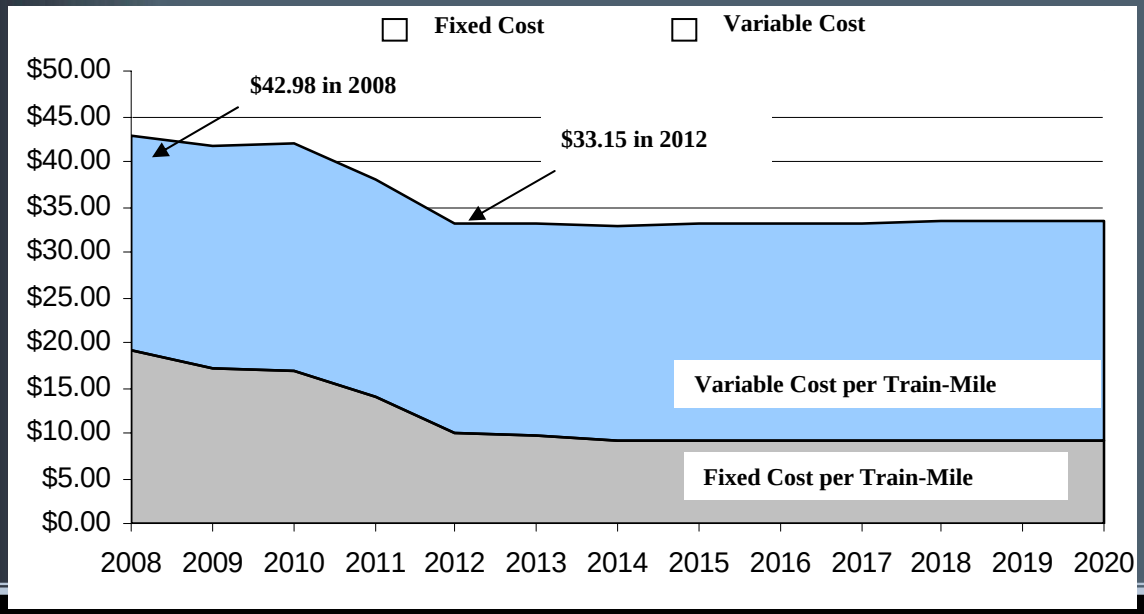


Exhibit 10-21

Total Fixed and Variable Costs* per Train-Mile



* Fixed and variable operating costs do not include capital costs, interest or depreciation expense. Only direct operating expenses that are included in the Operating Ratio calculation, as defined by the FRA *Commercial Feasibility Study* are included.

Midwest Financial Results by Corridor

Exhibit 10-3

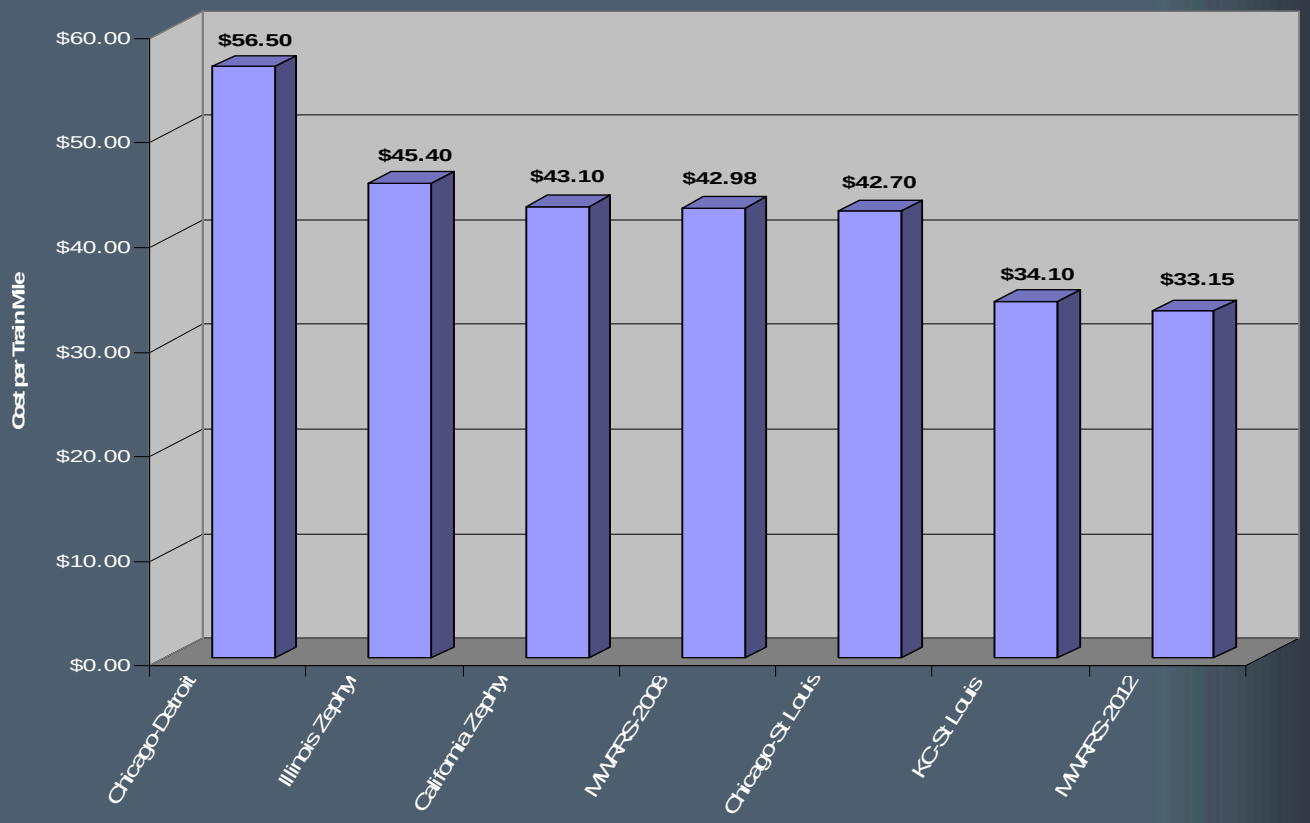
Operating Revenues, Costs and Ratios without the Express Parcel Service

MWRRS Summary Financial Statistics	*Operating Revenue*		*O&M Cost*		*Operating Ratio*	
	(Millions of 2002$)		*(Millions of 2002$)*			
	2014	*2025*	*2014*	*2025*	*2014*	*2025*
Chicago-Detroit/Grand Rapids/Port Huron	$113	$129	$95	$97	1.18	1.32
Chicago-Cleveland	$50	$66	$56	$58	0.88	1.15
Chicago-Cincinnati	$53	$61	$40	$41	1.32	1.49
Chicago-Carbondale	$22	$25	$22	$22	0.99	1.11
Chicago-St. Louis	$61	$71	$47	$49	1.30	1.46
St Louis-Kansas City	$35	$47	$34	$35	1.05	1.32
Chicago-Quincy Omaha	$53	$61	$59	$60	0.90	1.02
Chicago-Minneapolis /Green Bay	$141	$172	$99	$104	1.42	1.65
Midwest Regional Rail System Total	**$528**	**$632**	**$453**	**$466**	**1.17**	**1.36**

MWRRI Cost Validation

Results of the MWRRI cost model are in-range of Amtrak's current RPS costs.

The future reduction of costs per train-mile are associated with economies of scale projected for running a larger network. Even these future costs are consistent with the level of RPS costs reported from some of Amtrak's routes today.



1997 Amtrak costs adjusted for inflation to 2002, excluding depreciation.

Source: *Intercity Passenger Rail: Financial Performance of Amtrak's routes*, U.S. General Accounting Office, May 1998.

Financial Plan Review by Wall Street

- Letter of support by Paine Webber November 7, 2000:

  "Paine Webber attests to the reasonableness of the assumptions underlying the financial plan, and based on appropriate state participation and available federal funding grant programs, believes the MWRRI financing plan to present a credible financing approach that is consistent with and appropriate for plans of finance for State projects that have received investment-grade ratings and have been successfully funded in the bond markets."

Summary

- The conclusion stands that a 110-mph Midwest system is capable of satisfying FRA investment criteria, by producing both a positive operating ratio and a positive cost/benefit ratio.

Thank You.

ATTACHMENT 2

MINUTES OF QUALITY AUDIT REVIEW WORSKHOP FOR

- **RIDERSHIP AND REVENUE**
- **OPERATIONS AND MAINTENANCE PLAN**
- **FINANCIAL PLAN**

October 26-27, 2005

HNTB Project No. 41569

Meeting Name: MWRRI Phase 6 Steering Committee Workshop No. 1

Location: FRA Regional Office - Chicago

Purpose: Review Tasks Planned and Assessment of Risks

Attending:

Ron Adams	WisDOT
Randy Wade	WisDOT
Charlie Quandel	HNTB
Bob Moore	HNTB
Linda Bohlinger	HNTB
Mike Franke	Amtrak
Jason Babcock-Stiner	INDOT
Rod Massman	MODOT
Don Damron	ORDC
George Weber	IDOT
Jennifer Claflin	IDOT
Therese Cody	MDOT
Bob Kuehne	MDOT
Ray Ellis	AECOM Consult
Bruce Williams	AECOM Consult
Walter Schuchmann	RL Banks
Alex Metcalf	TEMS
Chip Kraft	TEMS
Ethan Johnson	WisDOT (via teleconference)
John Cikota	FRA (via teleconference)
Tom Gottfried	MNDOT (via teleconference)

1.0 Introduction

All members present at the meeting identified themselves to the group. The agenda for the workshop is attached as Attachment A.

Randy Wade gave an update on the work activities of the States for Passenger Rail Coalition in Washington, DC. He noted that there is $350 million authorized in railroad relocation funds in

the TEA-LU Bill. He noted that a Rail Title is included in the bill, which is a significant accomplishment. In reference to Amtrak, he reported that approximately $1.3 Billion will be available for fiscal year 2006. Also stated was the interest in bi-partisan funding with two emerging transportation bills impacting rail. This fall Senate Bill 1516 will be on the floor for a vote. Portions of the bill include reauthorization of Amtrak funding; providing capital funding with a percentage to Amtrak and a percentage to the states. Also in the bill is a $13 billion Senate version of the Ride 21 Bill recently reported out unanimously by the House Transportation and Infrastructure Committee. Ride 21 is dependent on tax credit bonding authorization.

2.0 Project Deliverables

Charlie Quandel distributed a Project Deliverables Notebook containing the Program Management Plan and sections for each portion of the deliverables within the plan. He requested that all members of the team review the plan and e-mail any comments to Randy Wade and copy Charlie.

3.0 Schedule

Charlie noted the location of the overall project schedule (Work Plan) in the Project Deliverables Notebook. He requested that the Steering Committee (SC) review the environmental. He also asked that the SC review the Program Management Plan information and inform him if there were changes needed.

4.0 Quality Audit Review/Ridership and Revenue

Alex Metcalf presented a PowerPoint presentation titled *MWRRI Ridership/Revenue Workshop* (Attachment B). Review of process points included:

1) Shortage of funding dollars available resulted in a two-year time lapse.
2) In TEMS forecasting, fundamentals should be correct. Forecasts include an error margin of plus or minus 25%.
3) The database description was covered and it was stated that the figures shown are costs in 2002 dollars, i.e., a gallon of gas at that time was approximately $1.25. Costs will need to be updated in the database.
4) Financial and economic objectives are based on FRA USDOT Public-Private criteria set out in "Commercial Feasibility Study of 1997" and subsequent policy statements.
5) In the corridor analysis, the fares are identical as the differences between Amtrak and TEMS were reconciled.

Charlie Quandel distributed a HNTB handout titled *Quality Audit Review Process for Ridership & Revenue and Financial Plan (*Attachment C*).*

Charlie Quandel noted the error margin presented by TEMS (plus or minus percentages) and asked about its impact on the operating ratio. Alex Metcalf responded that the operating ratio would also be in the range of plus or minus 25%.

Ray Ellis asked if the investment grade forecast of ridership, revenue, and costs was issued in the year 2000. Alex Metcalf stated that Paine Webber issued a letter in November 2000 attesting to the reasonableness of the assumptions underlying the financing plan. Ray stated that TEMS had issued such a large amount of data since the inception of the study and that it would virtually be impossible to go through it all. Ray felt that given the same operating assumptions that the results to project ridership using his model or the TEMS model would produce similar results. Ray stated that AECOM's biggest difference is relative to operating assumptions and that TEMS and AECOM should discuss their differences, such as fares.

Ray also questioned whether $150M in operating revenue from a small package express system would be viable. It was noted that small package express revenues were not used in the final revenue forecast.

Alex stated that the differences in modeling results are driven by the service assumptions, not the model. They will need to compare the TEMS/AECOM data, resulting in both firms using the same assumptions and then they can run models. However, Ray stated that given the same assumptions, he believes that the model systems will produce results within 20%. The core issue that needs to be addressed is whether or not the key assumptions are the same. Another may be the size of the ridership penalty associated with cross platform transfers across the Chicago Hub.

Chip Kraft stated that when fares are too high it hurts ridership numbers.

In reference to capacity issues in the Chicago Hub, Mike Franke said CREATE needs to be fully funded to relocate a portion of the current Metra service from Chicago Union Station (CUS) to LaSalle Street station, freeing capacity at CUS. He also mentioned that Norfolk Southern freight loadings have exceeded projections. Also needed to be taken into consideration is that CUS has one run-through track. He stated that capacity issues will be a significant constraint to a successful implementation of the business plan. An assumption of the business plan is that MWRRI will have the capacity it needs at CUS to meet the business plan objectives. Alex Metcalf stated that TEMS has assumed that capacity would be provided to efficiently operate the MWRRS.

Key Assumptions/Issues of Business Plan

- Trains at CUS (MWRRI assumed capacity issues resolved at CUS)
- Assume hub with operating plan for run through trains and connections
- CUS capacity
- St. Louis hub – capacity issues
- Feeder buses – 5 to 8% increase
- Number of feeder buses – 1 per day
- Sensitivity on Implementation Plan
- CUS Platform Reconfiguration will be completed
- Need PE and EIS
- 90% on-time performance (current 66% on-time for Amtrak)
- Fiber optics needing relocation for HSR would be at no cost to MWRRI

Constraints to Successful Implementation of Business Plan

- CUS capacity
- Metra expansion plans
- Multiple ROW owners
- Multiple dispatch/hand-offs
- Increase freight service (intermodal and coal – Example is Powder River Basin to east)
- Existing agreements with Metra
- ROW capacity
- Access to freight lines
- Equipment malfunctions
- Bottlenecks (example is LaCrosse, WI - Mississippi River crossing)

Bruce Williams stated that it would be a benchmark of 90% for on-time performance. Alex stated they had based on-time performance on level of traffic.

A partial list of constraints to on-time performance was developed:

Infrastructure

Multiple Dispatch
Freight Interference
Equipment Malfunction
Weather
Build Out
Accidents
Track/signal Maintenance
Environmental – linkage

These constraints relative to on-time performance have to be resolved. Answers need to be ready before the public outreach material is issued.

Bruce asked about the 3-5% service convenience referenced in his report. Alex stated that it is a quality of service factor looking at the type of train, level of access to stations, etc. It's a variable average.

Don Damron questioned why AECOM and TEMS models are different but come up with similar numbers. Bruce Williams said they had different resources to develop models which basically have the same input, just different sources. Don Asked how the models addressed gasoline and diesel fuel costs and whether the models address gas prices as a variable. Bruce stated that over time, technology and inflation have compensated for the cost increases in gas. Alex stated he should do some forecasting analysis on the impact of the gas increase.

5.0 Quality Audit Operations and Maintenance Plan

Charlie Quandel distributed a handout titled *Quality Audit Review Process for Operating Costs* (Attachment D). Walter Schuchmann distributed a pie chart titled *2025 Operating Costs – MWRRI* (Attachment E). A discussion followed regarding all phases of operating costs:

Walter stated a concern of an assumption that access to the freight system will be achieved through Amtrak. He suggested that the MWRRI may have to use a market based valuation accordingly when negotiating access throughout Midwest. For example, commuter rail is paying approximately $10 per train mile right now on average for use of freight tracks.

A review of operating cost elements yielded the following comments/concerns (Percentage shown represents the portion of the overall operating cost):

1) Feeder Buses: 2%. Would bid out bus companies per area.

2) Marketing Costs: 7%. Includes reservations and ticketing. No reservation system in place in the Midwest. Would also need a call system. It is assumed that 80% are credit card sales with 2% cost to the system. Travel agency sales and fee levels (1%) is credible. Check on advertising costs – seems low at $6.8M per year. Total $31.7M. Need to follow up on original analysis for benchmark on advertising costs.

3) Maintenance of Equipment: 29% Maintenance costs doubled from Phase 3 to Phase 5 because of European costs versus North American costs in Phase 5. Information on the maintenance cycles used in the Phase 5 Study are needed from TEMS.

4) Operator Profit: 4%. Would return a 10% profit – is 10% profit enough? What if NS or other class 1 operates? Based on the Business Plan, it is assumed that the operator is not at risk.

5) Transportation Costs: 28%. Crew is 12%, Fuel is 7%, and on-board service is 9% (based on trolley service). Concern was expressed that the crew costs may not be accurate. A detailed plan is needed to assess rate, which was determined on basis of Chicago to Detroit. This is a flagged item.

6) Station Operating Costs: 6% including facilities, services and parking. Needs to be in the local public outreach info. Need to research the impact of associated development costs.

7) Administrative Costs: 12%. Insurance is half or 6%. Based on insurance rates and Amtrak experience, the number is low. Check on other insurance rates. The Business Plan assumed 1.1 cents per passenger rail mile. California corridor is 3 cents per mile. Needs more analysis and research. Possible contacts for more information would be Herzog, as a private operator, and public agencies, such as Metra. Security has not been updated since 9/11. Security costs could have an additional impact.

6.0 Quality Audit/Financial Plan

Chip Kraft presented a PowerPoint presentation titled *Business Plan Review* (Attachment F). A handout of the slide presentation was distributed as well as a *Financial Handout* document. A summary of his presentation is:

Financial Objectives for Midwest Business Plan

- Satisfy FRA criteria for Federal funding which is an operating ratio > 1.0 and a benefit to cost ratio > 1.0.
- Satisfy direction of State's Secretaries which was to minimize operating subsidies (capitalizing subsidies OK) and to assume an 80/20 federal/state match consistent with levels currently provided to highway projects.

Financial Assumptions

- Construction period of 10 years with Phase 1 operations to begin in 2008 and full operations 2014 onwards.
- Capital funding of $7.7 Billion.
- Contribution to reinvestment fund of 5% if cash flow after TIFIA repayment.
- Annual federal grant obligation of 80% of capital cost.
- Annual federal grant obligation of $400 million.
- Operating losses during ramp-up requiring TIFIA assistance.

Strategy for Managing Start-up Operating Deficits

- Implement the strongest routes first.
- Use a TIFIA loan to capitalize the remaining startup losses, using system operating surpluses of later years to repay the loan.

TEMS noted that this strategy only works if the MWRRS is implemented as a "system." TEMS further noted that implementing directly a 110 MPH service is needed to minimize operating losses that are always associated with 79 MPH service. TEMS stated that to minimize the required level of operating support during the system ramp-up, a State decision was made to move directly to a 110 MPH system. TEMS noted that this strategy still produces small operating deficits during the early years of implementation.

TEMS stated that the start-up loss with cross-subsidy amounts to $49.5 million, and start-up losses without cross-subsidy amounts to $206.1 million.

The net operating revenue developed by TEMS for the system is as follows:

Cash Flow (Thousands of 2002$)		Implementation Period						
Corridor	Total Losses	Phase 1 2008	Phase 2 2009	Phase 3 2010	Phase 4 2011	Phase 5 2012	Phase 6 2013	Phase 7 2014
Michigan	($53,395)	($21,286)	($13,256)	($10,836)	($8,018)	$2,112	$12,338	$17,506
Cleveland	($47,648)	$0	$0	$0	$0	($28,478)	($12,434)	($6,736)
Cincinnati	($10,243)	$0	$0	$0	$0	($10,243)	$7,998	$12,908
Carbondale	($11,256)	$0	$0	$0	($7,884)	($2,201)	($947)	($224)
St. Louis	($11,571)	($11,571)	$1,038	$4,986	$2,555	$11,859	$12,711	$14,234
Kansas City	($11,164)	$0	$0	$0	($9,022)	$2,927	($2,142)	$1,546
Quincy-Omaha	($55,299)	$0	$0	($5,199)	($15,167)	($13,802)	($15,430)	($5,702)
Green Bay-St. Paul	($5,533)	($5,533)	$4,187	$24,508	$34,438	$49,271	$50,023	$42,062
Total by Corridor	**($206,109)**							
Total by System	**($49,518)**	**($38,389)**	**($8,031)**	**$13,459**	**($3,097)**	**$11,446**	**$52,117**	**$75,595**

The Midwest Financial results by corridor developed by TEMS are as follows:

MWRRS Summary Financial Statistics	Operating Revenue (Millions of 2002$)		O&M Cost (Millions of 2002$)		Operating Ratio	
	2014	2025	2014	2025	2014	2025
Chicago-Detroit/Grand Rapids/Port Huron	$113	$129	$95	$97	1.18	1.32
Chicago-Cleveland	$50	$66	$56	$58	0.88	1.15
Chicago-Cincinnati	$53	$61	$40	$41	1.32	1.49
Chicago-Carbondale	$22	$25	$22	$22	0.99	1.11
Chicago-St. Louis	$61	$71	$47	$49	1.30	1.46
St Louis-Kansas City	$35	$47	$34	$35	1.05	1.32
Chicago-Quincy Omaha	$53	$61	$59	$60	0.90	1.02
Chicago-Minneapolis /Green Bay	$141	$172	$99	$104	1.42	1.65
Midwest Regional Rail System Total	**$528**	**$632**	**$453**	**$466**	**1.17**	**1.36**

Chip concluded his presentation by stating that the conclusion stands that a 110 MPH Midwest system is capable of satisfying FRA investment criteria, by producing both a positive operating ratio in and a positive cost/benefit ratio.

Linda Bohlinger inquired about the capital funding source used in the charts Chip presented; specifically the annual federal grant. Alex Metcalf replied that it came from an FRA assumption. Linda asked if Senate Bill 1516 is a potential source of funding the Business Plan. Randy Wade responded that it was.

The Business Plan was developed on the basis of an 80/20 Federal/local program, similar to the highway model.

If funding is provided by tax credit bonding versus the 80/20, the states will have to come up with a bigger share than 20%. Further, the federal program under consideration, at a maximum, would provide no more than $400 million per year to the MWRRI. This would have a negative impact on implementing the current Business Plan.

A question was raised as to a backup plan if the states have to come up with more capital from the states since the Business Plan requires more than $400 million per year. The consensus was that the time to implement the MWRRI would be extended. This would have a negative impact on implementing the current Business Plan.

The potential for a change in funding approach and limitations on the annual amount of federal funding, and the impact on the successful implementation of the current Business Plan needs to be identified in any PI literature.

Concerns expressed about the amount of funding implications include:

- Competition for available federal funding may decrease annual funding to the MWRRI
- Stretching out the implementation schedule negatively impacts the successful implementation of the current Business Plan.
- Federal funding at a level less than assumed by the Business Plan will require phased implementation.
- States may have to pay operating subsidies not anticipated.

TEMS was asked if there was any contact by the MWRRI with the TIFIA staff since it was noted that these types of TIFIA loans have not been given in the past. Alex said they talked with them but have not made a formal application for a TIFIA loan. Ray says it is not a grant program. He is not sure TIFIA would accept with all dollars at risk. Randy stated that we explained to TIFIA the plan. It was stated that TIFIA may or may not be used by each state. If the dollar subsidy costs are a lot more than they are now, states will say they will come up with their own funding sources. Alex stated that the states are running the revenue risks for the operating plan.

It was questioned whether or not there needs to be a disclosure and/or disclaimer in the PI piece in regard to risk associated with obtaining TIFIA funding for the Midwest and for the state by state documents. Bob Kuehne thinks we should and need to. Alex felt that because we are only in the feasibility phase the vision should only be in the PI piece at this point. Include vision and assumptions.

Ray Ellis questioned if the states combine into one unit but then need separate subsidy plans within each state, what happens when one state can get funding faster than another.

Randy Wade stated that the MWRRI Steering Committee discussed the use of joint power authority and compact agreements and had not resolved the institutional issue. He stated that this issue should be resolved when the federal funding becomes real. At that time, an institutional plan would need to be addressed. It was noted that it would be unrealistic to expect State Transportation Secretaries to invest their funds outside their own state boundaries.

It was noted that there is a lot of interest in relocating freight railroads throughout the country at this time. It was suggested that a regional strategy should be developed to promote strategic rail relocations that benefit both the advancement of MWRRI and the efficiency of the freight operations. The recent TEA-LU bill authorizes a fund of $375 million per year or $20 million per project. Since the funds are authorized, but not appropriated, each rail relocation project needs political support to become a reality.

Franchising elements of the MWRRI operation has been considered in the Business Plan. A franchise involves a legal contract to operate a service, whatever that service is. A franchise

could involve revenue risk or it could not. Franchise and contracting out is the same. Equipment, track maintenance, on-board services can be franchised.

In reference to use of Amtrak costs within the Business Plan it was noted that the Amtrak costs that were benchmarked varied across corridors in the country. This was due to the various factors of associated with equipment and the characteristics of each corridor.

A partial list of constraints/concerns that impact assumptions include:

- $400M federal funds maximum per year – source: S1516
- Competition for funds among states
- Stretched out implementation because of lack of funds
- Phased implementation
- States could incur operating subsidies
- Limitations/constraints not shown in PI literature to date
- Joint power authority/compact (time to develop)
- Institution needed to receive funds and to guarantee revenues
- Discussion with TIFIA
    - TIFIA loan for operating subsidies
    - TIFIA takes all risks – states assume resume risk – private firm – operator
- State by state PI – cross-subsidies – single operator
- Feeder buses revenue risk
- On-board service revenue risk

Mitigation Opportunities to Advance MWRRI include:

Rail Relocation authorization in TEA LU of $375M per year/ 20M per project
Next TEA Bill in 4 years and time to position for new funding
Innovative financing

TEMS was asked what combination of events puts the attainment of a positive operating ratio 1.0 in risk. Alex Metcalf stated the Business Plan is at a feasibility level and the operating ratio will be impacted if assumptions are not realized. Charlie stated that the next step in the workshop would be the development of a Risk Register relative to the assumptions discussed in the workshops.

It was also noted by Ron Adams that the need to achieve the on-time performance and schedules were critical to a successful implementation.

7.0 Risk Register

The operating and maintenance costs and ridership/revenue projections were key inputs into the financial plan. The purpose of this section was to develop a Risk Register. The Risk Register is the culmination of the quality audit review process. The Risk Register contains Business Plan elements and the key assumptions associated with the element. The Risk Register identifies the level of risk to a successful implementation of the MWRRI Business Plan. The Risk Register is a "living document" in that it contains Treatment Options and Treatment Plans. As a "living document," risks may be added and treatment plans changed throughout the planning process.

Risk Level Descriptions are as follows:

High Risk – Major disruption likely. Different approach required and documented in a written treatment plan. Priority program management attention required.

Medium Risk – Some disruption, a condition where the risk consequence would affect project quality objectives, cost, or schedule, and/or the probability of occurrence is high enough to be a concern. Different approach may be required. Written treatment plan required. Program management attention required.

Low Risk - Minimum impact. Monitored by program management team to ensure risk remains low. Mitigation plan not required.

Some of the business plan elements were discussed and a risk level was assigned as follows:

Identify risk to a successful implementation to the business plan:
Risk Management Matrix - the risk is low at + or – 25%.; risk is medium for + or – 10%
Revenue - medium
Ridership (within 25%) – low
Ridership (within 10%) - medium
Operating costs:
  Equipment maintenance 29% - low
  Track and cyclical capital – low
  OBS – low
  Fuel – high
  Crew - low
Access utilization - high
Federal funding 80/20 – high
Availability of funds to complete build-out for entire Midwest ($400 M per year) – high
State match - high (mitigate in workshop)
State's refusal to fund certain corridors that will effect another state - medium
Institutional – high (time to do financial obligations)
TIFIA Loans for subsidies – credit review – medium (do we need institutional arrangement)
Capital Costs – low (with freight cooperation)
St. Louis to KC – low
Cleveland to Toledo – low
Overall - low
Achieving the construction staging – to hit our implementation we will need a lot of cooperation with the freights, during construction - medium

Capacity Issues
  CUS – high
  Chicago to Milwaukee – medium
  Chicago to Rondout - high
  KC to St. Louis – high
  St. Louis Terminal - high
  Toledo to Cleveland – medium
  South of the Lake Corridor (Chicago to Porter) - high
  Kansas City to St. Louis – high
  La Crosse - low
  River to St. Paul – low
  Toledo terminal – medium
  Chicago to Aurora – medium

Travel Times Overall - Medium
# of trains projected/number of frequencies – low
Multiple dispatchers – high

Operating Ratio

2014	2025	
1.17	1.36	Medium

0.88 (low) – 1.45 (high) 1.02(low) – 1.70 (high)

8.0 Public Information Outreach Method

Needs of States

Information for Congressional delegation
- Funding needs – capital costs by route
- Benefits

Report the operating ratio as a range for 2014 as 0.88 to 1.45 and for 2025 as 1.02 to 1.70. These operating ratios are dependent on the MWRRI being developed as a system.

State Legislators
Map – Station – Frequency – Travel Time – Economic Development – Jobs – Balanced transportation system/options – policy of State Transportation Commission

Ohio – 2 system plans
Governor support and Great Lakes

Two-page total of goals: Congressional detail needed by district and state benefits, what funding in federal dollars is, state legislature requests state funding.

How does this help my community: Jobs, multipliers

What's the economic impact to each area: States commitment to a balanced transportation system and its options; Governors support; benefits the movement of goods and people while advancing the freight lines; reduction of highway congestion; integration of passenger and freight services.

Other benefits to consider for inclusion in PI material:
- Efficiency in the movement of goods
- Enhancement to freight system
- Conforms to environmental law policy
- Reduces congestion
- Integrates passenger and freight services
- Becomes a major piece of a national passenger service
- Promotes public/private partnerships
- Serves greater population
- Enhances population growth
- Provides for energy efficiency
- Improves air quality
- Increases transportation reliability
- Provides another mode (9-11 issues with moving people)
- Enhances safety at grade crossings

9.0 Next Step of Quality Review

Team expectations:

Benefit Cost Analysis
- Economic Analysis
- 25 Year Cash Flow

Economic Analysis
- Community Benefit

- System and State Benefit Annually

Redo overall schedule

April for the public outreach materials, in draft format

Economic impact information needed early January before congress reconvenes.

10.0 Next Meeting

Conference call needs to be scheduled before Christmas in preparation for a meeting to be held the fourth week of January. Suggested conference call date is December 20.

This is our understanding of items discussed and decisions reached. Please contact us via e-mail by January 5, 2006 if there are changes or additions to this draft.

Submitted by,

HNTB CORPORATION

Charles H. Quandel, P.E.
Vice President

CHQ/dp
Attachments (A-F)

ATTACHMENT 3

Report on Findings
MWRRI Phase 6 Quality Review Workshops
December 12, 2005

Background
HNTB Corporation entered into a contract with the Wisconsin Department of Transportation on June 30, 2005 to provide consulting and support services for the Midwest Regional Rail Initiative. The tasks include program management; preparation of public information and outreach materials; quality audit review of ridership and revenue projections; quality audit review of the MWRRI financial plan; economic impact and benefit cost analysis; system wide environmental analysis; and special studies.

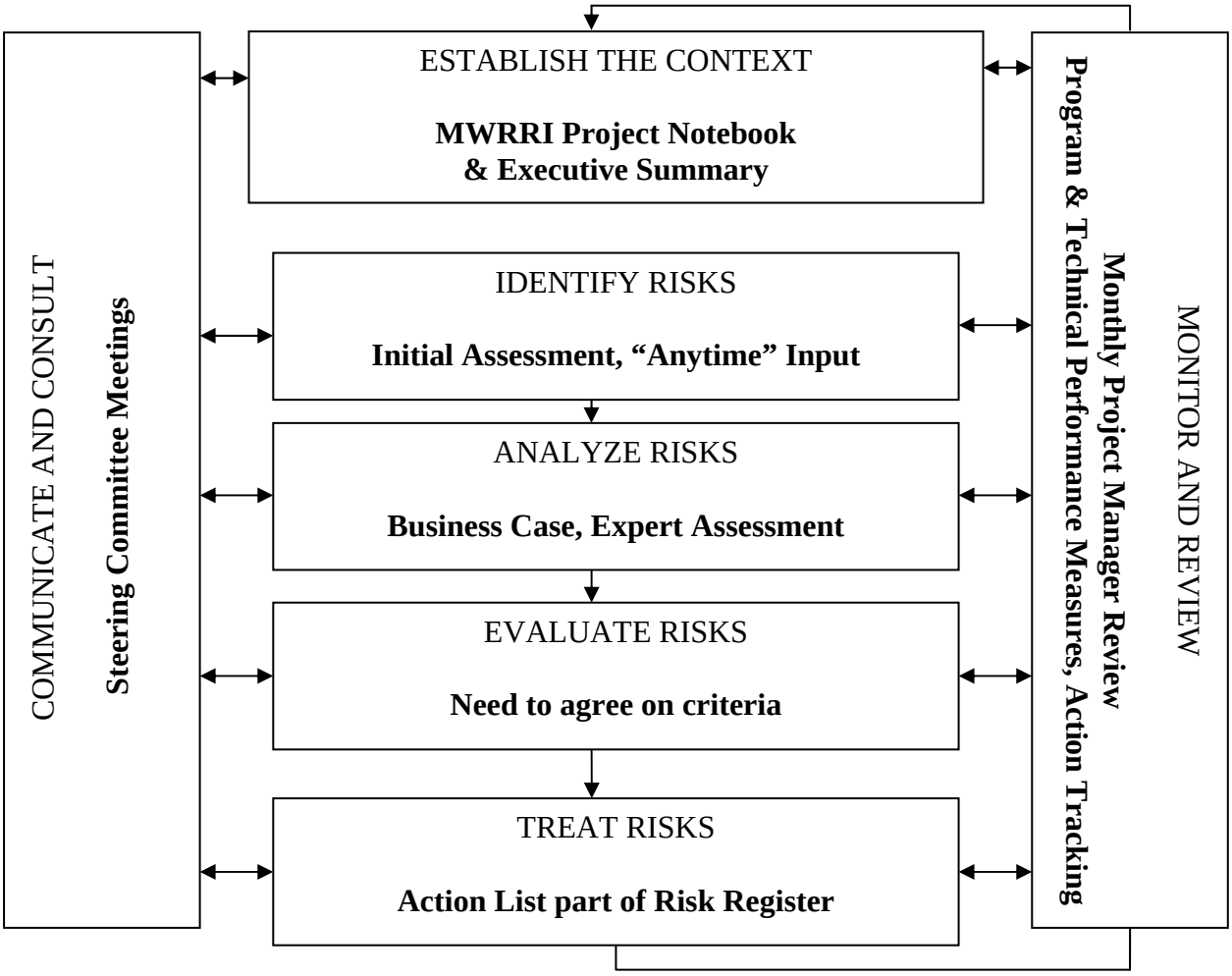
Prior to this contract, HNTB Corporation served as a sub-consultant to Transportation Economics & Management Systems, Inc. Since April, 1997, TEMS provided services that include operations analysis, demand forecasting, financial planning, market and economic assessment, institutional planning, and pubic financing. TEMS developed a Business Plan for the Midwest Regional Rail System and issued an update to this plan in September 2005.

The economic analysis to be undertaken in this contract consists of two tasks. The first task will quantify the demand side "consumer surplus" benefits of the project. This will show the benefits to travelers as a result of the MWRRI being implemented. The second task will quantify the supply side benefits that identify the economic impact of the project, and, in particular, the jobs, income and increased economic welfare associated with the MWRRI project. The economic analysis task has been assigned to TEMS, a sub-consultant to HNTB.

HNTB Corporation has also been tasked with developing outreach materials to be used by the nine states. The underlying theme of outreach materials would be to state that the MWRRI is a plan that can deliver a project with broad utility benefiting both the individual and business, and also that it is a plan that when implemented will generate wide-spread value as a result of its utility.

The MWRRI Business Plan is based on several key assumptions. Major changes in these assumptions could alter the projections and economics associated with the MWRRS. Accordingly, HNTB Corporation felt that it was prudent to conduct quality review workshops that tested these assumptions and to develop a Risk Management Plan. A component of the RMP is the Risk Register. The RR contains MWRRI Business Plan elements and the key assumptions associated with the element. The RR identifies the level of risk to the successful implementation of the MWRRI Business Plan.

MWRRI PHASE 6 RISK MANAGEMENT PLAN



Risk Level Descriptions

High Risk
Major disruption likely. Different approach required and documented in a written treatment plan. Priority program management attention required. The following properties characterize the High Risk category:

- Significant and substantial differences exist between current benchmark and best practices.
- No plan or schedule is in place to implement a solution.
- Risk has high probability of impacting performance, schedule or cost.
- Intense program management attention required.

Medium Risk
Some disruption, a condition where the risk consequence would affect project quality objectives, cost, or schedule, and/or the probability of occurrence is high enough to be a concern. Different approach may be required. Written treatment plan required. Program management attention required. The following properties characterize the Medium Risk category:

- Some differences between current benchmark and best practices.
- Increased management attention and monitoring is needed before performance, schedule, or cost is impacted.
- Management is aware of problem.
- Some probability of impacting performance, schedule or cost.
- A proposed solution exists (demonstrated or not).
- Normally, a plan is in place with an interim schedule for implementing a solution. However the solution may not necessarily have been demonstrated.

Low Risk
Minimum impact. Monitored by program manager to ensure risk remains low. Mitigation plan not required.

Risk treatment plans include identification of the risk handling options:

- Mitigation,
- Transfer,
- Avoidance, or
- Assumption

Risk mitigation activities may include:

- Early initiation of engineering activities,
- Initiation of parallel engineering decisions,
- Development of simulations to establish performance predictions,
- Intensified program management review of the engineering process.

Risk transfer activities may include:

- Specific contract terms,
- Subsidies, or

- New legislation or regulations

Risk avoidance activities may include:
- Identification of the action plans, and
- Contingency actions with implementation criteria and decision dates

Risk assumption activities may generally relate to those risks that have been identified as "low risk" or have been successfully mitigated such that they have been reclassified as "low risk."

MWRRS Key Assumptions

The MWRRS Executive Report dated September 2004 contains the following:

Successful implementation and operation of the MWRRS requires ongoing dialogue and coordination involving the Midwest state transportation agencies, freight and commuter railroads, railroad labor, funding entities, and the public. The findings and recommendations included in this report are based on several key assumptions. Major changes in these assumptions could alter the projections and economics associated with the MWRRS. These assumptions are:

- Ridership and revenue projections assume the construction of the entire system and introduction of new service and trip times according to the proposed project phasing schedule, and the predicted response from travelers to a fully integrated Midwest Regional Rail System.
- Operating plans for passenger train frequencies, schedules, and speeds are achievable through cooperative agreements with the freight railroads, commuter railroads and labor unions.
- Infrastructure improvements are dependent upon the freight railroads' and commuter rail operators' commitment to the construction schedule.
- Funding for planning, construction, and equipment procurement is available to support the implementation schedule.
- Funding support for operations is available during the start-up and implementation period.

Findings

As previously noted, risk assumptions activities generally relate to risks that have been identified as "low risk" or have been successfully mitigated such that the risk has been identified as "low risk". The MWRRS contains key assumptions in regard to ridership, revenue, federal funding and state funding, and infrastructure needs that have been identified by the workshop as "high risk" or "medium risk". Such classification of these business elements raises concern for the successful implementation of the MWRRI Plan, unless these risks are treated properly. The Risk Management Plan outlined herein will be followed to evaluate the risks to the successful implementation and the development of a treatment plan and activities to reduced risks to an acceptable level.

Next Steps

Convene a Steering Committee and workshop, facilitated by HNTB, to review the Risk Management Plan. The workshop will evaluate risks to the successful implementation of the MWRRI and adjust the Risk Register as necessary. Risks will be evaluated and action items developed to mitigate risks

HNTB **SUMMARY OF MIDWEST REGIONAL RAIL SYSTEM MAINTENANCE COSTS**

From	To	Through	Total Mileage	FRA Track Class 2	3	4	5	6	Total Track Mileage	ZT Maint Cost x Seg. Length x # of Annual Train Miles	Maximum Number of Pass. Trains	Highest Proposed Pass. Trn. Speed	Max. Corr. Freight Tonnage 2022	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Different. Maint. Cost
Chicago	Pontiac	Detroit	301.7	0.4	56.5	99.7	3.0	298.6	458.2	$ 8,855,515	30	110	125	$ 6,954,374	$ 15,809,889
Chicago	St. Louis	Springfield	283.5	5.0	25.2	96.2	0.0	206.5	332.9	$ 4,180,531	16	110	66	$ 3,048,106	$ 7,228,638
Chicago	St. Paul	Madison	443	3.8	28.6	71.8	187.0	598.6	889.8	$ 12,096,577	34	110	79	$ 7,451,580	$ 19,548,157
Port Huron	Battle Creek	Flint	158.4	0.8	36.8	187.7	0.0	0.0	225.3	$ 653,965	8	79	55	$ 1,290,964	$ 1,944,929
Holland	Kalamazoo	Grand Rapids	74.1	0.5	5.3	78.6	0.0	0.0	84.4	$ 316,581	8	79	27	$ 515,538	$ 832,118
Chicago	Cleveland	Fort Wayne	346.5	0.0	34.5	149.6	0.0	303.8	487.9	$ 7,412,032	18	110	10	$ 6,722,939	$ 14,134,971
Chicago	Quincy	Galesburg	258.6	0.0	48.5	17.2	404.4	0.0	470.1	$ 2,679,281	18	110	72	$ 2,189,523	$ 4,868,804
Chicago	Omaha	Quad Cities	475.1	0.0	77.5	514.2	204.0	0.0	795.7	$ 1,845,468	18	110	72	$ 3,567,492	$ 5,412,960
Chicago	Cincinnati	Indianapolis	309.9	4.6	60.8	202.7	0.0	181.1	449.2	$ 4,440,835	12	110	91	$ 4,720,840	$ 9,161,675
Milwaukee	Green Bay	West Bend	128.6	0.7	30.0	72.1	0.0	84.2	187.0	$ 1,525,099	14	110	70	$ 1,443,457	$ 2,968,556
St. Louis	Kansas City	Jefferson City	283.0	3.8	33.6	28.4	500.2	0.0	566.0	$ 4,577,004	8	90*	278	$ 3,242,064	$ 7,819,068
Chicago	Carbondale	Champaign	308.4	2.4	43.3	103.2	488.6	0.0	637.5	$ 3,576,150	10	90	50	$ 3,009,239	$ 6,585,388
Totals			3,370.7	22.0	480.6	1,621.4	1,787.2	1,672.8	5,584.0	$ 52,159,036	194			$ 44,156,117	$ 96,315,153

Estimated Number of Annual Train Miles at Full Buildout	**13,767,031**		
		Maintenance	**Cyclic**	**Total**
	Cost/TM	**$ 3.79**	**$ 3.21**	**$ 7.00**

Charlie Quandel of HNTB interpreted the FRA Technical Monograph dated January 2004; assured that infrastructure shown herein reflected the infrastructure used in the capital cost estimates; and calculated the maintenance and cyclic capital costs presented in this report

Robert Kollmar of Amtrak developed spreadsheet linkages, infrastructure build-up, and assembled freight information

CHICAGO - KALAMAZOO - BATTLE CREEK - DEARBORN - DETROIT - PONTIAC

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles (R. A. Kollmar's Calculations)	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	COMPLETE TEMS Calculations 2010 Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot
0	Chicago	21 Street	45	45	45	523.0	520.9	2.1	6.3	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	21 Street	Englewood	79	79		520.9	516.3	4.6	9.2	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	Englewood	Englewood	45	45		516.3	515.2	1.1	2.2	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	Englewood	Gr. Xing	79	79		515.2	513.7	1.5	3.0	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	Gr. Xing	Cal River	79	79		513.7	509.8	3.9	7.8	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	Cal R. Br.	Cal R. Br.	79	79		509.8	509.5	0.3	0.6	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	Cal River	Hick	##	##		509.5	503.4	6.1	12.2	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	Hick Br.	Hick Br.	79	79		503.4	503.0	0.4	0.8	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	Hick Br.	NS Flyover	79	79		503.0	501.6	1.4	2.8	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	NS Flyover	NS Flyover	60	60		501.6	500.5	1.1	2.2	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	NS Flyover	CP 483	##	##		500.5	483.6	16.9	33.8	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	CP 483	CP 482	79	79		483.6	482.0	1.6	3.2	P			28	0	0	0.0015	4.8	0.0	4.8	0	0.1400	4.8	0.0	4.8
	CP 482	Porter	60	60		241.0	240.0	1.0	2.0	P			28	2	0.6	0.0015	4.8	0.8	5.6	0	0.1400	4.8	0.0	4.8
50	Porter	Mich City	##			240.0	229.9	10.1	10.1	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	11.1	15.9
	Mich City	Mich City	50			229.9	228.4	1.5	1.5	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Mich City	Buchanan	##			228.4	198.9	29.5	29.5	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Buchanan	Niles	93			198.9	197.2	1.7	1.7	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Niles	Niles	85			197.2	196.6	0.6	0.6	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Niles	Niles	90			196.6	194.2	2.4	2.4	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Niles	Niles	80			194.2	193.6	0.6	0.6	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Niles	Niles	75			193.6	191.5	2.1	2.1	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
100	Niles	Oshtemo	##			191.5	150.7	40.8	40.8	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Oshtemo	Kalamazoo	79	79		150.7	145.0	5.7	11.4	P			28	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Kalamazoo	Kalamazoo	50	50		145.0	144.0	1.0	2.0	P			30	2	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	Kalamazoo	BO Tower	35	35		144.0	142.9	1.1	2.2	P			28	6	0.6	0.0015	4.8	0.8	5.6	9.4	0.1400	4.8	12.5	17.3
	BO Tower	CP 140	60	60		142.9	139.9	3.0	6.0			F	28	6	7.0	0.0015	4.8	9.3	14.1	19.3	0.1400	4.8	25.6	30.4
150	CP 140	CP Custer	##			139.9	124.4	15.5	15.5			F	28	6	7.0	0.0015	4.8	9.3	14.1	19.3	0.1400	4.8	25.6	30.4
	CP Custer	Battle Crk	##	##		124.4	121.0	3.4	6.8			F	28	6	7.0	0.0015	4.8	9.3	14.1	19.3	0.1400	4.8	25.6	30.4
	Battle Crk	Baron	45			121.0	119.6	1.4	2.8			F	28	28	30.8	0.03	4.8	54.0	58.8	19.3	0.1400	4.8	25.6	30.4
	Baron	CP Levitt	60	60		119.6	116.3	3.3	3.3			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
	CP Levitt	Levittown	79			116.3	114.3	2.0	2.0			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
	Levittown	Hartung	##			114.3	96.2	18.1	18.1			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
	Hartung	Albion	45			96.2	94.5	1.7	1.7			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
200	Albion	Parma	##			94.5	80.6	13.9	13.9			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
	Parma	Jackson	79			80.6	78.5	2.1	2.1			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
	Jackson	Jackson	60	60		78.5	74.0	4.5	9.0			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
	Jackson	E. Jackson	79			74.0	70.5	3.5	3.5			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
250	E. Jackson	Ypsi	##	##		70.5	29.8	40.7	81.4			F	20	2	6.6	0.0015	4.8	8.8	13.6	17.9	0.1400	4.8	23.8	28.6
	Jackson	Ypsi	60			29.8	28.9	0.9	0.9			F	20	2	6.6	0.0015	3.4	8.8	12.2	17.9	0.1400	3.4	23.8	27.2
	Ypsi	Wayne	##	##		28.9	18.0	10.9	21.8			F	20	2	6.6	0.0015	3.4	8.8	12.2	17.9	0.1400	3.4	23.8	27.2
	Wayne	Town Line	##	##		18.0	11.5	6.5	13.0			F	20	2	6.6	0.0015	3.4	8.8	12.2	17.9	0.1400	3.4	23.8	27.2
	Town Line	W. Det.	79	79		11.5	3.2	8.3	16.6			F	20	2	6.6	0.0015	3.4	8.8	12.2	17.9	0.1400	3.4	23.8	27.2
	W. Det.	W. Det.	45	45		3.2	3.2	0.3	0.3	P			20	2	0.0	0	3.4	0.0	3.4	0.0	0.1400	3.4	0.0	3.4
	W. Det.	MKE Jct.	60	60	60	3.2	6.5	3.3	9.9			F	20	20	71.4	0.03	3.4	125.2	128.6	19.6	0.1400	3.4	26.0	29.4
	MKE Jct.	MKE Jct.	15	15		6.5	6.7	0.2	0.4			F	14	20	71.4	0.03	2.4	125.2	127.6	45.4	0.1400	2.4	60.2	62.6
	MKE Jct.	Royal Oak	79	79		6.7	12.4	5.7	11.4			F	14	20	9.4	0.03	2.4	16.5	18.9	19.0	0.1400	2.4	25.2	27.6
	Royal Oak	Birmingham	45	45		12.4	13.2	0.8	1.6			F	14	20	9.4	0.03	2.4	16.5	18.9	19.0	0.1400	2.4	25.2	27.6
300	Birmingham	Pontiac	79	79		13.2	24.5	11.3	22.6			F	14	20	9.4	0.03	2.4	16.5	18.9	19.0	0.1400	2.4	25.2	27.6
	Pontiac		45	45		24.5	25.8	1.3	2.6			F	14	20	9.4	0.03	2.4	16.5	18.9	19.0	0.1400	2.4	25.2	27.6

From Station	To Station	FRA Track Class 2	3	4	5	6	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Comments
Chicago	21 Street		6.3				$ 2.05	$ 2.40	$ 131,991	$ 2.53	$ 2.96	$ 162,897	$ 294,888	MP 0.0 - Chicago
21 Street	Englewood			9.2			$ 2.05	$ 2.40	$ 192,749	$ 2.53	$ 2.96	$ 237,881	$ 430,630	
Englewood	Englewood		2.2				$ 2.29	$ 2.68	$ 51,488	$ 2.60	$ 3.04	$ 58,458	$ 109,947	
Englewood	Gr. Xing			3.0			$ 2.05	$ 2.40	$ 62,853	$ 2.53	$ 2.96	$ 77,570	$ 140,423	Current NS ML Tonnage = 122.4
Gr. Xing	Cal River			7.8			$ 2.05	$ 2.40	$ 163,418	$ 2.53	$ 2.96	$ 201,681	$ 365,099	
Cal R. Br.	Cal R. Br.			0.6			$ 2.05	$ 2.40	$ 12,571	$ 2.53	$ 2.96	$ 15,514	$ 28,085	
Cal River	Hick					12.2	$ 3.11	$ 3.64	$ 387,767	$ 2.60	$ 3.04	$ 324,178	$ 711,946	MP 507.0 - Hammond
Hick Br.	Hick Br.			0.8			$ 2.05	$ 2.40	$ 16,761	$ 2.53	$ 2.96	$ 20,685	$ 37,446	
Hick Br.	NS Flyover			2.8			$ 2.05	$ 2.40	$ 58,663	$ 2.53	$ 2.96	$ 72,398	$ 131,061	Current NS ML Tonnage = 122.4
NS Flyover	NS Flyover		2.2				$ 2.15	$ 2.52	$ 48,341	$ 2.56	$ 2.99	$ 57,559	$ 105,900	
NS Flyover	CP 483					33.8	$ 3.11	$ 3.64	$ 1,074,306	$ 2.60	$ 3.04	$ 898,134	$ 1,972,440	
CP 483	CP 482			3.2			$ 2.05	$ 2.40	$ 67,043	$ 2.53	$ 2.96	$ 82,741	$ 149,784	
CP 482	Porter		2.0				$ 2.29	$ 2.68	$ 46,808	$ 2.60	$ 3.04	$ 53,144	$ 99,952	
Porter	Mich City					10.1	$ 3.11	$ 3.64	$ 321,020	$ 2.60	$ 3.04	$ 268,377	$ 589,398	
Mich City	Mich City		1.5				$ 2.15	$ 2.52	$ 32,960	$ 2.56	$ 2.99	$ 39,245	$ 72,204	
Mich City	Buchanan					29.5	$ 3.11	$ 3.64	$ 937,634	$ 2.60	$ 3.04	$ 783,874	$ 1,721,508	
Buchanan	Niles					1.7	$ 3.26	$ 3.81	$ 56,639	$ 2.63	$ 3.08	$ 45,694	$ 102,333	
Niles	Niles				0.6		$ 2.66	$ 3.11	$ 16,311	$ 2.56	$ 2.99	$ 15,698	$ 32,009	
Niles	Niles				2.4		$ 2.66	$ 3.11	$ 65,244	$ 2.56	$ 2.99	$ 62,792	$ 128,036	
Niles	Niles			0.6			$ 2.15	$ 2.52	$ 13,184	$ 2.56	$ 2.99	$ 15,698	$ 28,882	
Niles	Niles			2.1			$ 2.15	$ 2.52	$ 46,143	$ 2.56	$ 2.99	$ 54,943	$ 101,086	MP 192.0 - Niles
Niles	Oshtemo					40.8	$ 3.11	$ 3.64	$ 1,296,795	$ 2.60	$ 3.04	$ 1,084,138	$ 2,380,933	
Oshtemo	Kalamazoo			11.4			$ 2.05	$ 2.40	$ 238,841	$ 2.53	$ 2.96	$ 294,765	$ 533,607	MP 179.5 - Dowagiac
Kalamazoo	Kalamazoo		2.0				$ 2.05	$ 2.40	$ 44,895	$ 2.53	$ 2.96	$ 55,407	$ 100,302	MP 143.4 - Kalamazoo
Kalamazoo	BO Tower		2.2				$ 2.05	$ 2.40	$ 46,092	$ 2.53	$ 2.96	$ 56,885	$ 102,977	
BO Tower	CP 140		6.0				$ 0.42	$ 0.49	$ 25,754	$ 0.80	$ 0.94	$ 49,056	$ 74,810	
CP 140	CP Custer					15.5	$ 2.50	$ 2.92	$ 396,025	$ 1.10	$ 1.29	$ 174,251	$ 570,276	
CP Custer	Battle Crk					6.8	$ 2.50	$ 2.92	$ 173,740	$ 1.10	$ 1.29	$ 76,446	$ 250,186	
Battle Crk	Baron		2.8				$ 0.28	$ 0.33	$ 8,012	$ 0.54	$ 0.63	$ 15,453	$ 23,465	MP 120.7 - Battle Creek
Baron	CP Levitt		3.3				$ 0.28	$ 0.33	$ 6,745	$ 0.54	$ 0.63	$ 13,009	$ 19,754	
CP Levitt	Levittown			2.0			$ 0.28	$ 0.33	$ 4,088	$ 0.54	$ 0.63	$ 7,884	$ 11,972	
Levittown	Hartung					18.1	$ 2.38	$ 2.78	$ 314,469	$ 1.07	$ 1.25	$ 141,379	$ 455,849	
Hartung	Albion		1.7				$ 0.40	$ 0.47	$ 4,964	$ 0.78	$ 0.91	$ 9,680	$ 14,644	
Albion	Parma					13.9	$ 2.38	$ 2.78	$ 241,499	$ 1.07	$ 1.25	$ 108,573	$ 350,072	MP 95.5 - Albion
Parma	Jackson			2.1			$ 0.40	$ 0.47	$ 6,132	$ 0.78	$ 0.91	$ 11,957	$ 18,089	
Jackson	Jackson		9.0				$ 0.40	$ 0.47	$ 26,280	$ 0.78	$ 0.91	$ 51,246	$ 77,526	MP 74.4 - Jackson
Jackson	E. Jackson			3.5			$ 0.40	$ 0.47	$ 10,220	$ 0.78	$ 0.91	$ 19,929	$ 30,149	
E. Jackson	Ypsi					81.4	$ 2.38	$ 2.78	$ 1,414,244	$ 1.07	$ 1.25	$ 635,815	$ 2,050,059	
Jackson	Ypsi		0.9				$ 0.42	$ 0.49	$ 2,759	$ 0.80	$ 0.94	$ 5,256	$ 8,015	MP 37.4 - Ann Arbor
Ypsi	Wayne					21.8	$ 2.50	$ 2.92	$ 397,850	$ 1.10	$ 1.29	$ 175,054	$ 572,904	
Wayne	Town Line					13.0	$ 2.38	$ 2.78	$ 225,862	$ 1.07	$ 1.25	$ 101,543	$ 327,405	
Town Line	W. Det.			16.6			$ 0.40	$ 0.47	$ 48,472	$ 0.78	$ 0.91	$ 94,520	$ 142,992	MP 9.0 - Dearborn
W. Det.	W. Det.		0.3				$ 0.40	$ 0.47	$ 876	$ 0.78	$ 0.91	$ 1,708	$ 2,584	
W. Det.	MKE Jct.		9.9				$ 0.40	$ 0.47	$ 28,908	$ 0.78	$ 0.91	$ 56,371	$ 85,279	MP 5.0 - Detroit
MKE Jct.	MKE Jct.	0.4					$ 0.45	$ 0.53	$ 920	$ 0.84	$ 0.98	$ 1,717	$ 2,637	
MKE Jct.	Royal Oak			11.4			$ 0.45	$ 0.53	$ 26,214	$ 0.84	$ 0.98	$ 48,933	$ 75,148	
Royal Oak	Birmingham		1.6				$ 0.45	$ 0.53	$ 3,679	$ 0.84	$ 0.98	$ 6,868	$ 10,547	
Birmingham	Pontiac			22.6			$ 0.45	$ 0.53	$ 51,969	$ 0.84	$ 0.98	$ 97,008	$ 148,977	
Pontiac			2.6				$ 0.40	$ 0.47	$ 5,314	$ 0.78	$ 0.91	$ 10,363	$ 15,677	MP 25.8 - Pontiac
									$ 8,855,515	$ 84.42		$ 6,954,374	$ 15,809,889	NS Tonnage per NS 121003
									Matrix 41	Matrix 42				CN Tonnage per CN 120503

Total Rpute Mile 301.7 458.2
Total Track Miles 458.2

Track Miles By Class: 0.4 56.5 99.7 3.0 298.6

Notes 1, 2, 4 — Notes 3

	Maintenance	Capital	Total
High	$8,855,515	$6,954,374	$15,809,889
Median	$7,350,077	$5,772,131	$13,122,208
Low	$5,844,640	$4,589,887	$10,434,527

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Legend

FRA Class 2	30 - 25	**FRT**	**PASS**	**550**
FRA Class 3	60 - 40	**PP** 1	16	**5900**
FRA Class 4	80 - 60	**E** 2	16	
FRA Class 5	90 - 80	**PF** 6	16	1.170
FRA Class 6	110 - 80			

0.4
56.5
99.7
3.0
298.6

Notes
1 Norfolk Southern furnished data
2 Canadian National (O'Brien) Furnished Data 12-05-03 and Annual Growth Data 01-05-04
3 RA Kollmar estimate of annual growth
4 Conrail Shared Assets furnished data

CHICAGO - JOLIET - SPRINGFIELD - ST. LOUIS

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	R. A. Kollmar's Calculations: Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr. Tons F	RR Escall. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	COMPLETE TEMS Calculations: 2010 Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	FRA Track Class 2	3	4	5	6	MGT < 5	5-15	15-30	> 30	Curvature Lgt	Mod	Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Comments
0	Chicago	21st Street	45	45	45	0.0	1.8	1.8	3.6	P			16		0.0	0.015	2.7	0.0	2.7	41.4	0.014	0.0	54.9	54.9		3.6											$ 2.05	$ 2.40	$ 43,099	$ 2.53	$ 2.96	$ 53,191	$ 96,290	MP 0.0 - Chicago
	21st Street	Bridgeport	45	45		1.8	3.5	1.7	3.4	P			16		10.0	0.02	2.7	14.6	17.3	41.4	0.014	2.5	48.9	51.4		3.4											$ 2.15	$ 2.52	$ 42,690	$ 2.56	$ 2.99	$ 50,831	$ 93,522	
	Bridgeport	Bridgeport	30	30		3.5	3.8	0.3	0.6	P			16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		0.6											$ 2.29	$ 2.68	$ 8,024	$ 2.60	$ 3.04	$ 9,110	$ 17,135	
	Bridgeport	Brighton Park	60	60		3.8	5.1	1.3	2.6	P			16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		2.6											$ 2.15	$ 2.52	$ 32,646	$ 2.56	$ 2.99	$ 38,871	$ 71,517	
	Brighton Park	Brighton Park	40	40		5.1	5.3	0.2	0.4			F	16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		0.4											$ 0.42	$ 0.49	$ 981	$ 0.80	$ 0.94	$ 1,869	$ 2,850	
	Brighton Park	Corwith	60	60		5.3	6.7	1.4	2.8			F	16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		2.8											$ 0.40	$ 0.47	$ 6,541	$ 0.78	$ 0.91	$ 12,755	$ 19,295	
	Corwith	Corwith	45	45		6.7	7.0	0.3	0.6			F	16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		0.6											$ 0.42	$ 0.49	$ 1,472	$ 0.80	$ 0.94	$ 2,803	$ 4,275	
	Corwith	Lemoyne	79	79		7.0	7.9	0.9	1.8			F	16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4			1.8										$ 0.40	$ 0.47	$ 4,205	$ 0.78	$ 0.91	$ 8,199	$ 12,404	
	Lemoyne	Lemoyne	60	60		7.9	8.0	0.1	0.2			F	16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		0.2											$ 0.40	$ 0.47	$ 467	$ 0.78	$ 0.91	$ 911	$ 1,378	
	Lemoyne	Argo	79	79		8.0	12.4	4.4	8.8			F	16	2	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4			8.8										$ 0.40	$ 0.47	$ 20,557	$ 0.78	$ 0.91	$ 40,086	$ 60,643	MP 12.0 - Summit
	Argo	Argo	60	60		12.4	13.2	0.8	1.6			F	16	6	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		1.6											$ 0.40	$ 0.47	$ 3,738	$ 0.78	$ 0.91	$ 7,288	$ 11,026	
	Argo	Lemont	79	79		13.2	26.2	13.0	26.0			F	16	6	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4			26.0										$ 0.42	$ 0.49	$ 63,773	$ 0.80	$ 0.94	$ 121,472	$ 185,245	
	Lemont	Lemont	60	60		26.2	26.3	0.1	0.2			F	16	6	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		0.2											$ 0.42	$ 0.49	$ 491	$ 0.80	$ 0.94	$ 934	$ 1,425	
	Lemont	Joliet	79	79		26.3	36.9	10.6	21.2			F	16	6	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4			21.2										$ 0.42	$ 0.49	$ 51,999	$ 0.80	$ 0.94	$ 99,046	$ 151,046	
	UD Tower	UD Tower	60	60		36.9	37.5	0.6	1.2			F	16	8	18.0	0.02	2.7	26.2	29.0	41.4	0.014	4.5	48.9	53.4		1.2											$ 0.45	$ 0.53	$ 3,154	$ 0.84	$ 0.98	$ 5,887	$ 9,040	
	Joliet	South Joliet	65	65		37.5	38.7	1.2	2.4		E		16	16	0.8	0.015	2.7	1.1	3.8	10.2	0.014	0.2	12.1	12.2			2.4										$ 1.51	$ 1.77	$ 21,178	$ 2.20	$ 2.57	$ 30,835	$ 52,013	MP 37.5 - Joliet
50	South Joliet	Mazonia	##			38.7	59.2	20.5	20.5		E		16	2	0.8	0.015	2.7	1.1	3.8	10.2	0.014	0.2	12.1	12.2					20.5								$ 3.40	$ 3.98	$ 407,048	$ 2.28	$ 2.67	$ 272,962	$ 680,010	
100	Mazonia	Towanda	##			59.2	121.5	62.3	62.3		E		16	2	0.8	0.015	2.7	1.1	3.8	10.2	0.014	0.2	12.1	12.2					62.3								$ 3.40	$ 3.98	$ 1,237,029	$ 2.28	$ 2.67	$ 829,537	$ 2,066,566	MP 73.6 - Dwight
	Towanda	Normal	##			121.5	123.9	2.4	2.4		E		16	2	0.8	0.015	2.7	1.1	3.8	10.2	0.014	0.2	12.1	12.2					2.4								$ 3.40	$ 3.98	$ 47,654	$ 2.28	$ 2.67	$ 31,956	$ 79,611	
	Normal	Bloomington	50	50		123.9	126.8	2.9	5.8		E		16	4	0.8	0.015	2.7	1.1	3.8	23.4	0.014	0.2	27.6	27.8		5.8											$ 1.51	$ 1.77	$ 51,147	$ 2.20	$ 2.57	$ 74,518	$ 125,665	MP 124.1 - Normal
150	Bloomington	Athol	##			126.8	154.9	28.1	28.1		E		16	4	3.0	0.015	2.7	4.0	6.7	23.4	0.014	0.7	27.6	28.3					28.1								$ 3.40	$ 3.98	$ 557,954	$ 2.28	$ 2.67	$ 374,157	$ 932,111	
	Athol	Lincoln	79			154.9	158.7	3.8	3.8		E		16	4	3.0	0.015	2.7	4.0	6.7	23.4	0.014	0.7	27.6	28.3			3.8										$ 1.44	$ 1.68	$ 31,956	$ 2.18	$ 2.55	$ 48,379	$ 80,335	
200	Lincoln	Ridgley	##			158.7	181.8	23.1	23.1		E		16	4	3.0	0.015	2.7	4.0	6.7	23.4	0.014	0.7	27.6	28.3					23.1								$ 3.40	$ 3.98	$ 458,674	$ 2.28	$ 2.67	$ 307,581	$ 766,255	MP 156.1 - Lincoln
	Ridgley	Hazel Del	60			181.8	189.5	7.7	7.7			F	16	4	8.0	0.015	2.7	10.6	13.4	23.4	0.014	1.8	27.6	29.5			7.7										$ 0.42	$ 0.49	$ 18,887	$ 0.80	$ 0.94	$ 35,974	$ 54,861	MP 185.2 - Springfield
250	Hazel Del	Carlinville	##			189.5	227.6	38.1	38.1			F	16	4	8.0	0.015	2.7	10.6	13.4	23.4	0.014	1.8	27.6	29.5					38.1								$ 2.38	$ 2.78	$ 529,560	$ 1.07	$ 1.25	$ 238,079	$ 767,639	MP 223.8 - Carlinville
	Carlinville	Shipman	79			227.6	236.4	8.8	8.8			F	16	4	8.0	0.015	2.7	10.6	13.4	23.4	0.014	1.8	27.6	29.5			8.8										$ 0.40	$ 0.47	$ 20,557	$ 0.78	$ 0.91	$ 40,086	$ 60,643	
	Shipman	Godfrey	##			236.4	248.3	11.9	11.9			F	16	4	8.0	0.015	2.7	10.6	13.4	23.4	0.014	1.8	27.6	29.5					11.9								$ 2.38	$ 2.78	$ 165,400	$ 1.07	$ 1.25	$ 74,361	$ 239,761	
	Godfrey	Upper Alton	79			248.3	255.6	7.3	7.3			F	16	4	8.0	0.015	2.7	10.6	13.4	23.4	0.014	1.8	27.6	29.5			7.3										$ 0.40	$ 0.47	$ 17,053	$ 0.78	$ 0.91	$ 33,253	$ 50,306	MP 256.8 - Upper Alton
300	Upper Alton	Lennox	##			255.6	275.7	20.1	20.1			F	16	16	8.0	0.015	2.7	10.6	13.4	23.4	0.014	1.8	27.6	29.5					20.1								$ 2.50	$ 2.92	$ 293,460	$ 1.10	$ 1.29	$ 129,122	$ 422,582	
	Lennox	Q Tower	79	79		275.7	279.9	4.2	8.4			F	16	16	36.0	0.015	2.7	47.8	50.5	23.4	0.014	8.2	27.6	35.8			8.4										$ 0.42	$ 0.49	$ 20,604	$ 0.80	$ 0.94	$ 39,245	$ 59,848	
	Q Tower	McArthur Br.	40	40		279.9	281.0	1.1	2.2			F	16	20	15.0	0.015	2.7	19.9	22.6	23.4	0.014	3.4	27.6	31.1		2.2											$ 0.42	$ 0.49	$ 5,396	$ 0.80	$ 0.94	$ 10,278	$ 15,675	
	McArthur Br.	St. Louis	25	25		281.0	283.5	2.5	5.0			F	16	60	66.0	0.015	2.7	87.6	90.3	23.4	0.014	15.0	27.6	42.7	5.0											$ 0.45	$ 0.53	$ 13,140	$ 0.84	$ 0.98	$ 24,528	$ 37,668	MP 280.9 - St. Louis
																																						$ 4,180,531	$ 45.01		$ 3,048,106	$ 7,228,638	

275.7 — Total Route Miles 283.5 — Total Track Miles 332.9

Track Miles By Class: 5.0 (FRA Class 2), 25.2 (FRA Class 3), 96.2 (FRA Class 4), 0.0 (FRA Class 5), 206.5 (FRA Class 6)

Matrix 41 — Matrix 41

	Note 1	Note 2
FRA Class 2	5.0	25.2
FRA Class 3	96.2	
FRA Class 4	0.0	
FRA Class 5	206.5	

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Legend

FRA Class 2	30 - 25		**FRT'ASS**			**550**
FRA Class 3	60 - 40	**PP**	1	16		**5900**
FRA Class 4	80 - 60	**E**	2	16		
FRA Class 5	90 - 80	**PF**	6	16		1.170
FRA Class 6	110 - 80					

Note 1: BNSF Furnished 2002 Tonnage Data
Note 2: RA Kollmar Estimate of Annual Growth

	Maintenance	Capital	Total
High	$4,180,531	$3,048,106	$7,228,638
Median	$3,469,841	$2,529,928	$5,999,769
Low	$2,759,151	$2,011,750	$4,770,901

CHICAGO - MILWAUKEE - MADISON - PORTAGE - ST. PAUL

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr. Tons F	RR Escall. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	2000 Tons F	RR Escal. %	2010 Tonnage P	2010 Tonnage F	2010 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Comments
									R. A. Kollmar's Calculations											COMPLETE TEMS Calculations																							
0	Chicago	Lake Street	20	20	20	0.0	1.0	1.0	3.0	P			34	0	1.0	0.03	5.8	1.8	7.6	11.6	0.016	0.3	13.6	13.9	3.0												2.29	2.68	$ 85,257	$ 2.60	$ 3.04	$ 96,798	$ 182,055	MP 0.0 - Chicago
	Lake Street	Western Avenue	60	60	60	1.0	2.9	1.9	5.7	P			34	0	1.0	0.03	5.8	1.8	7.6	11.6	0.016	0.3	13.6	13.9			5.7										2.15	2.52	$ 152,085	$ 2.56	$ 2.99	$ 181,087	$ 333,171	
	Western Avenue	Tower 4	40	40	40	2.9	3.8	0.9	2.7	P			34	2	1.0	0.03	5.8	1.8	7.6	11.6	0.016	0.3	13.6	13.9		2.7											2.29	2.68	$ 76,731	$ 2.60	$ 3.04	$ 87,118	$ 163,849	
	Tower 4	Pacific Junction	##	##	##	2.9	8.5	5.6	16.8	P			34	2	1.0	0.03	5.8	1.8	7.6	11.6	0.016	0.3	13.6	13.9					16.8								3.11	3.64	$ 648,398	$ 2.60	$ 3.04	$ 542,069	$ 1,190,466	
	Pacific Junction	Mayfair	##	##	##	8.5	10.3	1.8	5.4	P			34	2	1.0	0.03	5.8	1.8	7.6	11.6	0.016	0.3	13.6	13.9					5.4								3.11	3.64	$ 208,414	$ 2.60	$ 3.04	$ 174,236	$ 382,650	
	Mayfair	Techny	##	##	##	10.3	20.0	9.7	29.1	P			34	2	1.0	0.03	5.8	1.8	7.6	11.6	0.016	0.3	13.6	13.9					29.1								3.11	3.64	$ 1,123,117	$ 2.60	$ 3.04	$ 938,941	$ 2,062,058	MP 17.2 - Glenview
50	Techny	MP 51.7	##	##	##	20.0	51.7	42.8	128.4			F	34	28	35.9	0.03	5.8	63.0	68.8	31.9	0.016	10.8	37.4	48.2					128.4								1.68	1.97	$ 2,676,986	$ 0.76	$ 0.89	$ 1,211,017	$ 3,888,003	
	MP 51.7	MP 62.8	79	79		51.7	62.8	11.1	22.2			F	34	28	36.9	0.03	5.8	64.7	70.5	20.1	0.016	11.1	23.6	34.7			22.2										0.28	0.33	$ 77,141	$ 0.54	$ 0.63	$ 148,771	$ 225,912	MP 61.5 - Sturtevant
	MP 62.8	GMIA Airport Station	##	##	##	62.8	80.5	17.7	53.1			F	34	28	36.9	0.03	5.8	64.7	70.5	20.1	0.016	11.1	23.6	34.7					53.1								1.68	1.97	$ 1,107,071	$ 0.76	$ 0.89	$ 500,818	$ 1,607,889	MP 78 - GMIA
	GMIA Airport Station	KK Bridge	90	90	90	80.5	84.1	3.6	10.8			F	34	28	37.3	0.03	5.8	65.4	71.2	20.1	0.016	11.2	23.6	34.8				10.8									0.84	0.98	$ 112,584	$ 0.62	$ 0.73	$ 83,097	$ 195,681	
	KK Bridge	National Avenue	45	45		84.1	85.7	1.6	3.2			F	34	28	3.0	0.03	5.8	5.3	11.1	20.1	0.016	0.9	23.6	24.5		3.2											0.32	0.37	$ 12,708	$ 0.60	$ 0.70	$ 23,827	$ 36,535	
	National Avenue	Milwaukee Station	20	20		85.7	86.0	0.3	0.6			F	34	4	3.0	0.03	5.8	5.3	11.1	22.1	0.016	0.9	25.9	26.8	0.6												0.32	0.37	$ 2,383	$ 0.60	$ 0.70	$ 4,468	$ 6,850	MP 85.8 - Milwaukee
	Milwaukee Station	Wauwatosa	60	60	60	86.0	90.8	4.8	14.4			F	20	4	36.7	0.03	3.4	64.4	67.8	20.3	0.016	11.0	23.8	34.8			14.4										0.30	0.35	$ 31,536	$ 0.56	$ 0.66	$ 58,867	$ 90,403	
100	Wauwatosa	Elm Grove	90	90		90.8	95.4	4.6	9.2			F	20	4	36.7	0.03	3.4	64.4	67.8	23.9	0.016	11.0	28.0	39.1				9.2									0.93	1.09	$ 62,459	$ 0.68	$ 0.80	$ 45,669	$ 108,128	
	Elm Grove	MP 117.2	##	##		95.4	117.2	21.8	43.6			F	20	4	36.7	0.03	3.4	64.4	67.8	23.9	0.016	11.0	28.0	39.1					43.6								1.76	2.06	$ 560,173	$ 0.79	$ 0.92	$ 251,441	$ 811,614	MP 100 - Brookfield
	MP 117.2	MP 118.7	79	79		117.2	118.8	1.6	3.2			F	20	4	36.7	0.03	3.4	64.4	67.8	23.9	0.016	11.0	28.0	39.1			3.2										0.28	0.33	$ 6,541	$ 0.54	$ 0.63	$ 12,614	$ 19,155	MP 117.5 - Oconomowoc
	MP 118.7	MP 129.3	##	##		118.8	129.3	10.5	21.0			F	20	32	36.7	0.03	3.4	64.4	67.8	23.9	0.016	11.0	28.0	39.1					21.0								1.76	2.06	$ 269,808	$ 0.79	$ 0.92	$ 121,107	$ 390,915	MP 130 - Watertown
	MP 129.3	Watertown	79	79		129.3	130.9	1.6	3.2			F	20	32	36.7	0.03	3.4	64.4	67.8	23.9	0.016	11.0	28.0	39.1			3.2										0.30	0.35	$ 7,008	$ 0.56	$ 0.66	$ 13,082	$ 20,090	
	Watertown	Watertown	45	45		130.9	131.2	0.3	0.6	P			20	32	0.3	0.03	3.4	0.6	4.0	23.9	0.016	0.1	28.0	28.1		0.6											0.32	0.37	$ 1,402	$ 0.60	$ 0.70	$ 2,628	$ 4,030	
150	Watertown	MP 161.8	##			131.2	161.8	30.6	30.6	P			20	2	0.3	0.03	3.4	0.6	4.0	2.0	0.016	0.1	2.3	2.4					30.6								3.11	3.64	$ 694,712	$ 2.60	$ 3.04	$ 580,788	$ 1,275,500	
	MP 161.8	Junction A	60			161.8	164.4	2.6	2.6	P			20	2	0.3	0.03	3.4	0.6	4.0	2.0	0.016	0.1	2.3	2.4		2.6											2.15	2.52	$ 40,807	$ 2.56	$ 2.99	$ 48,589	$ 89,396	
	Junction A	Junction A	20			164.4	164.6	0.2	0.2	P			20	2	0.3	0.03	3.4	0.6	4.0	2.0	0.016	0.1	2.3	2.4	0.2												2.29	2.68	$ 3,343	$ 2.60	$ 3.04	$ 3,796	$ 7,139	
	Junction A	Madison Shop	45			79.5	81.0	1.5	1.5		E		12	2	2.5	0.03	2.1	4.4	6.4	2.0	0.016	0.7	2.3	3.1		1.5											1.61	1.88	$ 10,578	$ 2.24	$ 2.62	$ 14,717	$ 25,295	
	Madison Shop	Madison Airport	60	60		32.9	30.0	2.9	5.8		E		12	2	2.5	0.03	2.1	4.4	6.4	2.0	0.016	0.7	2.3	3.1		5.8											1.51	1.77	$ 38,360	$ 2.20	$ 2.57	$ 55,889	$ 94,249	MP 30.0 - Madison
200	Madison Airport	Portage	##			30.0	0.0	30.0	30.0		E		12	2	2.5	0.03	2.1	4.4	6.4	2.0	0.016	0.7	2.3	3.1					30.0								3.57	4.18	$ 469,098	$ 2.31	$ 2.70	$ 303,534	$ 772,632	
250	Portage	Camp Douglas	##			176.9	243.4	66.5	66.5			F	12	32	40.0	0.03	2.1	70.1	72.2	31.0	0.016	12.0	36.3	48.4					66.5								2.50	2.92	$ 728,175	$ 1.10	$ 1.29	$ 320,397	$ 1,048,572	MP 178 - Portage
	Camp Douglas	Camp Douglas	35	35		243.4	243.8	0.4	0.8			F	12	32	42.1	0.03	2.1	73.8	75.9	31.0	0.016	12.7	36.3	49.0		0.8											0.45	0.53	$ 1,577	$ 0.84	$ 0.98	$ 2,943	$ 4,520	Tunnel
300	Camp Douglas	Grand Crossing (BNSF)	##			243.8	280.0	36.2	72.4			F	12	32	42.1	0.03	2.1	73.8	75.9	26.6	0.016	12.7	31.2	43.8					72.4								2.50	2.92	$ 792,780	$ 1.10	$ 1.29	$ 348,823	$ 1,141,603	La Crosse
	Grand Crossing (BNSF)	La Crosse Station	45	45	45	280.0	283.8	3.8	11.4			F	12	42	42.1	0.03	2.1	73.8	75.9	40.6	0.016	12.7	47.6	60.3		11.4											0.45	0.53	$ 22,469	$ 0.84	$ 0.98	$ 41,943	$ 64,412	Mississippi River Bridge
	La Crosse Station	MP 288.0	##	##	##	283.8	288.0	4.2	12.6			F	12	36	43.8	0.03	2.1	76.8	78.9	40.6	0.016	13.2	47.6	60.8					12.6								2.50	2.92	$ 137,970	$ 1.10	$ 1.29	$ 60,707	$ 198,677	River Junction
400	MP 288.0	Red Wing Station	90	90		288.0	371.5	83.5	167.0			F	12	36	40.6	0.03	2.1	71.2	73.3	26.5	0.016	12.2	31.1	43.3				167.0									1.25	1.46	$ 914,325	$ 0.90	$ 1.05	$ 658,314	$ 1,572,639	
	Red Wing Station	East Hastings	##	##	##	371.5	389.8	18.3	54.9			F	12	36	40.6	0.03	2.1	71.2	73.3	67.8	0.016	12.2	79.5	91.7					54.9								2.50	2.92	$ 601,155	$ 1.10	$ 1.29	$ 264,508	$ 865,663	
	East Hastings	St. Croix Junction	79	79	79	389.8	396.0	6.2	18.6			F	12	48	40.6	0.03	2.1	71.2	73.3	54.2	0.016	12.2	63.5	75.7			18.6										0.45	0.53	$ 36,661	$ 0.84	$ 0.98	$ 68,433	$ 105,094	
	St. Croix Junction	St. Paul Yard	##	##	##	396.0	407.4	11.4	34.2			F	12	48	40.6	0.03	2.1	71.2	73.3	54.2	0.016	12.2	63.5	75.7					34.2								2.50	2.92	$ 374,490	$ 1.10	$ 1.29	$ 164,776	$ 539,266	
	St. Paul Yard	St. Paul Station	70	70	70	407.4	408.9	1.5	4.5			F	12	52	40.6	0.03	2.1	71.2	73.3	4.1	0.016	12.2	4.8	17.0			4.5										0.42	0.49	$ 8,278	$ 0.80	$ 0.94	$ 15,768	$ 24,046	MP 408.9 - St. Paul
																																							$ -					
																																							$ -					
																																							$ 12,096,577	$ 48.19		$ 7,451,580	$ 19,548,157	

Total Route Mile 443.0

Total Track Mile 889.8

Note 1 Note 2

Track Miles By Class 3.8 28.6 71.8 187.0 598.6

	Maintenance	Capital	Total
High	$12,096,577	$7,451,580	$19,548,157
Median	$10,040,159	$6,184,811	$16,224,970
Low	$7,983,741	$4,918,043	$12,901,783

HNTB
1-Feb-04
CHQ

Legend

			FRT	PASS	
FRA Class 2	30 - 25				
FRA Class 3	60 - 40	PP	1	16	**550**
FRA Class 4	80 - 60	E	2	16	**5900**
FRA Class 5	90 - 80	PF	6	16	1.170
FRA Class 6	110 - 80				

Note 1: CP Rail Furnished 2002 Tonnage and Growth Data (Heron 12-15-03; 01-05-04)
Note 2: RA Kollmar Estimate of Growth

PORT HURON TO BATTLE CREEK

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr. Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	COMPLETE TEMS Calculations 2010 Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4.0	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Remarks
320	Port Huron	Tappan			45	334.2	332.1	2.1	2.1	P			8	0	0.0	0.03	1.4	0.0	1.4	32.7	0.014	0.0	38.6	38.6		2.1											$ 2.05	$ 2.40	$ 12,571	$ 1.92	$ 2.25	$ 11,773	$ 24,344	MP 334.2 - Port Huron
	Tappan		65	65		332.1	331.7	0.4	0.8			F	8	44	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			0.8										$ 0.96	$ 1.12	$ 2,243	$ 1.92	$ 1.92	$ 3,834	$ 6,076	
			55	55		331.7	330.7	1.0	2.0			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9		2.0											$ 0.96	$ 1.12	$ 5,606	$ 1.92	$ 2.25	$ 11,213	$ 16,819	
		West Tappan	65	65		330.7	329.0	1.7	3.4			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			3.4										$ 0.96	$ 1.12	$ 9,531	$ 1.92	$ 2.25	$ 19,062	$ 28,593	
	West Tappan		70			329.0	326.0	3.0	3.0			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			3.0										$ 0.96	$ 1.12	$ 8,410	$ 1.92	$ 2.25	$ 16,819	$ 25,229	MP 270.0 - Flint
			79			326.0	323.6	2.4	2.4			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			2.4										$ 0.96	$ 1.12	$ 6,728	$ 1.92	$ 2.25	$ 13,455	$ 20,183	
			65			323.6	321.4	2.2	2.2			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			2.2										$ 0.96	$ 1.12	$ 6,167	$ 1.92	$ 2.25	$ 12,334	$ 18,501	MP 253 - Durand
	Emmett		79			321.4	314.2	7.2	7.2			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			7.2										$ 0.96	$ 1.12	$ 20,183	$ 1.92	$ 2.25	$ 40,366	$ 60,549	
300			65			314.2	312.5	1.7	1.7			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			1.7										$ 0.96	$ 1.12	$ 4,765	$ 1.92	$ 2.25	$ 9,531	$ 14,296	
			79			312.5	303.1	9.4	9.4			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			9.4										$ 0.96	$ 1.12	$ 26,350	$ 1.92	$ 2.25	$ 52,700	$ 79,050	
			65			303.1	303.1	0.0	0.0			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			0.0										$ 0.96	$ 1.12	$ -	$ 1.92	$ 2.25	$ -	$ -	
	Imlay City		75			303.1	300.5	2.6	2.6			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			2.6										$ 0.96	$ 1.12	$ 7,288	$ 1.92	$ 2.25	$ 14,577	$ 21,865	
			79			300.5	299.5	1.0	1.0			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			1.0										$ 0.96	$ 1.12	$ 2,803	$ 1.92	$ 2.25	$ 5,606	$ 8,410	MP 222 - East Lansing
			70			299.5	295.0	4.5	4.5			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			4.5										$ 0.96	$ 1.12	$ 12,614	$ 1.92	$ 2.25	$ 25,229	$ 37,843	
	Lapeer	East Flint	65	65		295.0	276.7	18.3	36.6			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			36.6										$ 0.96	$ 1.12	$ 102,597	$ 1.92	$ 2.25	$ 205,194	$ 307,791	
	East Flint		40	40		276.7	276.7	0.0	0.0			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9		0.0										$ 0.96	$ 1.12	$ -	$ 1.92	$ 2.25	$ -	$ -	
	Belsay		65	65		276.7	272.5	4.2	8.4			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			8.4										$ 0.96	$ 1.12	$ 23,547	$ 1.92	$ 2.25	$ 47,094	$ 70,641	
		Kearsley	55	55		272.5	271.8	0.7	1.4			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9		1.4										$ 0.96	$ 1.12	$ 3,924	$ 1.92	$ 2.25	$ 7,849	$ 11,773	
	Kearsley	Kearsley	55	55		271.8	271.8	0.0	0.0			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			0.0										$ 0.96	$ 1.12	$ -	$ 1.92	$ 2.25	$ -	$ -	
	Kearsley	Flint	65	65		271.8	270.0	1.8	3.6			F	8	40	30.8	0.03	1.4	54.0	55.4	32.7	0.014	9.3	38.6	47.9			3.6										$ 0.96	$ 1.12	$ 10,092	$ 1.92	$ 2.25	$ 20,183	$ 30,275	
	Flint		65			270.0	267.0	3.0	3.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8			3.0										$ 0.96	$ 1.12	$ 8,410	$ 1.92	$ 2.25	$ 16,819	$ 25,229	
			50			267.0	265.5	1.5	1.5			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8		1.5										$ 0.96	$ 1.12	$ 4,205	$ 1.92	$ 2.25	$ 8,410	$ 12,614	
250		West Flint	79			265.5	263.8	1.7	1.7			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8			1.7										$ 0.96	$ 1.12	$ 4,765	$ 1.92	$ 2.25	$ 9,531	$ 14,296	
	West Flint	West Flint	40			263.8	263.8	0.0	0.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8		0.0										$ 0.96	$ 1.12	$ -	$ 1.92	$ 2.25	$ -	$ -	
	West Flint		65			263.8	259.8	4.0	4.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8			4.0										$ 0.96	$ 1.12	$ 11,213	$ 1.92	$ 2.25	$ 22,426	$ 33,638	
			79			259.8	255.7	4.1	4.1			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8			4.1										$ 0.96	$ 1.12	$ 11,493	$ 1.92	$ 2.25	$ 22,986	$ 34,479	
		East Durand	65			255.7	255.4	0.3	0.3			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8			0.3										$ 0.96	$ 1.12	$ 841	$ 1.92	$ 2.25	$ 1,682	$ 2,523	
	East Durand	East Durand	40			255.4	255.4	0.0	0.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8		0.0										$ 0.96	$ 1.12	$ -	$ 1.92	$ 2.25	$ -	$ -	
	East Durand		65			255.4	253.6	1.8	1.8			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8			1.8										$ 0.96	$ 1.12	$ 5,046	$ 1.92	$ 2.25	$ 10,092	$ 15,137	
		Durand	65	65		253.6	253.3	0.3	0.6			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8			0.6										$ 0.96	$ 1.12	$ 1,682	$ 1.92	$ 2.25	$ 3,364	$ 5,046	
	Durand	Durand	45	45		253.3	253.3	0.0	0.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.9	0.014	9.3	36.5	45.8		0.0										$ 0.96	$ 1.12	$ -	$ 1.92	$ 2.25	$ -	$ -	
	Durand		45	45		253.3	253.0	0.3	0.6			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		0.6										$ 0.96	$ 1.12	$ 1,682	$ 1.92	$ 2.25	$ 3,364	$ 5,046	
	Vernon	Bancroft	65	65		253.0	248.7	4.3	8.6			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			8.6										$ 0.96	$ 1.12	$ 24,108	$ 1.92	$ 2.25	$ 48,215	$ 72,323	
	Bancroft	Shaftsburg	55			248.7	233.8	14.9	14.9			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		14.9										$ 0.96	$ 1.12	$ 41,768	$ 1.92	$ 2.25	$ 83,535	$ 125,303	
	Shaftsburg	Okemos	65			233.8	227.5	6.3	6.3			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			6.3										$ 0.96	$ 1.12	$ 17,660	$ 1.92	$ 2.25	$ 35,320	$ 52,980	
	Okemos		50	50		227.5	225.7	1.8	3.6			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		3.6										$ 0.96	$ 1.12	$ 10,092	$ 1.92	$ 2.25	$ 20,183	$ 30,275	
			65	65		225.7	224.0	1.7	3.4			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			3.4										$ 0.96	$ 1.12	$ 9,531	$ 1.92	$ 2.25	$ 19,062	$ 28,593	
		Trowbridge	50	50		224.0	223.5	0.5	1.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		1.0										$ 0.96	$ 1.12	$ 2,803	$ 1.92	$ 2.25	$ 5,606	$ 8,410	
	Trowbridge	Cedar	79	79		223.5	221.5	2.0	4.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			4.0										$ 0.96	$ 1.12	$ 11,213	$ 1.92	$ 2.25	$ 22,426	$ 33,638	
	Cedar		50			221.5	219.0	2.5	2.5			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		2.5										$ 0.96	$ 1.12	$ 7,008	$ 1.92	$ 2.25	$ 14,016	$ 21,024	
			45			219.0	218.5	0.5	0.5			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		0.5										$ 0.96	$ 1.12	$ 1,402	$ 1.92	$ 2.25	$ 2,803	$ 4,205	
	Hope	Mill	65			218.5	215.0	3.5	3.5			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			3.5										$ 0.96	$ 1.12	$ 9,811	$ 1.92	$ 2.25	$ 19,622	$ 29,434	
200	Mill	Potterville	65	65		215.0	208.3	6.7	13.4			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			13.4										$ 0.96	$ 1.12	$ 37,563	$ 1.92	$ 2.25	$ 75,126	$ 112,689	
	Potterville	Charlotte	65			208.3	202.5	5.8	5.8			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			5.8										$ 0.96	$ 1.12	$ 16,259	$ 1.92	$ 2.25	$ 32,517	$ 48,776	
	Charlotte		45			202.5	201.8	0.7	0.7			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		0.7										$ 1.08	$ 1.26	$ 2,208	$ 1.97	$ 2.30	$ 4,027	$ 6,234	
		Walton	65			201.8	197.0	4.8	4.8			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			4.8										$ 0.96	$ 1.12	$ 13,455	$ 1.92	$ 2.25	$ 26,911	$ 40,366	
	Walton		65	65		197.0	193.5	3.5	7.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			7.0										$ 0.96	$ 1.12	$ 19,622	$ 1.92	$ 2.25	$ 39,245	$ 58,867	
		Lacy	70	70		193.5	190.5	3.0	6.0			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			6.0										$ 0.96	$ 1.12	$ 16,819	$ 1.92	$ 2.25	$ 33,638	$ 50,458	
	Lacy	McAllister	65	65		190.5	179.2	11.3	22.6			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3			22.6										$ 0.96	$ 1.12	$ 63,352	$ 1.92	$ 2.25	$ 126,705	$ 190,057	
	McAllister		25	25		179.2	178.8	0.4	0.8			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3	0.8											$ 0.96	$ 1.12	$ 2,243	$ 1.92	$ 2.25	$ 4,485	$ 6,728	
		Emmett Street	35	35		178.8	178.6	0.2	0.4			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		0.4										$ 1.01	$ 1.18	$ 1,180	$ 1.94	$ 2.27	$ 2,266	$ 3,446	
	Emmett Street	Baron	45	45		178.6	176.7	1.9	3.8			F	8	40	30.8	0.03	1.4	54.0	55.4	30.5	0.014	9.3	36.0	45.3		3.8										$ 1.01	$ 1.18	$ 11,207	$ 1.94	$ 2.27	$ 21,526	$ 32,733	
	Baron	Battle Creek	45	45		176.7	175.8	0.9	1.8			F	30	44	30.8	0.03	5.1	54.0	59.2	30.5	0.014	9.3	36.0	45.3		1.8										$ 1.01	$ 1.18	$ 19,907	$ 1.94	$ 2.27	$ 38,237	$ 58,144	MP 175.8 - Battle Creek
161.0	Battle Creek	Chicago																																										
																																						$ 653,965	$ 101.87		$ 1,290,964	$ 1,944,929	

Total Miles 158.4

Total Track Mile 225.3

Track Miles By Class

	2	3	4.0	5	6
	0.8	36.8	187.7	0.0	0.0

Note
1
2

	2	3	4.0	5	6
	0.8	36.8	187.7	0.0	0.0

HNTB
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CHQ

	Maintenance	Capital	Total
High	$653,965	$1,290,964	$1,944,929
Median	$542,791	$1,071,500	$1,614,291
Low	$431,617	$852,036	$1,283,653

Legend

FRA Class 2	30 - 25	**FRT**	**PASS**		**550**
FRA Class 3	60 - 40	**PP**	1	16	**5900**
FRA Class 4	80 - 60	**E**	2	16	
FRA Class 5	90 - 80	**PF**	6	16	1.170
FRA Class 6	110 - 80				

Notes
1 CN (O'Brien) Furnished Tonnage Data 12-05-03
2 CN (O'Brien) Furnished Annual Growth Forecast Percentage 01-05-04

KALAMAZOO - GRAND RAPIDS - HOLLAND

Global MP		Pass. Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr. Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	2010 Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Remarks
									R. A. Kollmar's Calculations											COMPLETE TEMS Calculations																							
0	Kalamazoo	Kalamazoo	30			0.0	0.5	0.5	0.5	P			8	0	2.45	0.015	1.4	3.3	4.6	10.00	0.014	0.2	11.8	12.1	0.5												2.29	2.68	$ 3,343	$ 2.60	$ 3.04	$ 3,796	$ 7,139	MP 0.0 - Kalamazoo
	Kalamazoo	Kalamazoo	60	60		0.5	2.0	1.5	3.0		E		8	2	2.45	0.015	1.4	3.3	4.6	10.00	0.014	0.2	11.8	12.1		3.0											1.61	1.88	$ 14,104	$ 2.24	$ 2.62	$ 19,622	$ 33,726	2.4 MGT from NS 121003
	Kalamazoo	Plainwell	79			2.0	12.2	10.2	10.2		E		8	2	2.45	0.015	1.4	3.3	4.6	10.00	0.014	0.2	11.8	12.1			10.2										1.44	1.68	$ 42,889	$ 2.18	$ 2.55	$ 64,929	$ 107,818	MP 12.2 - Plainwell Station
50	Plainwell	Grand Rapids	79			12.2	46.8	34.6	34.6		E		8	2	2.45	0.015	1.4	3.3	4.6	10.00	0.014	0.2	11.8	12.1			34.6										1.44	1.68	$ 145,486	$ 2.18	$ 2.55	$ 220,250	$ 365,736	MP 46.8 - NS / CSXT Switch
	Grand Rapids	Grand Rapids	30	30		46.8	48.8	2.0	4.0		E		8	2	2.45	0.015	1.4	3.3	4.6	10.00	0.014	0.2	11.8	12.1			4.0										1.61	1.88	$ 18,805	$ 2.24	$ 2.62	$ 26,163	$ 44,968	MP 0 & MP 48.8 - Grand Rapids Station
	Grand Rapids	Grand Rapids	30	30		0.0	2.0	2.0	4.0			F	8	2	15.6	0.03	1.4	27.4	28.7	10.00	0.014	0.2	11.8	12.1			4.0										1.08	1.26	$ 12,614	$ 1.97	$ 2.30	$ 23,010	$ 35,624	
	Grand Rapids	Grandville	50	50		2.0	5.7	3.7	7.4			F	8	14	15.6	0.03	1.4	27.4	28.7	10.00	0.014	0.2	11.8	12.1			7.4										0.96	1.12	$ 20,744	$ 1.92	$ 2.25	$ 41,487	$ 62,231	MP 6.0 - Grandville
	Grandville	Jenison	60			5.7	7.3	1.6	1.6			F	8	14	15.6	0.03	1.4	27.4	28.7	10.00	0.014	0.2	11.8	12.1			1.6										1.01	1.18	$ 4,719	$ 1.94	$ 2.27	$ 9,064	$ 13,782	MP 7.3 - Jenison
	Jenison	Hudsonville	79			7.3	12.1	4.8	4.8			F	8	14	15.6	0.03	1.4	27.4	28.7	10.00	0.014	0.2	11.8	12.1			4.8										0.96	1.12	$ 13,455	$ 1.92	$ 2.25	$ 26,911	$ 40,366	MP 12.0 - Hudsonville
	Hudsonville	Hudsonville	60	60		12.1	13.2	1.1	2.2			F	8	14	15.6	0.03	1.4	27.4	28.7	10.00	0.014	0.2	11.8	12.1		2.2											1.01	1.18	$ 6,488	$ 1.94	$ 2.27	$ 12,463	$ 18,951	2.45 MGT from NS 121003
	Hudsonville	Holland	79			13.2	25.2	12.0	12.0			F	8	14	15.6	0.03	1.4	27.4	28.7	10.00	0.014	0.2	11.8	12.1			12.0										0.96	1.12	$ 33,638	$ 1.92	$ 2.25	$ 67,277	$ 100,915	MP 20.7 - Zeeland
74.1	Holland		60			25.2	25.3	0.1	0.1			F	8	14	15.6	0.03	1.4	27.4	28.7	10.00	0.014	0.2	11.8	12.1		0.1											1.01	1.18	$ 295	$ 1.94	$ 2.27	$ 566	$ 861	MP 24.4 - Waverly
																																												MP 25.3 - Holland
						Total Miles		74.1	84.4	Track Miles By Class					NOTE 1.00	NOTE 2 1.50%									0.5	5.3	78.6	0.0	0.0										$ 316,581	$ 24.99		$ 515,538	$ 832,118	

HNTB
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CHQ

Total Track Mile 84.4

FRT	PASS		
			30 - 25
			60 - 40
1	16	5900	80 - 60
2	16	7500	90 - 80
6	16	1.170	110 - 80

Legend

	FRA Class 2
	FRA Class 3
	FRA Class 4
	FRA Class 5
	FRA Class 6

	2	3	4	5	6
	0.5				
		5.3			
			78.6		
				0.0	
					0.0

	Maintenance	Capital	Total
High	$316,581	$515,538	$832,118
Median	$262,762	$427,896	$690,658
Low	$208,943	$340,255	$549,198

Note 1 Tonnage and annual escallation furnished by NS and CSXT.
Note 2 RA Kollmar estimate of annual tonnage growth percentage.

		2.4
PP	1.015	2.436
E		2.47254
PF		2.509628

CHICAGO - FORT WAYNE - TOLEDO - CLEVELAND

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	R. A. Kollmar's Calculations: Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	INCOMPLETE TEMS Calculations: 2000 Tons F	RR Escal. %	2010 Tonnage P	2010 Tonnage F	2010 Tonnage Tot	FRA Track Class 2	3	4	5	6	MGT < 5	5-15	15-30	> 30	Curvature Lgt	Mod	Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Comments
0	Chicago	21 Street	45	45	45	523.0	520.9	2.1	6.3	P			16	0	0.0	0.0	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		6.3											$ 2.05	$ 2.40	$ 75,424	$ 2.53	$ 2.96	$93,084	$168,507	MP 0.0 - Chicago
	21 Street	Englewood	79	79		520.9	516.3	4.6	9.2	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8			9.2										$ 2.05	$ 2.40	$ 110,142	$ 2.53	$ 2.96	$135,932	$246,074	
	Englewood	Englewood	45	45		516.3	515.2	1.1	2.2	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8		2.2											$ 2.29	$ 2.68	$ 29,422	$ 2.60	$ 3.04	$33,405	$62,827	
	Englewood	Gr. Xing	79	79		515.2	513.7	1.5	3.0	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8			3.0										$ 2.05	$ 2.40	$ 35,916	$ 2.53	$ 2.96	$44,326	$80,242	Current NS ML Tonnage = 122.4
	Gr. Xing	Cal River	79	79		513.7	509.8	3.9	7.8	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8			7.8										$ 2.05	$ 2.40	$ 93,382	$ 2.53	$ 2.96	$115,247	$208,628	
	Cal R. Br.	Cal R. Br.	79	79		509.8	509.5	0.3	0.6	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8			0.6										$ 2.05	$ 2.40	$ 7,183	$ 2.53	$ 2.96	$8,865	$16,048	
	Cal River	Hick	110	110		509.5	503.4	6.1	12.2	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8					12.2								$ 3.11	$ 3.64	$ 221,581	$ 2.60	$ 3.04	$185,245	$406,826	MP 507.0 - Hammond Station
	Hick Br.	Hick Br.	79	79		503.4	503.0	0.4	0.8	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8			0.8										$ 2.05	$ 2.40	$ 9,578	$ 2.53	$ 2.96	$11,820	$21,398	
	Hick Br.	NS Flyover	79	79		503.0	501.6	1.4	2.8	P			16	0	122.4	0.037	4.8	244.1	248.9	0	0.0015	4.8	0.0	4.8			2.8										$ 2.05	$ 2.40	$ 33,522	$ 2.53	$ 2.96	$41,371	$74,892	Current NS ML Tonnage = 122.4
	NS Flyover	NS Flyover	60	60		501.6	500.5	1.1	2.2	P			16	0	0.0	0.0	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		2.2											$ 2.15	$ 2.52	$ 27,623	$ 2.56	$ 2.99	$32,891	$60,514	
	NS Flyover	Tolleston	79	79		15.0	19.0	4.0	8.0	P			16	0	0.0	0.0	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8			8.0										$ 2.05	$ 2.40	$ 95,776	$ 2.53	$ 2.96	$118,202	$213,978	
	Tolleston	E. Gary	60			442.5	440.0	2.5	2.5		E		16	0	2.9	0.0	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8		2.5											$ 1.44	$ 1.68	$ 21,024	$ 2.18	$ 2.55	$31,828	$52,852	
	E. Gary		110			440.0	430.0	10.0	10.0		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					10.0								$ 3.57	$ 4.18	$ 208,488	$ 2.31	$ 2.70	$134,904	$343,392	
	Passing Siding	Passing Siding	110	110		430.0	425.0	5.0	10.0		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					10.0								$ 3.57	$ 4.18	$ 208,488	$ 2.31	$ 2.70	$134,904	$343,392	
		Valparaiso	110			425.0	414.9	10.1	10.1		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					10.1								$ 3.40	$ 3.98	$ 200,546	$ 2.28	$ 2.67	$134,484	$335,029	MP 414.9 - Valparaiso Station
		Wanatah	110			414.9	385.0	29.9	29.9		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					29.9								$ 3.57	$ 4.18	$ 623,379	$ 2.31	$ 2.70	$403,363	$1,026,742	
	Passing Siding	Passing Siding	110	110		385.0	375.0	10.0	20.0		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					20.0								$ 3.57	$ 4.18	$ 416,976	$ 2.31	$ 2.70	$269,808	$686,784	
			110			375.0	350.0	25.0	25.0		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					25.0								$ 3.40	$ 3.98	$ 496,400	$ 2.28	$ 2.67	$332,880	$829,280	
	Passing Siding	Passing Siding	110	110		350.0	340.0	10.0	20.0		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					20.0								$ 3.40	$ 3.98	$ 397,120	$ 2.28	$ 2.67	$266,304	$663,424	
			110			340.0	321.4	18.6	18.6		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8					18.6								$ 3.40	$ 3.98	$ 369,322	$ 2.28	$ 2.67	$247,663	$616,984	
		CP Jct/ CP MKE	60			321.4	319.9	1.5	1.5		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8		1.5											$ 1.61	$ 1.88	$ 14,292	$ 2.24	$ 2.62	$19,884	$34,176	
		Lake Sub	60			146.6	144.8	1.8	1.8		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8		1.8											$ 1.44	$ 1.68	$ 15,474	$ 2.18	$ 2.55	$23,425	$38,899	
		Ft Wayne	79			144.8	140.7	4.1	4.1		E		16	0	2.9	0.03	4.8	5.1	9.9	0	0.0015	4.8	0.0	4.8			4.1										$ 1.44	$ 1.68	$ 34,479	$ 2.18	$ 2.55	$52,198	$86,677	MP 140.7 - Ft. Wayne Station
			79			365.4	363.9	1.5	1.5	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8			1.5										$ 2.05	$ 2.40	$ 17,479	$ 2.53	$ 2.96	$21,572	$39,051	
		New Haven	60			87.2	85.0	2.2	2.2	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		2.2											$ 2.05	$ 2.40	$ 26,219	$ 2.53	$ 2.96	$32,358	$58,576	
		New Haven	110			85.0	79.0	6.0	6.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					6.0								$ 3.11	$ 3.64	$ 108,974	$ 2.60	$ 3.04	$91,104	$200,078	
	Passing Siding	Passing Siding	110	110		79.0	74.0	5.0	10.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					10.0								$ 3.11	$ 3.64	$ 181,624	$ 2.60	$ 3.04	$151,840	$333,464	
		Ft Wayne Liberty	110			74.0	72.0	2.0	2.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					2.0								$ 3.11	$ 3.64	$ 36,325	$ 2.60	$ 3.04	$30,368	$66,693	
		Antwerp	79			72.0	71.0	1.0	1.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8			1.0										$ 2.05	$ 2.40	$ 11,972	$ 2.53	$ 2.96	$14,775	$26,747	
			110			71.0	61.0	10.0	10.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					10.0								$ 3.11	$ 3.64	$ 181,624	$ 2.60	$ 3.04	$151,840	$333,464	
	Passing Siding	Passing Siding	110	110		61.0	56.0	5.0	10.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					10.0								$ 3.11	$ 3.64	$ 181,624	$ 2.60	$ 3.04	$151,840	$333,464	
			110			56.0	51.0	5.0	5.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					5.0								$ 3.11	$ 3.64	$ 90,812	$ 2.60	$ 3.04	$75,920	$166,732	
		Defiance	60			61.0	50.0	11.0	11.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		11.0											$ 2.05	$ 2.40	$ 131,692	$ 2.53	$ 2.96	$162,527	$294,219	
			110			50.0	30.5	19.5	19.5	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					19.5								$ 3.11	$ 3.64	$ 354,167	$ 2.60	$ 3.04	$296,088	$650,255	
		Liberty Center	60			30.5	30.3	0.3	0.3	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		0.3											$ 2.05	$ 2.40	$ 2,993	$ 2.53	$ 2.96	$3,694	$6,687	
			79			84.5	80.5	4.0	4.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8			4.0										$ 2.05	$ 2.40	$ 47,888	$ 2.53	$ 2.96	$59,101	$106,989	
	Passing Siding	Passing Siding	79	79		80.5	78.5	2.0	4.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8			4.0										$ 2.05	$ 2.40	$ 47,888	$ 2.53	$ 2.96	$59,101	$106,989	
			79			78.5	74.5	4.0	4.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8			4.0										$ 2.05	$ 2.40	$ 47,888	$ 2.53	$ 2.96	$59,101	$106,989	
		Connect to NS	45			74.5	74.3	0.2	0.2	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		0.2											$ 2.05	$ 2.40	$ 2,754	$ 2.53	$ 2.96	$3,398	$6,152	
		Connect to NS	45			314.4	314.2	0.2	0.2	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		0.2											$ 2.05	$ 2.40	$ 2,394	$ 2.53	$ 2.96	$2,955	$5,349	
		28 ft northside	110			314.2	312.2	2.0	2.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					2.0								$ 3.11	$ 3.64	$ 36,325	$ 2.60	$ 3.04	$30,368	$66,693	
	Passing Siding	Passing Siding	110	110		312.2	307.2	5.0	10.0	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					10.0								$ 3.11	$ 3.64	$ 181,624	$ 2.60	$ 3.04	$151,840	$333,464	
		28 ft Northside	110			307.2	294.5	12.7	12.7	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8					12.7								$ 3.11	$ 3.64	$ 230,662	$ 2.60	$ 3.04	$192,837	$423,499	
		14 ft northside	79			294.5	290.3	4.2	4.2	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8			4.2										$ 2.15	$ 2.52	$ 52,735	$ 2.46	$ 2.88	$60,339	$113,074	
		3 track structure	60	60	60	290.3	288.5	1.8	5.4	P			16	0	0.0	0.03	4.8	0.0	4.8	0	0.0015	4.8	0.0	4.8		5.4											$ 2.05	$ 2.40	$ 64,649	$ 2.53	$ 2.96	$79,786	$144,435	
		Toledo	60	60		288.5	286.0	2.5	5.0			F	16	0	112.0	0.037	4.8	223.4	228.2	0	0.0015	4.8	0.0	4.8		5.0											$ 0.96	$ 1.12	$ 28,032	$ 1.92	$ 2.25	$56,064	$84,096	MP 286.0 - Toledo Station
			79	79		286.0	280.7	5.3	10.6			F	18	0	112.0	0.037	4.8	223.4	228.2	0	0.0015	4.8	0.0	4.8			10.6										$ 0.96	$ 1.12	$ 66,856	$ 1.92	$ 2.25	$133,713	$200,569	
		28 ft Northside	110			280.7	266.1	14.6	14.6	P			18	0	110.7	0.037	4.8	220.8	225.6	0	0.0015	4.8	0.0	4.8					14.6								$ 2.05	$ 2.40	$ 196,640	$ 2.53	$ 2.96	$242,683	$439,323	
	Passing Siding	Passing Siding	110	110		266.1	256.1	10.0	20.0	P			18	0	77.0	0.037	4.8	153.6	158.4	0	0.0015	4.8	0.0	4.8					20.0								$ 2.05	$ 2.40	$ 269,370	$ 2.53	$ 2.96	$332,442	$601,812	
		Port Clinton	79	79		256.1	248.3	7.8	15.6			F	18	0	77.0	0.037	4.8	153.6	158.4	0	0.0015	4.8	0.0	4.8			15.6										$ 0.40	$ 0.47	$ 40,997	$ 0.78	$ 0.91	$79,944	$120,941	
			60	60		248.3	247.2	1.1	2.2			F	18	0	77.0	0.037	4.8	153.6	158.4	0	0.0015	4.8	0.0	4.8		2.2											$ 0.40	$ 0.47	$ 5,782	$ 0.78	$ 0.91	$11,274	$17,056	
		Sandusky	79	79		247.2	240.6	6.6	13.2			F	18	0	77.0	0.037	4.8	153.6	158.4	0	0.0015	4.8	0.0	4.8			13.2										$ 0.40	$ 0.47	$ 34,690	$ 0.78	$ 0.91	$67,645	$102,334	MP 240.6 - Sandusky Station
		28 ft northside	110			240.6	233.0	7.6	7.6	P			18	0	83.0	0.037	4.8	165.5	170.3	0	0.0015	4.8	0.0	4.8					7.6								$ 3.11	$ 3.64	$ 155,289	$ 2.60	$ 3.04	$129,823	$285,112	
		Huron	79	79		233.0	231.0	2.0	4.0			F	18	0	83.0	0.037	4.8	165.5	170.3	0	0.0015	4.8	0.0	4.8			4.0										$ 0.40	$ 0.47	$ 10,512	$ 0.78	$ 0.91	$20,498	$31,010	
		28 ft northside	110			231.0	229.0	2.0	2.0	P			18	0	83.0	0.037	4.8	165.5	170.3	0	0.0015	4.8	0.0	4.8					2.0								$ 3.11	$ 3.64	$ 40,865	$ 2.60	$ 3.04	$34,164	$75,029	
	Passing Siding	Passing Siding	110	110		229.0	224.0	5.0	10.0	P			18	0	83.0	0.037	4.8	165.5	170.3	0	0.0015	4.8	0.0	4.8					10.0								$ 3.11	$ 3.64	$ 204,327	$ 2.60	$ 3.04	$170,820	$375,147	
		28 ft northside	110			224.0	221.0	3.0	3.0	P			18	0	83.0	0.037	4.8	165.5	170.3	0	0.0015	4.8	0.0	4.8					3.0								$ 3.11	$ 3.64	$ 61,298	$ 2.60	$ 3.04	$51,246	$112,544	
		Vermillion River	79	79		221.0	220.5	0.5	1.0			F	18	0	83.0	0.037	4.8	165.5	170.3	0	0.0015	4.8	0.0	4.8			1.0										$ 0.40	$ 0.47	$ 2,628	$ 0.78	$ 0.91	$5,125	$7,753	
		14 ft Northside	79	79	79	220.5	205.1	15.4	46.2			F	18	0	107.5	0.037	4.8	214.4	219.2	0	0.0015	4.8	0.0	4.8			46.2										$ 0.40	$ 0.47	$ 121,414	$ 0.78	$ 0.91	$236,757	$358,170	
		28 ft northside	110			205.1	199.3	5.8	5.8	P			18	0	105.9	0.037	4.8	211.2	216.0	0	0.0015	4.8	0.0	4.8					5.8								$ 3.11	$ 3.64	$ 118,510	$ 2.60	$ 3.04	$99,076	$217,585	
	Passing Siding	Passing Siding	110	110		199.3	194.3	5.0	10.0	P			18	0	105.9	0.037	4.8	211.2	216.0	0	0.0015	4.8	0.0	4.8					10.0								$ 3.11	$ 3.64	$ 204,327	$ 2.60	$ 3.04	$170,820	$375,147	
		Berea	79	79		194.3	194.0	0.3	0.6			F	18	0	105.9	0.037	4.8	211.2	216.0	0	0.0015	4.8	0.0	4.8			0.6										$ 0.40	$ 0.47	$ 1,577	$ 0.78	$ 0.91	$3,075	$4,652	MP 194.0 - Berea Station
	Berea	West Park	79	79		194.0	188.0	6.0	12.0			F	18	0	92.0	0.037	4.8	183.5	188.3	0	0.0015	4.8	0.0	4.8			12.0										$ 0.40	$ 0.47	$ 31,536	$ 0.78	$ 0.91	$61,495	$93,031	
	West Park	Cleveland	79	79		188.0	182.0	6.0	12.0			F	18	0	14.0	0.020	4.8	20.4	25.2	0	0.0015	4.8	0.0	4.8			12.0										$ 0.40	$ 0.47	$ 31,536	$ 0.78	$ 0.91	$61,495	$93,031	MP 182.0 - Cleveland Station
						0.0																																							
						0.0																																							
HNTB 1-Feb-04 CHQ						Total Miles		346.49	487.89	Track Miles By Class															0.0	34.5	149.6	0.0	303.8								$ 141.84	$ 165.93	$ 7,412,032	$ 142.95		$ 6,722,939	$ 14,134,971	

Total Track Miles 0.0

Legend

	FRT	PASS
PP	1	16
E	2	16
PF	6	16

FRA Class 2	0.0				
FRA Class 3		34.5			
FRA Class 4			149.6		
FRA Class 5				0.0	
FRA Class 6					303.8

	Maintenance	Capital	Total
High	$7,412,032	$6,722,939	$14,134,971
Median	$6,151,987	$5,580,039	$11,732,026
Low	$4,891,941	$4,437,140	$9,329,081

CHICAGO - GALESBURG - QUINCY

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr. Tons F	BNSF Escall. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	2010 Tons F	RR Escal. %	2010 Tonnage P	2010 Tonnage F	2010 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Remarks
									R. A. Kollmar's Calculations											COMPLETE TEMS Calculations																								
	Chicago	Union Avenue	45	45	45	0.0	1.6	1.6	4.8	P			18		0	0.015	3.1	0.0	3.1	50.7	0.014	0.0	59.9	59.9		4.8											$ 2.05	$ 2.40	$ 64,649	$ 2.53	$ 2.96	$ 79,786	$ 144,435	MP 0.0 - Chicago
	Union Avenue	Western Ave.	60	60	60	1.6	4.0	2.4	9.6	P			18		25	0.015	3.1	33.2	36.3	50.7	0.014	5.7	59.9	65.6			9.6										$ 2.05	$ 2.40	$ 129,298	$ 2.53	$ 2.96	$ 159,572	$ 288,870	
	Western Ave.	Cicero	90	90	90	4.0	7.3	3.3	13.2			F	18		50	0.015	3.1	66.3	69.4	50.7	0.014	11.4	59.9	71.3				13.2									$ 1.33	$ 1.56	$ 115,343	$ 0.94	$ 1.10	$ 81,521	$ 196,863	
	Cicero	Clyde	90	90	90	7.3	9.6	2.3	6.9			F	18		72	0.015	3.1	95.5	98.6	50.7	0.014	16.4	59.9	76.3				6.9									$ 1.33	$ 1.56	$ 60,293	$ 0.94	$ 1.10	$ 42,613	$ 102,906	
	Clyde	Aurora	90	90	90	9.6	28.1	18.5	55.5			F	18		72	0.015	3.1	95.5	98.6	50.7	0.014	16.4	59.9	76.3				55.5									$ 1.33	$ 1.56	$ 484,965	$ 0.94	$ 1.10	$ 342,757	$ 827,721	MP 24.4 - Naperville
	Aurora	CP Aurora	60	60	60	28.1	38.8	10.7	32.1			F	18		72	0.015	3.1	95.5	98.6	34.9	0.014	16.4	41.2	57.6		32.1											$ 0.40	$ 0.47	$ 84,359	$ 0.78	$ 0.91	$ 164,500	$ 248,858	
50	CP Aurora	Mendota	90	90		38.8	82.0	43.2	86.4			F	18		44	0.015	3.1	58.4	61.5	35.3	0.014	10.0	41.7	51.7				86.4									$ 1.19	$ 1.39	$ 675,501	$ 0.87	$ 1.02	$ 493,854	$ 1,169,355	
	Mendota	Mendota	40	40		82.0	83.2	1.2	2.4			F	18		44	0.015	3.1	58.4	61.5	44.0	0.014	10.0	52.0	62.0		2.4											$ 0.45	$ 0.53	$ 7,096	$ 0.84	$ 0.98	$ 13,245	$ 20,341	MP 83.0 - Mendota
100	Mendota	Princeton	90	90		83.2	104.2	21.0	42.0			F	18		44	0.015	3.1	58.4	61.5	44.0	0.014	10.0	52.0	62.0				42.0									$ 1.19	$ 1.39	$ 328,369	$ 0.87	$ 1.02	$ 240,068	$ 568,436	MP 104.2 - Princeton
	Princeton	Wyanet	79	79		104.2	108.0	3.8	7.6			F	18		44	0.015	3.1	58.4	61.5	44.0	0.014	10.0	52.0	62.0			7.6										$ 0.42	$ 0.49	$ 20,971	$ 0.80	$ 0.94	$ 39,946	$ 60,917	
150	Wyanet	Galesburg	90	90		108.0	162.4	54.4	108.8			F	8		44	0.015	1.4	58.4	59.8	44.0	0.014	10.0	52.0	62.0				108.8									$ 1.19	$ 1.39	$ 378,058	$ 0.87	$ 1.02	$ 276,396	$ 654,454	MP 162.4 - Galesburg
	Galesburg	Waterman	50	50		162.4	167.0	4.6	9.2			F	8		60	0.015	1.4	79.6	81.0	49.7	0.014	13.7	58.7	72.4		9.2											$ 0.45	$ 0.53	$ 12,089	$ 0.84	$ 0.98	$ 22,566	$ 34,655	
250	Waterman	Quincy	90			167.0	258.6	91.6	91.6			F	8		37	0.015	1.4	49.1	50.5	49.7	0.014	8.4	58.7	67.1				91.6									$ 1.19	$ 1.39	$ 318,292	$ 0.87	$ 1.02	$ 232,701	$ 550,992	MP 202.6 - McComb
	Quincy	Mississippi R.	60			258.6	258.6	0.0	0.0			F	8		37	0.015	1.4	49.1	50.5	49.7	0.014	8.4	58.7	67.1		0.0											$ 0.40	$ 0.47	$ -	$ 0.78	$ 0.91	$ -	$ -	MP 258.6 - Quiincy
																																							$ 2,679,281	$ 15.40		$ 2,189,523	$ 4,868,804	
						Total Miles		258.6	470.1	Track Miles By Class					Note 1										0.0	48.5	17.2	404.4	0.0								Matrix 41		Matrix 41					
						Total Track Miles			470.1						Note 2																														

HNTB
1-Feb-04
CHQ

Legend

			30 - 25
	FRT	**PASS**	**550**
PP	1	16	**5900**
E	2	16	7500
PF	6	16	1.170

60 - 40
80 - 60
90 - 80
110 - 80

FRA Class 2
FRA Class 3
FRA Class 4
FRA Class 5
FRA Class 6

	Maintenance	Capital	Total
High	$2,679,281	$2,189,523	$4,868,804
Median	$2,223,803	$1,817,304	$4,041,107
Low	$1,768,325	$1,445,085	$3,213,410

Note 1: BNSF Furnished 2002 Tonnage Data
Note 2: RA Kollmar Estimate of Growth of 1.5% Annual

CHICAGO - WYANET - QUAD CITIES - OMAHA

From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr. Tons F	RR Escall. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	2010 Tons F	RR Escal. %	2010 Tonnage P	2010 Tonnage F	2010 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Remarks
								R. A. Kollmar's Calculations											COMPLETE TEMS Calculations																									
Chicago	Union Avenue	45	45	45	0.0	1.6	1.6	4.8	P			18		0.0	0.015	3.1	0.0	3.1	50.7	0.014	0.0	59.9	59.9		4.8											$ 2.05	$ 2.40	$ 64,649	$ 2.53	$ 2.96	$ 79,786	$ 144,435	MP 0.0 - Chicago
Union Avenue	Western Ave.	60	60	60	1.6	4.0	2.4	9.6	P			18		25.0	0.015	3.1	33.2	36.3	50.7	0.014	5.7	59.9	65.6			9.6										$ 2.05	$ 2.40	$ 129,298	$ 2.53	$ 2.96	$ 159,572	$ 288,870	
Western Ave.	Cicero	90	90	90	4.0	7.3	3.3	13.2			F	18		50.0	0.015	3.1	66.3	69.4	50.7	0.014	11.4	59.9	71.3				13.2									$ 1.33	$ 1.56	$ 115,343	$ 0.94	$ 1.10	$ 81,521	$ 196,863	
Cicero	Clyde	90	90	90	7.3	9.6	2.3	6.9			F	18		72.0	0.015	3.1	95.5	98.6	50.7	0.014	16.4	59.9	76.3				6.9									$ 1.33	$ 1.56	$ 60,293	$ 0.94	$ 1.10	$ 42,613	$ 102,906	
Clyde	Aurora	90	90	90	9.6	28.1	18.5	55.5			F	18		72.0	0.015	3.1	95.5	98.6	50.7	0.014	16.4	59.9	76.3				55.5									$ 1.33	$ 1.56	$ 484,965	$ 0.94	$ 1.10	$ 342,757	$ 827,721	MP 24.4 - Naperville
Aurora	CP Aurora	60	60	60	28.1	38.8	10.7	32.1			F	18		72.0	0.015	3.1	95.5	98.6	34.9	0.014	16.4	41.2	57.6		32.1											$ 0.40	$ 0.47	$ 84,359	$ 0.78	$ 0.91	$ 164,500	$ 248,858	
CP Aurora	Mendota	90	90		38.8	82.0	43.2	86.4			F	18		44.0	0.015	3.1	58.4	61.5	35.3	0.014	10.0	41.7	51.7				86.4									$ 1.19	$ 1.39	$ 675,501	$ 0.87	$ 1.02	$ 493,854	$ 1,169,355	
Mendota	Mendota	40	40		82.0	83.2	1.2	2.4			F	18		44.0	0.015	3.1	58.4	61.5	44.0	0.014	10.0	52.0	62.0		2.4											$ 0.45	$ 0.53	$ 7,096	$ 0.84	$ 0.98	$ 13,245	$ 20,341	MP 83.0 - Mendota
Mendota	Princeton	90	90		83.2	104.2	21.0	42.0			F	18		44.0	0.015	3.1	58.4	61.5	44.0	0.014	10.0	52.0	62.0				42.0									$ 1.19	$ 1.39	$ 328,369	$ 0.87	$ 1.02	$ 240,068	$ 568,436	MP 104.2 - Princeton
Princeton	Wyanet	79	79		104.2	108.0	3.8	7.6			F	18		44.0	0.015	3.1	58.4	61.5	44.0	0.014	10.0	52.0	62.0			7.6										$ 0.42	$ 0.49	$ 20,971	$ 0.80	$ 0.94	$ 39,946	$ 60,917	
Wyanet Conn.	Wyanet Conn.	60			108.0	109.0	1.0	1.0	P			10		0.0	0.015	1.7	0.0	1.7	0.0	0.014	0.0	0.0	0.0		1.0											$ 2.29	$ 2.68	$ 8,359	$ 2.60	$ 3.04	$ 9,490	$ 17,849	
Wyanet	Quad Cities	79			129.5	180.5	51.0	51.0			F	10		6.5	0.030	1.7	11.4	13.1	11.7	0.014	2.0	13.8	15.8			51.0										$ 0.96	$ 1.12	$ 178,704	$ 1.92	$ 2.25	$ 357,408	$ 536,112	MP 1
Quad Cities	Quad Cities	60	60		180.5	183.5	3.0	6.0			F	10		8.0	0.030	1.7	14.0	15.7	11.7	0.014	2.4	13.8	16.2		6.0											$ 1.01	$ 1.18	$ 22,119	$ 1.94	$ 2.27	$ 42,486	$ 64,605	MP 2
Quad Cities	Iowa City	79			183.5	200.0	16.5	33.0			F	10		8.0	0.030	1.7	14.0	15.7	11.7	0.014	2.4	13.8	16.2			33.0										$ 1.01	$ 1.18	$ 121,655	$ 1.94	$ 2.27	$ 233,673	$ 355,328	
		79	79		200.0	205.0	5.0	10.0			F	10		8.0	0.030	1.7	14.0	15.7	11.7	0.014	2.4	13.8	16.2			10.0										$ 1.01	$ 1.18	$ 36,865	$ 1.94	$ 2.27	$ 70,810	$ 107,675	
		79			205.0	234.0	29.0	29.0			F	10		8.0	0.030	1.7	14.0	15.7	11.7	0.014	2.4	13.8	16.2			29.0										$ 1.01	$ 1.18	$ 106,909	$ 1.94	$ 2.27	$ 205,349	$ 312,258	
Iowa City	Iowa City	60			234.0	237.0	3.0	6.0			F	10		8.0	0.030	1.7	14.0	15.7	11.7	0.014	2.4	13.8	16.2		6.0											$ 1.01	$ 1.18	$ 22,119	$ 1.94	$ 2.27	$ 42,486	$ 64,605	
		79			237.0	287.0	50.0	100.0			F	10		4.5	0.030	1.7	7.9	9.6	9.8	0.014	1.4	11.6	12.9			100.0										$ 1.01	$ 1.18	$ 368,650	$ 1.94	$ 2.27	$ 708,100	$ 1,076,750	
		79	79		287.0	297.0	10.0	20.0			F	10		4.5	0.030	1.7	7.9	9.6	9.8	0.014	1.4	11.6	12.9			20.0										$ 1.01	$ 1.18	$ 73,730	$ 1.94	$ 2.27	$ 141,620	$ 215,350	
	Des Moines	79			297.0	355.0	58.0	116.0			F	10		4.5	0.030	1.7	7.9	9.6	9.8	0.014	1.4	11.6	12.9			116.0										$ 1.01	$ 1.18	$ 427,634	$ 1.94	$ 2.27	$ 821,396	$ 1,249,030	
Des Moines	Des Moines	60			355.0	360.0	5.0	10.0			F	10		4.5	0.030	1.7	7.9	9.6	9.8	0.014	1.4	11.6	12.9		10.0											$ 1.01	$ 1.18	$ 36,865	$ 1.94	$ 2.27	$ 70,810	$ 107,675	
		79			360.0	425.0	65.0	65.0			F	8		4.5	0.030	1.4	7.9	9.3	9.8	0.014	1.4	11.6	12.9			65.0										$ 1.01	$ 1.18	$ 191,698	$ 1.94	$ 2.27	$ 368,212	$ 559,910	
		79	79		425.0	435.0	10.0	20.0			F	8		4.5	0.030	1.4	7.9	9.3	9.8	0.014	1.4	11.6	12.9			20.0										$ 1.01	$ 1.18	$ 58,984	$ 1.94	$ 2.27	$ 113,296	$ 172,280	
	Omaha	79			435.0	488.0	53.0	53.0			F	8		4.5	0.030	1.4	7.9	9.3	9.8	0.014	1.4	11.6	12.9			53.0										$ 0.96	$ 1.12	$ 148,570	$ 1.92	$ 2.25	$ 297,139	$ 445,709	MP 3
Omaha	Omaha	60	60		497.4	505.0	7.6	15.2			F	8		4.5	0.030	1.4	7.9	9.3	9.8	0.014	1.4	11.6	12.9		15.2											$ 0.96	$ 1.12	$ 42,609	$ 1.92	$ 2.25	$ 85,217	$ 127,826	MP 400 - Omaha
		Total Miles by Segment					475.1																	0.0	77.5	514.2	204.0	0.0																
		Total Miles by Total Track						795.7																																				
		Total Miles by Track Class																																										

WYANET TO OMAHA $ 1,845,468 $ 41.74 $ 3,567,492 $ 5,412,960

NIC in total is Chicago to Wyanet

	Wyanet to Omaha Maintenance	Capital	Total
High	$1,845,468	$3,567,492	$5,412,960
Median	$1,531,738	$2,961,019	$4,492,757
Low	$1,218,009	$2,354,545	$3,572,554

HNTB
1-Feb-04
CHQ

Note	Note
1	3
2	4

Total Track Miles 0.0

Legend

	FRT	PASS	
PP	1	16	**5900**
E	2	16	
PF	6	16	1.170

30 - 25	FRA Class 2	0.0
60 - 40	FRA Class 3	77.5
80 - 60	FRA Class 4	514.2
90 - 80	FRA Class 5	204.0
110 - 80	FRA Class 6	0.0

Note 1: BNSF (Rich Wessler) Furnished 2002 Tonnage Data
Note 2: Iowa Interstate (Pat Sheldon) Furnished 2002 Tonnage Data 12-29-03
Note 3: RA Kollmar Estimate of Growth of 1.5% Annual
Note 4: Iowa Interstate (Pat Sheldon) Furnished Tonnage Growth Estimate 12-29-03

CHICAGO - INDIANAPOLIS - CINCINNATI

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr Tons P	Curr Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	COMPLETE TEMS Calculations 2010 Tons F	2010 RR Escal. %	2010 Tonnage P	2010 Tonnage F	2010 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Comments
									R. A. Kollmar's Calculations																																					
0	Chicago	21 Street	45	45	45	523.0	520.9	2.1	6.3	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0015	2.1	0.0	2.1		6.3												$ 2.05	$ 2.40	$ 56,568	$ 2.53	$ 2.96	$ 69,813	$ 126,381	MP 0.0 - Chicago
	21 Street	Englewood	79	79		520.9	516.3	4.6	9.2	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0015	2.1	0.0	2.1			9.2											$ 2.05	$ 2.40	$ 82,607	$ 2.53	$ 2.96	$ 101,949	$ 184,556	
	Englewood	Englewood	45	45		516.3	515.2	1.1	2.2	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0015	2.1	0.0	2.1		2.2												$ 2.29	$ 2.68	$ 22,066	$ 2.60	$ 3.04	$ 25,054	$ 47,120	
	Englewood	Gr. Xing	79	79		515.2	513.7	1.5	3.0	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0015	2.1	0.0	2.1			3.0											$ 2.05	$ 2.40	$ 26,937	$ 2.53	$ 2.96	$ 33,244	$ 60,181	Current NS ML Tonnage = 122.4
	Gr. Xing	Cal River	79	79		513.7	509.8	3.9	7.8	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0015	2.1	0.0	2.1			7.8											$ 2.05	$ 2.40	$ 70,036	$ 2.53	$ 2.96	$ 86,435	$ 156,471	
	Cal R. Br.	Cal R. Br.	79	79		509.8	509.5	0.3	0.6	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0014	2.1	0.0	2.1			0.6											$ 2.05	$ 2.40	$ 5,387	$ 2.53	$ 2.96	$ 6,649	$ 12,036	
	Cal River	Hick	110	110		509.5	503.4	6.1	12.2	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0014	2.1	0.0	2.1				12.2										$ 3.11	$ 3.64	$ 166,186	$ 2.60	$ 3.04	$ 138,934	$ 305,120	MP 507.0 - Hammond
	Hick Br.	Hick Br.	79	79		503.4	503.0	0.4	0.8	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0014	2.1	0.0	2.1			0.8											$ 2.05	$ 2.40	$ 7,183	$ 2.53	$ 2.96	$ 8,865	$ 16,048	
	Hick Br.	NS Flyover	79	79		503.0	501.6	1.4	2.8	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0014	2.1	0.0	2.1			2.8											$ 2.05	$ 2.40	$ 25,141	$ 2.53	$ 2.96	$ 31,028	$ 56,169	Current NS ML Tonnage = 122.4
	NS Flyover	NS Flyover	60	60		501.6	500.5	1.1	2.2	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0014	2.1	0.0	2.1		2.2											$ 2.15	$ 2.52	$ 20,717	$ 2.56	$ 2.99	$ 24,668	$ 45,386	
	NS Flyover	Tolleston	79	79		15.0	19.0	4.0	8.0	P			12	0	0	0.0015	4.8	0.0	4.8	0.0	0.0014	2.1	0.0	2.1			8.0											$ 2.05	$ 2.40	$ 71,832	$ 2.53	$ 2.96	$ 88,651	$ 160,483	
50	Tolleston	Gary	45			442.5	440.0	2.5	2.5		E		12	4	2.9	0.03	4.8	5.1	9.9	0.0	0.0014	2.1	0.0	2.1			2.5											$ 1.44	$ 1.68	$ 15,768	$ 2.18	$ 2.55	$ 23,871	$ 39,639	
	Gary		110			440.0	435.4	4.6	4.6		E		12	4	2.9	0.03	4.8	5.1	9.9	0.0	0.0014	2.1	0.0	2.1				4.6										$ 3.40	$ 3.98	$ 69,248	$ 2.28	$ 2.67	$ 46,437	$ 115,685	
100			110			435.4	430.0	5.4	5.4		E		12	4	2.9	0.03	4.8	5.1	9.9	0.0	0.0014	2.1	0.0	2.1				5.4										$ 3.40	$ 3.98	$ 79,672	$ 2.28	$ 2.67	$ 53,427	$ 133,099	
			110	110		430.0	425.0	5.0	10.0		E		12	4	2.9	0.03	4.8	5.1	9.9	0.0	0.0014	2.1	0.0	2.1				10.0										$ 3.40	$ 3.98	$ 148,920	$ 2.28	$ 2.67	$ 99,864	$ 248,784	
			110			425.0	423.5	1.5	1.5		E		12	4	2.9	0.03	4.8	5.1	9.9	0.0	0.0014	2.1	0.0	2.1				1.5										$ 3.40	$ 3.98	$ 22,338	$ 2.28	$ 2.67	$ 14,980	$ 37,318	
			110			423.6	423.5	0.1	0.1		E		12	4	2.9	0.03	4.8	5.1	9.9	0.0	0.0014	2.1	0.0	2.1				0.1										$ 3.40	$ 3.98	$ 1,489	$ 2.28	$ 2.67	$ 999	$ 2,488	
		Wanatah	110			423.5	415.4	8.1	8.1		E		12	4	2.9	0.03	4.8	5.1	9.9	0.0	0.0014	2.1	0.0	2.1				8.1										$ 3.40	$ 3.98	$ 120,625	$ 2.28	$ 2.67	$ 80,890	$ 201,515	
	Wanatah	Wanatah	45			415.4	38.1	1.0	1.0	P			12	0	0.0	0	4.8	0.0	4.8	0.0	0.0014	2.1	0.0	2.1		1.0											$ 2.29	$ 2.68	$ 10,030	$ 2.60	$ 3.04	$ 11,388	$ 21,418	
	Wanatah	Monon	110			38.1	0.0	38.1	38.1	P			12	0	0	0	4.8	0.0	4.8	1.8	0.0014	2.1	2.1	4.2				38.1										$ 3.11	$ 3.64	$ 518,991	$ 2.60	$ 3.04	$ 433,883	$ 952,873	
	Monon		79			88.5	112.5	24.0	24.0		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9			24.0											$ 1.51	$ 1.77	$ 158,731	$ 2.20	$ 2.57	$ 231,264	$ 389,995	Lafayette
			40	40		112.5	113.3	0.8	1.6		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9		1.6											$ 1.61	$ 1.88	$ 11,283	$ 2.24	$ 2.62	$ 15,698	$ 26,981	
		Ames Connection	79	79		113.3	117.0	3.7	7.4		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9			7.4											$ 1.44	$ 1.68	$ 46,673	$ 2.18	$ 2.55	$ 70,658	$ 117,331	
	Ames Connection	Ames Connection	25	25		117.0	119.3	2.3	4.6		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9	4.6												$ 1.61	$ 1.88	$ 32,438	$ 2.24	$ 2.62	$ 45,132	$ 77,570	
	Ames Connection	Ames	40	40		119.3	120.7	1.4	2.8		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9		2.8											$ 1.44	$ 1.68	$ 17,660	$ 2.18	$ 2.55	$ 26,736	$ 44,396	
			50	50		120.7	121.0	0.3	0.6		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9		0.6											$ 1.44	$ 1.68	$ 3,784	$ 2.18	$ 2.55	$ 5,729	$ 9,513	
150			79	79		121.0	149.0	28.0	56.0		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9			56.0										$ 1.44	$ 1.68	$ 353,203	$ 2.18	$ 2.55	$ 534,710	$ 887,914	
		Indianapolis	79	79		46.3	7.0	39.3	78.6		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9			78.6										$ 1.44	$ 1.68	$ 495,746	$ 2.18	$ 2.55	$ 750,504	$ 1,246,250	Indianapolis International Airport
	Indianapolis	Indianapolis	79	79		7.0	6.0	1.0	2.0		E		12	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.1	11.8	13.9			2.0										$ 1.51	$ 1.77	$ 13,228	$ 2.20	$ 2.57	$ 19,272	$ 32,500	
	Indianapolis	Indianapolis	45	45		6.0	1.0	5.0	10.0		E		14	4	2.9	0.03	4.8	5.1	9.9	10.0	0.0014	2.4	11.8	14.2		10.0											$ 1.61	$ 1.88	$ 82,271	$ 2.24	$ 2.62	$ 114,464	$ 196,735	Indianapolis
200	Indianapolis	Hamilton	45	45		124.5	127.0	2.5	5.0		E		12	4	2.9	0.03	4.8	5.1	9.9	3.2	0.0014	2.1	3.8	5.8		5.0											$ 1.44	$ 1.68	$ 31,536	$ 2.18	$ 2.55	$ 47,742	$ 79,278	
			45			109.1	108.9	0.2	0.2	P			12	4	1.9	0.0015	4.8	2.5	7.3	3.2	0.0014	2.1	3.8	5.8		0.2											$ 2.05	$ 2.40	$ 1,796	$ 2.53	$ 2.96	$ 2,216	$ 4,012	
			60	60		108.9	106.9	1.9	3.9	P			12	4	1.9	0.0015	4.8	2.5	7.3	3.2	0.0014	2.1	3.8	5.8		3.9											$ 2.05	$ 2.40	$ 35,018	$ 2.53	$ 2.96	$ 43,217	$ 78,236	
			60	60		106.9	103.6	3.3	6.6	P			12	4	1.9	0.0015	4.8	2.5	7.3	3.2	0.0014	2.1	3.8	5.8		6.6											$ 2.05	$ 2.40	$ 59,261	$ 2.53	$ 2.96	$ 73,137	$ 132,399	
			110			103.6	83.7	19.9	19.9	P			12	2	1.9	0.0015	4.8	2.5	7.3	3.2	0.0014	2.1	3.8	5.8				19.9									$ 3.11	$ 3.64	$ 271,074	$ 2.60	$ 3.04	$ 226,621	$ 497,695	
			40	40		83.7	82.8	0.9	1.8	P			12	2	1.9	0.0015	4.8	2.5	7.3	3.2	0.0014	2.1	3.8	5.8		1.8											$ 2.05	$ 2.40	$ 16,162	$ 2.53	$ 2.96	$ 19,947	$ 36,109	
		Shelbyville	110			82.8	63.5	19.4	19.4	P			12	2	1.9	0.0015	4.8	2.5	7.3	3.2	0.0014	2.1	3.8	5.8				19.4									$ 3.11	$ 3.64	$ 263,582	$ 2.60	$ 3.04	$ 220,358	$ 483,940	
250	Shelbyville	Shelbyville	60	60		63.5	61.9	1.6	3.2	P			12	2	1.9	0.0015	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4		3.2											$ 2.05	$ 2.40	$ 28,733	$ 2.53	$ 2.96	$ 35,460	$ 64,193	Shelbyville
	Shelbyville		110			61.9	40.0	21.9	21.9	P			12	2	1.9	0.0015	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4				21.9									$ 3.11	$ 3.64	$ 297,636	$ 2.60	$ 3.04	$ 248,828	$ 546,464	
			110	110		40.0	35.0	5.0	10.0	P			12	2	1.9	0.0015	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4				10.0									$ 3.11	$ 3.64	$ 136,218	$ 2.60	$ 3.04	$ 113,880	$ 250,098	
			110			35.0	16.0	19.0	19.0	P			12	2	1.9	0.0015	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4				19.0									$ 3.11	$ 3.64	$ 258,814	$ 2.60	$ 3.04	$ 216,372	$ 475,186	
			110			16.0	13.0	3.0	3.0	P			12	2	1.9	0.0015	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4				3.0									$ 3.11	$ 3.64	$ 40,865	$ 2.60	$ 3.04	$ 34,164	$ 75,029	
300			110			13.0	5.0	8.0	8.0	P			12	2	1.9	0.0015	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4				8.0									$ 3.11	$ 3.64	$ 108,974	$ 2.60	$ 3.04	$ 91,104	$ 200,078	
			45	45		5.0	0.5	4.5	9.0	P			12	6	64.8	0.03	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4		9.0											$ 2.29	$ 2.68	$ 90,272	$ 2.60	$ 3.04	$ 102,492	$ 192,764	
	Cincinnati Terminal		50	50		0.5	0.3	0.2	4.4	P			12	6	64.8	0.03	4.8	2.5	7.3	2.0	0.0014	2.1	2.4	4.4		4.4											$ 2.29	$ 2.68	$ 44,133	$ 2.60	$ 3.04	$ 50,107	$ 94,240	Cincinnati
						309.9	449.2																			4.6	60.8	202.7	0.0	###									$ 4,440,835	$ 109.31		$ 4,720,840	$ 9,161,675	
							449.2								Note 1																						Matrix 41	Matrix 41						
															2																														

HNTB
1-Feb-04
CHQ

Note
3

	Maintenance	Capital	Total
High	$4,440,835	$4,720,840	$9,161,675
Median	$3,685,893	$3,918,297	$7,604,190
Low	$2,930,951	$3,115,754	$6,046,706

Total Track Mil 0.0

	FRT	PASS	
			550
PP	1	16	**5900**
E	2	16	
PF	6	16	1.170

Legend

30 - 25	FRA Class 2
60 - 40	FRA Class 3
80 - 60	FRA Class 4
90 - 80	FRA Class 5
110 - 80	FRA Class 6

Note 1: Norfolk Southern (John Irwin) Furnished 2002 Tonnage Data
Note 2: CSXT (Earl Wacker) Furnished 2002 Tonnage Data 01-05-04
Note 3: RA Kollmar Estimate of Growth of 1.5% Annual

MILWAUKEE TO GREEN BAY

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	R. A. Kollmar's Calculations: Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	COMPLETE TEMS Calculations: 2010 Tons F	RR Escal. %	2010 Tonnage P	2010 Tonnage F	2010 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Comments
0	Milwaukee Station	Milwaukee Station	20	45	45	85.7	86.0	0.3	0.9	P			34	0	3.0	0.03	5.8	4.0	9.8	0.0	0.0015	5.8	0.0	5.8	0.3	0.6											$ 2.05	$ 2.40	$ 7,632	$ 2.53	$ 2.96	$ 28,258	$ 35,890	MP 85.7 - Milwaukee Station
	Milwaukee Station	Grand Avenue	60	60	60	86.0	88.2	2.2	6.6			F	34	4	36.7	0.03	5.8	64.4	70.2							6.6										$ 0.30	$ 0.35	$ 8,191	$ 0.56	$ 0.66	$ 45,867	$ 54,058	
	Grand Avenue		35	35		88.2	88.3	0.1	0.2			F	14			0.03	2.4									0.2										$ 0.45	$ 0.53	$ 230	$ 0.84	$ 0.98	$ 858	$ 1,088	
			79	79		88.3	93.4	5.1	10.2	P			14				2.4										10.2									$ 2.15	$ 2.52	$ 56,031	$ 2.56	$ 2.99	$ 133,432	$ 189,463	
			110			94.1	95.0	0.9	0.9	P			14				2.4												0.9							$ 3.11	$ 3.64	$ 14,303	$ 2.60	$ 3.04	$ 11,957	$ 26,260	
	Granville, WI		110	110		95.0	100.0	5.0	10.0	P			14				2.4												10.0							$ 3.11	$ 3.64	$ 158,921	$ 2.60	$ 3.04	$ 132,860	$ 291,781	MP 99.4 - Granville Station
			110			100.0	100.6	0.6	0.6	P			14				2.4												0.6							$ 3.11	$ 3.64	$ 9,535	$ 2.60	$ 3.04	$ 7,972	$ 17,507	
			60			98.4	99.5	1.1	1.1	P			14				2.4									1.1										$ 2.15	$ 2.52	$ 12,085	$ 2.56	$ 2.99	$ 14,390	$ 26,475	
			110			99.5	114.4	14.9	14.9	P			14				2.4												14.9							$ 3.11	$ 3.64	$ 237,110	$ 2.60	$ 3.04	$ 198,227	$ 435,337	
			110			114.4	117.0	2.6	2.6	P			14				2.4												2.6							$ 3.11	$ 3.64	$ 41,002	$ 2.60	$ 3.04	$ 34,278	$ 75,279	
	West Bend, WI		60	60		117.0	119.0	2.0	4.0	P			14				2.4									4.0										$ 2.15	$ 2.52	$ 43,946	$ 2.56	$ 2.99	$ 52,326	$ 96,272	MP 118.8 - West Bend Station
50			110			119.0	138.2	19.2	19.2	P			14				2.4												19.2							$ 3.11	$ 3.64	$ 305,128	$ 2.60	$ 3.04	$ 255,091	$ 560,220	
			110	110		138.2	141.0	2.8	5.6	P			14				2.4												5.6							$ 3.11	$ 3.64	$ 88,996	$ 2.60	$ 3.04	$ 74,402	$ 163,397	
			110			141.0	145.5	4.5	4.5	P			14				2.4												4.5							$ 3.11	$ 3.64	$ 71,514	$ 2.60	$ 3.04	$ 59,787	$ 131,301	
			40			145.5	146.0	0.5	0.5			F	14				2.4									0.5										$ 0.42	$ 0.49	$ 1,159	$ 0.80	$ 0.94	$ 2,208	$ 3,366	
	Fond Du Lac, WI		45	45		155.0	160.4	5.4	10.8			F	14				2.4									10.8										$ 0.42	$ 0.49	$ 23,179	$ 0.80	$ 0.94	$ 44,150	$ 67,329	MP 148.5 - Fond du Lac Station
			110	110		160.4	168.8	8.4	16.8			F	14				2.4												16.8							$ 2.38	$ 2.78	$ 204,318	$ 1.07	$ 1.25	$ 91,857	$ 296,176	
	Oshkosh, WI		79	79		168.8	177.8	9.0	18.0			F	14				2.4										18.0									$ 0.42	$ 0.49	$ 38,632	$ 0.80	$ 0.94	$ 73,584	$ 112,216	MP 165.5 - Oshkosh Station
			110	110		177.8	180.0	2.2	4.4			F	14				2.4												4.4							$ 2.38	$ 2.78	$ 53,512	$ 1.07	$ 1.25	$ 24,058	$ 77,570	
			110			180.0	184.7	4.7	4.7			F	14				2.4												4.7							$ 2.38	$ 2.78	$ 57,160	$ 1.07	$ 1.25	$ 25,698	$ 82,859	
	Neenah, WI		45	45		184.7	187.5	2.8	5.6			F	14				2.4									5.6										$ 0.42	$ 0.49	$ 12,019	$ 0.80	$ 0.94	$ 22,893	$ 34,912	MP 177.5 - Neenah Station
			45			187.5	188.1	0.6	0.6			F	14				2.4									0.6										$ 0.42	$ 0.49	$ 1,180	$ 0.80	$ 0.94	$ 2,248	$ 3,429	
100	Appleton, WI		79			209.3	215.3	6.0	6.0			F	14				2.4										6.0									$ 0.42	$ 0.49	$ 12,877	$ 0.80	$ 0.94	$ 24,528	$ 37,405	MP 183.5 - Appleton Station
			79	79		215.3	220.5	5.2	10.4			F	14				2.4										10.4									$ 0.42	$ 0.49	$ 22,320	$ 0.80	$ 0.94	$ 42,515	$ 64,836	
			79			220.5	222.0	1.5	1.5			F	14				2.4										1.5									$ 0.42	$ 0.49	$ 3,219	$ 0.80	$ 0.94	$ 6,132	$ 9,351	
			79			222.0	236.3	14.3	14.3			F	14				2.4										14.3									$ 0.42	$ 0.49	$ 30,691	$ 0.80	$ 0.94	$ 58,458	$ 89,149	
			79	79		236.3	241.7	5.4	10.8			F	14				2.4										10.8									$ 0.42	$ 0.49	$ 23,179	$ 0.80	$ 0.94	$ 44,150	$ 67,329	
			79			241.7	242.6	0.9	0.9			F	14				2.4										0.9									$ 0.42	$ 0.49	$ 1,932	$ 0.80	$ 0.94	$ 3,679	$ 5,611	
128.6	Green Bay		10			242.6	243.0	0.4	0.4			F	14				2.4								0.4											$ 0.45	$ 0.53	$ 920	$ 0.84	$ 0.98	$ 1,717	$ 2,637	MP 213.5 - Green Bay Station
									99.4						Note		7.7																			$46.34	$ 54.21	$ 1,525,099	$ 45.26		$ 1,443,457	$ 2,968,556	

99.4	Granville, WI	13.7	Total Segment Miles	128.6		Note 1	6.5
118.8	West Bend, WI	33.1	Total Track Miles		187.0	2	47.6
148.5	Fond Du Lac, WI	62.8	Total Track Miles (by Class)		187.0		33.1
165.5	Oshkosh, WI	79.8					33.7
177.5	Neenah, WI	91.8	Total Track Mile		0.0		128.6
183.5	Appleton, WI	97.8					
213.5	GREEN BAY, WI	127.8					

Track Miles By Class 0.7 30.0 72.1 0.0 84.2

CHQ - MGT estimate Fond du Lac to Green Bay from October 22, 1999 Inspection Trip
Provided by WCL

Totals are for Grand Ave to Green Bay. NIC is Milwaukee to Grand Ave

	Maintenance	Capital	Total
High	$1,525,099	$1,443,457	$2,968,556
Median	$1,265,832	$1,198,070	$2,463,902
Low	$1,006,565	$952,682	$1,959,247

	FRT	PASS	
PP	1	16	**5900**
E	2	16	
PF	6	16	1.170

HNTB
1-Feb-04
CHQ

Legend

30 - 25	FRA Class 2
60 - 40	FRA Class 3
80 - 60	FRA Class 4
90 - 80	FRA Class 5
110 - 80	FRA Class 6

Note 1: CP (Don Heron) Furnished 2002 Tonnage Data

ST. LOUIS TO KANSAS CITY

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr Tons F	RR Escal. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Comments
0	St. Louis	Grand Avenue	30	30		0.0	1.0	1.0	2.0	P			8	0	110	0.05	1.4		1.4	2.0												$ 2.15	$ 2.52	$ 12,556	$ 2.56	$ 2.99	$14,950	$27,506	MP 0.0 - St. Louis Station
	Grand Avenue	0	60	60		1.0	3.7	2.7	5.4			F	8		110		1.4	278.0	279.3		5.4											$ 1.01	$ 1.18	$ 15,926	$ 1.94	$ 2.27	$30,590	$46,516	
		Maplewood	60	60		3.7	7	3.3	6.6			F	8		110		1.4	278.0	279.3		6.6											$ 1.01	$ 1.18	$ 19,465	$ 1.94	$ 2.27	$37,388	$56,852	
	Maplewood	Kirkwood Station	79	79		7.0	13.3	6.3	12.6			F	8		110		1.4	278.0	279.3			12.6										$ 1.01	$ 1.18	$ 37,160	$ 1.94	$ 2.27	$71,376	$108,536	
	Kirkwood Station	0	30	30		13.3	13.7	0.4	0.8			F	8		110		1.4	278.0	279.3	0.8												$ 1.01	$ 1.18	$ 2,359	$ 1.94	$ 2.27	$4,532	$6,891	MP 13.3 - Kirkwood Station
		0	90	90		13.7	14	0.3	0.6			F	8		110		1.4	278.0	279.3				0.6									$ 2.99	$ 3.50	$ 5,238	$ 1.95	$ 2.28	$3,416	$8,655	
		0	90	90		14.0	15.4	1.4	2.8			F	8		110		1.4	278.0	279.3				2.8									$ 2.99	$ 3.50	$ 24,446	$ 1.95	$ 2.28	$15,943	$40,389	
		0	90	90		15.4	15.7	0.3	0.6			F	8		110		1.4	278.0	279.3				0.6									$ 2.99	$ 3.50	$ 5,238	$ 1.95	$ 2.28	$3,416	$8,655	
		Barretts	90	90		15.7	17.1	1.4	2.8			F	8		110		1.4	278.0	279.3				2.8									$ 2.99	$ 3.50	$ 24,446	$ 1.95	$ 2.28	$15,943	$40,389	
	Barretts	CPM 021 - Keffer Creek	90	90		17.1	21	3.9	7.8			F	8		110		1.4	278.0	279.3				7.8									$ 2.99	$ 3.50	$ 68,100	$ 1.95	$ 2.28	$44,413	$112,513	MP 18.8 - Valley Park
	CPM 021 - Keffer Creek	0	90	90		21.0	21.7	0.7	1.4			F	8		110		1.4	278.0	279.3				1.4									$ 2.99	$ 3.50	$ 12,223	$ 1.95	$ 2.28	$7,972	$20,195	
		0	90	90		21.7	23.3	1.6	3.2			F	8		110		1.4	278.0	279.3				3.2									$ 2.99	$ 3.50	$ 27,939	$ 1.95	$ 2.28	$18,221	$46,159	
			90	90		23.3	27.1	3.8	7.6			F	8		110		1.4	278.0	279.3				7.6									$ 2.99	$ 3.50	$ 66,354	$ 1.95	$ 2.28	$43,274	$109,628	
		0	90	90		27.1	27.7	0.6	1.2			F	8		110		1.4	278.0	279.3				1.2									$ 2.99	$ 3.50	$ 10,477	$ 1.95	$ 2.28	$6,833	$17,310	
		0	90	90		27.7	30.6	2.9	5.8			F	8		110		1.4	278.0	279.3				5.8									$ 2.99	$ 3.50	$ 50,639	$ 1.95	$ 2.28	$33,025	$83,664	MP 28.8 - Eureka
		0	90	90		30.6	31.3	0.7	1.4			F	8		110		1.4	278.0	279.3				1.4									$ 2.99	$ 3.50	$ 12,223	$ 1.95	$ 2.28	$7,972	$20,195	
		CPM 032 - Dozier	90	90		31.3	32.7	1.4	2.8			F	8		110		1.4	278.0	279.3				2.8									$ 2.99	$ 3.50	$ 24,446	$ 1.95	$ 2.28	$15,943	$40,389	
	CPM 032 - Dozier	0	90	90		32.7	33.9	1.2	2.4			F	8		110		1.4	278.0	279.3				2.4									$ 2.99	$ 3.50	$ 20,954	$ 1.95	$ 2.28	$13,666	$34,620	
		0	90	90		33.9	34.8	0.9	1.8			F	8		110		1.4	278.0	279.3				1.8									$ 2.99	$ 3.50	$ 15,715	$ 1.95	$ 2.28	$10,249	$25,965	
		CPM 037 - Summit	90	90		34.8	35.9	1.1	2.2			F	8		110		1.4	278.0	279.3				2.2									$ 2.99	$ 3.50	$ 19,208	$ 1.95	$ 2.28	$12,527	$31,735	
	CPM 037 - Summit	West Labadie	90	90		35.9	44.4	8.5	17.0			F	8		110		1.4	278.0	279.3				17.0									$ 2.99	$ 3.50	$ 148,424	$ 1.95	$ 2.28	$96,798	$245,222	MP 39 - Grey's Summit
	West Labadie	South Point	90	90		44.4	48.9	4.5	9.0			F	8		110		1.4	278.0	279.3				9.0									$ 2.99	$ 3.50	$ 78,577	$ 1.95	$ 2.28	$51,246	$129,823	
	South Point	0	90	90		48.9	49.8	0.9	1.8			F	8		110		1.4	278.0	279.3				1.8									$ 2.99	$ 3.50	$ 15,715	$ 1.95	$ 2.28	$10,249	$25,965	
50		Washington Station	90	90		49.8	55.5	5.7	11.4			F	8		110		1.4	278.0	279.3				11.4									$ 2.99	$ 3.50	$ 99,531	$ 1.95	$ 2.28	$64,912	$164,443	MP 52.2 - Washington Station
	Washington Station	CPM 058	90	90		55.5	58.5	3.0	6.0			F	8		110		1.4	278.0	279.3				6.0									$ 2.99	$ 3.50	$ 52,385	$ 1.95	$ 2.28	$34,164	$86,549	
	CPM 058	0	90	90		58.5	59	0.5	1.0			F	8		110		1.4	278.0	279.3				1.0									$ 2.99	$ 3.50	$ 8,731	$ 1.95	$ 2.28	$5,694	$14,425	
		0	90	90		59.0	61.8	2.8	5.6			F	8		110		1.4	278.0	279.3				5.6									$ 2.99	$ 3.50	$ 48,892	$ 1.95	$ 2.28	$31,886	$80,779	
		New Haven	90	90		61.8	67	5.2	10.4			F	8		110		1.4	278.0	279.3				10.4									$ 2.99	$ 3.50	$ 90,800	$ 1.95	$ 2.28	$59,218	$150,018	
	New Haven	New Haven	90	90		67.0	67.2	0.2	0.4			F	8		110		1.4	278.0	279.3				0.4									$ 2.99	$ 3.50	$ 3,492	$ 1.95	$ 2.28	$2,278	$5,770	
	New Haven	0	90	90		67.2	70.7	3.5	7.0			F	8		110		1.4	278.0	279.3				7.0									$ 2.99	$ 3.50	$ 61,116	$ 1.95	$ 2.28	$39,858	$100,974	
		0	90	90		70.7	71.3	0.6	1.2			F	8		110		1.4	278.0	279.3				1.2									$ 2.99	$ 3.50	$ 10,477	$ 1.95	$ 2.28	$6,833	$17,310	
		Berger	90	90		71.3	72.2	0.9	1.8			F	8		110		1.4	278.0	279.3				1.8									$ 2.99	$ 3.50	$ 15,715	$ 1.95	$ 2.28	$10,249	$25,965	
	Berger	0	90	90		72.2	75.8	3.6	7.2			F	8		110		1.4	278.0	279.3				7.2									$ 2.99	$ 3.50	$ 62,862	$ 1.95	$ 2.28	$40,997	$103,859	
		0	90	90		75.8	80.3	4.5	9.0			F	8		110		1.4	278.0	279.3				9.0									$ 2.99	$ 3.50	$ 78,577	$ 1.95	$ 2.28	$51,246	$129,823	
		Herman	90	90		80.3	81.5	1.2	2.4			F	8		110		1.4	278.0	279.3				2.4									$ 2.99	$ 3.50	$ 20,954	$ 1.95	$ 2.28	$13,666	$34,620	MP 81.1 - Herman Station
	Herman	0	90	90		81.5	83.9	2.4	4.8			F	8		110		1.4	278.0	279.3				4.8									$ 2.99	$ 3.50	$ 41,908	$ 1.95	$ 2.28	$27,331	$69,239	
		0	90	90		83.9	85	1.1	2.2			F	8		110		1.4	278.0	279.3				2.2									$ 2.99	$ 3.50	$ 19,208	$ 1.95	$ 2.28	$12,527	$31,735	
		Gasconde Junction	90	90		85.0	86.2	1.2	2.4			F	8		110		1.4	278.0	279.3				2.4									$ 2.99	$ 3.50	$ 20,954	$ 1.95	$ 2.28	$13,666	$34,620	
	Gasconde Junction	Gasconde	90	90		86.2	88	1.8	3.6			F	8		110		1.4	278.0	279.3				3.6									$ 2.99	$ 3.50	$ 31,431	$ 1.95	$ 2.28	$20,498	$51,929	
	Gasconde	Gasconde	60	60		88.0	88.1	0.1	0.2			F	8		110		1.4	278.0	279.3		0.2											$ 1.01	$ 1.18	$ 590	$ 1.94	$ 2.27	$1,133	$1,723	
	Gasconde	0	79	79		88.1	89.3	1.2	2.4			F	8		110		1.4	278.0	279.3			2.4										$ 1.01	$ 1.18	$ 7,078	$ 1.94	$ 2.27	$13,596	$20,674	
		0	79	79		89.3	89.8	0.5	1.0			F	8		110		1.4	278.0	279.3			1.0										$ 1.01	$ 1.18	$ 2,949	$ 1.94	$ 2.27	$5,665	$8,614	
		0	79	79		89.8	90.5	0.7	1.4			F	8		110		1.4	278.0	279.3			1.4										$ 1.01	$ 1.18	$ 4,129	$ 1.94	$ 2.27	$7,931	$12,060	
		Morrison Junction	60	60		90.5	90.6	0.1	0.2			F	8		110		1.4	278.0	279.3		0.2											$ 1.01	$ 1.18	$ 590	$ 1.94	$ 2.27	$1,133	$1,723	
	Morrison Junction	0	90	90		90.6	93.1	2.5	5.0			F	8		110		1.4	278.0	279.3				5.0									$ 2.99	$ 3.50	$ 43,654	$ 1.95	$ 2.28	$28,470	$72,124	
		0	90	90		93.1	94.4	1.3	2.6			F	8		110		1.4	278.0	279.3				2.6									$ 2.99	$ 3.50	$ 22,700	$ 1.95	$ 2.28	$14,804	$37,504	
		0	90	90		94.4	94.5	0.1	0.2			F	8		110		1.4	278.0	279.3				0.2									$ 2.99	$ 3.50	$ 1,746	$ 1.95	$ 2.28	$1,139	$2,885	
		0	90	90		94.5	95.2	0.7	1.4			F	8		110		1.4	278.0	279.3				1.4									$ 2.99	$ 3.50	$ 12,223	$ 1.95	$ 2.28	$7,972	$20,195	
		0	90	90		95.2	97.6	2.4	4.8			F	8		110		1.4	278.0	279.3				4.8									$ 2.99	$ 3.50	$ 41,908	$ 1.95	$ 2.28	$27,331	$69,239	
		Chamois	90	90		97.6	97.9	0.3	0.6			F	8		110		1.4	278.0	279.3				0.6									$ 2.99	$ 3.50	$ 5,238	$ 1.95	$ 2.28	$3,416	$8,655	
100	Chamois	Ames	90	90		97.9	106.9	9.0	18.0			F	8		110		1.4	278.0	279.3				18.0									$ 2.99	$ 3.50	$ 157,154	$ 1.95	$ 2.28	$102,492	$259,646	
	Ames	0	90	90		106.9	107.1	0.2	0.4			F	8		110		1.4	278.0	279.3				0.4									$ 2.99	$ 3.50	$ 3,492	$ 1.95	$ 2.28	$2,278	$5,770	
		0	90	90		107.1	108.9	1.8	3.6			F	8		110		1.4	278.0	279.3				3.6									$ 2.99	$ 3.50	$ 31,431	$ 1.95	$ 2.28	$20,498	$51,929	
		0	90	90		108.9	109.1	0.2	0.4			F	8		110		1.4	278.0	279.3				0.4									$ 2.99	$ 3.50	$ 3,492	$ 1.95	$ 2.28	$2,278	$5,770	
		0	90	90		109.1	109.9	0.8	1.6			F	8		110		1.4	278.0	279.3				1.6									$ 2.99	$ 3.50	$ 13,969	$ 1.95	$ 2.28	$9,110	$23,080	
		0	90	90		109.9	113.9	4.0	8.0			F	8		110		1.4	278.0	279.3				8.0									$ 2.99	$ 3.50	$ 69,846	$ 1.95	$ 2.28	$45,552	$115,398	
		0	90	90		113.9	114.1	0.2	0.4			F	8		110		1.4	278.0	279.3				0.4									$ 2.99	$ 3.50	$ 3,492	$ 1.95	$ 2.28	$2,278	$5,770	
		0	90	90		114.1	115.6	1.5	3.0			F	8		110		1.4	278.0	279.3				3.0									$ 2.99	$ 3.50	$ 26,192	$ 1.95	$ 2.28	$17,082	$43,274	
		Bonnot Junction	90	90		115.6	116.8	1.2	2.4			F	8		110		1.4	278.0	279.3				2.4									$ 2.99	$ 3.50	$ 20,954	$ 1.95	$ 2.28	$13,666	$34,620	
	Bonnot Junction	0	60	60		116.8	117.1	0.3	0.6			F	8		110		1.4	278.0	279.3		0.6											$ 1.01	$ 1.18	$ 1,770	$ 1.94	$ 2.27	$3,399	$5,168	
		0	90	90		117.1	121.6	4.5	9.0			F	8		110		1.4	278.0	279.3				9.0									$ 2.99	$ 3.50	$ 78,577	$ 1.95	$ 2.28	$51,246	$129,823	
		Moreau	90	90		121.6	123.7	2.1	4.2			F	8		110		1.4	278.0	279.3				4.2									$ 2.99	$ 3.50	$ 36,669	$ 1.95	$ 2.28	$23,915	$60,584	
	Moreau	Jefferson City	90	90		123.7	124.3	0.6	1.2			F	8		110		1.4	278.0	279.3				1.2									$ 2.99	$ 3.50	$ 10,477	$ 1.95	$ 2.28	$6,833	$17,310	
	Jefferson City	Jefferson City	60	60		124.3	128.1	3.8	7.6			F	8		110		1.4	278.0	279.3		7.6											$ 1.01	$ 1.18	$ 22,414	$ 1.94	$ 2.27	$43,052	$65,466	MP 125.5 - Jefferson City Station
	Jefferson City	River Junction	90	90		128.1	128.4	0.3	0.6			F	8		87		1.4	219.8	221.2				0.6									$ 2.99	$ 3.50	$ 5,238	$ 1.95	$ 2.28	$3,416	$8,655	
	River Junction	River Terminal	90	90		128.4	129.9	1.5	3.0			F	8		87		1.4	219.8	221.2				3.0									$ 2.99	$ 3.50	$ 26,192	$ 1.95	$ 2.28	$17,082	$43,274	
	River Terminal	0	90	90		129.9	132.3	2.4	4.8			F	8		87		1.4	219.8	221.2				4.8									$ 2.99	$ 3.50	$ 41,908	$ 1.95	$ 2.28	$27,331	$69,239	
150		Sedalia	90	90		132.3	188.9	56.6	113.2			F	8		87		1.4	219.8	221.2				113.2									$ 2.99	$ 3.50	$ 988,327	$ 1.95	$ 2.28	$644,561	$1,632,887	MP 140 - Centertown
	Sedalia	Sedalia	60	60		188.9	189.6	0.7	1.4			F	8		87		1.4	219.8	221.2		1.4											$ 1.01	$ 1.18	$ 4,129	$ 1.94	$ 2.27	$7,931	$12,060	MP 188.9 - Sedalia Station
250	Sedalia	Independence	90	90		189.6	271.2	81.6	163.2			F	8		87		1.4	219.8	221.2				163.2									$ 2.99	$ 3.50	$ 1,424,867	$ 1.95	$ 2.28	$929,261	$2,354,127	MP 259.8 - Lees Summit Station
	Independence	Independence	60	60		271.2	271.3	0.1	0.2			F	8		87		1.4	219.8	221.2		0.2											$ 1.01	$ 1.18	$ 590	$ 1.94	$ 2.27	$1,133	$1,723	
	Independence	Rock Creek	79	79		271.3	276.8	5.5	11.0			F	8		87		1.4	219.8	221.2			11.0										$ 1.01	$ 1.18	$ 32,441	$ 1.94	$ 2.27	$62,313	$94,754	MP 273.2 - Independence Station
	Rock Creek	Broadway	60	60		276.8	282.5	5.7	11.4			F	10		125		1.7	315.9	317.6		11.4											$ 1.01	$ 1.18	$ 42,026	$ 1.94	$ 2.27	$80,723	$122,750	
	Broadway	Kansas City	30	30		282.5	283	0.5	1.0			F	10		125		1.7	315.9	317.6	1.0												$ 1.01	$ 1.18	$ 3,687	$ 1.94	$ 2.27	$7,081	$10,768	MP 273.0 - Kansas City Station
								283.0	566.0											3.8	33.6	28.4	500.2	0.0								$ 188.74	$ 220.80	$ 4,577,004	$ 144.75		$3,242,064	$ 7,819,068	
									566.0																									Matrix 41					

Note: Infrastructure and speeds assumed to "ballpark" maintenance and cyclic capital costs. Capacity anaylis required to determine infrastructure required.
*State of Missouri Specified Maximum Authorized Train Speed
Amtrak believes that UPRR will permit a Maximum Authorized Train Speed of 79 mph.

HNTB
1-Feb-04
CHQ

	Maintenance	Capital	Total
High	$4,577,004	$3,242,064	$7,819,068
Median	$3,798,913	$2,690,913	$6,489,826
Low	$3,020,822	$2,139,762	$5,160,585

CHICAGO TO CARBONDALE

Global MP	From Station	To Station	Main #1	Main #2	Main #3	MP Begin	MP End	Segment Length	Total Track Miles	Predom. Traffic P	Predom. Traffic E	Predom. Traffic F	No of Trains P	No of Trains F	Curr Tons F	RR Escall. %	2022 Tonnage P	2022 Tonnage F	2022 Tonnage Tot	FRA Track Class 2	FRA Track Class 3	FRA Track Class 4	FRA Track Class 5	FRA Track Class 6	MGT < 5	MGT 5-15	MGT 15-30	MGT > 30	Curvature Lgt	Curvature Mod	Curvature Sev	Matrix 41 Cost/Mile	Convert Cost/Mile to a 312 day year	ZT Maint Cost x Track Miles x # of Annual Train Miles	Cyclic Capital Cost Per Train Mile Wood (Max) Z-T Matrix 42	Convert Cost/Mile to a 312 day year	Cap. Cost Per Train Mile Times Total No. of Miles	Total Cost Capital Cost Plus Maint. Cost	Remarks
0	Chicago	21 Street	45	45	45	523.0	520.9	2.1	6.3	P			10	0	0.0	0.015	1.7	0.0	1.7		6.3											$ 2.05	$ 2.40	$ 47,140	$ 2.53	$ 2.96	$ 58,177	$ 105,317	MP 0.0 - Chicago
	21 Street	Englewood	79	79		520.9	516.3	4.6	9.2	P			10	0	0.0	0.015	1.7	0.0	1.7			9.2										$ 2.05	$ 2.40	$ 68,839	$ 2.53	$ 2.96	$ 84,957	$ 153,796	
	Englewood	Englewood	45	45		516.3	515.2	1.1	2.2	P			10	0	0.0	0.015	1.7	0.0	1.7		2.2											$ 2.29	$ 2.68	$ 18,389	$ 2.60	$ 3.04	$ 20,878	$ 39,267	
	Englewood	Gr. Xing	79	79		515.2	513.7	1.5	3.0	P			10	0	0.0	0.015	1.7	0.0	1.7			3.0										$ 2.05	$ 2.40	$ 22,448	$ 2.53	$ 2.96	$ 27,704	$ 50,151	
	Gr. Xing	Gr. Xing	45	45		513.7	513.4	0.3	0.6	P			10	0	0.0	0.00	1.7	0.0	1.7		0.6											$ 2.29	$ 2.68	$ 5,015	$ 2.60	$ 3.04	$ 5,694	$ 10,709	
	Gr. Xing	N. Kensington	79	79		10.0	13.0	3.0	6.0	P			10	0	0.0	0.02	1.7	0.0	1.7			6.0										$ 2.05	$ 2.40	$ 44,895	$ 2.53	$ 2.96	$ 55,407	$ 100,302	
	N. Kensington	Kensington	79	79		13.0	14.2	1.2	2.4		E		10	1	0.8	0.02	1.7	1.2	2.9			2.4										$ 1.44	$ 1.68	$ 12,614	$ 2.18	$ 2.55	$ 19,097	$ 31,711	
	Kensington	CN Junction	79	79		14.2	23.5	9.3	18.6			F	10		11.2	0.02	1.7	16.3	18.0			18.6										$ 0.96	$ 1.12	$ 65,174	$ 1.92	$ 2.25	$ 130,349	$ 195,523	
	CN Junction	Stuenkel	79	79		14.4	31.6	17.2	34.4			F	10		24.6	0.02	1.7	35.8	37.5			34.4										$ 0.96	$ 1.12	$ 120,538	$ 1.92	$ 2.25	$ 241,075	$ 361,613	MP 17.9 - Homewood
	Stuenkel	Manteno	90	90		31.6	49.5	17.9	35.8			F	10		34.7	0.02	1.7	50.6	52.3				35.8									$ 2.85	$ 3.33	$ 372,410	$ 1.92	$ 2.25	$ 250,886	$ 623,296	
50	Manteno	Kankankee	79	79		49.5	55.2	5.7	11.4			F	10		34.7	0.02	1.7	50.6	52.3			11.4										$ 0.96	$ 1.12	$ 39,946	$ 1.92	$ 2.25	$ 79,891	$ 119,837	
	Kankankee	Kankankee	50	50		55.2	56.4	1.2	2.4			F	10		34.7	0.02	1.7	50.6	52.3		2.4											$ 0.96	$ 1.12	$ 8,410	$ 1.92	$ 2.25	$ 16,819	$ 25,229	MP 55.3 - Kankankee
	Kankankee	S. Otto	79	79		56.4	61.2	4.8	9.6			F	10		34.7	0.02	1.7	50.6	52.3			9.6										$ 0.96	$ 1.12	$ 33,638	$ 1.92	$ 2.25	$ 67,277	$ 100,915	MP 61.1 - Gilman
	S. Otto	Gilman	90	90		61.2	80.5	19.3	38.6			F	10		34.7	0.02	1.7	50.6	52.3				38.6									$ 2.85	$ 3.33	$ 401,537	$ 1.92	$ 2.25	$ 270,509	$ 672,045	
	Gilman	Gilman	60	60		80.5	81.2	0.7	1.4			F	10		36.4	0.02	1.7	53.0	54.7		1.4											$ 0.96	$ 1.12	$ 4,906	$ 1.92	$ 2.25	$ 9,811	$ 14,717	
100	Gilman	Rantoul	90	90		81.2	113.0	31.8	63.6			F	10		36.4	0.02	1.7	53.0	54.7				63.6									$ 2.85	$ 3.33	$ 661,599	$ 1.92	$ 2.25	$ 445,709	$ 1,107,308	
	Rantoul	Rantoul	60	60		113.0	114.0	1.0	2.0			F	10		36.4	0.02	1.7	53.0	54.7		2.0											$ 0.96	$ 1.12	$ 7,008	$ 1.92	$ 2.25	$ 14,016	$ 21,024	MP 113.8 - Rantoul
	Rantoul	Rantoul	79	79		114.0	115.8	1.8	3.6			F	10		38.0	0.02	1.7	55.4	57.1			3.6										$ 0.96	$ 1.12	$ 12,614	$ 1.92	$ 2.25	$ 25,229	$ 37,843	
	Rantoul	Leverett	90	90		115.8	124.1	8.3	16.6			F	10		38.0	0.02	1.7	55.4	57.1				16.6									$ 2.85	$ 3.33	$ 172,682	$ 1.92	$ 2.25	$ 116,333	$ 289,014	
	Leverett	Leverett	79	79		124.1	125.9	1.8	3.6			F	10		38.0	0.02	1.7	55.4	57.1			3.6										$ 0.96	$ 1.12	$ 12,614	$ 1.92	$ 2.25	$ 25,229	$ 37,843	
	Leverett	Champaign	60	60		125.9	127.3	1.4	2.8			F	10		38.0	0.02	1.7	55.4	57.1		2.8											$ 0.96	$ 1.12	$ 9,811	$ 1.92	$ 2.25	$ 19,622	$ 29,434	
	Champaign	Champaign	79	79		127.3	128.0	0.7	1.4			F	10		38.0	0.02	1.7	55.4	57.1			1.4										$ 0.96	$ 1.12	$ 4,906	$ 1.92	$ 2.25	$ 9,811	$ 14,717	MP 127.8 - Champaign
	Champaign	Tolono	90	90		128.0	137.0	9.0	18.0			F	4		38.0	0.02	0.7	55.4	56.0				18.0									$ 2.85	$ 3.33	$ 74,898	$ 1.92	$ 2.25	$ 50,458	$ 125,356	
	Tolono	Tolono	60	60		137.0	137.2	0.2	0.4			F	4		39.7	0.02	0.7	57.8	58.5		0.4											$ 0.96	$ 1.12	$ 561	$ 1.92	$ 2.25	$ 1,121	$ 1,682	
150	Tolono	Mattoon	90	90		137.2	172.3	35.1	70.2			F	4		40.7	0.02	0.7	59.3	60.0				70.2									$ 2.85	$ 3.33	$ 292,102	$ 1.92	$ 2.25	$ 196,785	$ 488,887	
	Mattoon	Mattoon	60	60		172.3	174.6	2.3	4.6			F	4		43.5	0.02	0.7	63.4	64.1		4.6											$ 0.96	$ 1.12	$ 6,447	$ 1.92	$ 2.25	$ 12,895	$ 19,342	MP 172.4 - Mattoon
	Mattoon	N. Effingham	90	90		174.6	198.0	23.4	46.8			F	4		43.5	0.02	0.7	63.4	64.1				46.8									$ 2.85	$ 3.33	$ 194,735	$ 1.92	$ 2.25	$ 131,190	$ 325,925	
200	N. Effingham	Effingham	60	60		198.0	202.0	4.0	8.0			F	4		43.5	0.02	0.7	63.4	64.1		8.0											$ 0.96	$ 1.12	$ 11,213	$ 1.92	$ 2.25	$ 22,426	$ 33,638	MP 199.2 - Effingham
	Effingham	Odin	90	90		202.0	244.1	42.1	84.2			F	4		49.5	0.02	0.7	72.1	72.8				84.2									$ 2.85	$ 3.33	$ 350,356	$ 1.92	$ 2.25	$ 236,029	$ 586,386	
	Odin	Odin	60	60		244.1	244.7	0.6	1.2			F	4		36.2	0.02	0.7	52.7	53.4		1.2											$ 0.96	$ 1.12	$ 1,682	$ 1.92	$ 2.25	$ 3,364	$ 5,046	
250	Odin	Sandoval	90	90		244.7	250.7	6.0	12.0			F	4		36.2	0.02	0.7	52.7	53.4				12.0									$ 2.85	$ 3.33	$ 49,932	$ 1.92	$ 2.25	$ 33,638	$ 83,570	
	Sandoval	Centralia	60	60		250.7	252.0	1.3	2.6			F	4		28.4	0.02	0.7	41.4	42.1		2.6											$ 0.96	$ 1.12	$ 3,644	$ 1.92	$ 2.25	$ 7,288	$ 10,932	
	Centralia	Centralia	35	35		252.0	252.4	0.4	0.8			F	4		28.4	0.02	0.7	41.4	42.1		0.8											$ 0.96	$ 1.12	$ 1,121	$ 1.92	$ 2.25	$ 2,243	$ 3,364	
	Centralia	Centralia	60	60		252.4	253.1	0.7	1.4			F	4		28.4	0.02	0.7	41.4	42.1		1.4											$ 0.96	$ 1.12	$ 1,962	$ 1.92	$ 2.25	$ 3,924	$ 5,887	
	Centralia	31 Switch	60	60		253.1	253.3	0.2	0.4			F	4		34.6	0.02	0.7	50.4	51.1		0.4											$ 0.96	$ 1.12	$ 561	$ 1.92	$ 2.25	$ 1,121	$ 1,682	MP 253.2 - Centralia
	31 Switch	Tamarda	90	90		253.3	279.0	25.7	51.4			F	4		34.7	0.02	0.7	50.6	51.2				51.4									$ 2.85	$ 3.33	$ 213,875	$ 1.92	$ 2.25	$ 144,084	$ 357,960	
	Tamarda	Tamarda	60	60		279.0	281.0	2.0	4.0			F	4		36.0	0.02	0.7	52.4	53.1		4.0											$ 0.96	$ 1.12	$ 5,606	$ 1.92	$ 2.25	$ 11,213	$ 16,819	
	Tamarda	Duquoin	90	90		281.0	287.6	6.6	13.2			F	4		36.0	0.02	0.7	52.4	53.1				13.2									$ 2.85	$ 3.33	$ 54,925	$ 1.92	$ 2.25	$ 37,002	$ 91,927	MP 287.5 - Duquoin
	Duquoin	Eldorado	60	60		287.6	288.7	1.1	2.2			F	4		36.0	0.02	0.7	52.4	53.1		2.2											$ 0.96	$ 1.12	$ 3,084	$ 1.92	$ 2.25	$ 6,167	$ 9,251	
300	Eldorado	Carbondale	90	90		288.7	307.8	19.1	38.2			F	4		36.0	0.02	0.7	52.4	53.1				38.2									$ 2.85	$ 3.33	$ 158,950	$ 1.92	$ 2.25	$ 107,082	$ 266,032	
	Carbondale	Carbondale	20	20		307.8	309.0	1.2	2.4			F	4		36.4	0.02	0.7	53.0	53.7	2.4												$ 0.96	$ 1.12	$ 3,364	$ 1.92	$ 2.25	$ 6,728	$ 10,092	MP 308.1 - Carbondale
																																		$ -					
																																		$ -					
					Total Route Miles			308.4							Note 1	Note 2																$ 69.54	$ 81.35	$ 3,576,150			$ 3,009,239	$ 6,585,388	
					Total Track Miles			637.5												2.4	43.3	103.2	488.6	0.0															

HNTB
1-Feb-04
CHQ

	Maintenance	Capital	Total
High	$3,576,150	$3,009,239	$6,585,388
Median	$2,968,204	$2,497,668	$5,465,872
Low	$2,360,259	$1,986,098	$4,346,356

			FRT	PASS		
FRA Class 2	30 - 25				**550**	
FRA Class 3	60 - 40	**PP**	1	16	**5900**	
FRA Class 4	80 - 60	**E**	2	16		
FRA Class 5	90 - 80	**PF**	6	16		1.170
FRA Class 6	110 - 80					

Note 1: CN (O'Brien) Furnished 2002 Tonnage Data 12-05-03
Note 2: CN (O'Brien) Furnished Annual Growth Figures 01-05-04