

STATEMENT OF
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ADMINISTRATOR

RESEARCH AND SPECIAL PROGRAMS ADMINISTRATION

BEFORE THE SUBCOMMITTEE ON INVESTIGATIONS AND OVERSIGHT
AND THE SUBCOMMITTEE ON TRANSPORTATION, AVIATION, AND MATERIALS

JUNE 16, 1983

Mr. Chairman and Members of the Subcommittee:

I am pleased to appear here today to outline the role played by the Research and Special Programs Administration (RSPA) in the research and development program of the Department of Transportation, and to review briefly some specific RSPA research projects relating to the development and rehabilitation of transportation infrastructure.

Mr. Swinburn has described the organization of the Department and explained how the operating administrations bear line responsibility for the implementation of Departmental programs. The distinguishing characteristic of RSPA is that our programs are multimodal, as contrasted with the mode-specific programs of our larger sister administrations. We bear primary responsibility for assuring safety in the transportation of hazardous materials in all modes, an important regulatory function that brings with it a substantial requirement for supporting R&D.

But our principal research activities, including those most pertinent to transportation infrastructure, are performed in response to requirements generated elsewhere in the Department. It is these general support activities,

carried out by our Transportation Systems Center and our Office of University Research, that I will be discussing with you today.

Transportation Systems Center

The Transportation Systems Center (TSC) performs multi-disciplinary research for each of the Department's operating administrations and the Office of the Secretary. It provides expert technical support in such diverse areas as systems engineering and evaluation, economic impact analysis, technology transfer, and information and data management. TSC's work is not funded directly by Congressional appropriation. Rather, individual projects are defined and funded through negotiated agreements with the Departmental "sponsors" which seek technical assistance from the Center. Thus the content and focus of the Center's program are shaped by the mission priorities and specific support needs of the other operating elements of the Department.

As has been discussed by Mr. Lamm, the DOT element that bears responsibility for programs relating to the development and rehabilitation of roads and bridges is the Federal Highway Administration (FHWA). Mr. Lamm has described the well developed administrative structure of the Federally assisted highway R&D program and the strong FHWA staff R&D capability. Given these proven resources, the FHWA historically has not required technical assistance from TSC in the traditional highway engineering disciplines, including those relating to the engineering aspects of road reconstruction and repair. The work which TSC has performed in support of FHWA has focused primarily on economic assessment. This has included analysis of Federal investment and cost allocation strategies, with emphasis on social as well as economic impacts. The potential applications of this work in infrastructure redevelopment planning are quite substantial.

TSC has also performed related work on transportation infrastructure for other Departmental sponsors. Through projects funded by the Federal Aviation Administration, the Federal Railroad Administration, the Urban Mass Transportation Administration, and the U.S. Coast Guard, TSC has supported infrastructure programs ranging from light and heavy rail right-of-way rehabilitation, to lock and dam reconstruction, to modernization of the national air traffic control system.

A bibliography of recent TSC publications relating to transportation infrastructure is presented in Appendix I to this statement.

University Research

The Program of University Research focuses the talents and creative energies of the academic research community on long term transportation problems of priority concern to the Department. The program is administered by RSPA on behalf, and with the direct participation, of all of the other operating elements of the Department, funded by a directly earmarked appropriation.

The University Research Program is specifically designed to elicit the independent ideas of the academic community as to the most promising research opportunities within the Department's priority problem agenda and the best conceptual and methodological approaches for attacking them. To this end, it employs a procurement mechanism very different from the usual Departmental practice of soliciting competitive bids on the basis of extremely prescriptive and detailed problem and work statements. The Annual Solicitation of Proposals for University Research consists rather of a set of broad, topical research-needs statements. University researchers are invited to identify a related problem or issue and propose a strategy to address it.

The research needs statements for the Annual Program Solicitation are prepared by panels of experts drawn from technical staffs throughout DOT. A similar collegial process is employed to evaluate proposals that are submitted. Recommendations for project funding are made by a selection board comprised of the Department's senior R&D managers, under my chairmanship, and approved by the Deputy Secretary.

During recent years, this process has reflected a substantial appreciation of the timeliness and importance of infrastructure research; the last several Program Solicitations have included directly related needs statements. The 1983 Solicitation, for example, includes two such statements, under the titles, "Transportation Technology," and "Transportation Investment and Financing." Suggested sub-topics include (1) rehabilitation and maintenance, (2) control strategies, (3) technology assessment, (4) fiber composites for bridge construction, (5) investment strategies, (6) efficiency and productivity, and (7) contracting for highway projects.

We have received a number of interesting infrastructure research proposals in response to the 1983 University Research Program Solicitation. Although the selection process is not yet completed, it is apparent that several promising projects will be initiated, following on the heels of projects funded during the past several years on such related topics as: concrete and other construction materials improvements; non-destructive testing methods for highways, bridges, and other structures; pavement deterioration caused by tire/pavement interactions, heavy traffic, and environmental factors; and forecasting of the effect of transportation infrastructure improvements on

housing values and other factors affecting the local tax base. A number of these projects have already produced results of sufficient promise for application that follow-on work has been initiated by the FHWA. (It is quite common for new research ideas initially developed under the University Research Program to be "handed off" to the cognizant modal administration for application and dissemination in the field.)

A bibliography of recent University Research Program publications relating to transportation infrastructure is presented in Appendix II to this statement.

Concluding Remarks

In this short statement, I have tried to briefly describe the context and content of the transportation infrastructure research performed by RSPA to complement the principal Departmental program under the auspices of FHWA. In closing, I want to second the opinion of my colleague, Mr. Swinburn, that the Federal government should disengage itself from the details of decisionmaking associated with transportation system operations, instead we should concentrate on matters of high national interest. One such matter is the enhancement and promotion of transportation infrastructure research.

Specifically, we need to provide a central focus for the research, assure a proper balance between short and long-term emphasis, and foster a continuing flow of ideas from all of the experts in the field. Our challenge is to oversee a national program utilizing the resources available at all levels of government and in the private sector so that new technology can be developed and applied as quickly and efficiently as possible.

I believe that the comprehensive and balanced program directed by FHWA, pursued within the policy framework outlined by Mr. Swinburn, and supported and complemented by the RSPA efforts I have described, constitute a sensible and effective response to the needs.

My colleagues and I will be pleased to respond to your questions.

APPENDIX I

Transportation Systems Center Reports* On Transportation Infrastructure Topics, 1979-83

Studies for FAA

DOT-TSC-FAA-81-24
STUDY OF THE DE-ICING PROPERTIES OF THE ASDE-3
ROTODOME
Merrill K. Goulding & Associates, Glendale, CA
Merrill K. Goulding
DOT-FAA-RD-81-112
TS-15950
Final Report April 1982 132p.

DOT-TSC-FAA-82-1
EVALUATION AND APPLICATION OF ENHANCEMENTS TO THE
PERFORMANCE OF THE ASDE-3 RADAR IN HEAVY RAIN
Transportation Systems Center
G.J. Bishop
DOT-FAA-RD-81-94
Final Report September 1981

DOT-TSC-FAA-81-20
AN ANALYSIS OF SELECTED ENHANCEMENTS TO THE EN
ROUTE CENTRAL COMPUTING COMPLEX
Transportation Systems Center
William Broadley, Harvey Freeman, James Oiesen,
Ronald Rutledge, and Kenneth Thurber
FAA-EM-81-18
Final Report September 1981 104p.

Studies for FHWA

DOT-TSC-FHWA-79-1
EFFECTIVENESS OF SPEED CONTROL SIGNS
IN RURAL SCHOOL ZONES AND SMALL
COMMUNITIES
Transportation Systems Center
Joseph S. Koziol, Jr., Ann R. Fulchino, Peter H. Mengert, and
Gerald Stewart
PB-301 110
FHWA/RD-79/20
Final Report July 1979 155p.

*Includes selected reports on transportation infrastructure topics authored by Transportation Systems Center (TSC) analysts or by organizations under contract to TSC. Transportation infrastructure is used here to mean underlying physical, capital facilities such as roads, railroads and communication systems.

Studies for FRA

DOT-TSC-FRA-79-1
RAIL-HIGHWAY CROSSING HAZARD
PREDICTION RESEARCH RESULTS
Transportation Systems Center
Peter Mengert
PB80-170749
FRA-RRS-80-02
Final Report Dec. 1979 254p.

DOT-TSC-FRA-80-4,1
STATISTICAL REPRESENTATIONS OF TRACK
GEOMETRY
Volume 1: Main Text
Transportation Systems Center
John C. Corbin
FRA/ORD-80/1.1
DOT-TSC-1211-1
Final Report January 1980 208p.

DOT-TSC-FRA-82-5
BALLAST AND SUBGRADE REQUIREMENTS STUDY:
SUMMARY AND ASSESSMENT REPORT
Goldberg-Zoino & Associates, Inc., Newton Upper Falls, Massachusetts
Simon, R. M., DiPilato, M. A.
FRA/ORD-83/04.3
DOT/TSC-1527
Final Report June 1983 84p.

DOT-TSC-FRA-83-1
PARAMETRIC STUDIES ON LATERAL STABILITY OF WELDED
RAIL TRACK
Transportation Systems Center
G. Samavedam, A. Kish, D. Jeong
DOT/FRA/ORD-83/07
Interim Report May 1983 60p.

Studies for NHTSA

DOT-TSC-NHTSA-79-45
NOISE ABATEMENT TECHNIQUES FOR
CONSTRUCTION EQUIPMENT
Society of Automotive Engineers, Inc.
William J. Toth
PB-300 948
DOT-HS-803 293
DOT-TSC-915
Final Report August 1979 187p.

Studies for UMTA

DOT-TSC-UMTA-79
CONSTRUCTION OF URBAN RAIL TRANSIT
SYSTEMS: THE CHALLENGE OF MORE COST
EFFECTIVE CONSTRUCTION
Pacific Consultants
Roger W. Dewey
Conference Proceedings Held at Williamsburg, Virginia
on December 7-8, 1978
PB80-130479
UMTA-MA-06-0100-79-7
DOT-TSC-1526
September 1979 106p.

DOT-TSC-UMTA-79-4
ECONOMIC FACTORS IN TUNNEL CONSTRUCTION
Underground Technology Development Corp.
E.L. Foster, R. McDonald, W. Wightman, and I. Taporoff
Prepared in cooperation with Singstad, Kehart, November, and
Hurka, New York
PB-294 726
UMTA-MA-06-0025-79-10
DOT-TSC-1106
Final Report February 1979 306p.

DOT-TSC-UMTA-79-7
STREETS FOR PEDESTRIANS AND TRANSIT:
AN EVALUATION OF THREE TRANSIT MALLS
IN THE UNITED STATES
Crain and Associates
Richard Edminster and David Koffman
PB-295 728
UMTA-MA-06-0049-79-1
DOT-TSC-1081
Final Report February 1979 255p.

DOT-TSC-UMTA-79-10
NATIONAL ASSESSMENT OF URBAN RAIL NOISE
Transportation Systems Center
Gregory Chisholm, Herbert Bogen, Michael Dinning, and
Michael Primeggia
PB-295 752
UMTA-MA-06-0099-79-2
Final Report March 1979 303p.

DOT-TSC-UMTA-79-17
PRELIMINARY SPECIFICATIONS FOR
STANDARD CONCRETE TIES AND FASTENINGS
FOR TRANSIT TRACK
Portland Cement Association, Skokie, IL
Construction Technology Labs.
Armir N. Hanna
PB-297-850
UMTA-MA-06-0100-79-3
DOT-TSC-1442
Final Report March 1979 50p.

DOT-TSC-UMTA-79-18
MEASUREMENT PROGRAM FOR EVALUATION
OF CONCRETE TIES AND FASTENINGS IN
TRANSIT TRACK

Portland Cement Association, Skokie, IL
Construction Technology Labs.

Amir N. Hanna

PB-297-570

UMTA-MA-06-0100-79-2

DOT-TSC-1442

Final Report March 1979 42p.

DOT-TSC-UMTA-79-24
LABORATORY EVALUATION OF CONCRETE TIES
AND FASTENINGS FOR TRANSIT USE

Portland Cement Association, Skokie, IL.

Construction Technology Labs.

Amir N. Hanna

PB-297 533

UMTA-MA-06-0100-79-8

DOT-TSC-1442

Final Report March 1979 79p.

DOT-TSC-UMTA-79-29
MATERIALS HANDLING FOR URBAN TUNNELING
IN ROCK

Holmes and Narver, Inc., Orange, CA

J.M. Duncan, L.A. Giamboni, H.V. Schneider, and

P.E. Sperry

PB-299 117

UMTA-MA-06-0100-79-9

DOT-TSC-1281

Final Report May 1979 349p.

DOT-TSC-UMTA-79-35
EXTRUDED TUNNEL LINING SYSTEM, PHASE
I--CONCEPTUAL DESIGN AND FEASIBILITY
TESTING

Transportation Systems Center

Brian J. Doherty, Douglas, W. Ounanian, Kenneth R. Maser

PB80-118011

UMTA-MA-06-0100-79-11

DOT-TSC-1516

Final Report September 1979 210p.

DOT-TSC-UMTA-80-27,1
IMPROVED DESIGN OF TUNNEL SUPPORTS
Volume 1: Simplified Analysis for
Ground-Structure Interaction in Tunneling
Massachusetts Inst. of Tech., Cambridge
Dept. of Civil Engineering
Charles W. Schwartz and Herbert H. Einstein
PB80-225147
UMTA-MA-06-0100-80-4
DOT-TSC-1489
Final Report June 1980 438p.

DOT-TSC-UMTA-79-49
IMPROVED DESIGN OF TUNNEL SUPPORTS:
EXECUTIVE SUMMARY
Transportation Systems Center
Herbert H. Einstein, Amr S. Azzouz, Charles W. Schwartz,
and Walter Steiner
Massachusetts Inst. of Techn., Cambridge
Dept. of Civil Engineering
PB80-134547
UMTA-MA-06-0100-79-15
DOT-TSC-1489
Final Report December 1979 55p.

DOT-TSC-UMTA-80-27,1
IMPROVED DESIGN OF TUNNEL SUPPORTS.
Volume 1: Simplified Analysis for
Ground-Structure Interaction in
Tunneling
Massachusetts Inst. of Tech., Cambridge,
Dept. of Civil Engineering
Charles W. Schwartz, and Herbert H. Einstein
PB80-225147
UMTA-MA-06-0100-80-4
DOT-TSC-1489
Final Report June 1980 438p.

DOT-TSC-UMTA-80-27,2
IMPROVED DESIGN OF TUNNEL SUPPORTS.
Volume 2: Aspects of Yielding in
Ground-Structure Interaction
Massachusetts Inst. of Tech., Cambridge
Dept. of Civil Engineering
Charles W. Schwartz, Amr. S. Azzouz, and Herbert H. Einstein
PB80-225147
UMTA-MA-06-0100-80-5
DOT-TSC-1489
Final Report June 1980 78p.

DOT-TSC-UMTA-80-27,3
IMPROVED DESIGN OF TUNNEL SUPPORTS.
Volume 3: Finite Element Analysis of
the Peachtree Center Station in Atlanta
Massachusetts Inst. of Tech., Cambridge,
Dept. of Civil Engineering
Amr S. Azzouz, Charles W. Schwartz, and Herbert H. Einstein
PB80-225170
Set: PB80-225147
UMTA-MA-06-0100-80-6
DOT-TSC-1489
Final Report June 1980 111p.

DOT-TSC-UMTA-80-31
SEGMENTED CONCRETE TUNNEL LINER AND SEALANT SYSTEMS
Water and Power Resources Service , Denver, CO
C.E. Selander, C.A. Nelson, F.J. Jackmauh,
J.F. Steighner, B.V. Jones, H. Johns, H.K. Uyeda
UMTA-MA-06-0100-80-9
(RA) 76-22
Final Report July 1980 354p.

DOT-TSC-UMTA-81-22
TECHNICAL AND ECONOMIC FEASIBILITY STUDY OF
AT-GRADE CONCRETE SLAB TRACK FOR URBAN
RAIL TRANSIT SYSTEMS
Construction Technology Laboratories, Skokie, Illinois
Amir N. Hanna
UMTA-MA-06-0100-81-4
DOT-TSC-1765
Final Report August 1981 224p.

DOT-TSC-UMTA-81-60
ASSESSMENT OF LOW-COST ELEVATORS FOR NEAR
TERM APPLICATION IN TRANSIT STATIONS
Dynatrend Incorporated, Woburn, MA
Kevin M. Shea, M. Ray Whitley, and
Braja S. Mahapatra, Southeastern Pa., Trans. Auth.,
UMTA-MA-06-0125-82-1
DTRS-57-80-C-0081
Final Report July 1982 68p.

DOT-TSC-UMTA-81-69
LIMITING FORCES ON TRANSIT TRUCKS IN
STEADY-STATE CURVING
Transportation Systems Center
R. Grief, and H. Weinstock
UMTA-MA-06-0025-82-1
Interim Report May 1982 58p.

DOT-TSC-UMTA-81-73
HANDBOOK OF URBAN RAIL NOISE AND VIBRATION CONTROL:
EXECUTIVE DIGEST
Wilson, Ihrig & Associates, Oakland, CA
Hugh J. Saurenman, James T. Nelson, George P. Wilson
UMTA-MA-06-0099-82-2
DOT-TSC-1613
Final Report July 1982 60p.

DOT-TSC-UMTA-81-75
HARMONIC CHARACTERISTICS OF RECTIFIER SUBSTATIONS
AND THEIR IMPACT ON AUDIO FREQUENCY TRACK CIRCUITS
OAO Corporation, Greenbelt, Maryland
Vilas D. Nene, Ph.D.
UMTA-MA-06-0025-81-6
DTRS-57-81-C-00033
Final Report May 1982 60p.

DOT-TSC-UMTA-82-15
EVALUATION OF THE TRANSIT RELIABILITY INFORMATION
PROGRAM
Rail Systems Center, Pittsburgh, PA
Richard A. Uher
UMTA-MA-06-0126-82-1
DTR-57-82-P-80228
Final Report July 1982 176p.

DOT-TSC-UMTA-82-54,1
DEVELOPMENT OF A DESIGN TECHNOLOGY FOR GROUND S
SUPPORT FOR TUNNELS IN SOIL. VOLUME I: TIME-
DEPENDENT RESPONSE DUE TO CONSOLIDATION IN CLAYS.
Stanford University, Stanford, California
P.R. Johnston, and G.W. Clough
UMTA-MA-06-0100-82-1
DOT-TSC-1726
Final Report February 1983 233p.

DOT-TSC-UMTA-82-55
RAPID TRANSIT CAR MAINTENANCE RESEARCH NEEDS
The Decision Group, Inc., McLean, VA
UMTA-MA-06-0025-82-6
Final Report December 1982 184p.

DOT-TSC-UMTA-82-57
CONTROL OF WHEEL/RAIL NOISE AND VIBRATION
Bolt Beranek and Newman Inc., Cambridge, MA
P.J. Remington, N.R. Dixon, L.G. Kurzweil,
C.W. Menge, J.D. Stahr, L.E. Wittig
UMTA-MA-06-0099-82-5
DOT-TSC-1768
Final Report April 1983 348p.

Studies for RSPA

DOT-TSC-RSPA-83-2
NAVSTAR GPS SIMULATION AND ANALYSIS PROGRAM
Transportation Systems Center
R.M. Kalafus, J.. Kraemer, N. Knable, J. Vilcans
DOT-TSC-RSPA-83-2
Final Report May 1983 196p.

APPENDIX II

RESEARCH PROJECTS SPONSORED BY THE PROGRAM OF UNIVERSITY RESEARCH RELATING TO TRANSPORTATION INFRASTRUCTURE

- ARIZONA STATE UNIVERSITY, #DOT-OS-50107, Guideway Vehicle Cost Reduction, David L. Klinger, 1975.
- CALIFORNIA, UNIVERSITY OF, LOS ANGELES, #DOT-OS-40080, Dynamic Interactions and Optional Design of PRT Vehicles and Elevated Guideways, Richard B. Nelson, 1974.
- CALIFORNIA STATE UNIVERSITY AT SACRAMENTO, #DOT-OS-40016, Analytical Techniques for Safety and Performance of Subsurface Transportation Structures, Lester H. Gabriel, 1974.
- COLORADO SCHOOL OF MINES, #30123, Study of a Pneumatic-Hydraulic Material Transport System for Rapid Excavation of Machine-Bored Tunnels, 1973.
- COLORADO SCHOOL OF MINES, #DOT-OS-40033, Feasibility of Improving the Efficiency of Mechanical Disk Rock Cuts, 1974.
- COLORADO SCHOOL OF MINES, #DOT-OS-40102, Hydraulic Jet Assisted Tunnel Boring, 1974.
- DUKE UNIVERSITY, #DOT-OS-60130, Dynamic Experiments of Alternative Guideway-Vehicle Systems, James F. Wilson, 1976.
- GEORGIA INSTITUTE OF TECHNOLOGY, #DOT-OS-50226, Low Cost Bicycle Path Pavements, James S. Lai, 1975.
- IOWA STATE UNIVERSITY, #DOT-RC-92012, Geophysical Grouting Control Systems, Irwin P. Levin, 1979.
- ILLINOIS UNIVERSITY, Chicago Circle, #DOT-OS-30092, An Integrated Engineering-Planned Approach to the Preservation, Improvement and Replacement of Elevated Transportation Structures, Marshall Silver, 1973.
- ILLINOIS UNIVERSITY, URBANA, #DOT-OS-70024, Tunneling Technology, 1977.
- KENTUCKY, UNIVERSITY OF, #DTRS5681-C-0016, Tire/Roadway Interaction, Andrew F. Seybert, 1980.
- LEHIGH UNIVERSITY, #DOT-RC-82007, Fracture Analysis of Pipelines, Fazil Erdogan, 1982.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, #DOT-OS-60136, Improved Design Procedure for Tunnel Supports, Herbert H. Einstein, 1976.
- MASSACHUSETTS INSTITUTE OF TECHNOLOGY, #DTRS5680-C-00018, Suspension Techniques to Improve High Speed Ground Vehicles Performance, J. K. Hedrick, 1980.

MINNESOTA, UNIVERSITY OF, #DOT-OS-40087, Hydraulic Tunneling, Charles R. Nelson, 1974.

NEBRASKA, UNIVERSITY OF, #DOT-RC-92021, Cost Effectiveness of Retrofitting Concrete Median Barriers, Edward R. Post, 1979.

NEW YORK, POLYTECHNIC INSTITUTE OF, #DOT-OS-60139, Seminar on Polymeric Materials and Their Use in Transportation, ELi M. Pearce, 1976.

NEW YORK STATE UNIVERSITY AT BUFFALO, #DOT-OS-70058, A Theory for Track Maintenance Life Prediction, Ernest T. Selig, 1977.

NORTH CAROLINA STATE UNIVERSITY, #DTRS5681-C-00002, Tire/Pavement Interactions, Allen C. Eberhardt, 1981.

NOTRE DAME UNIVERSITY, #DTRS5681-C-00024, Soil Reinforcement - Soft Ground Tunneling, Sangchul Bang, 1981.

OAKLAND UNIVERSITY, #DTRS5681-C-0025, Testing Highway Structures, Y. Y. Hung, 1981.

OKLAHOMA UNIVERSITY, #DOT-OS-30110, Analysis and Management of a Pipeline Safety Information System, Michael D. Devine, 1973.

PENNSYLVANIA, UNIVERSITY OF, #DOT-OS-40093, Improved Wheel and Rail Performance Control of Contact Stress, Burton Paul, 1974.

PENNSYLVANIA, UNIVERSITY OF, #DOT-OS-60143, International Symposium on Freight Pipeline, Iraj Zandi, 1976.

PENNSYLVANIA, UNIVERSITY OF, #DOT-OS-60144, Fundamental Studies of Phenomena Related to Wheel-Rail Contact Stresses, Burton Paul, 1976.

PENNSYLVANIA STATE UNIVERSITY, #DOT-OS-40009, Advanced Technology Materials Applied to Guideways, Highways and Airport Runways, Della M. Roy, 1974.

PENNSYLVANIA STATE UNIVERSITY, #DOT-OS-60145, Investigation of the Transient Aspects of Hydroplaning, J. J. Henry, 1976.

PENNSYLVANIA STATE UNIVERSITY, #RC-82030, Fingerprinting vs. Field Performance of Paving Grade Asphalts, David Anderson, 1978.

PRINCETON UNIVERSITY, #DOT-RC-92033, Improvement in Rail Vehicle Dynamic Performance, Larry M. Sweet, 1979.

PURDUE UNIVERSITY, #OS-60088, Establish, Operate a Transportation Tunneling Technology Information Center, 1976.

SOUTH DAKOTA SCHOOL OF MINES, #DOT-OS-70072, Adhesion of Ice to Highway Surfaces, T. Ashworth, 1977.

SOUTH DAKOTA SCHOOL OF MINES, #DOT-RC-92035, Super Plasticized Concrete, V. Ramakrishnan, 1979.

- STANFORD UNIVERSITY, #DOT-OS-50123, Design Methodology for Soft Ground Grouted Tunnels, G. Wayne Clough, 1975.
- STANFORD UNIVERSITY, #DOT-OS-60150, Development of Research in the Construction of Transportation Facilities: A Study of Needs, Objectives, Resources, and Mechanisms for Implementation, Boyd C. Paulson, Jr., 1976.
- STANFORD UNIVERSITY, #DTRS5681-C-00027, Japanese Urban Excavation Technologies, Boyd C. Paulson, Jr., 1981.
- SYRACUSE UNIVERSITY, #DOT-OS-50124, Wear and Fracture Characteristics of Critical Components in Ground Transportation Systems, Douglas V. Keller, Jr., 1975.
- TEXAS, UNIVERSITY OF, AT AUSTIN, #DOT-OS-50126, Ride Quality Studies on Ground Based Transportation Systems, Anthony J. Healy, 1975.
- TEXAS, UNIVERSITY OF, AT AUSTIN, #DOT-OS-70075, Ride Quality Studies in Rubber Tire Automated Guideway Transit Systems, Anthony J. Healy, 1977.
- VIRGINIA POLYTECHNIC INSTITUTE, #DOT-RC-80013, Interaction/Load Transfer-Track Guideway, Systems, C. S. Desai, 1978.
- WORCESTER POLYTECHNIC INSTITUTE, #DTRS5680-C-00035, Shear Strength Characteristics of Soils Subjected to Frost Action, Joseph D. Sage, 1980.
- WYOMING, UNIVERSITY OF, #DOT-OS-40017, Thermodynamics of Bridges, Roadways, and Airport Runways, 1974.