

Upper Midwest Freight Corridor Study

Final Report Draft Outline

**Midwest Regional University Transportation Center
University of Illinois at Chicago
University of Toledo
University of Wisconsin-Madison**

April 28, 2004

EXECUTIVE SUMMARY (MARK)

TABLE OF CONTENTS/ LIST OF FIGURES/ LIST OF TABLES

1 INTRODUCTION (TERESA TO COORDINATE)

- 1.1 Problem Statement (Sue and Travis)**
- 1.2 Research Objectives (Team)**
- 1.3 Background (Travis)**
- 1.4 Overview of Methodology (Sue)**
- 1.5 Key Findings (Team)**
- 1.6 Report Outline (Sue and Travis)**

2 STUDY METHODOLOGY (SUE TO COORDINATE)

- 2.1 Methodology**
 - 2.1.1 Overview (Sue)**
 - 2.1.2 Data Collection and Study Resources (Sue)**
 - 2.1.3 Supporting Tools (Peter)**
 - 2.1.4 Synthesis (Travis)**
 - 2.1.5 Performance Measures (Ernie)**
 - 2.1.6 Administrative Issues (Teresa)**
 - 2.1.7 Usage (Kazuya)**
 - 2.1.8 Capacity (Jiwan)**
 - 2.1.9 Interpretation (Team)**
- 2.2 Study Team and Organization (Travis)**
- 2.3 Corridor Definition (Kazuya)**
- 2.4 Data Sources (Sue)**
- 2.5 Data Reporting (Peter)**

3 SYNTHESIS OF PRACTICES

- 3.1 Clearinghouse**
 - 3.1.1 Objective**
 - 3.1.2 Methodology**
 - 3.1.3 Future Directions**
- 3.2 Best Practices**
 - 3.2.1 Introduction**
 - 3.2.1.1 Objectives
 - 3.2.1.2 Theory of Multi-agency Cooperation
 - 3.2.1.3 Freight Cooperation Overview
 - 3.2.2 Case Studies**
 - 3.2.2.1 Selection Criteria
 - 3.2.2.2 Number 1
 - 3.2.2.3 Number 2
 - 3.2.2.4 Number 3
 - 3.2.2.5 Number 4
 - 3.2.2.6 Number 5
 - 3.2.2.7 Number 6

3.2.3 Analysis

3.2.3.1 Catalyst

3.2.3.2 Funding

3.2.3.3 Organization

3.2.3.4 Private Sector involvement

3.2.4 Conclusion

4 PERFORMANCE MEASURES

4.1 Introduction/Summary

4.2 About performance measures

4.2.1 Definitions

4.2.2 Benefits

4.2.3 Concerns

4.2.4 A model of measurement

4.3 Performance measures in freight

4.3.1 Freight Advisory Committee

4.3.2 Survey of public sector agencies

4.3.3 Survey of private sector

4.3.4 Examples from the literature

4.4 Applying the model to the Region

4.4.1 Our mission

4.4.2 Our vision

4.4.3 Our strategy

4.4.4 Related goals

4.4.5 Related reasonable measures

4.4.6 Data sources

4.5 About doing regional measures

4.5.1 Who?

4.5.2 How?

4.5.3 How often?

5 ADMINISTRATIVE

5.1 Introduction

5.1.1 Statement of the problem

5.1.2 Objectives

5.1.3 Scope

5.1.4 Methodology

5.2 Operating Authority and Motor Carrier Fuel Taxes

5.2.1 Evolution of regulations governing operating authority

5.2.2 Evolution of motor carrier fuel taxes

5.2.3 CVISN Technology for Administration of IFTA and Electronic credentialing

5.2.4 Motor Carrier Fuel Taxes in the Upper Midwest Region

5.2.5 Deployment of CVISN Technology for Administration of IFTA and Electronic credentialing in Upper Midwest

5.3 Size and Weight Regulations

- 5.3.1 Evolution of size and weight regulation
- 5.3.2 Administration of Size and Weight Regulations using CVISN Technology
- 5.3.3 Regulatory Restrictions on Federal and State Highways in the Upper Midwest Region
- 5.3.4 Regulatory Inconsistencies on the Upper Midwest Freight Corridor
- 5.3.5 Enforcement of Size and Weight regulations in the Upper Midwest
- 5.4 Safety Regulations
 - 5.4.1 Evolution of regulations governing safety
 - 5.4.2 Administration of Safety Regulations using CVISN Technology
 - 5.4.3 Deployment of CVISN Technology for Administration of Safety Regulations
 - 5.4.4 Opportunities for Regional Collaborations in Deployment of CVISN Technology
- 5.5 Impacts of Regulatory Inconsistencies
 - 5.5.1 Literature Review and Scope of Impacts
 - 5.5.2 Highway Infrastructure
 - 5.5.3 Safety
 - 5.5.4 Traffic Operations
 - 5.5.5 Environment
 - 5.5.6 Economic Productivity and Modal Competitiveness
 - 5.5.7 Finance and Energy
 - 5.5.8 Compliance and Enforcement
 - 5.5.9 Intergovernmental Cooperation
 - 5.5.10 Impacts of Regulatory Inconsistencies in the Upper Midwest Freight Corridor
- 5.6 Summary of Administrative Impacts

6 USAGE

- 6.1 Definitions
 - 6.1.1 Usage versus Demand
 - 6.1.2 Measures of Usage
 - 6.1.3 Commodities
 - 6.1.4 Modes
- 6.2 Highway
 - 6.2.1 Origin-Destination Data
 - 6.2.2 Link Data
- 6.3 Rail
 - 6.3.1 Origin-Destination Data
 - 6.3.2 Link Data
- 6.4 Waterway
 - 6.4.1 Origin-Destination Data
 - 6.4.2 Link Data
- 6.5 Air
- 6.6 Intermodal Terminals
- 6.7 Mode Shifts

6.8 Forecast

7 CAPACITY

7.1 Highways

7.1.1 Highway Network -selection criteria, Final network for capacity

7.1.2 Data Collection and Processing

7.1.3 Capacity and Level of Service

7.1.4 Capacity Analysis program

7.1.5 Display of Results

7.2 Railways

7.2.1 Rail Network – selection criteria, classification of rail lines by freight and by owner.

7.2.2 Rail Segments for Capacity Analysis

7.2.3 Final Rail Network

7.2.4 Rail Road Capacity parameters

7.2.5 Data Collection and Processing

7.2.6 Rail Line Capacity algorithm

7.2.7 Display of results

7.3 Airport Terminals

7.3.1 Selection of Airports - Take off and landing usage and freight volume

7.3.2 Capacity Parameters

7.3.3 Airside and Landside Capacity

7.3.4 Cargo Handling Capacity

7.3.5 Results

7.4 Waterways

7.4.1 Navigational Routes in the Study Region

7.4.2 Route Capacity and Constrains

7.4.3 Commodity Flow and Types of Barge

7.4.4 Port and Docking Facility

7.4.5 Cargo Handling Equipments

7.4.6 Results

7.5 Inter-modal Terminal Connectors

7.5.1 Direct / Indirect Access

7.5.2 Drayage distance and Congestion

8 FINDINGS AND FUTURE RESEARCH

9 SUMMARY AND CONCLUSIONS

REFERENCES (TEAM)

APPENDIX A. ACRONYMS (SUE AND TRAVIS)

ADT – Average daily traffic
AADT – Average annual daily traffic
DOT – Department of Transportation
FAF – freight analysis framework
HPMS – highway performance monitoring systems
GIS – Geographic information systems
MPO – Metropolitan Planning Organization

APPENDIX B. STUDY PARTICIPANTS

B.1. Structure of Organization

B.2. Research Team

B.3. Steering Committee

B.4. Advisory Committee

APPENDIX C. METHODOLOGY FOR DEFINING CORRIDOR

C.1. Background

C.2. Process and guidelines

C.3. Selected corridor

C.4. This appendix will be the memo provided at the Milwaukee meeting. Summary of the methodology will be given in section 2.3

APPENDIX D. DATA CATALOGUE (SUE AND KAZUYA)

APPENDIX E. DATA STRUCTURES (PETER)

E.1. Data Organization

- Schematic Diagram of the database
- Overview of the Structure of the Database
- The Data Repository
- Point Data Layers
- Linear (Network) Data Layers
- Area Data Layers
- Data Sources
- Data Limitations
- Missing Data
- Errors in the Data

E.2. Linking Tabular and Support Data to the GIS Database

E.3. Metadata and Database Documentation

E.4. The Data Reporting Site

APPENDIX F. DATA RECONCILIATION (PETER)

F.1. Incompatibilities in Georeferencing among Diverse Data Sources

F.2. Geometrically Reconciling Network Data from Diverse Sources

- Segmentation Issues
- Conflation Issues
- Combining Points, Networks and Areas into a Comprehensive Network

- F.3. Data Merging Algorithms Used in Merging the Data***
- F.4. Integrating the Data into a comprehensive data reporting site***
- F.5. Reconciling Inconsistent Attribute Data among Diverse Sources***

APPENDIX G. MPO INTERVIEWS

G.1. Introduction

G.2. List of MPOs Visited

G.3. Summary of MPOs Reports

- The MPO Perspective
- List of Bottlenecks Identified by MPOs

G.4. Reports Generated from MPO Visits

- Bi-State Regional Commission
- Rockford Area Transportation Study
- Toledo Metropolitan Area Council of Government

APPENDIX H. SURVEYS AND SURVEY RESULTS

H.1. Public sector survey respondents

H.2. Copy of public sector survey with aggregate responses

- Open answer responses

H.3. Breakdown by industry of private sector survey respondents

H.4. Copy of private sector survey with aggregate responses

- Open answer responses

APPENDIX I. ADMINISTRATIVE ISSUES (TERESA)

I.1. Size and Weight Regulations in the Upper Midwest Region Chart

I.2. Trucking Handbook.

I.3. Interview Summaries

I.4. Commodity Exemptions

APPENDIX J. USAGE

J.1. Highway

- Origin-Destination Data
- Link

J.2. Rail

- Origin-Destination Data
- Link Data

J.3. Waterway

- Origin-Destination Data
- Link Data

J.4. Air

J.5. Intermodal Terminals

APPENDIX K. CAPACITY