



U.S. Department
of Transportation

**Urban Mass
Transportation
Administration**

Jeff Motta

THE TECHNICAL ASSISTANCE PROGRAM

AN OVERVIEW

APRIL 1984

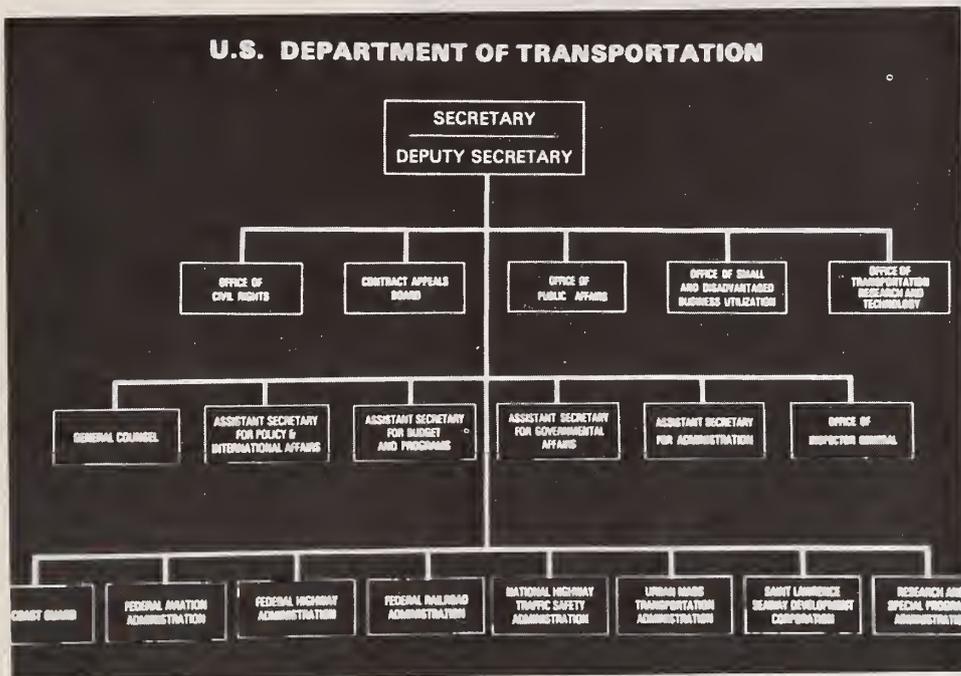
UMTA Technical Assistance Program

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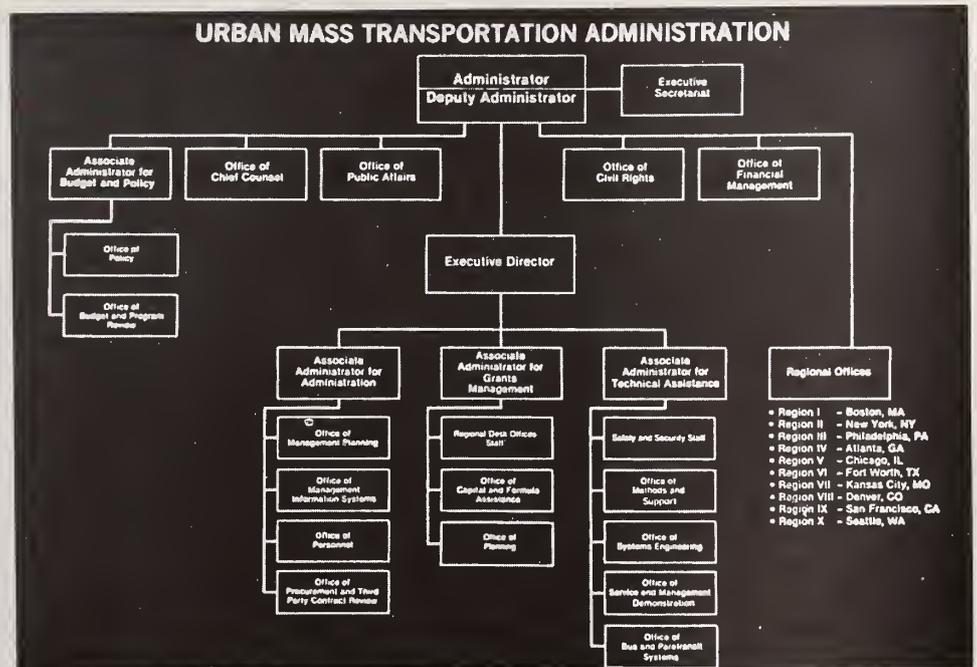
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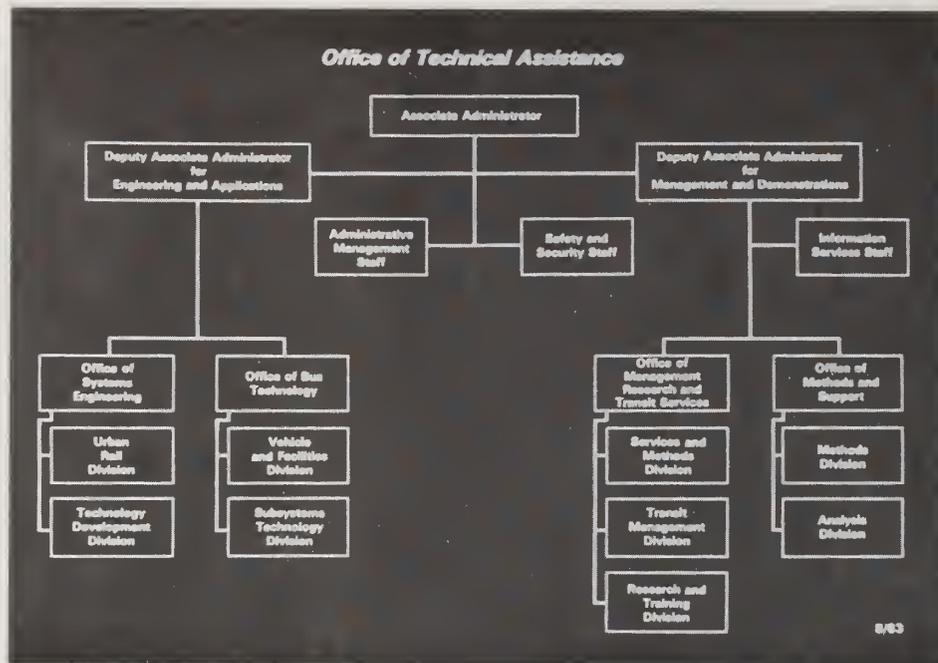
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Organization of the Department of Transportation



Organization of the Urban Mass Transportation Administration



Organization of the Office of Technical Assistance



**Technical Assistance Program Responsibilities
Urban Mass Transportation Act of 1964,
as Amended**

Section 6:

Research, Development, and Demonstration Projects in All Phases of Urban Mass Transportation

Section 10:

Grants to States, Local Public Bodies, and Agencies Thereof to Provide Fellowships for Training of Personnel in Managerial, Technical, and Professional Positions in the Public Transportation Field

Section 11:

Grants to Public and Private Nonprofit Institutions of Higher Learning to Assist in Establishing or Carrying on Comprehensive Research in the Problems of Transportation in Urban Areas

R&D Mission, Sections 6, 10, and 11 of the Urban Mass Transportation Act of 1964, as amended



**Technical Assistance Program Responsibilities
Urban Mass Transportation Act of 1964,
as Amended (Cont.)**

Section 320:

A Demonstration Project Using High-Speed Waterborne Transportation Equipment and Facilities

Section 3 (a) (1) (C):

Introduction Into Public Transportation Service of New Technology in the Form of Innovative and Improved Products

Section 4 (i):

Grants to States and Local Public Bodies for Projects for the Deployment of Innovative Techniques and Methods in the Management and Operation of Public Transportation Services

R&D Mission, Sections 320, 3(a)(1)(C), and 4(i) of the Urban Mass Transportation Act of 1964, as amended



**Technical Assistance
Program Responsibilities
Urban Mass Transportation Act
of 1964, as Amended (Cont.)**

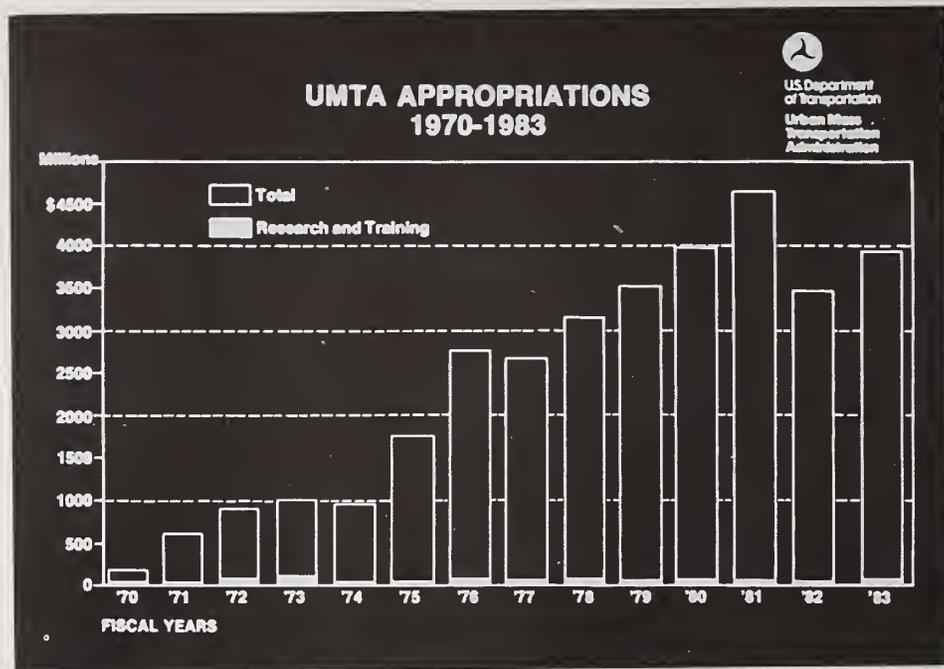
Section 15:

Prescribe a Reporting System to Accumulate Public Mass Transportation Financial and Operating Information by Uniform Categories and a Uniform System of Accounts and Records

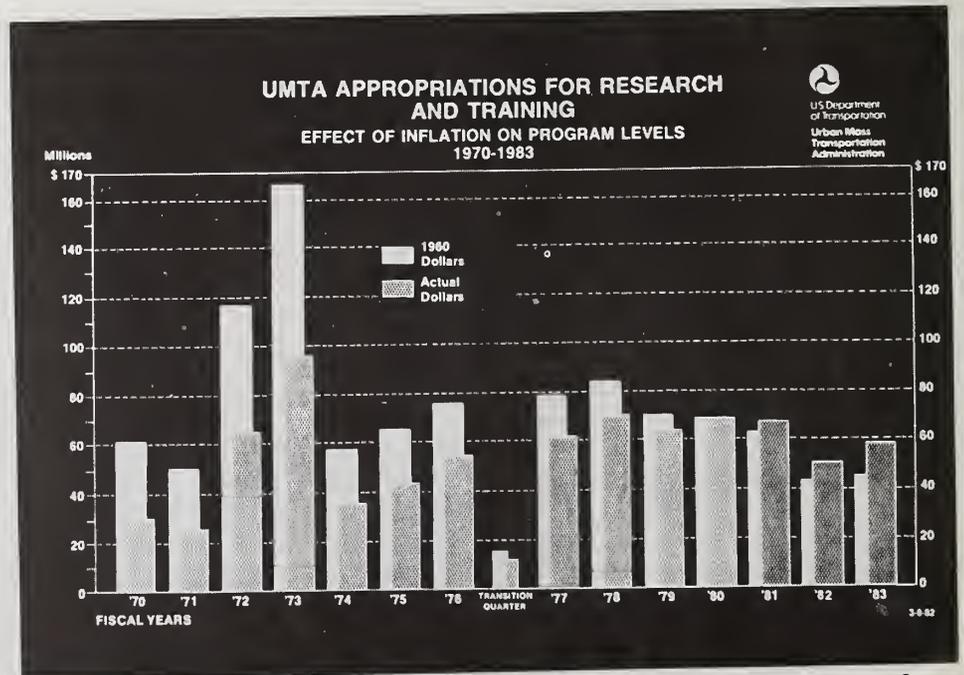
Section 22:

Investigate Any Conditions in Any Facility, Equipment, or Manner of Operation Financed Under the Act Which Creates a Serious Hazard of Death or Injury

R&D Mission, Sections 15 and 22 of the Urban Mass Transportation Act of 1964, as amended



UMTA Appropriations, 1970-83



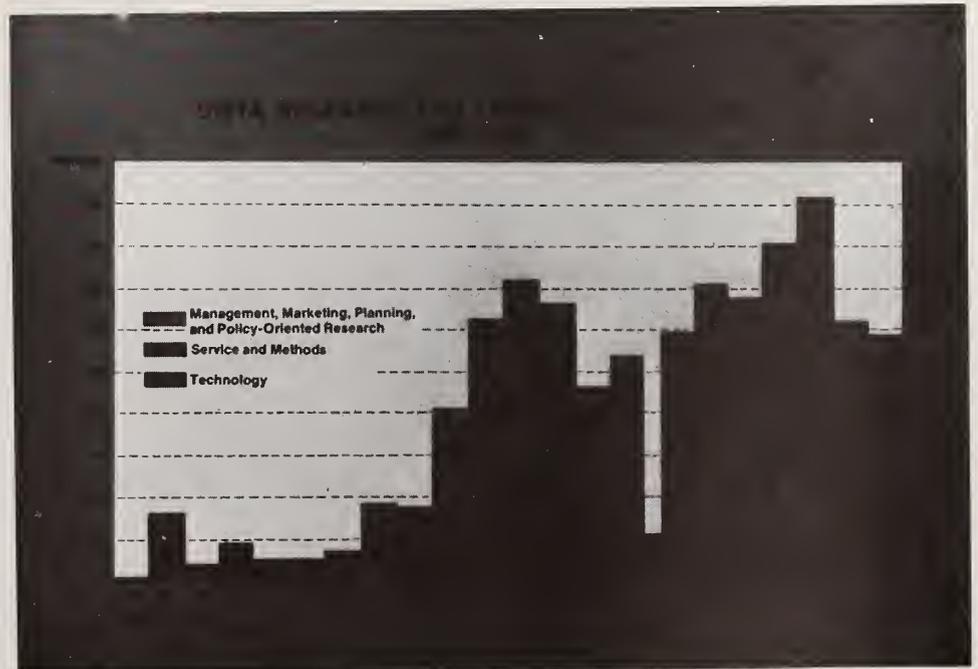
UMTA Appropriations for Research and Training, Effect of Inflation on Program Levels, 1970-83



Fiscal and Budgetary Information, FY 1984

	\$ In millions	% of G
Total Gross National Product	\$2,700,000	
Transportation Outlays	500,000	20.0
Total Mass Transportation Outlays	13,500	0.5
Federal Mass Transportation Assistance	4,000	0.1
Urban Transportation R&D	65	0.002

Fiscal and Budgetary Information, Fiscal Year 1984



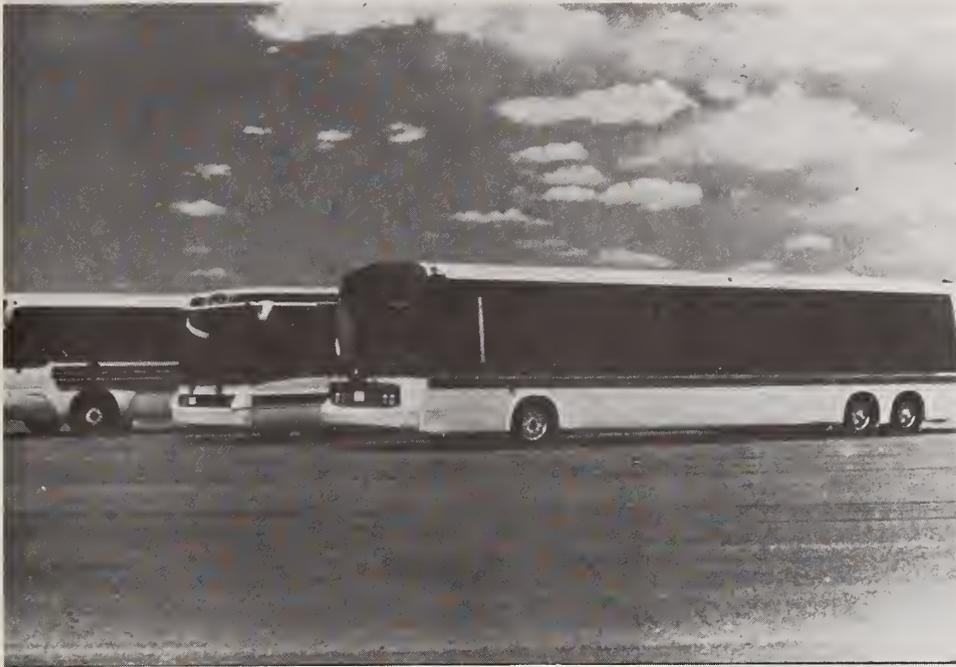
UMTA Research and Training Obligations, 1962-83



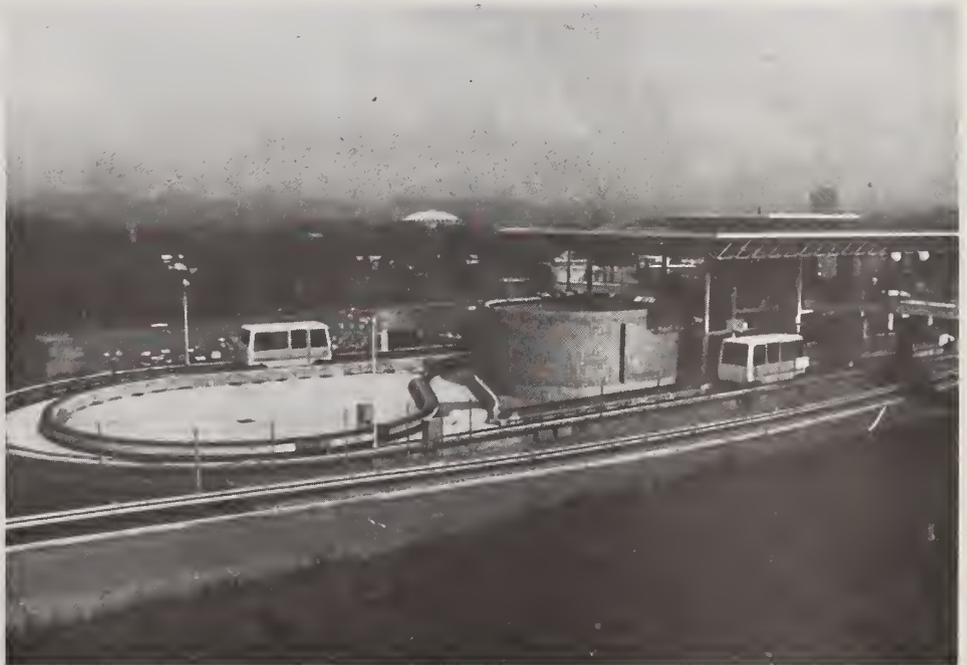
1984 Technical Assistance Program Budget By Major Program Area

	\$ In thousands	
Bus and Paratransit	\$ 7,000	
Rail and Construction	8,500	
New Technology Development	10,000	
Safety and Security	2,800	
Section 15 Information and Analysis	3,000	
Planning Methods and Support	3,700	
Service and Methods Demonstrations	7,500	
Management Techniques	2,000	
Policy Studies	1,200	
Subtotal, Section 6		\$45,700
Management Training (Section 10)	1,350	
University Research and Training (Section 11)	2,000	
Human Resources (Section 20)	5,750	
Subtotal, Research and Training		54,800
Technology Introduction (Section 3[a][1][C])	5,000	
Innovative Techniques (Section 4[i])	5,000	
TOTAL		\$64,800

*Fiscal Year 1984 Technical Assistance Program Budget by
Major Program Area*



American Motors, General Motors, and Rohr Transbuses



Morgantown, West Virginia, People Mover Vehicles in Station



Some Organizations Working With UMTA on the Technical Assistance Program

- American Public Transit Association
- Transportation Research Board
- Railway Progress Institute
- American Bus Association
- International Taxicab Association
- Public Technology, Inc.
- American Public Works Association
- National League of Cities
- Urban Land Institute
- International Downtown Executive Association
- International City Managers Association
- Federal Highway Administration
- Department of Energy
- Transportation Safety Institute
- Transportation Systems Center

Some Organizations Working with UMTA on the Technical Assistance Program



Some Advisory Groups Helping Direct the Technical Assistance Program

- APTA Bus Technology Liaison Committee
- Section 15 Advisory Committee
- NCTRP Steering Committee
- TRB Committee on Education and Training
- APTA Rail Transit Steering Committee
 - APTA STARS Liaison Board
 - APTA Urban Rail Supporting Technology Liaison Board
 - APTA AGRT Liaison Board

Some Advisory Groups Helping Direct the Technical Assistance Program



General Motors RTS-II Bus



Grumman Flexible Metro Bus



General Motora/Canada New Look Bus



Gillig Phantom Bus



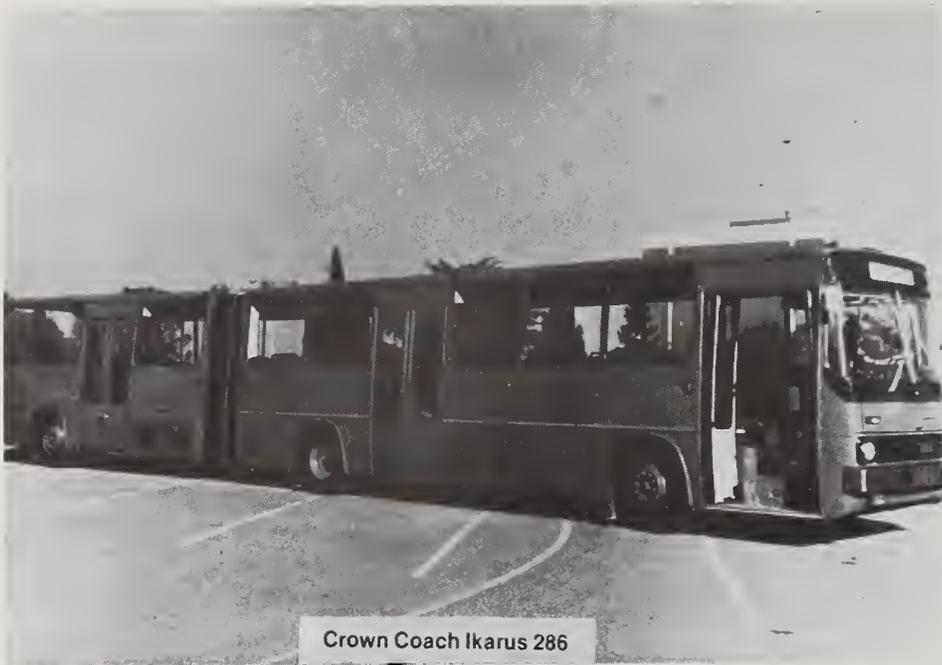
Skillcraft Transmaster L31

Skillcraft Transmaster Bus



Chance RT-50

Chance RT-50 Small Transit Coach, Kneeling

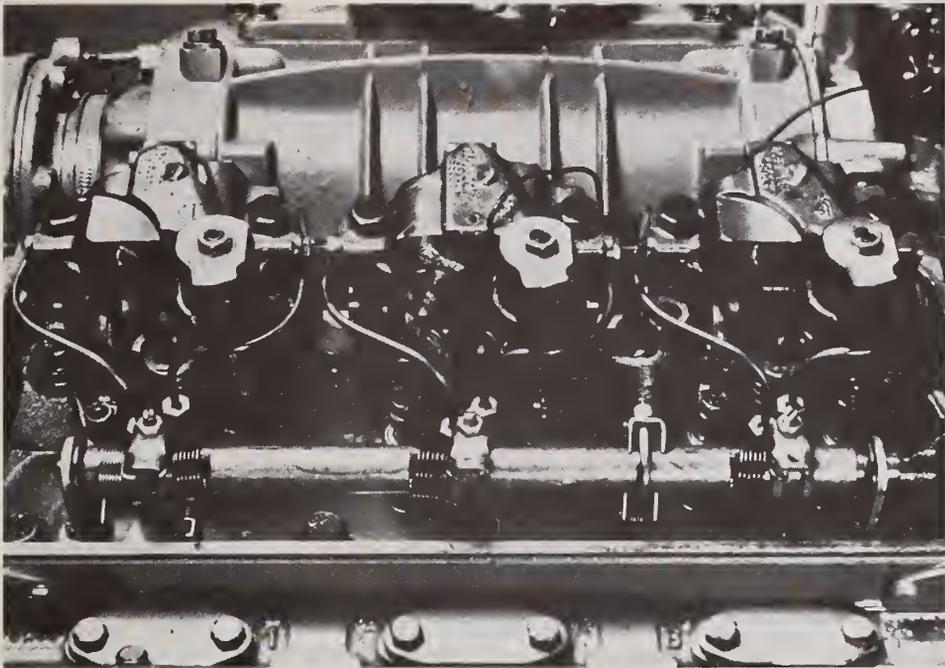


Crown Coach Ikarus 286

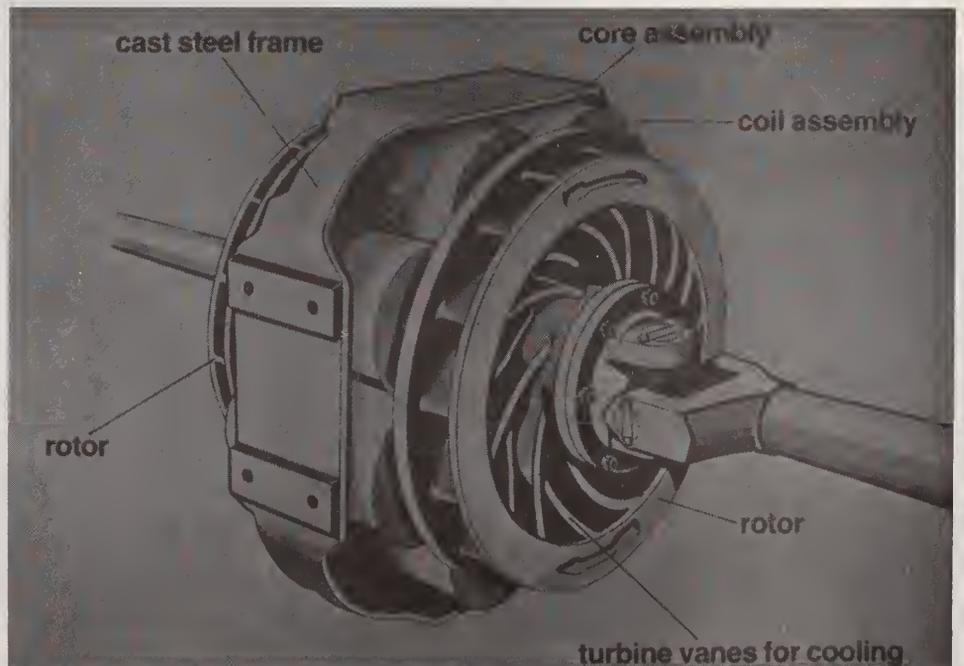
Crown Coach Articulated Bus, Ikarus 286



Gas Turbine RTS Bus Fuel Test



V-730 Bus Transmission with Hydraulic Retarder



Electric Telma Retarder

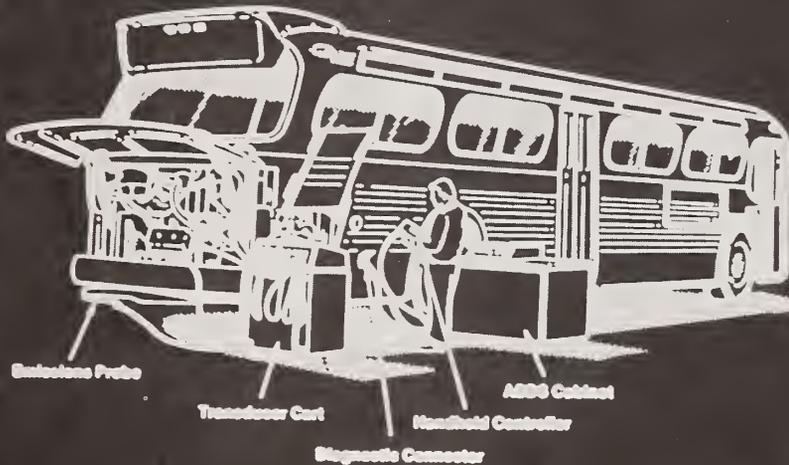


AM General Air Conditioning Conversion



Evaporative Cooler, Denver Regional Transportation District

ABDS — Maintenance Area Unit



WTS 01-2

Bus Diagnostic Equipment

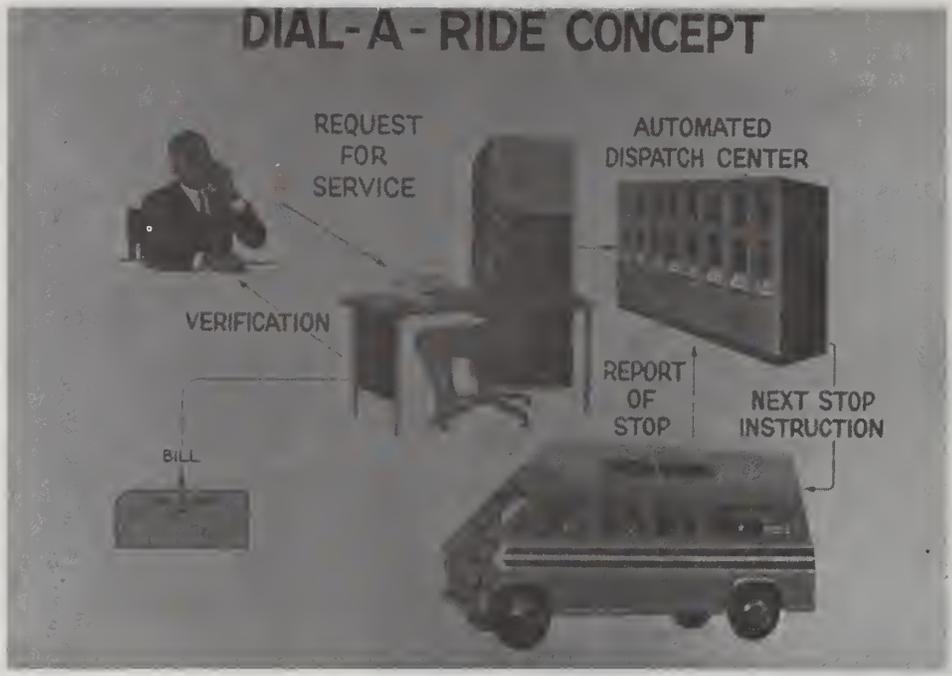
UWTA

Problem Transportation Areas Highly Amenable To Paratransit Service

Area Attributes

- High population densities
- Conventional transport inadequate
- Heavy user dependence on transit auto
- Too costly to provide adequate conventional transportation
- Mobility lacking for poor, elderly and handicapped

Problem Transportation Areas Highly Amenable to Paratransit Service



Dial-a-Ride Concept



Dial-a-Ride Passenger Calling from Home



Dial-a-Ride Passenger Using Downtown Courtesy Phone



Dial-a-Ride Passengers Being Picked Up at Home



Dial-a-Ride Passengers Arriving at Destination



Dial-a-Ride Interfacing with Conventional Fixed Route Buses



Minicars Paratransit Vehicle, Wheelchair Passenger Boarding



McFarland Paratransit Vehicle, Ramp Extended



Dedicated Bus Lanes, Shirley Highway, Northern Virginia



Transit Mall, Minneapolis, Minnesota



Auto Restricted Zone, Memphis, Tennessee



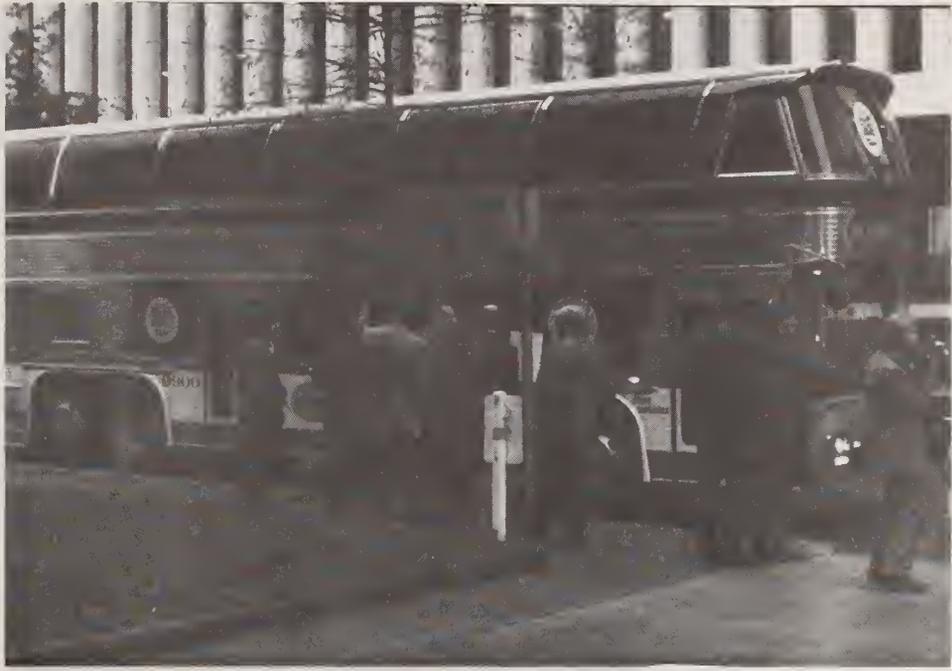
Knoxville, Tennessee, Commuter Pool Passengers



Vanpools Meeting at Pickup Point, Knoxville, Tennessee



Miami, Florida, Transit Bus Terminal



Passengers Boarding Double-decker Bus



Automatic Fare Collection Machines, Washington Metropolitan Area Transit Authority



Woman Inserting Fare, Massachusetts Bay Transit Authority



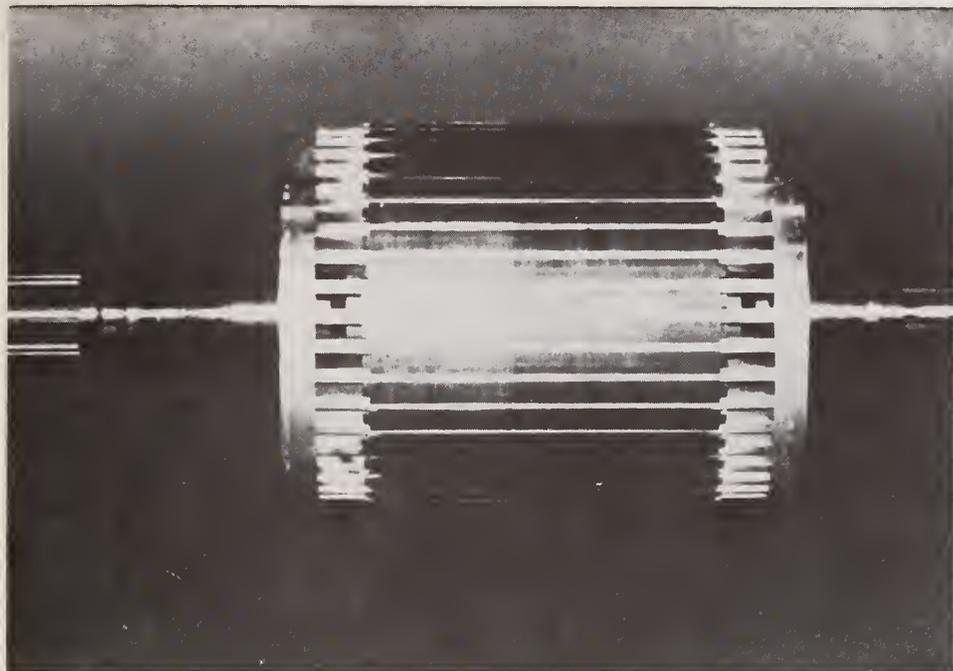
Chicago Transit Authority Vehicle in Snow

**HYDROBLAST PROTOTYPE
NIGHT OPERATIONS**

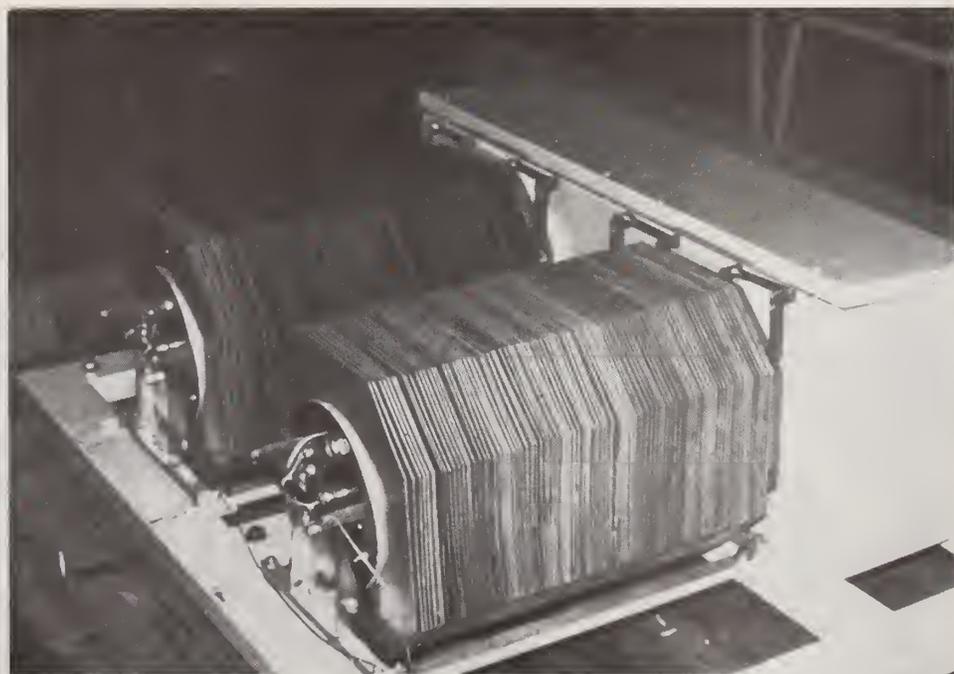
VOUGH



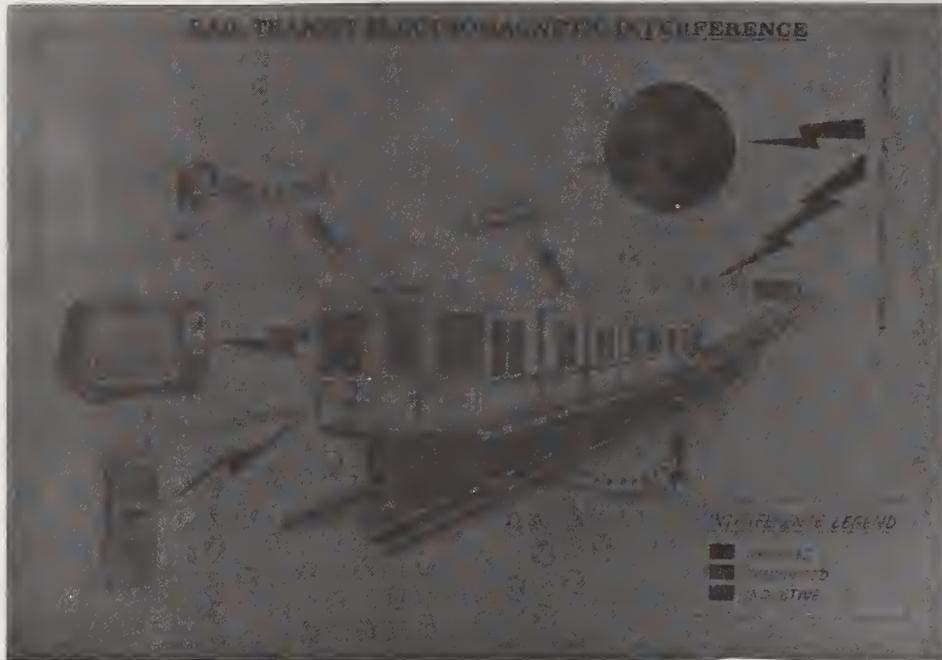
Hydroblast Prototype Night Operations, Notre Dame University



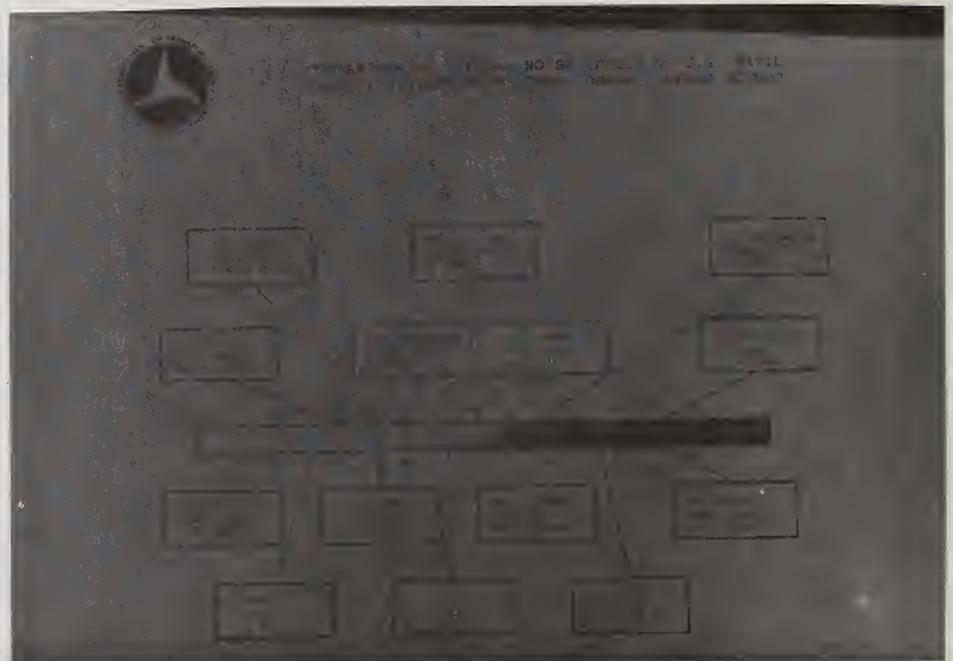
AC Propulsion Motor



Liquid Freon-cooled Auxiliary Power Supply



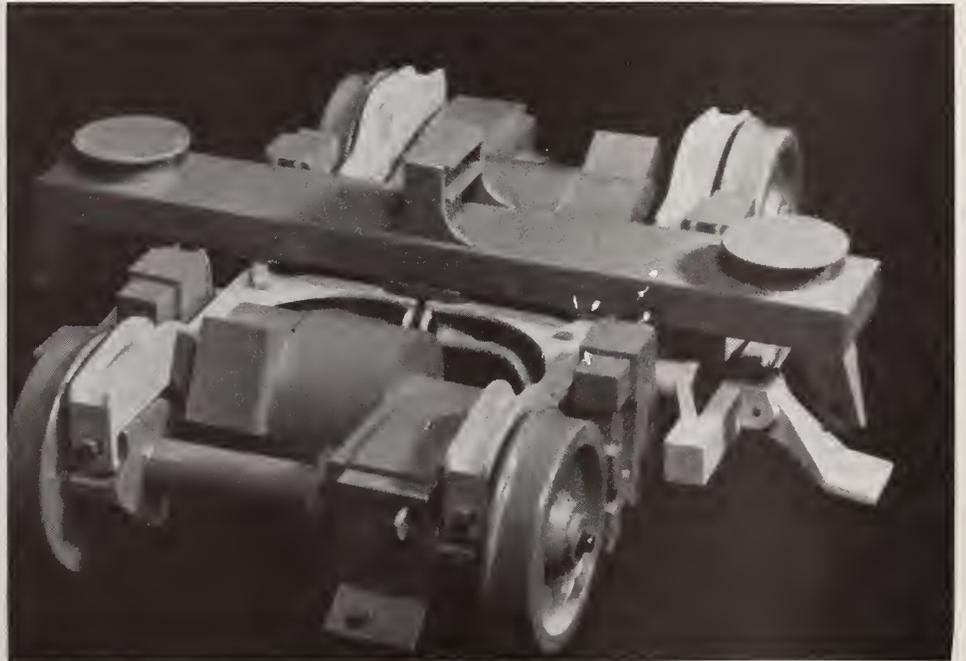
Rail Transit Electromagnetic Interference



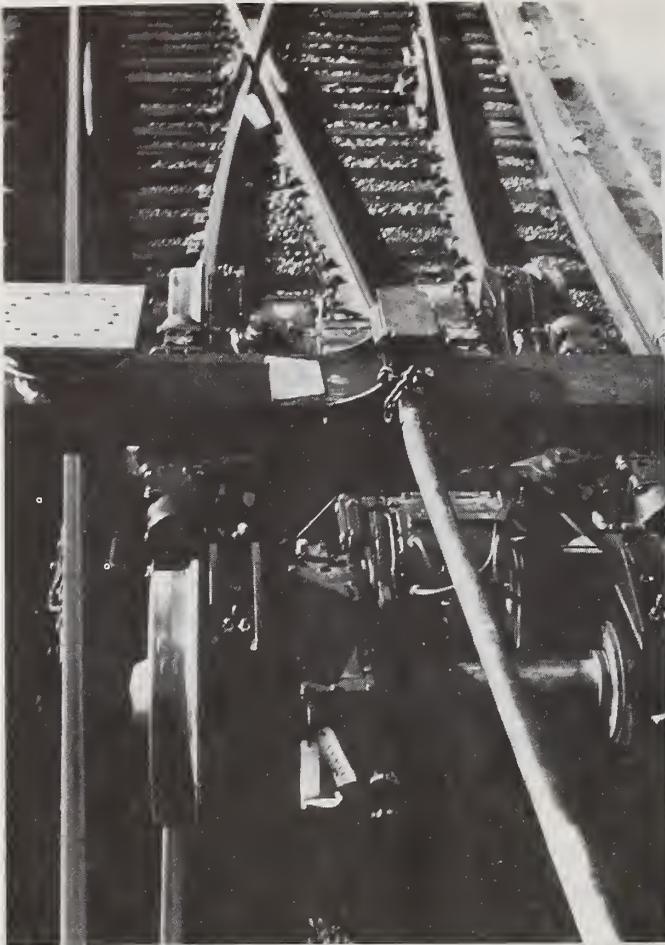
Comparison of Typical Noise Levels on U. S. Rapid Transit Systems with Other Commonly Heard Sounds



Ring Damped Wheel



Steerable Truck Model



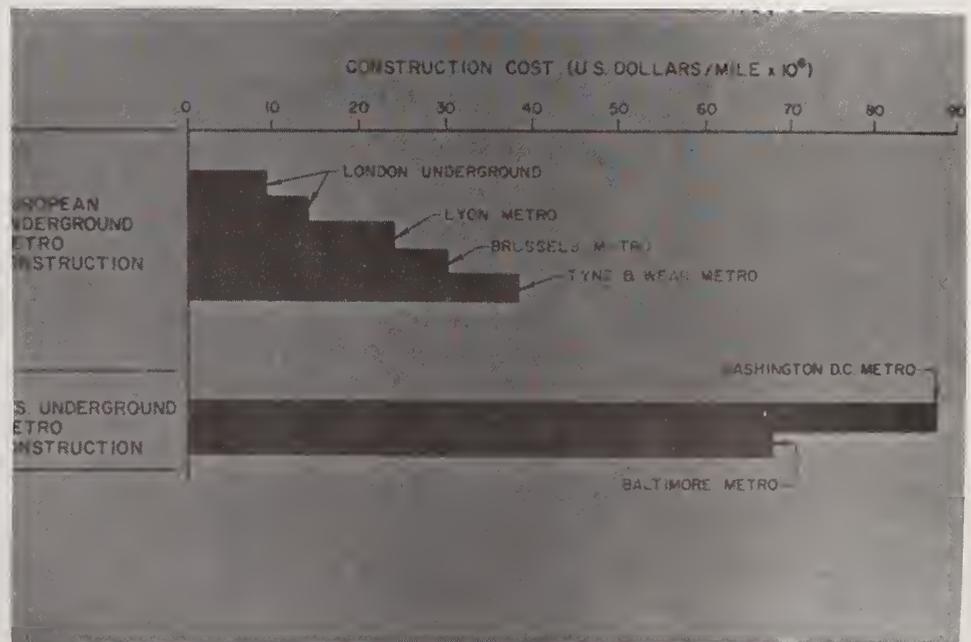
*Steerable Truck Prototype Model at the
Port Authority of Allegheny County*



Rail Transit Vehicle Maintenance



Metropolitan Atlanta Rapid Transit Authority Vehicle Exiting Urban Rail Building at the Transportation Test Center, Pueblo, Colorado



U. S. versus European Rail Transit Construction Costs

Better Contracting for Underground Construction

- RIGHTS-OF-WAY, PERMITS, AND OWNER-FURNISHED MATERIALS, PLANT, AND EQUIPMENT
- DISCLOSURE OF ALL SUBSURFACE INFORMATION
- DISCLAIMERS
- CHANGED CONDITIONS
- EXTRAORDINARY WATER CONDITIONS
- TYPES OF CONTRACTS
- BIDDER PREQUALIFICATION
- BID PRICING
- ALTERNATIVE BIDS
- ESCALATION
- WRAP UP INSURANCE
- GROUND SUPPORT
- CHANGE NEGOTIATIONS
- VALUE ENGINEERING
- PUBLISHING ENGINEERS ESTIMATES
- CONTRACTOR FINANCING COSTS
- ARBITRATION

Better Contracting for Underground Construction



Shotcrete Being Applied, Metropolitan Atlanta Rapid Transit Authority



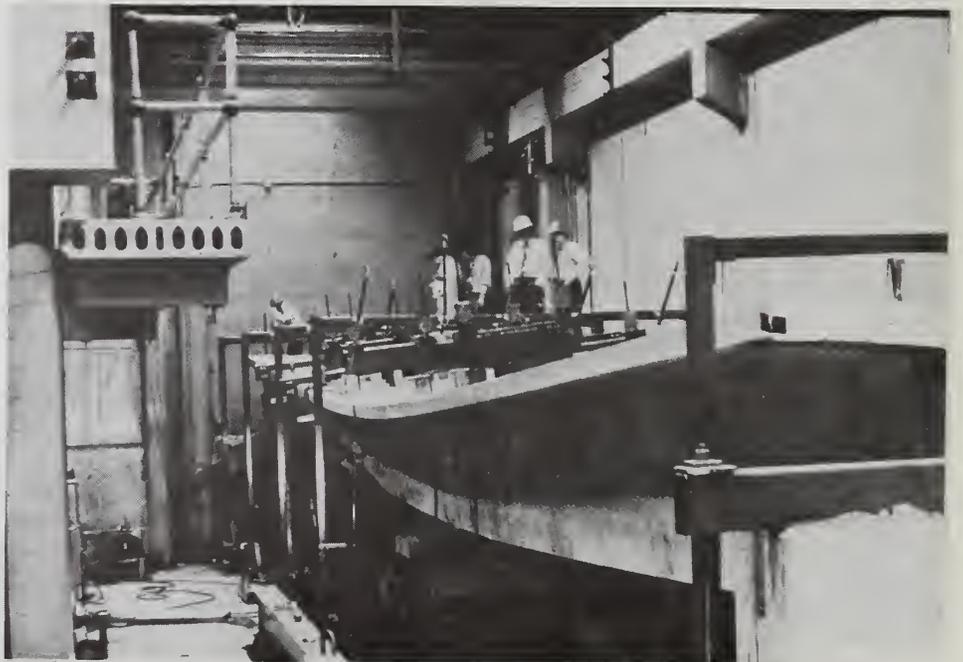
Completed Shotcrete Application, Metropolitan Atlanta Rapid Transit Authority



Precast Tunnel Liners, Niagara Frontier Transportation Authority, Buffalo, New York



Tunnel Boring Machine, Niagara Frontier Transportation Authority, Buffalo, New York



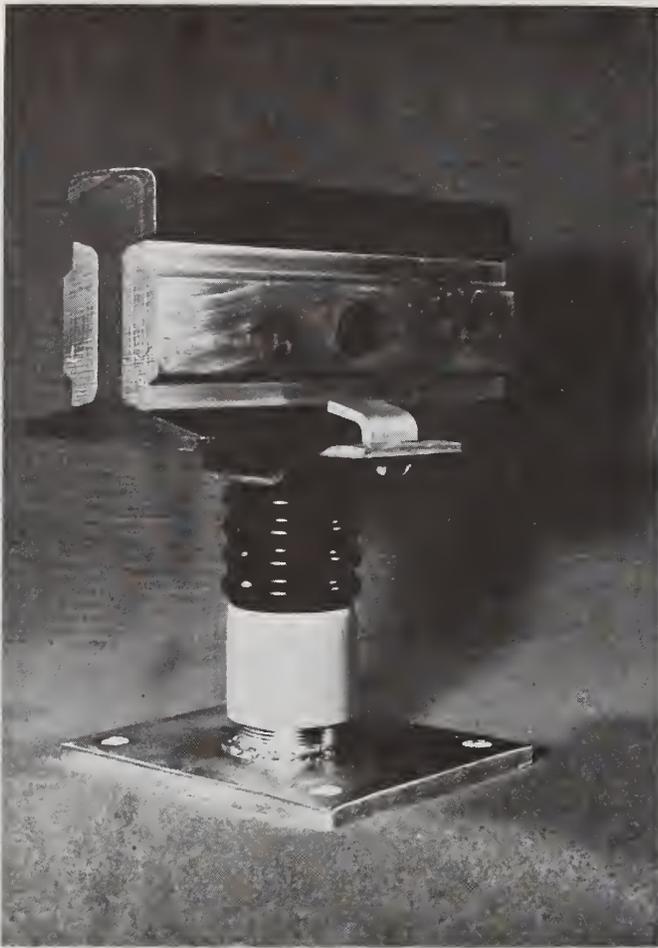
Miami Twin T-Girder Bending in Middle



Miami Twin T-Girder Being Lowered Into Place



Miami Guideway Construction Using Twin T-Girders



*Washington Metropolitan Area Transit
Authority Aluminum Composite Power Rail*



Pickpocket's Touch Demonstrated by Police Detective, Southeastern Pennsylvania Transit Authority



New York Metropolitan Transit Authority Closed-Circuit TV Monitoring Area



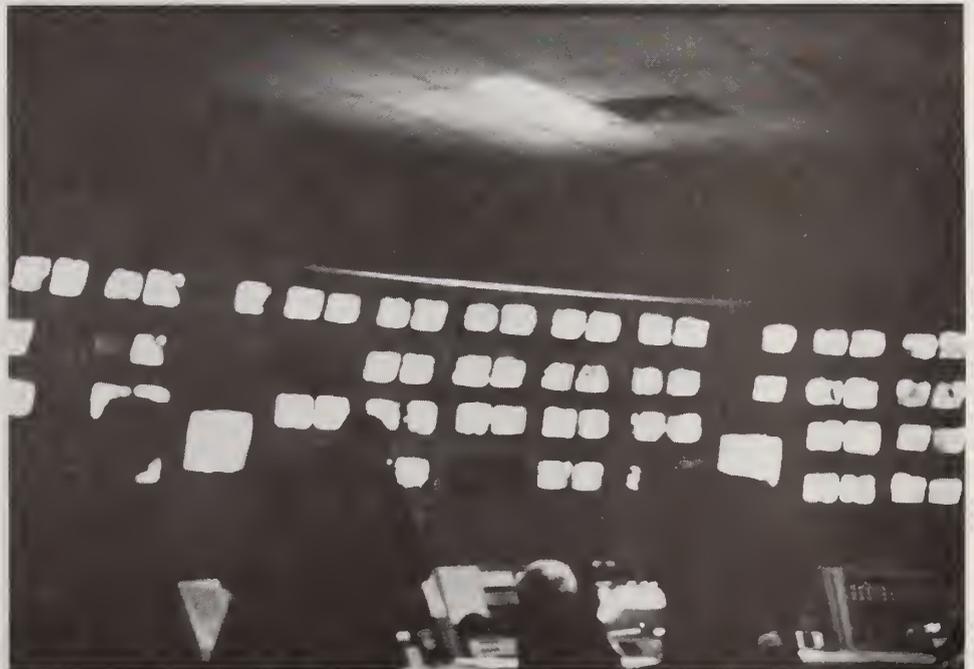
*Closed-Circuit TV Surveillance Cammera,
Washington Metropolitan Area Transit
Authority*



*Washington Metropolitan Area Transit Authority Subway
Platform at Rush Hour*



Washington Metropolitan Area Transit Authority Security Monitors



Metropolitan Atlanta Rapid Transit Authority Central Control Closed-Circuit TV



San Diego Trolley Closed-Circuit TV Surveillance



AC Transit On-Board Surveillance Camera, Oakland, California



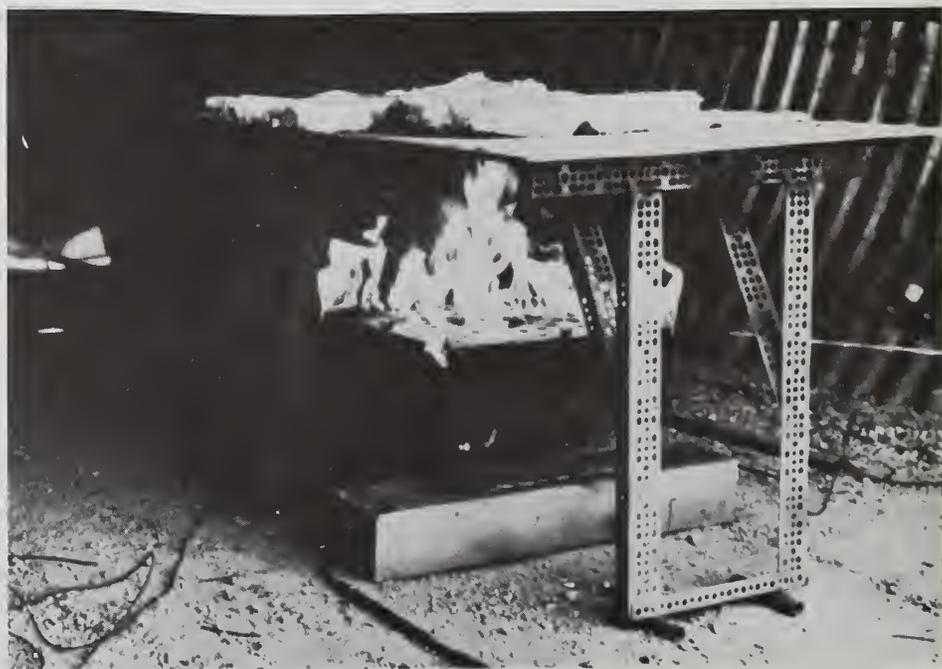
Fire Damaged Railcar in Simulated Tunnel



Car End Interior Instrumented for Fire



Burner Being Installed Under Car



Burner for Undercar Fire Simulations



Simulated Undercar Fire



Car End Interior After Ignition



Undercar at Test Conclusion



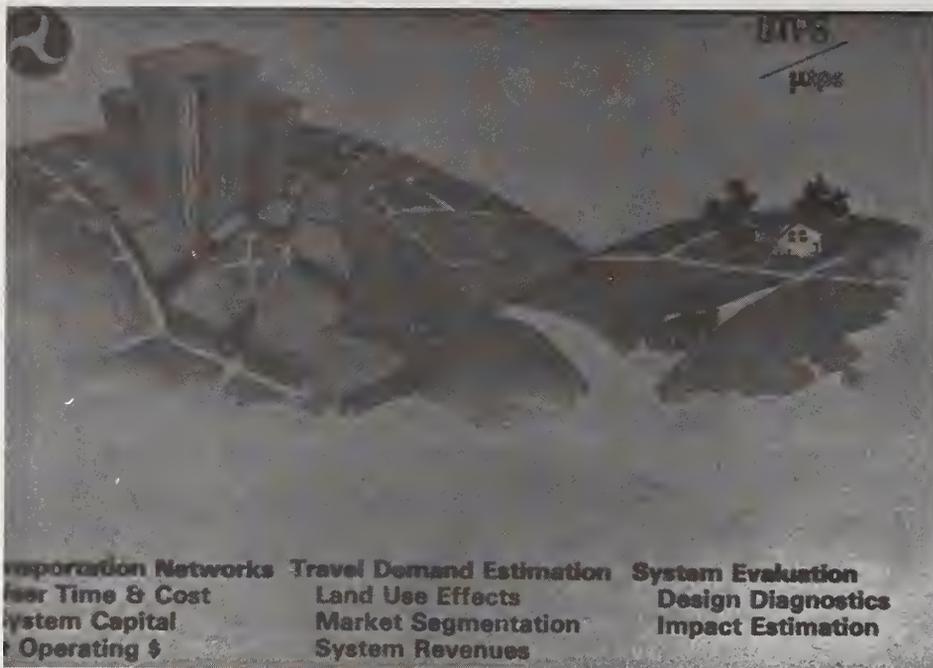
*Port Authority Trans-Hudson Corporation
Evacuation Drill, New York*



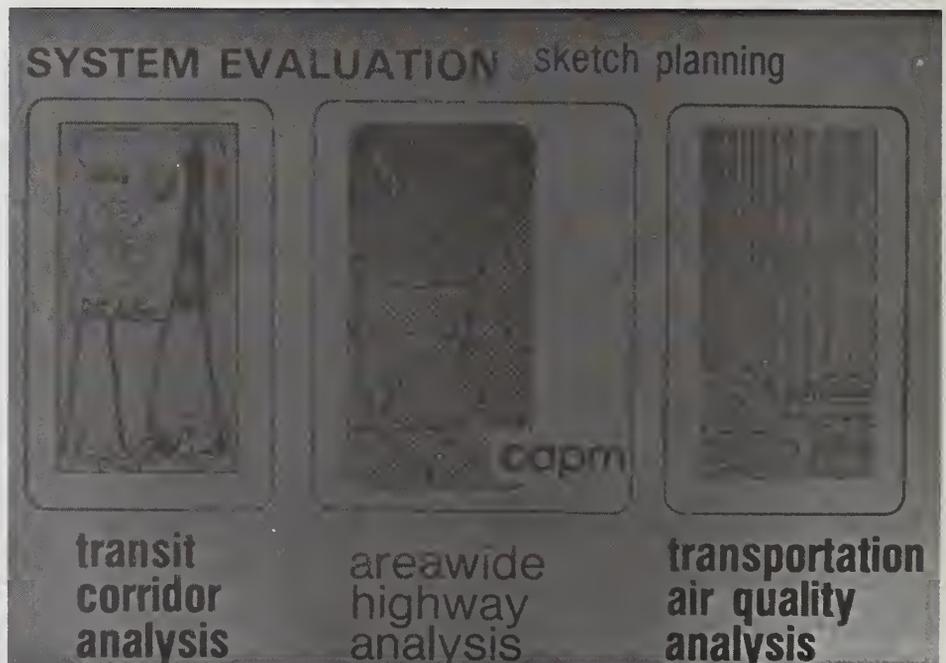
Washington Metropolitan Area Transit Authority Automated Telephone Information System



Information Display, Denver Stapleton Airport



Urban Transportation Planning System: Transportation Networks, Travel Demand Estimation, System Evaluation



Urban Transportation Planning System: System Evaluation

SYSTEM EVALUATION



characteristics
of urban
transportation
demand



characteristics
of urban
transportation
systems

Urban Transportation Planning System: System Evaluation

TRANSPORTATION SYSTEM MANAGEMENT

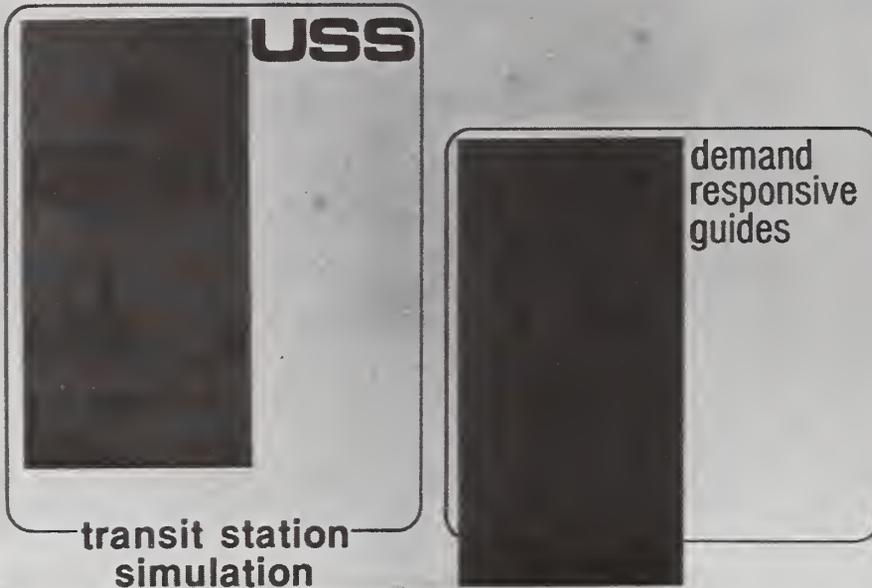


transit
network
analysis

inet

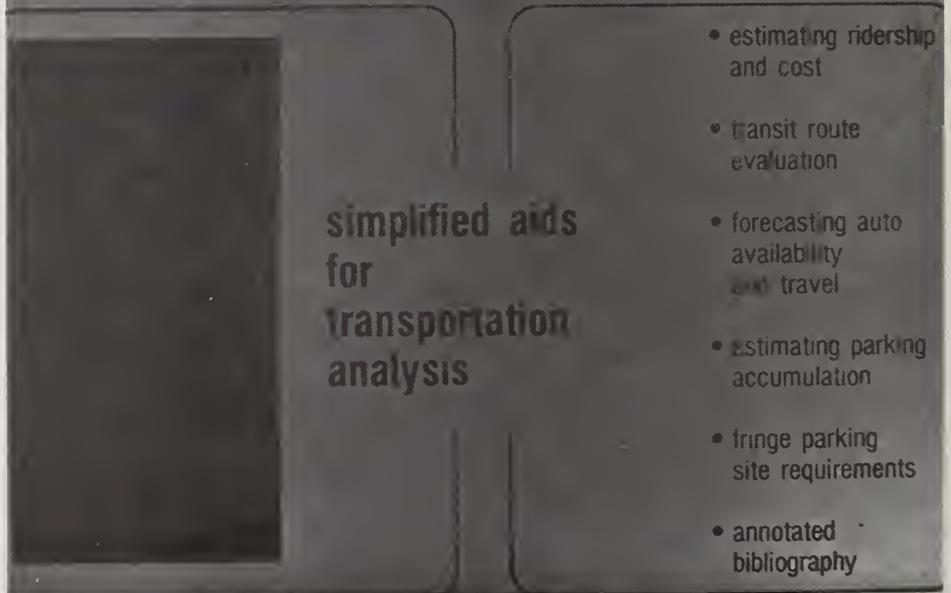
Transportation System Management: Transit Network Analysis

TRANSPORTATION SYSTEM MANAGEMENT



Transportation System Management: Transit Station Simulation

TRANSPORTATION SYSTEM MANAGEMENT



Transportation System Management: Simplified Aids for Transportation Analysis

TRANSPORTATION SYSTEM MANAGEMENT



advanced
calculator aids
for transportation
analysis

demand forecasting

Transportation System Management: Demand Forecasting

TRANSPORTATION SYSTEM MANAGEMENT



analyzing transit options
for small urban communities

- transit service objectives and options
- analysis methods
- summary of management and operations experience

Transportation System Management: Analyzing Transit Options for Small Urban Communities

Microcomputers in Transit Planning and Operations



- Financial Management
- Performance Monitoring
- Maintenance Information
- Planning and Scheduling

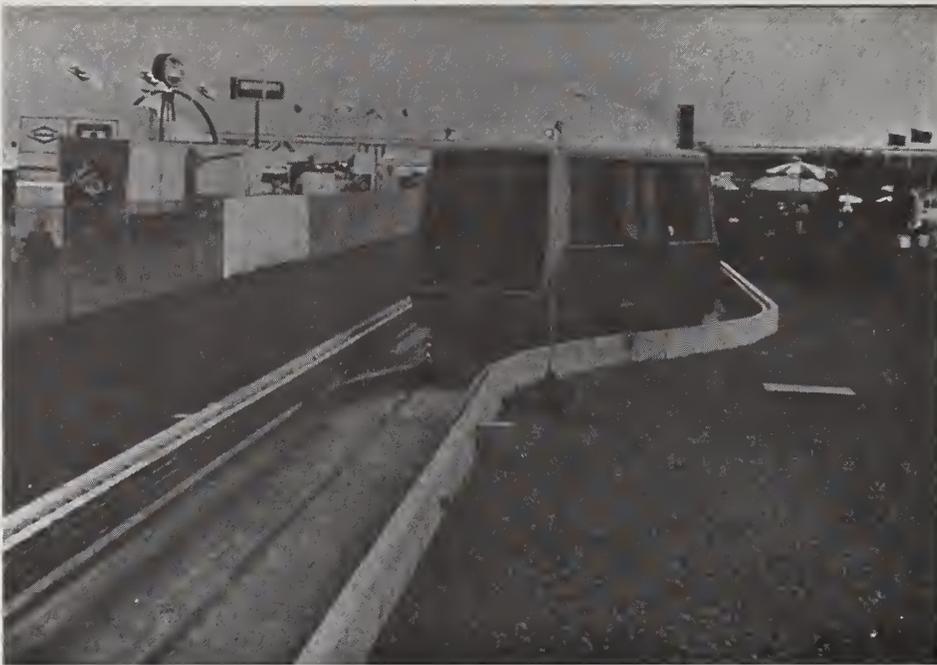
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Rohr Monocab Vehicle, Transpo '72



Ford Vehicle, Transpo '72



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Otis Test Track



Westinghouse Vehicle, Busch Gardens



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H-Bahn Vehicle, West Germany



Cabinetaxi Station and Vehicles, West Germany



Cabinnenlift, West Germany



VAL System, France



KCV System, Kobe, Japan



NTS System, Osaka, Japan



CVS System, Japan



Boeing Jetfoil in Hong Kong Harbor



Transportation Workers Union Convention



**University Centers For Transit Research
And Management Development**



*University Centers for Transit Research
and Management Development*



**Some Final Reports From The
National Cooperative Transit R&D Program**

- Transit Bus Energy Efficiency and Productivity:
Bus Equipment Selection Handbook
- Cleaning Transit Buses: Equipment and Procedures
- Enforcement of Priority Treatment for Buses on Urban Streets
- Assessment of Job Enrichment Program for the Transit Industry
- Effects of Fuel Additives and Alternative Fuel Grades for
Transit Buses
- Guidelines for Allocation of Time for Transit Coach
Maintenance Functions

*Some Final Reports from the National Cooperative Transit R&D
Program*



APTA/UMTA Transit Productivity Program

- Operator Selected Productivity Initiative
- UMTA/APTA Role:
Technical Publications, On Site Assistance, Host Site Visits, Seminars
- Operator Role:
Select, Design & Implement
- FY83 58 Operators Participating
- Example Projects:
Extraboard Optimization
Microcomputer Utilization
Self-Insurance Evaluation
Maintenance Management
Agency-wide Performance Assessment

APTA/UMTA Transit Productivity Program



Some Courses Offered by the Technical Assistance Program

- Microcomputer Applications for Transit Operations
- Microcomputers in Transportation
- Basic Transit Operations Planning
- Transit Productivity Workshops
- Mass Transit Explosives Incident Management Seminars
- Mass Transit Security
- Mass Transit Bus Accident Investigation
- Alternatives Analysis Seminars
- UTPS Special Topics Seminars
- Mass Transit Bus System Safety
- Electromechanical Interference Training
- Energy Management Seminars
- Managerial Training

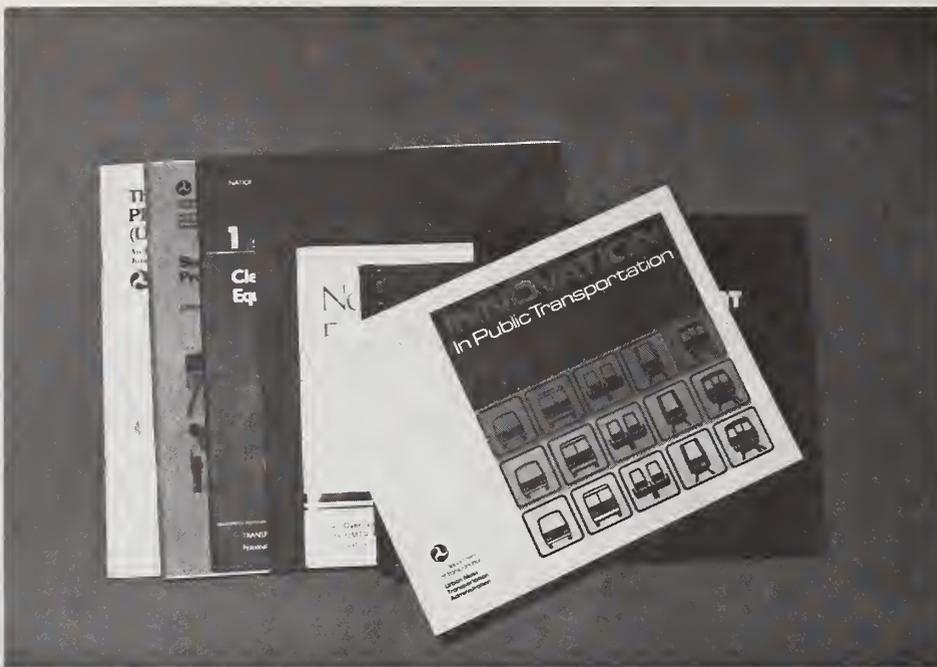
Some Courses Offered by the Technical Assistance Program



Some Conferences/Workshops Sponsored by the Technical Assistance Program

- Teleconference on Transit Fare and Pricing Innovations
- Timed Transfer Conference
- Noise and Dynamics Conference
- International Symposium on Propulsion and Control for Urban Transit
- Commuter Rail Workshop
- University Research Conference
- Technical Assistance Advisory Seminar
- Symposium on Minorities in Transit
- Labor-Management Relations Conference
- Wheel/Rail Dynamics Conference
- Construction Project Management Seminars
- Small Vehicles Conference
- Transit Bus Workshop
- Workshop on Fire and Life Safety in Rail Rapid Transit

Some Conferences/Workshops Sponsored by the Technical Assistance Program



Some Technical Assistance Reports



Reports Published by Some Technical Assistance Programs

- Innovation in Public Transportation: A Directory of Research, Development and Demonstration Projects
- Bus Rehabilitation Guidelines
- Transit Bus Fuel Economy Tests
- Life-Cycle Cost Procurement Procedures for Advanced Design Buses: Development and Test Application
- Transit Station Use by the Handicapped: Vertical Movement Technology
- Increased Rail Transit Vehicle Crashworthiness in Head-on Collisions
- Overview of Rail Transit Fare Collection
- Contracting and Management Economic Factors in Tunnel Construction
- Investigation of Design Standards for Urban Rail Transit Elevated Structures
- U.S. Transit Track Assessment and Research Needs

Reports Published by Some Technical Assistance Programs



Reports Published by Some Technical Assistance Programs (Cont.)

- Cost Experience of Automated Transit Systems
- National User-Side Subsidy Inventory, Final Report
- A Handbook Describing Low-Cost Concepts and Techniques to Make Public Transportation More Accessible for Visually and Hearing Impaired Persons
- The Accessible Fixed-Route Bus Service Experience
- Patronage Impacts of Changes in Transit Fares and Services
- Transit Fare Prepayment: A Guide for Transit Managers
- Auto Restricted Zones/Multi-User Vehicle System Study
- Articulated Bus Evaluation
- Shared Ride Taxi Meters: State-of-the-Art and Future Potential
- Characteristics of Urban Transportation Supply
- Characteristics of Urban Transportation Demand: A Handbook for Transit Planners

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- Paratransit Handbook
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- Bus Route Costing Procedures
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- A Program for Improving Transit Industry Management Information Systems, Final Report
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- A Corrosion Control Manual for Rail Rapid Transit
- Fire and Life Safety Training Needs of Rail Rapid Transit Systems and Fire Service Personnel
- Combustibility of Electric Wire and Cable for Rail Rapid Transit Services
- National Urban Mass Transportation Statistics, Section 15 Report
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