## SECTION I: BACKGROUND MATERIALS

## FHWA DOCKET 95-5

FHWA COMPREHENSIVE TRUCK SIZE AND WEIGHT STUDY; UPDATE OF STUDY PLAN FEDERAL REGISTER/VOL.60, NO.168/WEDNESDAY, AUGUST 30, 1995/NOTICES Page 45210

ANALYSIS OF COMMENTS TO FHWA DOCKET 95-5 COMPREHENSIVE TRUCK SIZE AND WEIGHT STUDY Battelle, July 1995

TRUCK SIZE AND WEIGHT OPEN MEETING, MARCH 21, 1995 Transcript by: CASET Associates, Ltd.

FHWA COMPREHENSIVE TRUCK SIZE AND WEIGHT STUDY FEDERAL REGISTER/VOL.60, NO.22/THURSDAY, FEBRUARY 2, 1995/NOTICES Page 6587

## **FHWA DOCKET 98-4498**

DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION; FHWA DOCKET NO. FHWA-98-4498; FHWA-95-5 COMPREHENSIVE TRUCK SIZE AND WEIGHT STUDY; AVAILABILITY OF VOLUME III, SCENARIO ANALYSIS FEDERAL REGISTER/VOL.64,No.10/FRIDAY, JANUARY 15, 1999/Notices Page 2699

## SYNTHESIS OF TRUCK SIZE AND WEIGHT STUDIES AND ISSUES FINAL REPORT Battelle, March 1995

The initial Study report summarizes and assesses past policy studies and technical research. Technical knowledge about relationships between truck size and weight (TS&W) policy controls and relevant evaluation and decision criteria are synthesized by study area: pavement, bridge, roadway geometry, traffic operations, safety, permits and pricing mechanisms, enforcement, truck travel and mode share, and environment and energy conservation. Current State and Federal TS&W laws and regulations are presented, knowledge gaps and research needs identified.

# TRUCK SIZE AND WEIGHT METHODOLOGY REVIEW CONFERENCE-JULY 7-8, 1998 Washington, D.C.

A two-day conference was held for the purpose of presenting an overview of the analysis techniques underlying the assessment procedures employed in the impact analysis of the Study scenarios. The conference was structured to facilitate review of the Study's analytical approach, not to present analysis results, findings or conclusions.

#### TECHNICAL REPORTS

Evaluation of Limitations in Roadway Geometry and Impacts on Traffic Operations for Proposed Changes in Truck Size and Weight Policy

Pennsylvania State University

June 5, 1997

**DRAFT** 

This study examines nine States from the five regions of the study to determine the impact of selected truck configurations on the geometric elements and traffic operations of the current roadway system to identify geometric improvements required for operation. The study estimates the cost to complete the improvements identified if TS&W policy changes. Four key truck operating characteristics are examined in relationship to the geometric design of roadways: offtracking, speed maintenance and acceleration on grades, braking, and passing ability on two-lane highways.

A Post Deregulation Perspective on Shipper Decision-Making
Battelle
November 1996

DRAFT

This report is based on an extensive review of the transportation mode choice literature, a series of shipper group meetings held around the United States (U.S.) additional interviews with shippers and carriers, and a number of shipper and carrier presentations made at major conferences. This report summarizes recent changes in freight transportation; describes the shipper decision-making process; presents the results of several meetings with shippers, as well as field work; predicts likely future developments based on recent events and a survey of over 200 chief logistics executives at major U.S. firms; and concludes by discussing potential shippers' responses to each of the selected illustrative policy scenarios in the Comprehensive Truck Size and Weight Study.

#### TECHNICAL REPORTS, Cont'd

Analysis of the Truck Inventory and Use Survey from the Truck Size and Weight Perspective with Four Axles or Less

Battelle

July 1996

**DRAFT** 

The U.S. Bureau of Census collects truck data in five-year cycles using the Truck Inventory and Use Survey (TIUS). The 1992 TIUS data was examined and analyzed, and information on trucks and combination vehicles in the U.S. truck fleet, with four axles or less, is summarized and presented in this report with narrative discussion, tables, charts and graphs. The information includes fleet make-up, size, use, location and types of commodities hauled at the national, regional and local levels.

Analysis of the Truck Inventory and Use Survey from the Truck Size and Weight Perspective with Five Axles or More

Battelle

February 1996

**FINAL** 

This is a companion report to the report above. It covers the same analyses used for four axles or less for truck configurations with five or more axles.

Dynamic Performance of Various Truck Configurations: Tractor-Trailer Performance
Roaduser Research International
February 1996

DRAFT

This report evaluates the performance attributes of tractor-trailer combinations common in the present truck fleet and those that have potential for operation under the various Comprehensive TS&W study scenarios. Five basic vehicle classes were initially examined:(1) semitrailer combinations, (2) single-unit trucks, (3) truck-trailer combinations, (4) double-trailer combinations, and (5) triple-trailer combinations. The vehicles were analyzed by first establishing the stability and control characteristics of baseline vehicles and then by examining the influence of length, weight, body type, and axle configuration relative to the baseline vehicle for each class.

#### TECHNICAL REPORTS, Cont'd

1995 Truck Size and Weight Performance-Based Workshop
Battelle
January 1996 FINAL

This paper summarizes presentations and breakout sessions of a workshop on the concept of performance-based regulations for TS&W. The workshop was organized by the U.S. Department of Transportation and was held on June 30, 1995 in Ann Arbor, Michigan. The workshop included three keynote speakers: Robert Clarke (National Highway Traffic Safety Administration) addressed implementation of the concept for regulating weight limits, Peter Sweatman (Roaduser Research, Australia) discussed vehicle stability and control issues related to performance-based standards, and Kit Mitchell (formerly of Transport Research Laboratory, United Kingdom) discussed the interaction of heavy vehicles and pavements.

Truck Size and Weight Modeling Workshop
Battelle
September 1995

FINAL

This report summarizes the Federal Highway Administration sponsored workshop held February 10, 1995 as part of the Comprehensive TS&W study. Models presented at the workshop and critiqued are: Highway Traffic Forecasting System, Freight Network Policy Model, Cost and Diversion Effects, Freight Transportation Analyzer Model, and Truck-Rail/Rail-Truck Diversion Model. General discussion of the Commodity Flow Survey and Truck Inventory and Use Survey is presented and a review of the models and databases available for the CTS&W study concluded the workshop.

#### CASE STUDY REPORTS

State to State Commodity Flows by Mode
Reebie Associates DRAFT

Contains 1994 output data for commodities summarized into tables for all States origin-destination (OD) pairs for rail miles traveled and payload ton miles, highway vehicle miles traveled and payload ton miles, and water payload ton miles (based on highway miles). The commodities are: farm (STCC 1), forest (STCC 8), food (STCC 9, 20, 21), ores and minerals (STCC 10, 14), coal (STCC 11), crude petroleum and gas (STCC 13), textile and apparel (STCC 22, 23, 31), lumber and fabricated wood (STCC 24), furniture and fixtures (STCC 25), paper and print (STCC 26, 27), chemicals (STCC 28), petroleum and products (STCC 29), plastic and rubber (STCC 30), glass products (STCC 3211-3229), building materials (STCC 3241-3299), primary metal products (STCC 33), fabricated metals (STCC 34), machinery (STCC 35, 19, 36), transport equipment (STCC 37), other (STCC 38, 39, >40), waste and scrap (STCC 40), shipping containers (STCC 42), and FAK (STCC 46).

U.S. - Mexico Crossborder Case Study
Battelle
November 1996

DRAFT

This case study analyzes trucking activity and freight movement across the U.S./ Mexican border and the influence of TS&W regulations on operations. Land transportation is the dominant mode for trade at the border between the United States and Mexico and there are 37 highway crossings along the border. Fifteen of the 37 crossings were selected for the case study because: (1) there is an Interstate System highway, National Network highway, or National Highway System highway, or (2) annual northbound commercial traffic flow exceeds 12,000 trucks. Chapter 2 characterizes the road network at each of the 15 crossings, identifies current TS&W limits, illustrates the influence of the TS&W limits on vehicle characteristics, examines the Truck Inventory and Use Survey (TIUS) data on fleet make-up, commodities handled, operating range and weight in the southern United States. Chapter 3 summarizes information obtained from the Transborder Surface Freight Transportation database for trade flow patterns, including the maquiladora trade flow. Finally, Chapter 4 presents information on truck flows, volume, and vehicle classification across and along the border.

#### CASE STUDY REPORTS, Cont'd

Longer Combination Vehicle (LCV) Operations in the Eastern United States Battelle

November 1996

**DRAFT** 

Past research on the operation of LCVs focused on the western States where they have been allowed to operate for many years. This research examines LCV operations in three corridors east of the Mississippi River in States where operations are permitted and examines possible impacts from changes to the TS&W limits. Specifically, the paper identifies (1) TS&W limits that apply to operation, (2) the conditions under which LCVs are permitted on the Florida Turnpike, New York State Thruway, and Ohio Turnpike, (3) how many LCVs operate in these corridors, and (4) potential lessons learned regarding change in TS&W policy.

Selected Regional Trucking Commodity Case Studies
Battelle
July 1996

DRAFT

" "Less-Than-Truckload Motor Carriers," Thomas Corsi, University of Maryland

This paper analyzes the impact of current and alternative TS&W policy on the Less-Than-Truckload (LTL) segment of the motor carrier industry. Recent developments in the industry, including market structure changes, shifts in strategic orientation and diversification, technological advances, improved efficiencies in operating practices, and projected developments in the next ten years are discussed.

" "Truckload Motor Carriers," Thomas Corsi, University of Maryland

Truckload (TL) carriers, surviving in the competitive post-Motor Carrier Act of 1980 environment, are significantly more efficient than were the TL carriers in the regulated era. This paper analyzes the impact of current and alternative TS&W policy on the TL carriers. The paper discusses recent developments in the industry, including market structure changes, shifts in strategic orientation and diversification, technological advances, improved efficiencies in operating practices, and projected developments in the next ten years.

## CASE STUDY REPORTS, Cont'd

" "Coal Haul Truck Operations in Kentucky," Herbert Southgate, Consulting Engineer

This case study presents various factors affecting coal trucking operations in Kentucky and discusses physical changes to coal trucks that were required to haul loads heavier than those allowed on the Interstate System. The paper presents a brief background discussion on the geological formation of the coal fields to explain the use of strip mining in the southern part of the western field and underground mining in another region. Detailed information on grandfather authority and Kentucky's Extended Weight System operations are presented.

" "Container Transport," Douglas Coats, Manalytics International

This paper describes the transportation of containers by truck and in intermodal operations by any combination of water, highway, and rail. The emphasis of the paper is on the trucking industry, however the role of ocean carriers, railroads, and intermodal marketing companies is addressed in detail. The paper also presents an analysis of the impact of potential changes to Federal TS&W policy.

" "The Washington State Forest Products Industry," Dr. Kenneth Casavant, Washington State University

This paper presents a summary and analysis of information obtained from a survey in January, 1996 of the forest products industry in Northeastern and Southeastern Washington state. The information obtained includes origin-destination, mode used, and highway use for truck shipments. The forest products industry is comprised of three segments: raw log producers, mills, and commercial transportation companies. The information was obtained from a survey of the raw log producers.

" "Just-In-Time Delivery, The Automobile Industry," Chip White

Just-in-time (JIT) delivery is a by-product of lean manufacturing, which is a collection of manufacturing procedures that attempt to remove waste from, and increase the efficiency of, the manufacturing process. Application of the JIT delivery approach to the manufacturing and delivery of automobiles is discussed and the potential impact of TS&W changes are analyzed.

## CASE STUDY REPORTS, Cont'd

" "Western Longer Combination Vehicle Case Studies," Sharon Nichols, Western Highway Institute

The history of LCV operations of motor carriers in the Western States is presented and four motor carriers selected for detailed case studies. The paper describes the motor carrier's operation, its general utilization characteristics, types of vehicles operated, routes and products hauled. Each carrier operation is evaluated under a status quo scenario for TS&W policy and the potential impact of changes to policy are discussed.

" "Impacts on the Economic Base and Transportation Services of Midwest States with Primarily Farm and Food Economies," Thomas Maze Transportation Systems Analysts

This study examined the potential impact of Federal TS&W policy scenarios on the transportation of farm and food products from the mid-western States. The study specifically focuses on the major grain crops and livestock produced in upper midwestern States—corn and soybeans, cattle and swine—and the resulting processed grain and meat products.

Western U.S. - Canada Crossborder Case Study
Battelle
December 1995

FINAL

This case study examines trucking across the western U.S./Canadian border and the influence of TS&W regulations on operations. Types of commodities transported, density of truck volumes, TS&W regulatory regimes resulting from grandfathered exemptions, and truck configurations are discussed and the implications of changes to TS&W policy are presented. The western border consists of 54 highway crossings beginning at the western end of Lake Superior to the West coast of Washington State that handle one-third of the total truck traffic on the United States - Canada border. Twenty-eight of the crossings were selected for examination.

#### **CORRIDOR STUDIES**

Analysis of Freight Transportation Systems in the Interstate I-75 Corridor Battelle

August 1997

**DRAFT** 

This study investigates the impact of TS&W policy on freight movements along the I-75 corridor from the U.S./Canadian border at Detroit, Michigan to Miami, Florida. The report provides information on the primary commodities moved, shipper decision making, modal competition, and rail/truck capacity.

*I-90/I-94 Corridor Study*Battelle
December 1996

**DRAFT** 

This study provides information on the impact of TS&W policy on truck activity along the Interstates I-90 and I-94 corridor from Seattle, Washington to Chicago, Illinois. Consistent with the other corridor studies in this TS&W study, information on commodities, truck configurations, and modal competition is presented.

Chicago - Los Angeles Corridor Analysis
Reebie Associates
January 1997 DRAFT

This report provides a detailed analysis of the Chicago-Los Angeles freight traffic corridor and the intense competition between long-haul trucking and rail intermodal services in the corridor. The two major hubs at each end of the corridor generate a significant amount of freight volume in the corridor which is growing. The report includes a description of the major routes in the corridor for truck and rail intermodal, traffic volume by mode, key commodities, and modal facilities. The Port of Los Angeles/Long Beach has great potential for growth in U.S. international trade and containerized freight.

## CORRIDOR STUDIES, Cont'd

Minneapolis - New Orleans Corridor Analysis
Reebie Associates
January 1997 DRAFT

This report provides an analysis of the Minneapolis, Minnesota and New Orleans freight traffic corridor which parallels the Mississippi River from north to south. The report describes the corridor character and market patterns that result in 53 percent of the volume being transported by water, 28 percent by truck and 19 percent by rail. The report analyzes the potential impact of changes to TS&W policies.

I-80 Corridor StudySAIC Transportation Consulting DivisionSeptember 1996 DRAFT

This study examines freight transportation in the I-80 corridor from Chicago to New York City by mode and commodity. The study details commodity flow volumes by origin and destination and identifies the type of equipment used in the traffic lane in each corridor state.

Analysis of Freight Transportation Systems in the Interstate I-75 Corridor Battelle

August 1997

**DRAFT** 

This study investigates the impact of TS&W policy on freight movements along the I-75 corridor from the U.S./Canadian border at Detroit, Michigan to Miami, Florida. The report provides information on the primary commodities moved, shipper decision making, modal competition, and rail/truck capacity.

## **SECTION II: VOLUME III MODELS**

## BRIDGE

Bridge Formula Comparison Model: Documentation of Program

Gedeon Picher

MaineSurf

Bridge Impact Analysis Working Files and Documentation

Directions and Notes; Study Configurations; Analysis Results; BASIC Computer Program

Documentation; Mainbeam Program Documentation;

Gedeon Picher

MaineSurf

## **ENERGY AND ENVIRONMENT**

1997 Federal Highway Cost Allocation Study, Appendix B and Appendix E

U.S. Department of Transportation

August 1997

#### FREIGHT DIVERSION

The DOT Intermodal Transportation and Inventory Cost Model Documentation Federal Highway Administration, Office of Transportation Studies March 1999

Induced Demand for Truck Services from Relaxed Truck Size and Weight Restrictions
Don Pickrell and Douglass Lee, Volpe National Transportation Systems Center
October 1998

DRAFT

Analysis of Truck Costs Under Varying Sizes & Weights, Summary of Costs in 12 Corridors
Reebie Associates
July 22, 1998

## **PAVEMENT**

1997 Federal Highway Cost Allocation Study, Appendix F and Appendix L U.S. Department of Transportation August 1997

## RAIL

Induced Demand for Truck Services from Relaxed Truck Size and Weight Restrictions
Don Pickrell and Douglass Lee, Volpe National Transportation Systems Center
October 1998

DRAFT

"Logistics Analysis for Carriers and Shippers," One-Week Seminar Executive Program in Transportation, Center for Transportation Studies Massachusetts Institute of Technology July 22-26, 1996

## ROADWAY GEOMETRY

1997 Federal Highway Cost Allocation Study, Appendix I and Appendix K U.S. Department of Transportation
August 1997

Evaluation of Limitations in Roadway Geometry and Impacts on Traffic Operations for Proposed Changes in Truck Size and Weight Policy

Pennsylvania State University

June 5, 1997

**DRAFT** 

#### SAFETY

Vehicle Stability and Control Research for U.S. Comprehensive Truck Size and Weight (TS&W) Study

Philip W.Blow, Federal Highway Administration

John H. Woodroofe and Peter Sweatman, Roaduser Research International

SAE Technical Paper Series #982819

November 1998

Safety consideration Associated with Truck Size and Weights Policy Deliberations Robert M. Clarke, U.S. Department of Transportation SAE Technical Paper Series #982818 November 1998

Two Active Systems for Enhancing Dynamic Stability in Heavy Truck Operations UMTRI #DTNH22-95-H-07002 July 1998

## SAFETY, Cont'd

"Heavy Truck Size and Weight and Safety"
Robert M. Clarke and George F. Wiggers
U.S. Department of Transportation
November 3, 1997

DRAFT

MEMORANDUM from Ralph Craft and Scott Valentine, OMC-FHWA to Bob Clarke, OST Subject: Large Truck Crash Rates: East versus West October 16, 1997

1997 Federal Highway Cost Allocation Study, Appendix E U.S. Department of Transportation August 1997

Replacement Vehicle GVW Options
Roaduser Research International Report 97-324-B2
March 14, 1997

Development of Robust Performance Measures Roaduser Research International Report 97-324-B2 March 14, 1997

Appendix A–Frequency Distributions of Performance Attributes
Roaduser Research International Report 97-333-1A
March 7, 1997

DRAFT 01

Appendix B–Performance Attribute Box Plots
Roaduser Research International Report 97-333-1B
March 7, 1997

DRAFT 01

Stress and Fatigue Effects of Driving Longer-Combination Vehicles
Final Report #DTNH22-92-D-07001
Battelle
February 1997

Dynamic Performance of Various Truck Configurations: Base Report
PF Sweatman, JHF Woodrooffe, S.McFarlane, P.Dovile, M.Dunbabin, D.Swenson
Roaduser Research International Report 96-305-01
November 1996

## SAFETY, Cont'd

Appendix A-Straight Trucks
Roaduser Research International Report 96-305-01-A
November 21, 1996

Appendix B-Semitrailers I Roaduser Research International Report 96-305-01-B-I November 21, 1996

Appendix B-Semitrailers II
Roaduser Research International Report 96-305-01-B-II
November 21, 1996

Appendix C-Truck-Trailers
Roaduser Research International Report 96-305-01-C
November 21, 1996

Appendix D-Short Doubles & Triples Roaduser Research International Report 96-305-01-D November 21, 1996

Appendix E-Western, Rocky Mtn & Turnpike Doubles Roaduser Research International Report 96-305-01-E November 21, 1996

Appendix F-B-Train Dobules
Roaduser Research International Report 96-305-01-F
November 21, 1996

"The Integration of Larger Combination Vehicles into the Existing Infrastructure Using Heavy Vehicle Simulation"
Scott McFarlane, Roaduser Research International
May 1996

"Dynamic Performance of Various Truck Configurations Task 2: Tractor-Trailer Performance"

PF Sweatman, JHF Woodrooffe, S. McFarlane, P.Dovile, Roaduser Research International Report 95-213-01 February 16, 1996

#### **DRAFT**

## SAFETY, Cont'd

"U.S. Heavy Vehicle Size and Weight Policy: Is a Performance-Based Approach in our Future?"

Robert M. Clarke, U.S. Department of Transportation June 28, 1995

"Final Economic Assessment, Final Rules, FMVSS Nos. 105 and 121, Stability and Control During Braking Requirements and Reinstatement of Stopping Distance Requirements for Medium and Heavy Vehicles," NHTSA Docket 92-29-NO5-002 U.S. Department of Transportation February 1995

Turner Truck Handling and Stability Properties Affecting Safety
Paul Fancher, Arvind Mathew, Kenneth Campbell, Daniel Blower, Christopher Winkler
UMTRI Report #89-11, July 1989

Analysis of Accident Rates of Heavy-Duty Vehicles Kenneth L. Campbell, Daniel F. Blower, R.Guy Gattis, Arthur C. Wolfe UMTRI Report #88-17, April 1988

## SHIPPER COSTS

Induced Demand for Truck Services from Relaxed Truck Size and Weight Restrictions
Don Pickrell and Douglass Lee, Volpe National Transportation Systems Center
October 1998

DRAFT

#### TRAFFIC OPERATIONS

1997 Federal Highway Cost Allocation Study, Appendix I U.S. Department of Transportation August 1997

Evaluation of Limitations in Roadway Geometry and Impacts on Traffic Operations for Proposed Changes in Truck Size and Weight Policy

Proposed State University

Pennsylvania State University

June 5, 1997 **DRAFT** 

#### SECTION III: VOLUME III MODEL RESULTS

## BASE CASE SCENARIO

"Scenario Analysis Results: Base Case 1994--Base Case 2000 VMT Scenario" Battelle

July 22, 1998

"Scenario Analysis Output: Base Case 1994--Base Case 2000 VMT Scenario"

Battelle

July 22, 1998

## UNIFORMITY SCENARIO

"Scenario Analysis Results: Uniformity-Interstate System Scenario"

Battelle

April 9, 1998

"Scenario Analysis Output: Uniformity-Interstate System Scenario"

Battelle

April 9, 1998

## NORTH AMERICAN TRADE SCENARIOS

"Scenario Analysis Results: North American Trade-44,000-Pound Tridem-Axle Scenario" Battelle

August 5, 1998

"Scenario Analysis Output: North American Trade–44,000-Pound Tridem-Axle Scenario" Battelle

August 5, 1998

"Scenario Analysis Results: North American Trade–51,000-Pound Tridem-Axle Scenario" Battelle

August 5, 1998

"Scenario Analysis Output: North American Trade-51,000-Pound Tridem-Axle Scenario" Battelle

August 5, 1998

## LCVs Nationwide Scenario

"Scenario Analysis Results: LCV Nationwide Scenario"

Battelle

August 18, 1998

"Scenario Analysis Output: LCV Nationwide Scenario"

Battelle

August 18, 1998

## H.R. 551 SCENARIO

"Scenario Analysis Results: H.R.551 Scenario"

Battelle

March 31, 1998

"Scenario Analysis Output: H.R.551 Scenario"

Battelle

March 31, 1998

## TRIPLES NATIONWIDE SCENARIO

"Scenario Analysis Results: Triples Nationwide Scenario"

Battelle

May 14, 1998

"Scenario Analysis Output: Triples Nationwide Scenario"

Battelle

May 14, 1998

## **Section IV: General Sources**

| Subject Area | <b>Document Title</b>   | Author or Source   | <u>Date</u>      |
|--------------|---|--|------------------|
| Bridge       |   |  |                  |
|              | e /Bridge Interaction for Medium Span Bridges -<br>ch Element 6 of the OECD IR6 DIVINE Project. | S.Barella and R.Cantieni, <u>Proceedings of Fourth International</u> <u>Symposium on Heavy Vehicle Weights and Dimensions</u>                  | June 25-29, 1995 |
| Site-S       | pecific Truck Load Study.   | S.Kim, A.S.Nowak and A.F.Sokolik, <u>Proceedings of Fourth</u> <u>International Symposium on Heavy Vehicle Weights and</u> <u>Dimensions</u>   | June 25-29, 1995 |
| Calibr       | ation of a Mathematical Vehicle Dynamic Model.  | W.Kenis and J.Hammouda, at <u>Proceedings of Fourth International</u> <u>Symposium on Heavy Vehicle Weights and Dimensions</u>                 | June 25-29, 1995 |
|              | Span Bridge Friendly Suspensions - Research nt 6 of the OECD DIVINE Project.                    | R.J.Heywood, <u>Proceedings of Fourth International Symposium on Heavy Vehicle Weights and Dimensions</u>                                      | June 25-29, 1995 |
|              | ly of the Aligning Forces Generated From a<br>n Drive Axle Group.                               | E.J.Amlin, P.R.Klawer and D.V.Hart, <u>Proceedings of Fourth</u> <u>International Symposium on Heavy Vehicle Weights and</u> <u>Dimensions</u> | June 25-29, 1995 |
| •            | of an Active Suspension for Improved Ride y and Reduced Dynamic Wheel Loads.                    | F.Oueslati, S.Rakheja and S.Sankar, <u>Proceedings of Fourth</u> <u>International Symposium on Heavy Vehicle Weights and</u> <u>Dimensions</u> | June 25-29, 1995 |
| Dynar        | nic Effect of Truck Loads on Girder Bridges.  | H.H.Nassif and A.S.Nowak, <u>Proceedings of Fourth International</u> <u>Symposium on Heavy Vehicle Weights and Dimensions</u>                  | June 25-29, 1995 |
|              | ts of Increased Goods Vehicle Weight Limits - A ean Case Study.                                 | B.A.Frith, C.G.Mitchell and W.H.Newton, <u>Proceedings of Fourth International Symposium on Heavy Vehicle Weights and Dimensions</u>           | June 25-29, 1995 |

| Subject A | Area <u>Document Title</u>  | Author or Source  | <u>Date</u>      |
|-----------|---|---|------------------|
| Bridge    |   |   |                  |
|           | Replication of Heavy Truck Dynamic Wheel Loads Using a Road Simulator.          | T.Moran, M.Sullivan, D.Menuir and J.Mahoney, <u>Proceedings of Fourth International Symposium on Heavy Vehicle Weights and Dimensions</u>           | June 25-29, 1995 |
| F         | Fatigue Load Spectra for Bridges.   | J.A.Laman and A.S.Nowak, <u>Proceedings of Fourth International</u> <u>Symposium on Heavy Vehicle Weights and Dimensions</u>                        | June 25-29, 1995 |
|           | Effects of Overloaded Heavy Vehicles on Pavement and Bridge Design In Taiwan.   | C.Chou, <u>Proceedings of Fourth International Symposium on Heavy</u> <u>Vehicle Weights and Dimensions</u>   | June 25-29, 1995 |
|           | Bridge Analysis Study Military Traffic Management Command. (Statement of Work). | US Army, Military Traffic Management Command  | 1994             |
| S         | Structural Safety & Reliability.  | G.I.Schueller, M.Shinozuka and J.T.P.Yao, eds., <u>Conference on Structural Safety and Reliability</u> , August 9-13, 1993                          | 1994             |
|           | Distribution of the Fatigue Life of Prestressed Concrete Bridges.               | M.A.Khaleel and R.Y.Itani, in <u>Conference on Structural Safety &amp; Reliability</u> , pp. 961-964  | 1994             |
| _         | Policy Issues of an Iowa Longer Combination Vehicle Network.                    | T.Maze, C.Walter and A.Smadi, Midwest Transportation Center, Iowa State University  | November 1994    |
| Iı        | introduction to Advanced Vehicle Suspension Design                              | E.Von Glasner, R.Povel and P.Schutzner, <u>Third Engineering</u> <u>Foundation Conference on Vehicle-Road and Vehicle-Bridge</u> <u>Interaction</u> | June 1994        |

| Bridge |  |  |                   |
|--------|--|--|-------------------|
|        | Assessing the Impact on Montana's Highways of Adopting Canadian Truck Weight and Size Limits.        | J.E.Stephens, University of Montana for Montana DOT  | May 1994          |
|        | Incremental Analysis of Bridge Construction Costs for a Sample of Typical Bridges.                   | Transtec, U.S.DOT, Federal Highway Administration  | 1993              |
|        | Safety Evaluation of Existing Partially Prestressed Concrete Girder Bridges.                         | M.A.Khaleel and R.Y.Itani, in <u>Computers &amp; Structures</u> , Vol.48, No.5, pp. 763-771                                  | 1993              |
|        | Effect of Alternative Truck Configurations and Weights on the Fatigue Life of Bridge.                | M.A.Khaleel and R.Y.Itani, in <u>Transportation Research Record</u> 1393, pp. 112-118  | 1993              |
|        | Impacts of the Extended Weight Coal Haul Road System.  | Kentucky Transportation Cabinet, Report No. FHWA/KY-93-151   | 1993              |
|        | "Impacts of Heavy Trucks on Bridge Investment."  | TransTec, Inc., Task B Revised Report/Incremental Analysis of<br>Bridge Construction Costs for a Sample of Typical Bridges   | September 3, 1993 |
|        | "Synthesis of the Impacts of Truck Size and Weight on<br>the Transportation System and the Economy." | Report of the Subcommittee on Truck Size and Weight of the AASHTO Joint Committee on Domestic Freight Policy (Attachment E). | July 2, 1993      |
|        | Overweight Permit Rules Based on Bridge Stresses.  | Texas A&M, Report #FHWA/TX-1266  | March 1993        |
|        | Truck Weight Effects on Bridge Costs.  | Fred Moses, for Ohio DOT, Report #FHWA/OH-93/001   | July 1992         |

**Date** 

Subject Area

**Document Title** 

|       |  |   | <del></del>          |
|-------|--|---|----------------------|
| Bridg | e  |   |                      |
|       | Multi-span Highway Bridge Dynamic Test and Its Dynamic Response Calculation. | J.Slastan and J.Melcer, in <u>Heavy Vehicles and Roads: Technology,</u> <u>Safety and Policy</u> , pp. 146-151        | June 28-July 2, 1992 |
|       | Lorry Transport: British Experience.   | D.J.Lyness, <u>Heavy Vehicles and Roads: Technology, Safety and Policy</u> , pp. 3-11                                 | June 28-July 2, 1992 |
|       | Vehicle Weights and Dimensions: European Community Perspective.              | J.Berry, <u>Heavy Vehicles and Roads: Technology, Safety and Policy,</u> pp. 305-308                                  | June 28-July 2, 1992 |
|       | The South African Heavy Vehicle Load Limit Study.                            | H.P.VanTonder, J.P.Hasluck and D.J.Wium, <u>Heavy Vehicles and Roads: Technology, Safety and Policy</u> , pp. 413-417 | June 28-July 2, 1992 |
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