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Transportation Needs and Programs Summary

Fifth Edition

June 1982

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PREFACE

This Transportation Needs and Programs Summary is the fifth report on transportation research and development needs of local governments, compiled by the transportation staff of Public Technology, Inc., under the direction of the Transportation Task Force of the Urban Consortium for Technology Initiatives.

The first report in this series was published in 1976 and contained 58 transportation needs. The second Summary, published in 1978, listed 89 transportation needs and also included descriptions of selected local projects and innovations that addressed those needs. The third report listed 106 needs, and the fourth edition listed 141 needs.

As in the earlier editions, the research and development needs have been identified by the member jurisdictions of the Urban Consortium, comprising the nation's 28 largest cities and 9 major urban counties, all with populations over 500,000. In addition, in this fifth Summary other selected cities outside of the Consortium network were asked to participate as well. Though the listing should by no means be considered a complete identification of research and development needs, it is hoped that an appropriate selection of local concerns appears.

The support of the Technology Sharing Division, Office of the Secretary; Federal Highway Administration; and Urban Mass Transportation Administration of the U.S. Department of Transportation has been invaluable in the work of the Transportation Task Force of the Urban Consortium for Technology Initiatives and in the development of this document.

This document has been prepared by the staff of Public Technology, Inc., (PTI) for the Transportation Task Force.

In a number of cases participants in the needs selection process also identified local programs that address needs that have been cited by other jurisdictions. Descriptions of these programs are included in this report.

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INTRODUCTION

The purpose of this document is threefold: (1) to describe the needs identification and screening process used by the Urban Consortium for Technology Initiatives; 2) to provide the Need Statement Abstracts for each of the needs; and 3) in the interest of information exchange, to provide brief descriptive and contact information regarding local, Federal, and other programs that address these needs.

Chapter 1 presents an overview of the needs selection process used by the Urban Consortium--focusing on the work of the Transportation Task Force--and discusses follow-up activities in areas identified as having priority.

Supplementing this fifth report is a fifth series of Information Buletins addressing the needs established by the Transportation Task Force as being of greatest concern. The Task Force selected these needs through the process described in Chapter 1. The ten transportation needs addressed by this fifth series of Information Bulletins are:

- Growth Management and Transportation
- Downtown Traffic Intercepts
- Inflation Responsive Transit Financing
- Impact of Traffic on Residential Areas
- Coordination of Parking Strategies with Ridesharing and Public Transit
- Improved Railroad Grade Crossings
- Flexible Federal Design Standards for Highway Improvements
- Traffic Signal Maintenance
- Inflation Responsive Financing for Streets and Highways
- Flexible Parking Requirements

LIST OF ABBREVIATIONS

FAA	-	Federal Aviation Administration
FHWA	-	Federal Highway Administration
NCTRP	-	National Cooperative Transit Research and Development Program
NHTSA	-	National Highway Traffic Safety Administration
OST	-	Office of the Secretary of Transportation
PTI	-	Public Technology, Inc.
RSPA	-	Research and Special Programs Administration
UC	-	Urban Consortium
UMTA	-	Urban Mass Transportation Administration

Chapter 1

THE NEEDS SELECTION PROCESS

This chapter describes the needs identification and screening process conducted by the member cities and counties of the Urban Consortium for Technology Initiatives as well as other selected local jurisdictions. The Urban Consortium pursues research and development (R & D) in many need areas; the focus here is on the identification and prioritization of transportation needs, under the guidance of the Urban Consortium's Transportation Task Force. The needs selection process of the National Cooperative Transit Research and Development Program with which PTI has been involved is also discussed.

BACKGROUND

Through the Urban Consortium's process of needs identification, local government officials work cooperatively to identify and then focus on the priority R&D needs of their jurisdictions. In this way, the Consortium assures that resultant research and development efforts are directly responsive to existing or potential local governmental problems. Local participation in needs identification also helps assure that successful solutions will be applied and used.

The first iteration of the needs process, occurring in fiscal year 1974-75, provided the basis for organization of the nine task forces of the Urban Consortium. Member jurisdictions of the Consortium submitted a total of 1,131 Needs Statements, which were organized by the staff of Public Technology, Inc. (PTI) into major categories. Each of these categories--Community and Economic Development; Criminal Justice; Energy; Environmental Services; Fire Safety and Disaster Preparedness; Health and Human Resources; Management, Finance, and Personnel; Public Works and Utilities; and Transportation--then became the focus of attention for one of the task forces. The task force members were selected according to the interests expressed by the jurisdictions.

The first iteration of the needs process resulted in the generation of a comprehensive set of needs statements by Consortium members. Subsequent iterations involve review by the task forces of existing needs statements, and preparation of new statements as required.

Each jurisdiction identifies its needs in different ways--some hold public meetings, some rely upon department heads, and some depend on key individuals in the chief executive's office. Jurisdictions devise their own approaches.

The general needs selection of the Transportation Task Force is common to all nine Consortium task forces. Each task force is proceeding on its own schedule in this process.

TRANSPORTATION NEEDS SELECTION PROCESS

The Transportation Task Force of the Urban Consortium was formally organized in August 1975 and currently is comprised of 16 representatives appointed by the Urban Consortium Steering Committee. Task Force members are the key actors in a continuing needs identification and screening process.

The first annual needs selection process commenced when 94 needs were referred to the Task Force by the Urban Consortium. These needs were part of the 1,131 needs that were initially identified by the Urban Consortium. The 94 needs were reduced to 58 by PTI staff through consolidation of duplicative needs statements. These 58 needs were grouped into four categories--Highways, Transportation System Management, Mass Transit, and Aviation--and included in the first Transportation Needs Summary. During 1976, 10 top priority needs were selected from the 58, and the first series of Information Bulletins was published.

The needs identified by Task Force members are compiled by PTI staff and resubmitted to the Task Force. The Task Force then identifies the top priority needs. The following four criteria, common to all Consortium task forces, are used to determine priorities among the identified needs:

-- Commonality--the extent to which a need exists in many jurisdictions.

-- Magnitude--the importance, scope, and urgency of the need.

-- Community Impact--the extent to which solutions to the need will affect the citizens and community as a whole.

-- Financial Impact--the monetary effect (costs, savings, and revenues) that a solution to the need will have on a city or county.

The Task Force also determines how the priority needs should be addressed--whether with Information Bulletins, technical manuals, case study reports, workbooks, conferences, seminars, or management training sessions. Abstracts of each of the needs identified during the selection process are published in summary reports. Once priorities have been identified and the Task Force determines how the priority needs should be addressed, the following steps are taken:

- Governmental and private sources are encouraged to invest in developing solutions to the problems.

- User Requirements Committees, representing the range of potential users in local government, are established to guide the development of the technology to ensure that it will meet the specified need.

- As solutions to the problem or need are developed, these solutions are made available to the jurisdictions represented by the Urban Consortium as well as to other local governments with similar problems.

As part of the 1981 work program, ten needs were identified for which Information Bulletins are being prepared:

Growth Management and Transportation
Downtown Traffic Intercepts
Inflation Responsive Transit Financing
Impact of Traffic on Residential Areas
Coordination of Parking Strategies with Ridesharing and Public Transit
Improved Railroad Grade Crossings
Flexible Federal Design Standards for Highway Improvements
Traffic Signal Maintenance
Inflation Responsive Financing for Streets and Highways
Flexible Parking Requirements

In addition to the ten priority needs for which Information Bulletins are being prepared, the Task Force identified the following needs as being of concern:

Impacts of Major Regional Transportation Improvements on the Core City
Transit Route Network Design and Timed Transfer Centers
Citizen Participation Networks
Freeway Surveillance and Control
Special Event Transportation and Parking Requirements
Successful Use of Minority Business

In addition to the Information Bulletins, priority needs identified in recent needs selections have been addressed by a variety of Transportation Task Force projects:

- To facilitate the provision of transportation services for elderly and handicapped people, five products have been developed: Elderly and Handicapped Transportation: Chief Executive's Summary, Elderly and Handicapped Transportation: Planning Checklist, Elderly and Handicapped Transportation: Information Sourcebook, Elderly and Handicapped Transportation: Eight Case Studies.

- To help improve center city circulation (with the objectives of downtown revitalization and economic development) several projects have been completed. A summary report on Center City Environment and Transportation: Local Government Solutions shows how 7 cities use transportation and pedestrian improvements as tools in downtown revitalization. A report titled Center City Environment and Transportation: Transportation Innovations in Five European Cities discusses exemplary approaches to resolving traffic management problems common to cities with large numbers of automobiles. Another project, addressing the coordination of public transportation investment with real estate development, has culminated in two major national conferences--the Joint Development Marketplaces I and II. The second Marketplace held in Washington, DC, in July 1980, was attended by a total of over 500 people, including exhibitors from 32 cities and counties and representatives of private development and financial organizations.

- A series of documents relating to the need for transportation planning and impact forecasting tools has been prepared: (1) A report for local officials describing computer transportation planning models supported by U.S. DOT, The Urban Transportation Planning System (UTPS): An Introduction for Management; (2) A companion report, Computer Transportation Models for Local Government: Gaining Access to the Tools, reviewing the benefits and constraints of using UTPS through regional or State agencies, consultants, or on an independent basis; (3) A report for local officials describing geocoding and computer mapping applications now available through UTPS, Census Computer Programs: An Introduction for Management; (4) A more detailed companion report discussing this software, Census Programs for Geocoding and Computer Mapping: Program Manager's Report; (5) A series of case studies illustrating applications of UTPS by local agencies for short to medium range planning.

- To facilitate the dissemination of information of local experiences in parking management, a Technical Report on Parking Management has been prepared. This report describes the state-of-the-art in the United States.

- A Federal-Aid Urban System Conference was held in Baltimore in May 1980, to provide information on the FAUS program and the obligation of FAUS funds.

- Five regional meetings on taxicabs and Federal programs and a national conference on Taxicab Innovations: Services and Regulations were held during 1980. A handbook titled Taxicabs and Federal Programs was published in conjunction with these sessions. Proceedings of the national conference were published in May 1981.

- A series of five regional Transportation System Management (TSM) meetings were held during the summer and fall of 1980 to provide local government officials, metropolitan planning organization representatives, transit managers, and State and Federal officials with the opportunity to learn from one another about exemplary TSM programs.

- To address the need for information on transit productivity, a seminar on International Transit Performance Measurement was held in September 1980. The seminar included presentations on the state-of-the-art in France, Germany, and the United States. The seminar was co-sponsored by the German Marshall Fund of the United States.

- To encourage improved design in transportation facilities, PTI organized Design for Moving People, the first national conference to bring together leading design professionals--architects, artists, arts administrators--and those responsible for operating and managing many of the nation's largest public mass transportation systems. The meeting was held in May 1981 in New York. Cosponsored by the American Public Transit Association (APTA), the New York Chapter of the American Institute of Architects, AMTRAK,

and the Municipal Art Society of New York, the two day conference featured keynote addresses by two of the country's leading architects, case studies, and practical workshops on topics such as financing design excellence, promoting better collaboration between architects and artists, and materials selection--vandalism and maintenance.

- To address the issue of adequate financing for transit and the difficult policy decisions facing operating authorities regarding fare setting and the role fares should play in meeting financial needs, the Urban Mass Transportation Administration (UMTA) sponsored a teleconference on fare policy, with the help of PTI, for general managers and board members in eight regional sites. The teleconferences originated in Washington, D.C. in March 1983. Consulting experts presented the results of relevant research sponsored by UMTA's Office of Service and Management Demonstrations on various topics. Participants at the eight receiving sites asked questions by telephone of the experts after each presentation.

- Also in 1983, PTI organized a national meeting on Pedestrian Safety. Held in conjunction with Boulder, Colorado's Pedestrian Design Conference, the meeting featured federal and local government experts in pedestrian safety issues. PTI is preparing proceedings from the meeting, which was sponsored by U.S. Department of Transportation.

- In an effort to help local governments and transit agencies better serve low-density suburban areas, PTI coordinated the first national conference on timed-transfer transit operations. Held in Portland, Oregon, in fall 1983, the conference featured advice from transit planners and operators who currently provide timed-transfer service as well as the results of federal and academic research. In addition, site visits enabled participants to see Portland's timed-transfer system in operation. Funding for the conference was provided by UMTA.

Task Force information dissemination and technology sharing concerns are currently addressed by four products--SMD Briefs, Transit Actions, Transit Planning Summaries, and Transit Technology Briefs. SMD Briefs are short reports that provide up-to-date information about specific aspects of on-going projects of UMTA's Service and Methods Division (SMD). Transit Actions cover the on-going projects of UMTA's Transit Management Division. Transit Planning Summaries are short reports on UMTA-sponsored research on transit planning and evaluation. Transit Technology Briefs report on projects sponsored by UMTA's Office of Bus and Paratransit Systems. These timely documents provide information that should be of direct benefit in the improvement and productivity of transit system operations.

NEEDS SELECTION AND THE NATIONAL COOPERATIVE TRANSIT RESEARCH AND DEVELOPMENT PROGRAM

In addition to the needs selection process of the Transportation Task Force, PTI staff, on behalf of the Urban Consortium, is also participating in the cooperative research efforts, needs selection, and information dissemination efforts of the National Cooperative Transit Research and Development Program (NCTRP).

NCTRP was established to assist local public transportation agencies solve near-term public transportation problems through information dissemination and applied research. The research of NCTRP is guided by a Technical Steering Group composed of transit agencies and local government officials. The Technical Steering Group receives technical suport from the American Public Transit Association, the Transportation Research Board, the Urban Mass Transportation Administration, and PTI. NCTRP is funded by the Urban Mass Transportation Administration.

There are two stages of NCTRP's needs selection process. Needs are solicited from transit operators, manufacturers, labor representatives, and local government officials. The needs and problems they submit are reviewed by the supporting organizations. PTI staff assists by identifying any existing or on-going research that is germane to the identified needs. If the problem submitters feel that this research does not adequately address the problem, a more detailed second stage problem statement can be submitted. PTI and APTA staff provide assistance in the preparation of these statements.

The second-stage problem statements are reviewed by the Technical Steering Group. From these problem statements top priority projects are selected for the Annual Work Program. Subcontracts are awarded for research projects addressing each of the priority needs.

NCTRP's 1981 Annual Program included the following:

- National Transit Computer Software Directory.
- Manual for Bus Rehabilitation.
- Study of Automatic Passenger Counting System.
- Development of a National Standard Analysis Process for Cost Benefit of Transit Systems.
- Standard for Allocation of Time for Maintenance Workers.
- Cost Benefit Analysis of Fuel Additives and Alternative Fuel Grades.
- Development of Programs for Job Enrichment in the Transit Industry.
- Detection of Low Current Short Circuits.

-- Life Cycle Cost Comparison for Small Urban and Rural Area Transit Vehicles.

-- Feasibility Study of Small, Energy Efficient Buses on Suburban Routes.

-- Testing Buses for Dependability.

-- Flywheel Energy Storage and Weight Reduction Technology Assessment for Transit Buses.

-- Guidelines for Evaluating Public Transportation Services.

-- Study of Use of Brake Retarders to Increase Brake Life.

The 1982 Annual Program for NCTRP includes:

-- Fare Collection Problems and Solutions

-- Transportation and Maintenance Manpower Planning

-- Development of Formulas to Determine the Marginal Cost of Variuos Transit Services

-- Development of an Automated Dispatching System

-- Development of a Methodology to Calculate Financial Benefits Induced by Fixed Rail Mass Transit

-- Comparative Study of Land Use Densities Within Transit Corridors

-- Conversion to One-Man Operation of Older Rapid Transit Systems

-- Single Cable Communciations Technology for Underground Rapid Transit Systems

-- Develop a Manual of Traffic Signing at Bus Stops

-- Bus Communications Systems

-- Passenger Information Systems for Transit Transfer Facilities

Chapter 2

NEED STATEMENT ABSTRACTS AND PROGRAM DESCRIPTIONS

The Need Statement Abstracts in this chapter provide a brief description of the needs identified by member jurisdictions of the Urban Consortium. A problem statement and suggested solution considerations are given for each need. The problem statement provides a specific definition of the need. The solution considerations reflect suggestions by member jurisdictions.

The Need Statement Abstracts begin on page 8. The numbering system used to index the needs does not represent their priority, but relates to the overall needs selection process of the Urban Consortium and is retained for reference purposes only.

Many of the Need Statement Abstracts are followed by descriptions of programs responsive to the stated need. Many of the local government program descriptions were submitted by Urban Consortium and other jurisdictions. Federal and other programs that might assist local governments in addressing expressed needs are also included. Contact information is provided in all cases.

810 STREETS AND HIGHWAYS

811 Management, Administration, and Finance

812 System Planning and Design Standards

813 Construction Materials and Techniques

814 Maintenance Methods and Materials

815 Traffic Management and Control Techniques

811-1/INNOVATIVE STREET AND HIGHWAY FINANCING AND PROJECT PRIORITIZATION

Problem Statement: Local governments are finding it increasingly difficult to finance needed improvements and programs. The impact of inflation on operations, maintenance, and capital improvements must be identified and alternative financing schemes investigated. Setting priorities to achieve the maximum benefit from available funds is important but difficult, since a rational basis for comparison of needs is lacking.

Solution Considerations: Are there easy methods available to forecast the impact of inflation on street and highway financing? Can the cost of a transportation improvement be borne by those who benefit most? How should the assessment be set? Are systems available to set priorities for improvements?

LOCAL PROGRAMS

Inflation Responsive Financing: DALLAS, TX has developed short- and long-range, low cost, high payoff intersection improvements and has ranked them for implementation using net present value maximization under predetermined, total initial cost constraints. Inflation is built into net present value by using an effective interest rate. Contact: R.W. Kelly, Director, Office of Transportation Programs, Dallas City Hall, 1500 Marilla Street, Dallas, TX 75201, (214) 670-4025.

Transportation Priorities Lists: ATLANTA, GA has established priorities for street and bridge projects through the adoption by the Mayor and the City Council of transportation priorities lists. Projects are updated each year in the City's Comprehensive Development Plan, which lists each project supported by the city as a one, five, or fifteen year priority. The plan and priorities listings are used by the Georgia Department of Transportation to program urban system funds. Contact: Cathy Thomas, Chief Transportation Planner, Atlanta Bureau of Planning, 10 Pryor Street, Atlanta, GA 30335, (404) 658-6306.

FEDERAL PROGRAMS

FHWA Implementation Division has published a report titled Deferred Maintenance that addresses the consequences of deferred maintenance. Maintenance deferment guidelines are included. Contact: Chief, HDV-20, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9230.

811-1/INNOVATIVE STREET AND HIGHWAY FINANCING AND PROJECT PRIORITIZATION

FEDERAL PROGRAMS

FHWA Urban Planning and Transportation Management Division has underway a research contract to explore innovative methods to fund highway improvements. A state-of-the-practice report is expected to be completed in the Fall of 1983. In addition, contract efforts also have the purpose of developing and disseminating such information to State and local governments through a clearinghouse approach by the Fall of 1983. Contact: Community and Environmental Planning Branch, HHP-23, FHWA, 400 7th Street, SW., Washington, D.C. 20590 (202) 426-0215.

811 Streets and Highways--Management, Administration, and Finance

811-2/STREET MAINTENANCE FINANCIAL FORECAST

Problem Statement: The cost of street maintenance is increasing, while local financial resources grow scarce. Uncertain Federal funding and steadily increasing demand for street improvements make it imperative to balance all available funds between rehabilitation, maintenance, small scale operating improvements, and major improvements to the street and highway system.

Solution Considerations: A methodology for preparing a 10-year financial resource forecast should be developed, which considers: 1) new and existing local sources of revenue, 2) potential for tax increases to support maintenance needs, and 3) Federal and State sources of revenue.

811-3/REHABILITATION AND MAINTENANCE OF THE STREET INFRASTRUCTURE

Problem Statement: Street infrastructures throughout the country are in need of rehabilitation. Older systems are deteriorating rapidly, and many systems both old and new have been overburdened by population growth. Badly deteriorated roadbeds make it difficult to access homes and contribute to increased vehicle maintenance costs. Patching potholes and cracked pavement does not alleviate the problem. City personnel need objective standards and criteria for scheduling street resurfacing and maintenance; current recommendations are based upon experience, knowledge of local traffic patterns, and complaints received. Although this approach is inexpensive, it is not a thorough method for scheduling maintenance or resurfacing.

Solution Considerations: Develop a process-oriented manual for assessing the condition of street infrastructure and a methodology for setting street resurfacing and reconstruction priorities. The manual should also cover such subjects as equipment selection and deployment, and personnel management. The methodology is needed to create a pavement rating schedule, possibly over a five year period. Higher funding levels for road commissions may be required.

LOCAL PROGRAMS

Street Resurfacing and Rehabilitation Inventory: GREENSBORO, NC has developed a street surface grading system for its 800+ miles of streets. The grading system, which is based upon set standards, allows a team that consists of an asphalt technician and a street maintenance person, who visually inspect the streets, to grade each street from 0 to 100; the minimum passing score is 70. Contact: Bill Hanford, Engineering Division, Drawer W-2, Greensboro, NC 27402, (919) 313-2372.

Priority Street Rehabilitation Criteria: DETROIT, MI Department of Transportation has undertaken a study to identify rehabilitation priorities for Detroit's highway system. The study, which is expected to be completed in January 1982, will focus on the most effective use of scarce maintenance and construction funds as measured by direct benefits related to the programs proposed. Contact: Michael Kobran, Administrative Engineer, Transportation Engineering Division, Department of Transportation, 1301 E. Warren, Detroit, MI 48207, (313) 224-4919.

811-3/REHABILITATION AND MAINTENANCE OF THE STREET INFRASTRUCTURE

LOCAL PROGRAMS

Pavement Evaluation Study. MILWAUKEE, WI has recently completed a pavement evaluation study. The purpose of the investigation was to determine the condition of the existing pavement and to ascertain those portions of the roadway system which should be overlaid or reconstructed. The analysis includes coring and soil borings, pavement deflection, surface evaluations, and an environmental study. Contact: Edwin J. Laszewski, P.E., City Engineer, Room 612, Municipal Building, 841 North Broadway, Milwaukee, WI 53202, (414) 278-2400.

Street Infrastructure Inventory: DALLAS, TX has a computerized inventory of the condition of every street, curb, and gutter in the city. Streets in the two categories receive major repairs and streets in the next two categories receive maintenance. In 1975, 1,581 lane miles of Dallas streets were in unsatisfactory condition. By 1980 this number had been reduced to 635. Contact: Winston Evans, Director, Office of Management Services, City of Dallas, City Hall, 1500 Marilla Street, Dallas, TX 75201, (214) 670-3655.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives, through Public Technology, Inc., held a workshop in July 1980 on the Urban Infrastructure: Assessing Its Condition and Developing Policies and Methods For the Future. The Urban Consortium has assigned a high priority to additional research and information dissemination on this subject. Contact: Quentin Lawson, Director, Urban Consortium, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2400.

FEDERAL PROGRAMS

The Federal Highway Administration (FHWA) and the National Highway Institute (NHI) are sponsoring a 32-hour training course entitled, "Techniques for Pavement Rehabilitation" for Federal, State, and local engineers involved in design and construction of rehabilitation type projects. Contact: Mr. Juri Raus, HHI-20, FHWA, 400 - 7th Street, SW., Washington, D.C. 20590, (202) 426-9141.

811-4/TRAFFIC DISRUPTION RESPONSIBILITIES

Problem Statement: Construction projects frequently divert traffic to nearby and often already heavily utilized streets. An efficient criteria for determining responsibility for street cuts and barricades needs to be established to insure continued traffic flow and minimum disruption to the surrounding area.

Solution Considerations: Criteria should be developed to help local governments determine when private contractors should be given responsibility for street cuts that are related to their construction activities. A means by which cities can maintain sufficient control over the contractor's obligation to minimize traffic disruption is also needed.

811-5/UNDERSTREET UTILITIES COORDINATION

Problem Statement: There is a lack of coordination among public and private agencies responsible for understreet utilities systems and agencies responsible for street construction, expansion, and maintenance. Coordination would reduce utilities relocation costs, minimize damage to utilities distribution facilities, and maintain continuity of utilities service delivery when streets and roads are widened. There is also a need to explore the feasibility of common utility ducts. Private utilities and public subsurface facilities are often located in separate ducts under different sections of the same street, increasing the expense and disruption of repair activities.

Solution Considerations: Utility relocation options and associated costs must be evaluated. Ordinances, contractual arrangements, and service agreements must be written to accommodate all cost-effective alternatives for rerouting water-sewer-electric power lines, connections, meters, switching devices, and other installations. Potential savings and safety benefits of common utility ducts should be analyzed, and institutional barriers such as insurance problems dealt with.

811-6/NON-FEDERAL STREET AND HIGHWAY FINANCING

Problem Statement: Federal funds account for only a small percentage of the total dollars spent on transportation construction, maintenance, and operation in the nation's cities. The bulk of urban transportation construction is funded by State and local governments and private developers. With public opinion shifting toward the lowering of local and State taxes and with transportation costs rising from inflation, an analytical forecast of non-Federal transportation funds is needed.

Solution Considerations: Various national associations and interest groups (e.g., Highway Users Federation, National League of Cities, American Association of State Highway and Transportation Officials) are examining possible solutions to this problem.

PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin dealing with the need. Contact: Public Technology, Inc. 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2400.

FEDERAL PROGRAMS

FHWA Urban Planning and Transportation Management Division has underway a research contract to explore ways in which the private and public sectors have cooperated in making needed highway improvements. Focusing on such mechanisms as impact fees and other growth management mechanisms, the study is to recommend ways of reducing legal constraints and impediments to obtaining private resources for highway improvements. Contact Chief, Community and Environmental Planning Branch, HHP-23, FHWA, 400 7th Street, SW., Washington, D.C. 20590 (202) 426-0215.

811-7/SAFETY IN CONSTRUCTION AND MAINTENANCE ZONES

Problem Statement: Roadway construction and maintenance can create situations that are hazardous not only to the road crews but to motorists and pedestrians as well.

Solution Considerations: Guidelines should be developed for construction and maintenance supervisors that outline practices and procedures that will assure the safety of motorists, pedestrians, and road crews.

LOCAL PROGRAMS

Traffic Barricade Manual: PHOENIX, AZ has published a Traffic Barricade Manual to help reduce accidents involving motorists, pedestrians, and workmen. The manual suggests ways to reduce congestion and confusion by providing uniform applications of standard traffic control devices in construction and maintenance areas. Contact: James W. Spark, Traffic Engineering Department, 251 West Washington Street, Phoenix, AZ 85003, (602) 262-6284.

FEDERAL PROGRAMS

FHWA Contributions: The manual on Uniform Traffic Control Devices contains a chapter which specifically describes the traffic control devices that should be used in and in advance of highway construction and maintenance operations. Other FHWA documented references on work zone activities include:

1) "Planning and Scheduling Work Zone Traffic Control," FHWA-1P-81-6, User Guide, October 1981.
2) "Determination of Drivers Needs in Work Zones," FHWA/RD-82/117, September 1982.
3) "Guidelines for the Application of Arrow Boards in Work Zones," FHWA-79-58, December 1978.

FHWA also has under study work zone geometric design requirements, traffic barrier use and delineation needs, speed control methods, and temporary lane delineation methods. Contact: Justin True, FHWA, HSR-30, Washington, D.C. 20590, (703) 285-2031.

812 Streets and Highways -- System Planning and Design Standards

812-1/FLEXIBLE DESIGN STANDARDS FOR HIGHWAY IMPROVEMENTS

Problem Statement: With the phasing out of some categorical Federal street and highway funding programs, State and local governments now, more than ever, need to stretch every improvement dollar. As a result of decreased Federal funding, a smaller number of transportation projects will be subject to Federal design guidelines. Local and State governments need ways to assess tradeoffs involved in roadway improvements that have been previously considered substandard designs by Federal funding agencies. Long-term cost savings are expected to accrue from flexible design standards for highway improvements.

Solution Considerations: A method needs to be developed to identify specifically the safety, traffic flow, and environmental impacts of highway designs that do not meet current Federal standards.

PROGRAMS

Design Standards Revision: AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) is in the process of revising current design policies. They will be published in "A Policy on Geometric Design of Highways and Streets." The revised standards could have a significant impact on the flexibility of design standards, particularly in urban areas. Contact: AASHTO, 444 North Capitol Street, Washington, DC 20001, (202) 624-5800.

812-2/HIGHWAY ACCESS CONTROL

Problem Statement: Major highways cannot function effectively unless access is controlled. But, as development occurs, demands are made for additional access.

Solution Considerations: A guide for city and county governments could be developed to identify the standards that have been set by local governments which have constructed locally-funded limited access, high-capacity facilities. The guide should include such topics as: (1) the type of access control, grade separation, and median used for each type of highway facility developed; (2) the provision of dedicated transit lanes or high occupancy vehicle lanes; (3) the need for landscaping; and (4) funding sources. Furthermore, estimates of current and design average daily traffic volumes would be helpful.

LOCAL PROGRAMS

Access Control Techniques: DENVER, CO will use access control techniques in an effort to maintain capacity along a recently completed four-lane arterial in a fast growing section of the city. Service and frontage driveways, painted medians, access controls to new subdivisions, and coordinated signalization will be provided. Contact: Jack Gillespie, Preconstruction Engineer, FHWA Division Office, 10488 West 6th Place, Denver, CO 80215, (303) 234-4425.

Access at Cross Roads: JONESBORO, AR will use access control techniques along a four-lane at-grade highway near the city. Service roads will be provided to allow access to the highway to be closed off except at cross roads. Contact: Bob Walters, Roadway Design Engineer, Arkansas State Highways and Transportation Department, 9500 New Benton Highway, Little Rock, AR 72203, (501) 569-2000.

Access Control Demonstration Project: AURORA, CO is participating in an access control demonstration project that will examine a variety of techniques to manage access and improve highway safety, including median construction, intersection realignment, frontage-type roads, driveway consolidation, and stricter access control. The Colorado Department of Highways and Arapahoe County are also participating in the demonstration project. Contact: Frank Mizner, Transportation Planner, 1470 So. Havana Street, Aurora, CO 80012, (303) 695-7250.

Driveway Access to Highways: COLUMBUS, OH has developed a set of rules that define driveway application procedures and specific criteria for approval or denial of the application. Factors considered include the classification of the roadway, physical characteristics, speed limit, existing driveways or intersections, and type of land use. The Official Rules and Regulations for Approval of Driveway Plans has been used successfully since 1979 and has not been contested in court. Contact: David Younger, Transportation Planning Engineer, City of Columbus, Traffic Engineering Division, 50 W. Gay Street, Columbus, OH 43215, (614) 222-7790.

STATE PROGRAMS

Draft State Highway Access Code User's Manual: COLORADO STATE DEPARTMENT OF HIGHWAYS has prepared a highway access code user's manual for use by lay persons. The manual was prepared in conjunction with the State's draft Highway Access Code. Contact: Philip B. Demosthenes, Senior Transportation Specialist, Colorado State Department of Highways, 2000 South Holly, Denver, CO 80222, (803) 757-9252.

Guidebook for Access Management: OREGON DEPARTMENT OF TRANSPORTATION has developed guidelines for access management. Contact: Strategic Planning Section, Policy and Program Development, Oregon DOT, Transportation Building, Salem, OR 97310, (503) 378-8271.

FEDERAL PROGRAMS

Evaluation of Techniques for the Control of Direct Access to Arterial Highways and Technical Guidelines for the Control of Direct Access to Arterial Highways, Vols. I and II: FEDERAL HIGHWAY ADMINISTRATION has prepared research and implementation reports which delineate 71 alternatives designed to improve safety and/or traffic operations on arterial highways.
Contact: George B. Pilkington, II, Project Manager, FHWA, HSR-20, 400 7th Street, S.W., Washington, D.C. 20590, (703) 285-2057.

Access Management for Streets and Highways: FEDERAL HIGHWAY ADMINISTRATION has prepared a report which updated the access control state-of-the-art by combining State and local efforts with the 71 alternatives developed in the earlier FHWA research study.
Contact: Michael E. Robinson, Implementation Manager, FHWA, HRT-20, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-9211.

Training Course: A 3-day training course in access management for streets and highways is available from the FHWA. Contact: Harry H. Hersey, National Highway Institute, HHI-20, FHWA, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-9141.

812 Streets and Highways--System Planning and Design Standards

812-3/FREEWAY RECONSTRUCTION STANDARDS

Problem Statement: The reconstruction of urban freeways is difficult due to the general unavailability of right-of-way and proximity of development.

Solution Considerations: A set of design standards for freeway reconstruction is needed in order to minimize adverse right-of-way and land use impacts. The FHWA should establish reconstruction design standards that are lower than those for new construction or those set for ex-urban areas. The reconstruction design standards, however, should still satisfy minimum capacity and safety standards.

812-4/RIGHT-OF-WAY MANAGEMENT AND ACQUISITION

Problem Statement: It is taking longer for transportation facilities to go from plans to construction. Local governments have been unable to protect rights-of-way, and as a result, structures have been constructed in the paths of new transportation facilities, increasing public costs and environmental impacts.

Solution Considerations: Develop innovative ways for local governments to acquire rights-of-way for future transportation facilities, and to compensate landowners for not using their properties until some indefinite time in the future. Legal implications of such actions need to be addressed.

812-5/NARROW RIGHT-OF-WAY DEDICATION

Problem Statement: Rights-of-way are costly to construct and maintain and are a serious source of property tax loss.

Solution Considerations: Narrower street rights-of-way and pavement widths should be adopted in city transportation plans, particularly in residential areas.

812-6/SERVICE ROAD DESIGN AND OPERATION STANDARDS

Problem Statement: Selection of best design and operation of service roads is very difficult. Local governments need to know the approximate point at which service roads should intersect minor streets and major highways. There is also a need to understand when service roads should be one-way or two-way, and when one-way service roads are used, whether the direction should be the same as that of the main street.

Solution Considerations: Develop service road design and operation standards based upon data from local governments experienced in constructing service roads. The pros and cons of each configuration should be fully addressed.

812-7/PARKWAY AND BOULEVARD DEVELOPMENT

Problem Statement: Frequently, roadway design is incompatible with adjacent land use. Often roadway design does not take full advantage of any existing natural resources nor are provisions made for landscaping the roadway.

Solution Considerations: Is financial assistance available to build roads such as parkways and boulevards that can be designed to be compatible with adjacent land uses? What planning and design criteria should be considered?

LOCAL PROGRAMS

Boulevard Transformation: DETROIT, MI is presently acquiring right-of-way for the construction of Martin Luther King, Jr. Boulevard, which will be an attractive, well-landscaped, divided roadway in a presently blighted area. The roadway improvement plans have stimulated adjacent land use development. A report describing the planning process and citizen participation throughout the project is available. Contact: Michael Kobran, Administrative Engineer, Transportation Engineering Division, Department of Transportation, 1301 E. Warren, Detroit, MI 48207, (313) 224-4919.

813 Streets and Highways -- Construction Materials and Techniques

813-1/POTHOLE PATCHING MATERIALS

Problem Statement: Potholes are a significant problem for local and State governments. Development of longer-lasting pothole patching materials available at a reasonable price and suitable for year-round application would benefit nearly all citizens and governments.

Solution Considerations: Cold-patch materials with good adherence and service life should be further developed and tested. New techniques for pothole repair should be explored. Solutions should be easy to use and cost effective.

PROGRAMS

Public Technology, Inc.'s Urban Technology System (UTS) has conducted field tests using a cold patch material called Sylvax which is a commercially available mix that can be stockpiled, used in cold, wet weather, and requires no special preparation. Sylvax has saved Jersey City $9,000 in one year. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: UTS Staff, (202) 626-2400.

813-2/ASPHALT REMOVAL AND RECYCLING

Problem Statement: Rising oil prices have driven up the cost of asphalt paving and patching. This has resulted in lower maintenance levels due to budget constraints and has increased local officials' interest in recycling asphalt materials when resurfacing streets. Also, traditional overlay resurfacing methods are limited by curb heights, manholes, drainage inlets, overhead clearances, and other fixed objects in the right-of-way. Existing recycling techniques are difficult to use in urban areas because of their side effects--noise, dust, fumes, and traffic disruption. Environmentally sound and economical pavement removal and recycling technologies are needed.

Solution Considerations: 1) A review of the state-of-the-art and state-of-the-practice in asphalt paving, patching, removal, and hot and cold recycling. 2) Development of products to preserve and renew asphalt paving material, including (a) a seal coat applied at time of placement to restore volatiles, (b) a seal coat to eliminate and inhibit cracking, and (c) a product which could be mixed with a scarified surface to restore pavement life. 3) Development of a technology that will reduce the air and noise pollution problems of pavement removal and recycling. 4) Development of specification guidelines that provide economic incentives to contractors for recycling. 5) Investigation of the effectiveness of a rubberized asphalt inner layer or other materials for reducing reflective cracking in bituminous overlays.

LOCAL PROGRAMS

Slurry Seal: GREENSBORO, NC is considering the use of a slurry seal on streets that have been ground down and appear to be structurally sound and offer an acceptable riding surface. Contact: Bill Hanford, City of Greensboro, Drawer W-2, Engineering Division, Greensboro, NC 27402, (919) 373-2372.

Asphaltic Emulsion and Stone Surface Preparation: GREENSBORO, NC prepares existing pavement surface prior to resurfacing by distributing a film of asphaltic emulsion followed by 18 lbs. of #78M stone per square yard surface. This is rolled and opened to traffic for several days. Then the residue is swept up and a 3/4" overlay is put down. After several years of use, the procedure has proven to be quite satisfactory. Contact: Donald E. Knibb, Assistant Director of Public Works, Drawer W-2, Greensboro, NC 27402, (919) 373-2074.

FEDERAL PROGRAMS

FHWA's Demonstration Projects Division has numerous programs and demonstration opportunities for asphalt repair. The demonstration projects for asphalt recycling, which include sites for use of products to preserve and regenerate asphalt paving and scarifying or removal of existing surfaces to restore pavement life, are Demonstration Projects No. 39, Recycling Asphalt Pavements, and No. 37, Discarded Tires in Highway Construction. Demonstration Project No. 39 presents the latest information on the state-of-the-art on surface, cold and hot asphalt recycling. Contact: Doug Brown, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

Training Course: The Federal Highway Administration (FHWA) and the National Highway Institute (NHI) are sponsoring a 32-hour training course entitled, "Techniques for Pavement Rehabilitation" for Federal, State, and local engineers involved in design and construction of rehabilitation type projects. Contact Mr. Juri Raus, HHI-20, FHWA, 400 - 7th Street, S.W., Washington, D.C. 20590, (202) 426-9141.

813-3/CONCRETE REPAIR AND SURFACE TREATMENTS

Problem Statement: Petroleum prices have skyrocketed, making petroleum-based repair materials quite expensive. Repair materials also take considerable time to prepare and set up. Thin bituminous overlays over aging concrete pavements are a desirable method of repair, but have generally yielded unsatisfactory results, breaking up in the first few years.

Solution Considerations: 1) A review of asphalt repair materials is needed , considering costs, load strength, setup time, environmental acceptability, ease of storage, and preparation requirements. (2) Cost-effective bituminous overlays should provide a comfortable riding surface, and require little maintenance for a 5-year period. Improved overlay technology could result from (a) experiments with high-penetration asphalts in the mix (up to 200-300 penetration) and varying pavement thicknesses and (b) experiments with placement of a very thin leveling course preceding thin wearing course overlay, and use of tack coats to insure bonding reliability.

FEDERAL PROGRAMS

FHWA's Demonstration Projects Division has a demonstration project for bridge deck repair and maintenance techniques under Demonstration Project No. 51. The project utilizes many different methods of bridge repair. Contact: Darrell Maret, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

813-4/CONCRETE REMOVAL

Problem Statement: The present method of removing concrete for repaving is cumbersome for use in small areas.

Solution Considerations: An efficient device to disintegrate the pavement without excessive noise should 1) not exceed allowable decibel ratings and meet Occupational Safety and Health Administration standards, 2) be easily portable and operable by one individual 3) be pneumatic or electrically powered. Costs of its use should not exceed present (1/23/75) cost of $.35 per square foot, including labor and equipment, for disintegration and haul-away.

FEDERAL PROGRAMS

FHWA's Demonstration Projects Division has a demonstration project for concrete recycling techniques for the reuse of concrete as aggregates. Many methods of concrete removal are demonstrated. Contact: Steve Boch, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

Training Course: The Federal Highway Administration (FHWA) and the National Highway Institute (NHI) are sponsoring a 32-hour training course entitled, "Techniques for Pavement Rehabilitation" for Federal, State, and local engineers involved in design and construction of rehabilitation type projects. Contact Mr. Juri Raus, HHI-20, FHWA, 400 - 7th Street, S.W., Washington, D.C. 20590, (202) 426-9141.

813-5/SALT AND WEATHER RESISTANT BRIDGE AND CONCRETE PAVEMENT MATERIALS

Problem Statement: There is a fairly rapid deterioration of steel and concrete bridges due to moisture, salting, and freeze-thaw cycles. The problem is significant nationwide, and the cost of repair and replacement of bridges is quite high.

Solution Considerations: Solutions should not require replacing the deck or closing the bridge to traffic for long periods. An epoxy or sealer for concrete and protective paint for exposed steel may be a solution. Various techniques should be evaluated for effectiveness and cost.

LOCAL PROGRAMS

Oil Treatment of Concrete Bridge Decks: HENNEPIN COUNTY, MN, has been using various types of oil treatments on bridge decks in hope of reducing winter deterioration. No results from these tests are available as of late 1981. Contact: Craig Spencer, Administrative Assistant, Bureau of Public Service, Hennepin County, A-2303 Government Center, Minneapolis, MN 55487, (612) 348-4182.

FEDERAL PROGRAMS

FHWA's Demonstration Projects Division has demonstrations involving bridge repair and various techniques for protecting the concrete and bridge reinforcing steel therein. They are Demonstration Projects No. 34, Cathodic Protection for Reinforced Concrete Bridge Decks; and No. 51, Bridge Deck Repair and Maintenance Techniques. Contact: Donald Jackson or Darrell Maret, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

813-6/CONCRETE STRENGTH MEASUREMENT

Problem Statement: There is a need for a testing procedure or device to determine concrete strength immediately after pouring.

Solution Considerations: 1) The test must be fast enough so that results are obtained before drying is complete. 2) The test should be usable in all types of weather.

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813 Streets and Highways--Construction Materials and Techniques

813-7/NOISE REDUCTION THROUGH IMPROVED PAVEMENT MATERIALS AND DESIGN

Problem Statement: Increased tire noise levels result from wear on asphalt and concrete pavements due to the exposure of aggregate on the pavement surface.

Solution Considerations: 1) More frequent resurfacing. 2) Different sized aggregate near the surface. 3) Improved wearing properties of asphalt or concrete paving materials. 4) Research as to which surface texture and surface properties yield the lowest noise levels under traffic loads at varying speeds. 5) Comparison of the noise abatement capabilities of pavement overlays and the increasing noise as vehicular speed increases. 6) Solution should not significantly reduce the coefficient of friction between pavement and rubber tires under wet conditions.

LOCAL PROGRAMS

Low-Speed Urban Streets: WASHINGTON, DC has tested the effectiveness of asphalt overlays in reducing noise levels on three low-speed urban streets. Contact: Tom Downs, Director, DC Department of Transportation, 415 12th Street, NW, Washington, DC 20004, (202) 727-5847.

FEDERAL PROGRAMS

FHWA's Office of Implementation has an Implementation package entitled Porous Friction Courses and Roadway Surface Noise (package number 74-11). Contact: Dr. Leonard Wood, HRT-10, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9217.

813 Streets and Highways--Construction Materials and Techniques

813-8/ANTI-SKID PAVING MATERIAL

Problem Statement: Skidding vehicles are a serious safety problem. An anti-skid paving material is one solution.

Solution Considerations: 1) The material should be durable enough to withstand heavy traffic. 2) The material should be low-cost for large-scale deployment, but if expensive, should be used only at intersections.

FEDERAL PROGRAMS

FHWA's Demonstration Projects Division has several demonstrations pointed at anti-skid paving materials and measurements. Contact: Harold Weber, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

The FHWA Technical Advisory "Skid Accident Reduction Program" T5040.17, December 23, 1980. Contact: Mr. William T. Baker, HHS-12, FHWA, 400 - 7th Street, S.W., Washington, D.C. 20590, (202) 426-2131.

The AASHTO Guidelines for Skid Resistant Pavement Design. Contact: AASHTO, 444 North Capitol Street, N.W., Suite 225, Washington, D.C. 20001.

813-9/CRACKFILLING MATERIAL

Problem Statement: Present crackfilling techniques utilize a latex heated with propane fuel. The cost of the fuel and the latex is increasing each year. Time is lost due to injuries to employees handling the hot liquid.

Solution Considerations: 1) Research and development of an effective cold-liquid crackfilling material is needed. 2) A method should also be developed to determine the cost effectiveness of crackfilling on various pavement types.

FEDERAL PROGRAMS

The AASHTO in cooperation with FHWA is sponsoring through the National Cooperative Highway Research Program (NCHRP) a study entitled, "Resealing Joints and Cracks in Rigid and Flexible Pavements" (NCHRP Project 20-5, Topic 12-04) Contact AASHTO, 444 North Capitol Street, NW., Suite 225, Washington, D.C. 20001.

Current studies of crack sealing materials include:

1) Four FHWA value-engineering workshops on crack sealing, of which two have been conducted (Nashville-August 1982 and Montana-October 1982). States reporting at these workshops were unanimous in rating cold-applied crack sealant materials poor, except for silicone based materials which are high cost. A summary report of the findings will be published on completion of the four workshops.

2) An FHWA contract, "Rapid Patching Materials and Techniques for Both Flexible and Rigid Pavements," will be awarded in FY 1983.

3) An FHWA contract, "Wet Weather Patching," is planned for FY 1984.

4) A recently completed FHWA contract, "State of the Art of Patching - Crew Techniques," will be published in FY 1983.

5) Synthesis Study (Topic 12-04) "Resealing Joints and Cracks in Flexible Pavements" is to be published by the TRB in 1983.

FHWA Contacts:

Peter Kopac, HNR-40, (703) 285-2011, (Patching)
Byron Lord, HNR-30, (703) 285-2016, (Maintenance)
Chuck Niessner, HRT-10, (202) 426-9217, (Workshops)

813-10/USE OF MUNICIPAL INCINERATOR RESIDUE IN HIGHWAY PAVEMENT

Problem Statement: Incinerator residue may prove to be a suitable coarse aggregate for asphaltic concrete mixture. Not only would this reduce asphalt costs, but it would also provide a means for disposing of the residue.

Solution Considerations: Information about the performance and cost-effectiveness of using incinerator residue in road pavement is needed. Guidelines for pavement mixing, required particle size range, and the effects of residue composition on pavement performance are needed. What problems have been experienced where pavement has included incinerator residue?

LOCAL PROGRAMS

Incinerator Residue in Roadway Construction: WASHINGTON, DC has asphaltic mixture residue for curb and gutter work that contains incinerator residue as the coarse aggregate. Core samples are being analyzed for moisture content, asphalt content, gradation, marshall stability with immersion density, AA content, VMA, and percent of voids. Contact: Tom Downs, Director, DC Department of Transportation, 415 12th Street, NW, Washington, DC 20004, (202) 727-5847.

Fly Ash in Pavement: The Conservancy District in DAYTON OHIO, used fly ash on a bikeway demonstration project. An evaluation has been completed. Contact: Ted Baker, Transportation Coordinating Committee, 117 S. Main Street, Suite 200, Dayton, OH 45402, (513) 223-6323.

FEDERAL PROGRAMS

FHWA's Demonstration Projects Division has demonstrated use of fly ash from coal-fired power plants in lime fly ash aggregate base and as a replacement for cement in portland cement concrete, as part of project no. 59. Contact: Doug Benard, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

FHWA's Office of Engineering and Highway Operations Research and Development:

Research on the use of municipal incinerator residue in highway pavement is incuded in Federally Coordinated Program 6C, "Use of Waste as Material for Highways." A number of contracts and studies on incinerator residue

have been conducted. See:

1. "Three Year Results on the Performance of Incinerator Residue in a Bituminous Base," FHWA-RD-78-144, August 1978, NTIS PB 297978/AS.

2. "Field Performance of Littercrete (Incinerator Residue) in a Bituminous Base Course," FHWA-RD-82-022, September 1981, NTIS 82-169962.

The use of fly ash in highway pavement is covered in another FCP 6C task on "Industrial Waste." This task is to eveluate the feasibility of converting wastes which result from industrial production processes into useful highway materials. See:

1. "Fly Ash as Mineral Filler and Anti-Strip Agent for Asphalt Concrete," FHWA-AZ-81/173, January 1981.

2. "Kiln Dust-Fly Ash Systems for Pavement Bases and Subbases," FHWA DTFH61-81-C-00037, Final Report in preparation.

Additional research in fly ash and incinerator residue is available. Contact:

Dr. W.C. Ormsby, Materials Technology and Chemistry Division HNR-40, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101 (703) 285-2004.

Mr. T. Paul Teng, Pavement Division HNR-20, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101 (703) 285-2062.

813-11/EXPANSION JOINTS IN CONCRETE PAVEMENTS ADJACENT TO BRIDGES

Problem Statement: The expansion of concrete pavements has caused stress and damage to some bridges. In some instances, it has been necessary to provide relief joints immediately adjacent to a bridge to prevent further damage.

Solution Considerations: Recommendations should include 1) time of placement, 2) where and how expansion joints should be placed, 3) ease of construction and pavement ride quality, and 4) comparability of costs with those of present methods of construction.

813-12/LOW COST ALLEY SURFACES

Problem Statement: The surface condition of alleys is extremely deteriorated in many older cities, where alleys are unpaved or have not been maintained for decades. This has resulted in various problems including impassable driving surfaces, poor drainage, and fugitive dust. Complete drainage control and concrete or asphalt surfacing are in many cases prohibitively expensive. Low cost solutions are needed.

Solution Considerations: Information and research on low cost techniques for improving the surface condition and drainage of urban alleys are needed. Alley surfaces must be capable of withstanding the loads imposed by garbage trucks. Solutions might be adapted from research on low-volume roads in developing countries.

813-13/IMPROVED MANHOLE LID AND FRAME SEAL

Problem Statement: Current methods for preventing inflow and infiltration into manholes require that the vent holes be plugged and the lid sealed to the frame by asphaltic material and the frame sealed to the manhole chimney with cement mortar. It is sometimes necessary to cut the pavement to reset the manhole frame, resulting in obstructions to traffic flow. Manhole sealing and the adjustment of manhole frames to changes in pavement surface made necessary by repairing or pavement settlement are expensive and often must be done annually or every few years.

Solution Considerations: The system to prevent inflow and infiltration should 1) be economical to install and maintain; 2) be able to withstand great temperature changes; 3) be resistant to salt used in ice control; and 4) be able to be implemented without cutting the pavement in order to achieve minimal traffic restriction.

LOCAL PROGRAMS

Manhole Lid and Frame Sealing: THE MILWAUKEE METROPOLITAN SEWERAGE DISTRICT is presently developing a system of using a manhole lid with a rubber gasket and an expandable rubber gasket between the manhole frame and manhole chimney. This method has not been tested, and the City of Milwaukee is still looking for new or proven methods of preventing the inflow and infiltration. Contact: Milwaukee Metropolitan Sewerage District, 735 North Water Street, Milwaukee, Wisconsin 53202.

Adjustable Manhole Cover: An adjustable manhole cover, developed in Sweden, now is being produced by three foundries in North America. The Preko manhole frame can be raised or lowered up to four inches in minutes without removing the cover. This is a time and money saver when pavement settles or after repaving. Traffic tie-ups are not as likely since the adjustment process is so quick. Each manhole has been tested with loads of over 80,000 pounds. OKLAHOMA CITY, Oklahoma and a number of other U.S. cities are now using the device. Contact: George Wynn, Council for International Urban Liaison, 818 18th Street, NW, Washington, DC 20006, (202) 223-1434.

813-14/SOIL COMPACTION TECHNIQUES

Problem Statement: Problems are caused by the settlement of backfill materials used in the excavated or fill area next to bridge abutments and retaining and foundation walls. Settlement still occurs, even with the use of the best compaction techniques and recommended backfill material presently available. A floating slab placed on this fill, therefore, also settles. The resulting differential in elevation between a supported slab and a slab placed on fill causes an undesirable, and in some instances, dangerous condition for both vehicles and pedestrians.

Solution Considerations: A new compaction technique should reduce settlement so that roadways maintain smooth riding surfaces for motor vehicles and sidewalks maintain smooth surfaces for the ease and safety of pedestrians.

FEDERAL PROGRAMS

"The bump at the end of the bridge" problem has plagued the highway engineer for many years. The consensus is that consolidation of the foundation soil beneath abutment embankments is usually responsible for settlement of the bridge approach pavements rather than the internal settlement of the fill. Bridge abutments for many structures are founded on piles which settle very little while the foundation soil for the backfill settles more due to the weight of the backfill. In areas where consolidation of foundation soils is anticipated, techniques such as preloading, with or without sand drains, lightweight backfill material, stone columns, and dynamic compaction have been used to minimize the differential settlement of abutment and embankment. Present techniques for designing and constructing bridge approach embankments are reasonably adequate to insure minimum settlement within the fill itself. A number of States place bridge abutments on spread footings (where applicable) so that the abutment and backfill settle uniformly, thereby eliminating the bump. Current research under FCP Project 4H is directed toward improving spread footing design and construction methods, and Project 4M includes development of cost effective ground improvement methods for foundation soils.

Contact:

Albert F. DiMillio or Donald G. Fohs
Construction, Maintenance and Environmental Design Division, HNR-30
Office of Engineering and Highway R&D
703-285-2016

Carl Ealy
Structures Division, HNR-10
Office of Engineering and Highway Operations R&D
703-285-2016

813-15/SOIL AND SLOPE STABILIZERS

Problem Statement: At present, it is necessary to rely on publications and manufacturers' representatives for information on soil-stabilizing agents for low-cost surfaced roads. A publication summarizing current published information and indicating the kind of agent appropriate for particular soil types, with rough cost data, would be useful to local officials. Particular attention should be given to use of indigenous materials as a subbase and to improved dirt road stabilization material. The use of soil stabilization agents for street and highway right-of-way slopes should also be discussed.

Solution Considerations: 1) Thorough research should be done to evaluate present road specifications and stabilizer performance. 2) Evaluation of stabilizers should be based on test experiences. 3) Trade-offs and applicability of soil stabilization agents vs. retaining or crib walls for slope stability should be summarized.

FEDERAL PROGRAMS

Implementation Package FHWA-IP-80-2, "Soil Stabilization in Pavement Structures, A User's Manual," summarizes the current state-of-the-practice and provides guidelines for calculating cost effectiveness of soil stablization. The Special Products Evaluations List (SPEL) summarizes the results of testing programs conducted to evaluate the effectiveness of soil stabilizing agents. "Upgrading Unpaved Roads - Road Base Stabilization Using Lime and Lime Fly Ash" presents information on the use of indigenous materials and treating soils using lime and fly ash for providing higher type pavements.

Contact:

Donald G. Fohs
Construction, Maintenance and Environmental Design Division, HNR-30
Office of Engineering and Highway Operations R&D
703-285-2016

813-16/IMPROVED RAILROAD GRADE CROSSINGS

Problem Statement: There are thousands of rough, substandard railroad crossings presenting serious safety hazards and damaging vehicle tires and wheels, wheel alignment, shock absorbers, and steering mechanisms. Maintenance of the crossings is costly and difficult because of the repeated shock loads from rail traffic and truck traffic. Light vehicles, such as mopeds and bicycles, are put at hazard by poorly maintained rail crossings.

Solution Considerations: 1) Review the state-of-the-art and evaluate the effectiveness of patented materials and processes. 2) Develop specifications for track preparation and develop recommendations for surface cover design and materials based on light, medium, and heavy traffic volumes, to ensure a smooth ride. 3) Estimate life expectancy, comparative capital cost, and expected yearly maintenance cost.

STATE PROGRAMS

New Repair Methods: The RHODE ISLAND State Department of Transportation has developed a process for tripling the useful life of a grade crossing. Two and a half-inch thick rubber pads are placed between the rails, a new method of preparing the track's base cuts down frost heaves, the tracks are welded together to produce a continuous rail, and the crossing area is replaced and resurfaced. Average cost per crossing is $78,000. Contact: Stan Chorney, Department of Transportation, Room 237, State Office Building, Providence, RI 02093, (401) 277-2086.

FEDERAL PROGRAMS

Crossing Surface Analysis: A research study is planned for FY 84 to address this problem area. Contact: Janet Coleman, FHWA, HSR-30, Washington, D.C. 20590, (703) 285-2027.

A previous limited analysis of crossing surfaces was done in 1979. Only limited cost data were available at that time. The results were documented in FHWA Technical Advisory T 6120.1, December 10, 1980. Contact: James Overton, FHWA, HNG-12, Washington, D.C. 20590, (202) 426-4250.

814-1/SNOW REMOVAL AND DEICING ALTERNATIVES

Problem Statement: The use of deicing chemicals has become standard practice to assure a bare pavement. The side effects are, however, costly in terms of the damage done to roadways and bridges, as well as to motor vehicles. The effects on ecological systems are also becoming a concern.

Solution Considerations: Storage and spreading practices should be modified and improved. Substitute anti-skid and deicing materials are needed. Bridge deck sealers may be a solution, but perhaps the use of chemicals on bridges should be eliminated.

FEDERAL PROGRAMS

FHWA's Office of Implementation has programs in this area. Contact: Dr. Leonard Wood, HRT-10, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9217.

FHWA: Materials Technology and Chemistry Division has a project to evaluate calcium magnesium acetate (CMA) as an alternative deicer. A preliminary study identified CMA as an effective deicer having less corrosive properties on highway bridge materials than salt. It also does not have any of the environmental problems that salt has. Several contracts and staff studies within this project will determine quantitatively the environmental acceptability of CMA, develop methods for its economical production, define its technical merits, and develop guidelines for its use.

Contracts now underway or being negotiated (FY 1983) in this project:

1. Environmental Evaluation of Calcium Magnesium Acetate (CMA) as an alternate deicing chemical.

2. Develop Methods and Operate a Pilot Plant to Produce Calcium Magnesium Acetate (CMA).

3. Ice-Melting Characteristics of Calcium Magnesium Acetate (CMA).

4. Corrosion Potential and Chemical Effects of Calcium Magnesium Acetate (CMA) on Highway and Bridge Structural Materials.

Contact:

Dr. Brain H. Chollar, Federal Highway Administration, HNR-40, Washington, D.C. 20590 (703) 285-2004.

FEDERAL PROGRAMS

FHWA: Engineering and Highway Operations Implementation Division has STUDIES ON IMPROVED SPREADING PRACTICES.

Contacts now Underway:

1. Salt Brine Snow and Ice Removal System.

2. Application of Hot Winter Sand for Ice Control.

Contact:

Ernest Blais, Federal Highway Administration, HRT-10, Washington, D.C. 20590 (202) 426-9223.

ADDITIONAL PROGRAMS

The Urban Technology System, funded by the National Science Foundation through Public Technology, Inc., has developed a "wetted salt" process. Ordinary road salt is prewetted with liquid calcium chloride solution in the ratio of 8 to 10 gallons per ton of salt. The liquid calcium chloride has the effect of creating an instant brine regardless of air temperature. All the particles work, cutting rapidly through to the road surface and breaking the bond between the road surface and the ice layer. Implementation requires two items: a storage tank for calcium chloride and a dispensing system for application. The benefits of liquid salt are: 1) within 30 to 40 minutes after application of the mixture, ice or packed snow can be removed by squeegee action, even at below-zero temperatures, 2) once the bond to the road surface is broken, it stays broken for a period of time lasting up to several days under ideal conditions, eliminating resalting, 3) treated salt particles are more effective than dry salt particles and tend to stick immediately where applied; thus salt requirements are cut 30 to 50%, 4) use of wetted salt decreases deleterious effects on road surfaces and vehicles and adverse environmental effects, and 5) the reduced cost of salt more than offsets the small additional cost of calcium chloride. Contact: UTS Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2400.

814-2/ALTERNATIVES TO CONVENTIONAL TRAFFIC PAINTS

Problem Statement: Conventional, cold, traffic marking paints typically require a 20-minute drying period. Thus, traffic cones must be placed, disrupting traffic flow and creating safety problems. Because of their short service lives, these paints must be re-applied frequently. While thermoplastic paint sets hard in a very short time and has a longer life, it is expensive and difficult to remove.

Solution Considerations: Improved traffic marking paints need to be developed and evaluated with the following objectives: fast drying time (less than one minute), low cost of application (preferably using existing standard equipment), suitability for both asphalt and concrete, ease of removal, long service life under traffic loads, high reflectivity in wet and nighttime conditions, and suitability for application at temperatures between 40 and 110° F. Molecularly bonded paints show promise but have not yet been adapted to use in traffic marking applications.

LOCAL PROGRAMS

Hot Paint Application: GREENSBORO, NC adapted its 8-year old truckmounted street painting equipment to apply hot paint. This modification was completed at a reasonable cost and enabled the city to prolong the usefulness of this equipment at 20% of the cost of new equipment. The hot paint used dries in 30-60 seconds. Labor requirements have been reduced and productivity increased. Traffic cones are not needed to protect newly-applied paint. Contact: R.G. Welch, Department of Traffic and Transportation, Drawer W-2, Greensboro, NC 27402, (919) 373-2332.

Quick-drying Paints: PHOENIX, AZ uses a quick-drying paint that eliminates the need to use traffic cones. Contact: James W. Sparks, Assistant City Traffic Engineer, 251 West Washington Street, Phoenix, AZ 85003, (602) 262-6284.

FHWA's Demonstration Projects Division will announce a project to test epoxy thermoplastic paint (Epoflex) which is much more durable than regular paint. Contact: King Gee, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

814-3/INCREASED LANE LINE REFLECTIVITY

Problem Statement: All roadway lane lines tend to blend in with the surface of wet pavement in the dark. This constitutes a safety hazard.

Solution Considerations: A durable pavement marking with increased reflectivity, particularly under dark, wet conditions, is needed.

FEDERAL PROGRAMS

FHWA's Office of Implementation has reports, movies, and Implementation Packages in this area. Contact: Dr. Leonard Wood, HRT-10, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9217.

814-4/TRAFFIC PAINT REMOVAL

Problem Statement: It is sometimes necessary to remove existing traffic striping painted on roadway surfaces. The present method of covering it with black paint is problematic because the paint often wears away or becomes glossy.

Solution Considerations: Developments needed include: 1) A chemical that will dissolve paint but not asphalt. 2) A cover paint that does not wear off easily.

LOCAL PROGRAMS

Low Cost Grinders: SAN JOSE, CA is using large, inexpensive grinders to remove traffic paint. These grinders do not create the noise and dust problems associated with sandblasters. The grinding method increased production. Contact: Dominic Scaglione, Public Works Department, 4420 South Monterey, San Jose, CA 95111, (408) 277-4691.

Slurry Seal Cover: PHOENIX, AZ uses a slurry seal consisting of cement, sand, and emulsified asphalt to cover old traffic paint lines. Contact: James W. Sparks, Assistant City Traffic Engineer, 251 West Washington Street, Phoenix, AZ 85003, (602) 262-6284.

FEDERAL PROGRAMS

FHWA's Office of Implementation has reports, movies, and Implementation Packages in this area. Implementation Package number 77-16 (June 1977) describes the design, operations, and maintenance of two devices that remove paint stripes by high temperature burning. Contact: Dr. Leonard Wood, HRT-10, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9217.

814-5/VANDAL-RESISTANT SIGN MATERIALS

Problem Statement: Defacing of signs, usually with spray paint or stickers, reduces the effectiveness of traffic signs and repairs are costly. Removing paint or stickers usually destroys the reflectivity of signs. A solution to this problem might apply to transit vehicles and building walls.

Solution Considerations: 1) Development of materials to which spray paint and stickers will not adhere. 2) Development of materials that are not damaged by paint remover or adhesive solvent.

LOCAL PROGRAMS

Pedestrian Signal Relocation: BALTIMORE, MD has embarked on a program to elevate pedestrian signals to combat increased vandalism. All pedestrian signals are being raised from 7 to 11 feet above the sidewalk surface. Vandalism is down approximately 95% at all raised signal locations. There has been no negative public reaction. Contact: William Zeller, Department of Transit and Traffic, 414 North Calvert Street, Baltimore, MD 21202, (301) 396-3040.

814-6/PAVEMENT VOID DETECTION

Problem Statement: Voids beneath roadway pavements represent a hazard to vehicular traffic. In most instances, a portion of the roadway collapses before the void is detected.

Solution Considerations: Research and the development of a new technique for determining the location, size, and depth of voids and subgrade settlements are needed. The technique should involve a minimum of pavement damage.

FEDERAL PROGRAMS

The Federal Highway Administration (FHWA) and the National Highway Institute (NHI) are sponsoring a 32-hour training course entitled, "Techniques for Pavement Rehabilitation" for Federal, State, and local engineers involved in design and construction of rehabilitation type projects. Contact: Mr. Juri Raus, HHI-20, FHWA, 400 - 7th Street, SW., Washington, D.C. 20590, (202) 426-9141.

FHWA's Office of Engineering and Highway Operations Research and Development: Electrical resistivity has been used to detect voids or sinkholes in Alabama and Florida, as described in report number FHWA-RD-75-80, "Detection of Subsurface Cavities by Surface Remote Sensing Techniques." Radar is being used to detect shallow voids (less than 5 feet deep) beneath pavements in Virginia, Ontario, and New York. Infrared thermography is also used to detect voids beneath pavements. See FHWA-RD-73-52, "Detection and Definition of Subsurface Void Spaces by Ground-Based Microwave Radiometers," and National Cooperative Highway Research Program Report Number 237, "Locating Voids Beneath Pavement Using Pulsed Electromagnetic Waves." Contacts: Peter Kopac, James Koca, or Donald G. Fohs, Construction, Maintenance, and Environmental Design Division, HNR-30, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101 (703) 285-2016.

814-7/LOCATING UNDERGROUND UTILITIES

Problem Statement: In most instances, roadway improvement and maintenance projects require information on exact locations and depth of underground utility conduits. Present procedures require early notification and lead time to permit the location of these facilities by the owners.

Solution Considerations: Research and the development of a rapid and reliable method for locating and determining the depth of underground conduit and pipes are needed.

LOCAL PROGRAMS

One-Call Center: LOS ANGELES, CA uses a nonprofit utility location information service, Underground Service Alert (U.S.A.), for the Southern California area. The service has WATS lines for incoming calls and direct teletype links to subscribing members to advise them quickly of proposed excavation near their facilities. Owners of affected utilities respond within 48 hours directly to the excavator. Damages to utility plants from dig-ins have been reduced 20% to 40%. Contact: Duncan McNeil, Bureau of Engineering, Room 460, City Hall, 200 North Spring Street, Los Angeles, CA 90012, (213) 485-3455. Underground Service Alert, 12862 Garden Grove Boulevard, Suite 260, Garden Grove, CA 92643, (714) 537-5664.

ADDITIONAL PROGRAMS

Public Technology, Inc., is working with Microwave Associates, Inc., to demonstrate and manufacture an all purpose pipe locator called Terrascan for local government use. This device can be operated by one person and is designed for use by public works and utility field crews. Terrascan enables public works and utility crews to locate accurately buried utility lines prior to excavation work or for mapping purposes. It indirectly helps to reduce third-party accidental damage of buried utilities and improves safety for both excavation workers and the general public. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Terrascan, (202) 626-2400.

814-8/UTILITY TRENCH REPAIR

Problem Statement: Most cities allow utilities and private contractors to cut streets for utility work. However, often great difficulty is encountered when control is exercised in timing the cuts, monitoring the quality of the repairs, coordinating several projects, and assessing responsibility for failures once the repair is made. As a result, street deterioration is accelerated, and traffic blockages and trench failures occur.

Solution Considerations: Investigation should be undertaken to determine what control procedures can be used and to identify what Federal and State utility regulations are available for cities to use in controlling this activity. Information about successful local programs should be disseminated.

LOCAL PROGRAMS

Concrete Repair Inventory System: PRINCE GEORGE'S COUNTY, MD has developed a computerized system that will maintain data on all concrete sidewalks, curbs, gutters, and driveways needing repair, identified by street and address. The system will provide for the systematic updating of repair needs and will identify those needs resulting from poor utility construction and other causes. Contact: William E. Boyce, Department of Public Works and Transportation, 8400 D'Arcy Road, Forestville, MD 20028, (301) 350-3000, Ext. 110.

Utility Trench Repair: ROCHESTER, NY is in the processing of revising its City Code to allow for better monitoring of utility trench cuts and repairs. One revision being considered is a two year letter of credit warrant on repair work. The City is also in the process of setting up a computerized system to track the 5,000-10,000 utility trench cuts that occur annually. Contact: John E. Thomas, City of Rochester, 30 Church Street, Rochester, NY 14614, (716) 428-6824.

814-9/CURB, GUTTER, AND SIDEWALK REPAIR

Problem Statement: At present, a sidewalk, curb, or gutter can be repaired only by removing the entire area around the broken section and replacing it. Premature maintenance is often required due to poor quality reconstruction following utility work.

Solution Consideration: Improved repair methods are needed to fix damaged sidewalks, curbs, and gutters quickly and inexpensively without removal of the entire area around the broken section. Methods for tracking utility work could aid local governments in cutting costs of repairs by assigning these costs to the party responsible for damage.

LOCAL PROGRAMS

Concrete Repair Inventory System: PRINCE GEORGE'S COUNTY, MD has developed a computerized system that will maintain data on all concrete sidewalks, curbs, gutters, and driveways needing repair, identified by street and address. The system will provide for the systematic updating of repair needs and will identify those needs resulting from poor utility construction and other causes. Contact: William E. Boyce, Department of Public Works and Transportation, 8400 D'Arcy Road, Forestville, MD 20028, (301) 350-3000, Ext. 110.

815-1/TRAFFIC SIGNAL MAINTENANCE

Problem Statement: As traffic signal systems become increasingly sophisticated, attention should be focused on the development and implementation of up-to-date maintenance procedures, practices, and management techniques.

Solution Considered: Information should be provided about: 1) The number of man hours allocated to traffic signal maintenance in major cities. 2) Exemplary local level maintenance programs. 3) Maintenance needs of computerized and other electronic traffic signal systems. 4) The cost effectiveness of computerized signal systems in terms of improved traffic flow.

FEDERAL PROGRAMS

The Federal Highway Administration is currently involved in two major studies namely "Traffic Control System Reliability" and "Integrated Traffic Data System" which directly address problem statements 815-1 and 2. The Traffic Control System Reliability study encompasses the development of a computerized maintenance records system which will enable the determination of maintenance costs for operational traffic control systems. Additionally, computer programs will be developed to provide computerized inventory systems, and to analyze failure rate data for control system hardware.

Contact:

Pete K. Mills
Systems Technology Division, HSR-10
Office of Safety and Traffic Operations
Research and Development
Federal Highway Administration
Washington, D.C. 20590
(703) 285-2027

The Integrated Traffic Data System study encompasses the development of a computerized traffic data base which will enable the user to properly manage traffic data (such as volumes, timing plans, geometrics, etc.) in addition to the equipment available at each intersection.

Alberto J. Santiago
Urban Traffic Management Division, HSR-40
Office of Safety and Traffic Operations
Research and Development
Federal Highway Administration
Washington, DC 20590
(703) 285-2024

815-2/TRAFFIC CONTROL SYSTEM MANAGEMENT

Problem Statement: Manual and oftentimes non-uniform record keeping about installation and maintenance of traffic control devices prevents administrators from maximum use of limited financial resources. Such record systems do not provide the required management tools for planning, scheduling, monitoring, and evaluating installation and maintenance operations and do not provide accurate information to determine the actual cost of various operations.

Solution Considerations: A computer based traffic control device information and management system which: (1) can provide necessary information to administrative personnel, (2) requires minimum input, and (3) is easy to understand and use by field personnel. Installation and maintenance management systems must provide the necessary information to measure the productivity of individuals or crews, provide financial information for determining costs of various transportation engineering operations, provide the information to evaluate the performance of electrical and electronic traffic control equipment, and provide an objective basis for preparing annual maintenance budgets.

LOCAL PROGRAMS

Computerized Traffic Control Information and Management: GREENSBORO, NC is currently developing a computerized traffic control inventory and management system. This system includes: a computerized inventory of traffic signs, transverse pavement markings, longitudinal markings, traffic signal timings, and electronic traffic control equipment. Additionally, all work records are computerized in order to evaluate the efficiency of individuals or crews at various work tasks, and to automate the invoicing of maintenance work completed on non-city system streets. Contact: James R. Atkins, Assistant Traffic and Transportation Director, Drawer W-2, Greensboro, NC 27402, (919) 373-2332.

FEDERAL PROGRAMS

Traffic Control System Improvements: FHWA's Office of Highway Planning has published Overview of the Impacts and Costs of Traffic Control System Improvements. Contact: Gary E. Maring, Chief, Community and Environmental Planning Branch, HHP-23, Federal Highway Administration, 400 7th Street SW, Washington, DC 20590, (202) 426-0215.

815-3/TRAFFIC SIGNAL PRE-EMPTION ALTERNATIVES

Problem Statement: Signal pre-emption, which allows emergency or transit vehicles to alter signal timing for fast movement through a signalized network, has been demonstrated as an effective local strategy in many cities. Information on comparative costs, problems, and benefits of alternative pre-emption technologies is needed.

Solution Considerations: Different techniques are needed depending on the type of signal system that exists. Alternatives include the Opticom System, loop detectors imbedded in the street surface, and centralized computer control systems.

PROGRAMS

Traffic Signal Pre-emption: BONN, GERMANY has established a computer-based traffic light system to speed commuter flow, pace public transport, and set best routes and speeds for emergency vehicles. A central computer controls 280 signalized intersections, and microprocessors are located at each set of lights. Each traffic lane has inductive coils imbedded in it. Special features of this system include allowing buses to enter the traffic flow or cross the flow completely and giving priority to regular police and emergency vehicles on urgent business. Contact: John R. Savage, State and Local Government Liaison, Embassy of the United States, Bonn, Germany.

FHWA conducted a research study on this subject. The results were reported in Bus Signal Priority Strategies: A Literature Review and State of the Art Assessment and An Assessment of Future Research Needs, FHWA/RD-80/042 (June 1980). The authors were M. Yedlin, S. Hessami, H. Stein (with E. Lieberman for the second report). Another relevant report on this subject is NATO Committee on the Challenges of Modern Society report No. 45, Bus Priority Systems, published by the United Kingdom Road Research Laboratory (1976).

815-4/TRAFFIC SIGNAL INTERCONNECTION ALTERNATIVES

Problem Statement: Interconnection of traffic signals with improved signal timing can improve traffic flow and reduce energy use and air pollution. The cost of interconnection is substantial, however, often $2,000 to $10,000 per signal. Information and research is needed on ways to reduce the cost of interconnection between signals and between master and local controllers.

Solution Considerations: Information about signal interconnection alternatives should be assembled, discussing benefits and costs of various approaches in different cities. Hard-wire connections should be compared with telephone, cable TV, microwave, and other technologies for interconnection. Improved technology and construction techniques should also be discussed.

LOCAL PROGRAMS

Traffic Signal Interconnection: DADE COUNTY, FL has computerized most of the County's traffic signal network. Over 2,000 intersections are linked to a central computer. Contact: Alan C. Wulkan, Chief, Governmental Relations, 44 West Flagler Street, Miami, FL 33130, (305) 579-4505.

Alternatives to Hard-wire Interconnections: KANSAS CITY, MO is installing very accurate time-based clocks at intersections to provide signal coordination without the expense of hard-wire signal interconnections. This replaces a system that relied on manual monitoring of offset relationships. Contact: Jim Lee, Transportation Department, City Hall, Kansas City, MO 64108, (816) 274-1334.

Computerized Signal Systems: COLUMBUS, OH has completed two computerized signal systems, including a microprocessor controlled master system. The city has plans to add 200 intersections to its CBD computer. Contact: George L. Butzer, Systems Engineer, 50 West Gay Street, Columbus, OH 43215, (614) 222-7790.

Automated Traffic Surveillance and Control System: LOS ANGELES, CA is establishing a computer-based system for optimizing traffic signal control. The computer will select the most appropriate signal control strategies for traffic conditions. Approximately 590 signalized intersections and 64 mid-block pedestrian signals will be under computer control. Contact: Anson Nordby, Transportation Engineer, Department of Transportation, City of Los Angeles, Room 948, City Hall, 200 North Spring Street, Los Angeles, CA 90012, (213) 485-4271.

LOCAL PROGRAMS

TIME-BASED SIGNAL COORDINATION: Federal Highway Administration, Headquarters, initiated the design of a cableless, time-based, traffic signal controller coordination unit in May 1977. Field testing of 25 prototype units was completed during 1979-80. Industry has accepted the FHWA functional guidelines for time-based coordination units, and by 1982 there were eight vendors offering versions of this wireless interconnect method. Contact: Richard G. Reynolds, Electronics Engineer, FHWA, HSR-10, Washington, D.C. 20590.

COMMENTS

There are basically three methods of traffic signal interconnection for coordinated operation: wired; airborn; and time-based. Wired or cabled systems include a multitude of both pole-strung conductors, and trenched or conduit pulled wires; owned, leased, or borrowed. Cabled systems may provide direct electrical control signals to the intersection controller, or they may be buffered through a coding system for interface to telephone or power lines, cable TV networks, or fiber optic cables. Airborn cableless systems rely on transmission of control signals in the electromagnetic spectrum: radio frequency, microwave; or optical. Communication modes basically require a transmitter/received pair with encoding and decoding of the control signals at each end. Both cabled and airborn interconnection systems afford the potential for two-way communications for control and data collection. Time-based coordination, another cableless interconnect, may be done manually using the existing signal control equipment, or through special auxiliary equipment (clocks) at each intersection. Regardless of the interconnection method, a hardware specification with functional details of each interconnect alternative is not available to the local traffic signal engineer. A cost/benefit analysis of available coordination approaches should be done and could provide substantial increases in the use of interconnect equipment through better understanding of the hardware and its costs and capabilities. There appears to be sufficient unused technology in existence and further research in equipment and construction details is not warranted. However, a compendium, synthesis, handbook, tutorial guideline, or course with comparative functional and cost data is seen as an effective solution for the current and future needs of coordinated traffic signal systems.

815-5/SOFTWARE FOR TRAFFIC SIGNAL OPTIMIZATION

Problem Statement: Many small county and municipal agencies lack traffic engineering staff familiar with traffic signal optimization software. Information about existing software and training packages needs to be disseminated more effectively to these agencies.

Solution Considerations: Information about traffic signal optimization software and training opportunities often does not filter down to local agencies from Federal and State transportation departments. Information dissemination targeted to smaller local agencies is needed.

FEDERAL PROGRAMS

FHWA'S Office of Implementation has programs dealing with this need. Contact: Edmund Hodgkins, HRT-20, FHWA, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-0291.

Signal Timing Optimization Software: Information available from FHWA. Contact: Gary Euler, HTO-23, FHWA, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-0411.

815-6/MONITORING TRAFFIC FLOW CHARACTERISTICS

Problem Statement: Most computerized traffic signal control systems provide internal means for measuring the effectiveness of the timing strategy. These means, however, are "point" measurements at best. They generally do not indicate how well traffic is flowing through the entire network or indicate specific trouble spots.

Solution Considerations: Travel data (i.e. speeds, stops, delays, etc.) need to be gathered from a vehicle being actually driven through the signal network. The data must be easy to collect, accurate, and easy to handle and analyze. Computer analysis is preferable.

LOCAL PROGRAMS:

Traffic Signal Performance Evaluation: GREENSBORO, NC has acquired a microprocessor based device that records vehicle travel data onto cassette tapes. The information is then read into a minicomputer system for analysis and reporting. Contact: H.L. Winstead, Department of Traffic and Transportation, Drawer W-2, Greensboro, NC 27402, (919) 373-2332.

815-7/STANDARD CABINETS FOR TRAFFIC SIGNAL CONTROLLERS

Problem Statement: Traffic signal controller boxes vary between manufacturers. Controllers that are compatible in terms of electric plugs often cannot be interchanged due to differences in cabinet size or layout. Bolting dimensions and foundation sizes vary. Frequently new control cabinet foundations must be installed when replacing a controller with another of the same functional capability.

Solution Consideration: 1) Cabinets, door handles, and door hinges should be of sturdy construction. 2) Shelves and cabinet sizes should allow for interchange of controllers and accessories from all manufacturers. 3) The electric meter should be housed in a protected enclosure to avoid exposed wires and potential damage from vandals.

ADDITIONAL PROGRAMS

The National Electrical Manufacturers Association: As part of its work on traffic control systems, NEMA is addressing cabinet problems. Contact: C. Parris, NEMA, Suite 300, 2101 L Street, N.W., Washington, D.C. 20037, (202) 457-8429.

815-8/PERMISSIVE LEFT-TURN SIGNAL PHASING

Problem Statement: Many signalized intersections with left-turn lanes offer motorists a protected left-turn signal phase. An investigation of the possibility of a permissive left-turn should be pursued. This would allow a vehicle to make an opposed left-turn if adequate gaps are present. If vehicles do not find adequate gaps, a protected left-turn phase would be presented.

Solution Considerations: While permissive left-turn signal phasing might increase intersection through-put, it may pose safety problems, particularly for pedestrians and bicyclists. Investigation is needed to determine the safety and effectiveness of this practice.

STATE PROGRAMS

Left Turn Phasing: Kentucky DOT evaluated the change to protected permitted phasing at 4 sites (Research Report No. 519, April 1979). Delay was reduced 24 percent. Left turn accidents increased but decline as drivers become familiar. The benefits exceeded accident costs at all sites. Contact: Kenneth Agent, Kentucky Research Foundation, Kinkead Hall, University of Kentucky, Lexington, Kentucky 40506.

Protected-permitted left turns were evaluated at 10 intersections in Virginia. Total accidents decreased but left turn accidents increased. Virginia motorists overwhelmingly favored permissive left turns. Investigations are underway at 20 more sites. Contact: B. H. Coltrell, Jr.; Virginia Highway and Transportation Research Council, P.O. Box 3817, Charlottesville, Virginia 22903, (804) 977-0290.

815-9/LEFT TURN ON RED

Problem Statement: An implementation program for left turn on red onto one-way streets is needed.

Solution Considerations: This program must assure pedestrian and bicyclist safety and reduce vehicular accidents.

STATE PROGRAMS

Left Turn on Red: WASHINGTON STATE has allowed left turn on red since the adoption of right turn on red in the 1950s. SEATTLE, WA allows left turns from two-way streets at T-intersections. Special signing is provided. Contact: William Van Gelder, Traffic Engineer, Seattle Engineering Department, 708 Municipal Building, Seattle, WA 98104, (206) 625-2344.

Left Turn on Red: Kentucky DOT conducted a survey of left turn on red use in 55 cities around the country. The experience and viewpoints of 43 cities are reported in Research Report No. 446, May 1976. Contact: Kenneth Agent, Kentucky Research Foundation, Kinkead Hall, University of Kentucky, Lexington, KY 40506.

Turn on Red: The Virginia Highway Research Council examined the benefits and safety impact of permissive right and left turn on red laws that took effect in Virginia in January 1977 (Report VHTRC 79-R7). Only three minor accidents related to LTOR occurred in 1977. Contact: Frank Sheppard, Virginia Highway Research Council, P.O. Box 3817, University Station, Charlottesville, Virginia 22903, (804) 997-0290.

815-10/FREEWAY RAMP AND MAINLINE METERING

Problem Statement: More information is needed about the design, management, and impacts of freeway ramp and mainline metering as a means of controlling traffic flow. Issues include impact on parallel arterials, equity, how to make metering work in both peak directions, and access to property blocked by queuing vehicles.

Solution Considerations: Analysis should include assessments of 1) changes in trip length and delay for shifted traffic for a cross-section of freeway users, 2) changes in accident rates for freeway-to-freeway metering to enable both AM and PM peak metering where radial freeways serve downtown 4) the cost-effectiveness of these improvements in terms of resulting traffic improvements 5) the system's impact on inner-city residents.

LOCAL PROGRAMS

Ramp Metering: DALLAS, TX has installed a total of 35 ramp metering signals along North Central Expressway since 1972. A computerized system monitors freeway conditions--speed, volume, and gap--to determine appropriate metering rates for each individual ramp. Freeway congestion and delay and ramp accidents have been reduced. Contact: Rick Grochoske, Signal Service Division, Street and Sanitation Department, City Hall, 1500 Marilla Street, Dallas, TX 75215, (214) 670-3293.

FEDERAL PROGRAMS

FHWA's Urban Traffic Management Division: Related completed work includes report number FHWA/RD-82/030, "Control of Mainline Freeway and Freeway-Freeway Connectors for Bottleneck Alleviation," June 1982. Contact: Dr. S.L. Cohen, Urban Traffic Management Division, HSR-40, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101 (703) 285-2024. On-going work includes "Freeway Management Handbook," scheduled to be completed during 1983. Contact: Eric Munley, Office of Implementation, HRT-20, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-9205. In cooperation with FHWA, the New York State Department of Transportation is installing an "Integrated Motorist Information System" (IMIS) which includes ramp metering, diversion to alternate routes, signal control of parallel and crossing arterials and frontage roads, and incident detection and management. The system covers a 35 mile by 5 mile corridor and is controlled by a central computer. Scheduled for completion in 1985. Contact: Dan A. Rosen, Urban Traffic Management Division, HSR-40, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2024.

815-10/FREEWAY RAMP AND MAINLINE METERING

STATE PROGRAMS

Freeway Control: The Virginia Department of Highways and Transportation will complete construction of a system to control Interstate Routes 66 and 395 in Northern Virginia in 1983. Contact: Richard C. Lockwood, Virginia Department of Highways and Transportation, 1221 East Broad Street, Richmond, VA 23219, (804) 786-2964.

815-11/STREET LIGHTING ALTERNATIVES

Problem Statement: More information is needed on the effect of street lighting on personal safety and on vehicular and pedestrian accident rates and severity. Current street lights are costly to operate, and alternatives such as solar-powered street lights should be investigated.

Solution Considerations: 1) With respect to personal safety, both statistical data and community perceptions should be considered. 2) Prior State and major city evaluations should be reviewed and additional surveys conducted as needed. 3) Distinction should be made between limited access and other roadways. 4) Alternative street lighting and alternative energy sources should be developed and tested. 5) The feasibility of solar powered lighting given varying climatic conditions and lighting needs should be examined. This should include power-trading possibilities (generation during daytime fed into network and exchanged for nighttime power consumption).

FEDERAL PROGRAMS

Cost Reduction Strategies: Use of lower wattage high pressure sodium sources seems to be the best currently available technique. The probelm with solar-powered street lights is the large size of solar cell array needed to power a single street light. Solar cells have been considerewd or are in use for supplemental daytime lighting at tunnel entrances and for remote locations where blinkers are required on warning signs.

815-12/RESILIENT SIGNPOSTS

Problem Statement: Commonly-used rigid signposts can cause injury and property damage when struck by vehicles. Broken posts are hazardous and expensive to replace, both in terms of labor and material.

Solution Considerations: New sign posts should be resilient, easy to irstall, and economical.

LOCAL PROGRAMS

Flexible Signposts: PHOENIX, AZ has begun to use flexible sign posts for delineators in locations of high loss to vehicles leaving road, etc. Posts are constructed of elastomeric polymer. The posts have resisted damage better than a number of other types that were tested, and have reduced maintenance costs. Contact: Les Henley, Traffic Engineering Department, 251 W. Washington Street, Phoenix, AZ 85003

FEDERAL PROGRAMS

FHWA's Office of Implementation has programs dealing with this need. Contact: Dr. Leonard Wood, HRT-10, FHWA, 400 7th Street SW, Washington, DC 20590, (202) 426-9217.

815-13/TEMPORARY BARRICADES

Problem Statement: Present temporary channelization devices (concrete bumper blocks, 55-gallon drums, and others) are unwieldy to transport and difficult to see.

Solution Considerations: Barricade devices should be highly visible, easy to transport, vandal-resistant, prefabricated or in kit form, low-cost, and resilient.

FEDERAL PROGRAMS

FHWA's Demonstration Projects Division has a demonstration project for a safety baricade system under Demonstration Project No. 41, Breakway Barricades. Contact: Douglas Brown, FHWA, Eastern Direct Federal Division, 1000 North Glebe Road, Arlington, VA 22201, (703) 557-0522.

815-14/REMOVABLE CHANNELIZATION DEVICES

Problem Statement: In creating new traffic channelizations, pedestrian spaces, and other areas delineated by markings and barriers, it would be useful to have devices offering more protection than thermoplastic paint and less permanency than poured concrete.

Solution Considerations: The system should be inexpensive, solid, and capable of quick installation and removal. It should provide a safe physical barrier.

LOCAL PROGRAMS

Channelization for Bicycles: NEW YORK, NY recently experimented with separated bike lines. The structures used were concrete (wire reinforced) blocks that were nailed to the street to form an island filled with tar. Thus, they were solid and could be fairly permanent but were inexpensive and easily placed and removed. The tar filling was not aesthetically appealing, however. Contact: Joel Friedman, New York City Department of Transportation, 51 Chambers Street, New York, NY, 10007, (212) 566-5856.

815-15/EFFECTS OF STREET TRAFFIC DESIGN ELEMENTS ON PEDESTRIANS

Problem Statement: Street design elements such as medians, turn storage lanes, curb radii, neckdowns (sidewalk widenings), speed bumps, etc. have often been topics of categorical argument among traffic engineers and urban designers. On the one hand, standard engineering measures have been damned as being hostile to the pedestrian environment, while on the other hand, certain pedestrian elements have been labelled unnecessary and overly restrictive to vehicular flow.

Solution Considerations: Research should be reviewed and undertaken as appropriate to give an overview of certain street design elements with respect to real operational effects. For example, does the presence of a median in itself result in increased traffic speeds? If so, by how much? Also, does the introduction of a left-turn storage lane degrade pedestrian conditions no matter what?

FEDERAL PROGRAMS

FHWA's Traffic Control and Operations Division: The most recent work on pedestrian ways is described in "Synthesis of Safety Research Related to Traffic Control and Roadway Elements," FHWA-TS-82-233, December 1982. This report describes pedestrian accident experience for many situations. Contact: J. Fegan, Traffic Control and Operations Division, HSR-30, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101 (703) 285-2024.

815-16/COMPARISON OF TRAFFIC CHANNELIZATION MEASURES

Problem Statement: The advantages of traffic channelization to improve capacity and safety are well established and understood. Physical barriers--medians, islands--create abutting land access problems and generate resistance to the channelizing efforts. Is the benefit achieved by a physical channelizing element over a painted one sufficient to offset the construction and maintenance cost and the resistance of abutting land users?

Solution Considerations: (1) Compare accident records histories of intersections having similar operating and abutting land use characteristics but different--paint vs. physical--channelizing treatments. (2) Analyze operating patterns to compare delay, and confusion; stress diferences between channelizing devices, holding all other factors as near equal possible.

815-17/NEIGHBORHOOD TRAFFIC CONTROLS

Problem Statement: Excessive traffic levels and speeds on residential streets lower the quality of life and pose a safety hazard to pedestrians, especially children. Many local governments have begun to respond to citizen pressures for reducing traffic volumes and speeds on local streets. More information should be disseminated about how neighborhood traffic controls can be implemented successfully.

Solution Considerations: A number of effective techniques have been demonstrated in U.S. cities and towns, including speed humps, traffic diverters, traffic circles, and woonerfs. Information needs to be disseminated through widespread distribution of existing publications and through training seminars for traffic engineers.

LOCAL PROGRAMS

Neighborhood Traffic Impacts: BERKELEY, CA has examined the impacts of various types of neighborhood traffic controls. Contact: Herman Sinemus, Traffic Engineer, City of Berkeley, Civic Center Building, 2180 Milvia Street, Berkeley, CA 94704, (415) 644-9534.

Neighborhood Traffic Management Study: SANTA CRUZ, CA has published a downtown traffic management study, "Livable Streets for Downtown Neighborhoods." Contact: Jeff Oberdorfer, Jeff Oberdorfer and Associates, 122 Princeton Street, Santa Cruz, CA 95060, (408) 423-5056.

Neighborhood Parking Controls: LOS ANGELES, CA has an ordinance providing for the establishment of residential permit parking areas by resident petition or councilmanic motion. The ordinance contains a number of criteria whereby the need for such a district is determined. Contact: George Van Hoosier, Transportation Engineer, Department of Transportation, City of Los Angeles, Room 555, City Hall East, 200 North Main Street, Los Angeles, CA 90012, (213) 485-2287.

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821-1/GROWTH MANAGEMENT INVESTMENT

Problem Statement: Increasingly, cities are requiring developers to pay for or to provide certain public improvements such as streets, water, and sewer lines, and in some instances, for public amenities. Fees are often assessed with little knowledge of what is considered fair and equitable in other jurisdictions.

Solution Considerations: Comparisons should be developed of improvements required of developers in different urban areas. A fair and equitable process is needed for making developers become more responsible for mitigating development impacts, especially offsite impacts. Consideration should be given to fee collecting mechanisms, assessment rates, and possible uses for the fee. Uses could include construction or improvement of roads, utilities, parks, or schools.

Related need: 829-1

LOCAL PROGRAMS

Transit as Utility: FORT COLLINS CO has considered the idea of providing transit as a public utility. Although the idea has not been approved, it has generated considerable discussion and interest. Contact: Jim Arnold, City Manager, Fort Collins, CO 80522, (303) 484-4220.

Traffic Impact Mitigation Fees: THOUSAND OAKS, CA uses several impact fees to collect money for traffic signals and road improvements necessitated by new development. Contact: J.P. Clement, Traffic Engineer, City of Thousand Oaks, P.O. Box 1496, Thousand Oaks, CA 91360, (805) 497-8611.

Adequate Road Improvement Ordinances: SNOHOMISH COUNTY, WA has enacted an ordinance to ensure that roads are improved to serve adequately the increased demands generated by new development. Developers may be required to pay a fee or make specified improvements depending on the development's impact. Contact: Harold Wirch, Department of Public Works, 5th Floor, Snohomish County Administration Building, Everett, WA 98201, (206) 259-9488.

Transit Impact Development Fees: SAN FRANCISCO, CA has adopted an ordinance requiring developers of downtown office space to pay a $5 per square foot fee to be used to offset costs of operating and maintaining the San Francisco Municipal Railroad generated by the new development. Contact: Sue Chelone, Planner, MUNI, 949 Presidio Avenue, San Francisco, CA 94115, (415) 558-3214.

821-1/GROWTH MANAGEMENT INVESTMENT

FEDERAL PROGRAMS

FHWA Urban Planning and Transportation Management Division has underway a research contract to explore ways in which the private and public sectors have cooperated in making needed highway improvements. Focusing on such mechanisms as impact fees and other growth management mechanisms, the study is to recommend ways of reducing legal constraints and impediments to obtaining private resources for highway improvements. Contact Chief, Community and Environmental Planning Branch, HHP-23, FHWA, 400 7th Street, S.W., Washington, D.C. 20590 (202) 426-0215.

821 The Transportation Network--General Planning Concerns

821-2/CBD TRANSPORTATION PLANNING

Problem Statement: CBD transportation studies are often fragmented into traffic, freight, pedestrian, transit movements, and parking or land use components. Rarely are all elements interwoven into a single comprehensive program.

Solution Considerations: A conceptual approach linking all of these CBD transportation elements together needs to be developed. All elements should be related to an overall program, yet each aspect needs to be distinctive for review and examination purposes. Short and long term problem statements and alternatives need to be developed, so all diverse interests can appreciate the complexity and interelationship of the CBD transportation problem.

Related needs: 823-1, 824-1

821-3/URBAN NEIGHBORHOOD TRAFFIC VOLUMES

Problem Statement: Some older urban neighborhoods experience heavy volumes of traffic on through streets. No standards exist for planners on whether there is an acceptable level of through traffic, with its attendant problems of noise and speed, for residential neighborhoods.

Solution Considerations: Research needs to be conducted to determine traffic volumes, intersection problems, speed and noise levels on various urban through streets, and to discover attitudes and tolerance levels of residents. Some guidelines should be developed for planners. The effectiveness of solutions such as one-way pairs, speed bumps, undulations, and diverters, needs to be examined, and the need for easy access to the CBD in cities with grid pattern street layouts, needs to be considered.

Related need: 824-2

821-4/REUSE OF ABANDONED RAIL FACILITIES

Problem Statement: There are many unused or underutilized railroad facilities in many center cities.

Solution Considerations: A partnership involving city governments, the railroads, and private developers could be formed to; (1) ascertain the railroads' remaining needs for space; (2) develop land use plans for surplus land and facilities; (3) discuss mechanisms for recycling or redeveloping surplus land and facilities.

Related need: 828-12

LOCAL PROGRAMS

Converting Abandoned Track To Commuter Rail Use: PALO ALTO, CA asked the County to explore converting existing freight trackage into passenger commuter lines. Contact: John Horan, Housing and Transportation Specialist, City of Palo Alto, 250 Hamilton Ave., Palo Alto, CA 94301, (415) 329-2425.

Reuse of Abandoned Rail Facilities Study: ROCHESTER, NY is conducting a study of Reuse of Abandoned Rail Facilities as part of a larger Urban Goods Movement study. Data collection is underway. Contact: John E. Thomas, Transportation Planner, City of Rochester, 30 Church St., Rochester, NY 14614, (716) 428-6824.

FEDERAL PROGRAMS

The Department of Interior's Rail to Trails Program has provided funds for ten projects that involve the development of bicycle trails along abandoned rail lines. No additional funds have been authorized. Contact: Tom Ross, Division of State, Local, and Urban Programs, National Park Service, Department of Interior, 440 G Street, N.W., Washington, DC (202) 272-3660.

821-5/TRANSPORTATION PROJECT MARKETING

Problem Statement: Citizens opposed to a transportation project will stress the negative aspects of that project and ignore the positive aspects.

Solution Considerations: What means are available or could be developed to convince the public of a project's need, benefit or acceptability?

Related need: 823-6

LOCAL PROGRAMS

Media Cooperation: COLUMBUS, OH maintained good communication with local media during extensive transportation projects. Public questions still arose, but the city felt the effort was worthwhile. Contact: George L. Butzer, Systems Engineer, City of Columbus, 50 W Gay St., Columbus, Oh, 43215, (614) 222-7790.

Transit Information: PALO ALTO, CA used State Energy Commission funds to operate a Transit Information Van. The van traveled to major employment centers to explain alternate modes. Contact: John Horan, Housing and Transportation Specialist, City of Palo Alto, 250 Hamilton Ave., Palo Alto, CA 94301, (415) 329-2425.

821-6/EQUITY OF TRANSPORTATION OPPORTUNITIES

Problem Statement: Few satisfactory measures presently exist to determine how well various sub-groups of the population are served by transit and the overall transportation system. Personal and community economic development is often impaired by inadequate accessibility. More research is needed to develop methods and measures for accessibility measurement to improve planning and project evaluation.

Solution Considerations: Evaluation measures for analyzing the availability and accessibility of various transportation modes for various population groups need to be identified and tested. The type of data required to conduct the analyses must be identified.

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821 The Transportation Network--General Planning Concerns

821-7/EFFECT OF GASOLINE PRICE ON AUTO TRIPS

Problem Statement: The effect of gasoline price on auto trip generation rates must be examined if auto trip generation rates are to be accurate and useful indicators for planning and traffic studies.

Solution Considerations: The effect of gasoline prices should be evaluated for various trip purposes, times of day, and regions of the country.

FEDERAL PROGRAMS

FHWA Program Management Division has underway a research contract to estimate the effects of fuel constraints, price changes, and fuel efficiency improvements on travel forecasts. A report is expected to be completed in the Fall of 1983. Contact Chief, Planning and Programming Branch, HHP-15, FHWA, 400 7th Street, SW, Washington, D.C. 20590, (202) 426-1045.

821 The Transportation Network--General Planning Concerns

821-8/INTERCITY RAIL SERVICE

Problem Statement: Many residents of rural areas must travel long distances to a large city in order to travel by train. Tracks used for freight trains may pass in or near the town, but facilities for passengers do not exist.

Solution Considerations: Passenger stations should be made available, and passenger trains should be routed through rural areas to ease the transportation difficulties of residents.

Related need: 821-4

821-9/TRANSPORTATION CONSTRUCTION MANAGEMENT

Problem Statement: Because public funds are scarce and urban transportation construction projects are increasingly complex, there is a need to transfer well-established construction management techniques used in the construction field and in private industry to local government and urban transportation projects.

Solution Consideration: How effective is construction management for transportation projects? Can the techniques developed by the private sector in the construction field be transferred directly to the public sector and the transportation field, or must the techniques be redesigned?

PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has prepared an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, N.W. Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

821 The Transportation Network--General Planning Concerns

821-10/ PRIORITY TREATMENT FOR HIGH OCCUPANCY VEHICLES

Problem Statement: Local governments often cannot afford the major capital investments necessary to provide better transit services. The provision of fringe parking for riders and preferential or exclusive lanes and signal preemption for high-occupancy vehicles may offer less costly solutions. Local decision-makers need more information on existing experiments, as well as an assessment of potential applications.

Solution Considerations: Planning procedures and guidelines for different types of treatments, based on actual experiences, are needed. The emphasis should be on institutional arrangements, as well as on technical considerations.

Evaluation Studies: Many evaluation studies of priority treatment for high occupancy vehicles have been conducted by Federal, State, and local governments. Available from FHWA: "High Occupancy Vehicle Facility Development, Operation, and Enforcement (Volume I and II)," FHWA-IP-82-1, April 1982, and "Evaluation of Priority Treatments for High Occupany Vehicles," FHWA-RD-80-062, January 1981. A 2-day training course is also available. Contact: Michael E. Robinson, Office of Implementation, HRT-20, FHWA, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-9211.

822 The Transportation Network -- Bicycle Transportation

822-1/INTEGRATION OF BICYCLES INTO TRANSPORTATION PLANNING AND MANAGEMENT

Problem Statement: Bicycles are an extremely efficient mode of personal transportation, well suited to accommodate a significant share of the 60% of automobile trips that are five miles or less in distance. Little attention has been paid, however, to the bicycle as a serious and legitimate urban transportation mode. Steps need to be taken to ensure that the potential of bicycles is realized through effective integration of this mode into general transportation planning, management, and facility development. More information dissemination is needed about successful, cost-effective local bicylce programs.

Solution Considerations: Various actions are required to legitimize and promote bicycle transportation. More effective information dissemination concerning potential roles of bicycles needs to be directed towards transportation decision-makers, planners, and engineers at all levels of government and in the consulting field. Bicycle coordinators in local and State government have proven helpful in ensuring that bicycles receive consideration in transportation programs. Air quality, TSM, and energy contingency planning offer good opportunities to integrate bicycles into major action programs. The inflationary impact of rising fuel costs and transit operating deficits can be offset through the promotion and encouragement of increased bicycle transportation. Street, highway, and bridge reconstructions offer opportunities to redesign facilities for safe multi-modal operations.

LOCAL PROGRAMS

Integrated Multi-Modal Planning: MADISON, WI has an active TSM planning and implementation program that gives serious consideration to bicycles, which account for nearly 10% of all trips in the area. Contact: Warren Somerfeld, Director of Transportation, Madison DOT, Rm. 111, City/County Building, Madison, WI 53703, (608) 266-4761 or Thomas Walsh, Traffic Engineer, Madison DOT, 441 Toepfer Avenue, Madison, WI 53711, (608) 266-4761.

Bicycle Planning: DENVER, CO's planning office has completed a transportation systems management study of bicycle access, circulation, and parking in downtown Denver. Contact: Denver Planning Office, Room 400, 1445 Cleveland Place, Denver, CO 80202, (303) 575-3375.

822-1/INTEGRATION OF BICYCLES INTO TRANSPORTATION PLANNING AND MANAGEMENT

FEDERAL PROGRAMS

FHWA's Officer of Safety and Traffic Operations Research and Development is aware of work in this area. Contact: B.W. Stephens, HSR-30, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101 (703) 285-2031.

Contact: Camille Mittelahultz, U.S. DOT, OST, Office of Economics, Environmental Division, P-37, 400 7th Street, S.W., Washington, DC 20590, (202) 426-4360.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has developed an information bulletin, Transportation System Management, Air Quality, and Energy Conservation, that discusses this issue to some extent. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, N.W., Washington, DC 20004, Attention: Transportation Staff, 202/626-2400.

822-2/BICYCLE OPERATOR EDUCATION

Problem Statement: Although there are over 90 million bicycles in the U.S., many of the owners of these vehicles lack the skill and confidence to bicycle in street traffic. A smaller but significant number of cyclists are proficient in shared-roadway cycling. While improved bicycle facilities have a role in encouraging bicycle transportation and safety, programs that increase cyclists' skills and confidence are needed. Education of other road users to respect the rights of human-powered vehicles is also needed.

Solution Considerations: Effective cycling techniques need to receive wider and more effective dissemination to both school-age children and adults. Recognition of education as a key element in promoting safe bicycle transportation needs to be increased among transportation professionals, police, and educators.

LOCAL PROGRAMS

On-Road Bicycle Training in Junior High School: PORTLAND, OR's North Clackamas School District has initiated an on-the-road bicycle training course that is integrated into the regular curriculum. It is modeled after John Forester's Effective Cycling curriculum. Contact: Doug Force, Ickes Jr. High School, 4711 S.E., 49th Street, Portland, OR 97206.

STATE PROGRAMS

On-Road Bicycle Training in Elementary Schools: The MONTANA State Highway Traffic Safety Division has funded a state-wide project to train teachers to give on-the-road bicycle training to fourth-grade students. First tested in Missoula, the Missoula Bicyclist Training Program has demonstrated its effectiveness in improving safety and skills. Contact: Roger DiBrito, Montana Bicyclist Training Center, Rt. 1, Box 67, Florence, MT 59833, (406) 273-6088.

Bicycle Safety, Education, and Enforcement: The 4-H in MICHIGAN sponsors bicycle leadership training of young people to disseminate effective cycling skills. Contact: Bonita Dostal Neff, State Bicycling Coordinator, Michigan 4-H Coop Extension, 3501 Coachlight, Lansing, MI 48910, (513) 353-6391.

822-2/BICYCLE OPERATOR EDUCATION

FEDERAL PROGRAMS

U.S. DOT's Office of Environment and Safety can provide information on bicycle education programs and resources. Contact: Maureen Craig, Bicycle Program Coordinator, U.S. DOT, OST-P23, 400 7th Street, S.W., Washington, DC 20590, (202) 626-4414.

822-3/BICYCLE FACILITIES PLANNING AND IMPLEMENTATION

Problem Statement: Bicycle transportation presently faces many disincentives that can be overcome at low cost through improved traffic engineering and bicycle facilities. Better guidance is needed for traffic engineers on how to integrate bicycles safely with other road users and under what conditions separate bicycle lanes or paths should be created. Improved methods for assessing latent demand for bicycle facilities, better knowledge of the needs of different cyclist types, and more effective financing of bicycle transportation programs is needed. Information dissemination about successful, cost-effective designs and programs is needed.

Solution Considerations: Wide shoulder lanes (12 to 14 feet) show promise as a means for accommodating multi-modal road use under some situations. Completely separated bike paths have proven effective in other situations, but can have safety problems if subject to street or driveway crossings. The different needs of novice riders, recreational cyclists, and proficient bicyclists need to be recognized in highway development and maintenance. Barrier identification and removal should have high priority. Recognition of the bicycle as a legitimate vehicle needs to be increased.

LOCAL PROGRAMS

Bikeways and a Bicycle Ordinance: DADE COUNTY, FL has 310 miles of designated bikeways of which 132 miles are class 1 (separate path) bikeways. A County resolution requires that all new roads include bikeways. Dade County also has implemented a bicycle parking ordiance. Contact: Dick Farwell, Department of Parks and Recreation, 50 S.W. 32nd Road, Miami, FL 33126, (305) 579-2672.

Wider Shoulder Lanes and Bicycle Parking: MONTGOMERY COUNTY, MD requires bicycle parking facilities at many new buildings and requires consideration of bikeways for any new or reconstructed road. The County is providing paved shoulders on many new roads for bikeways and is restriping some multi-lane roads to provide 14 foot-wide curb lanes, which permit enhanced multi-modal use. A bicycle transportation Master Plan and bike route maps have been prepared. Contact: Edgar Gonzalez, Montgomery County DOT, 6110 Executive Boulevard, Rockville, MD 20852, (301) 251-2145.

822-3/BICYCLE FACILITIES PLANNING AND IMPLEMENTATION

STATE PROGRAMS

Planning Design Criteria: THE CALIFORNIA Department of Transportation has adopted planning and design criteria for bikeways in California. Contact: Dick Rogers, Office of Bicycle Facilities, State of California, Division of Highways, 1120 N Street, Sacramento, CA 95814, (916) 445-7920.

FEDERAL PROGRAMS

U.S. DOT's Office of Economics serves as the main coordinator of U.S. DOT programs affecting bicycle transportation. Information on funding programs, planning resources, and technical assistance is available. Contact: B.W. Stephens, HSR-30, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2031.

FHWA's Office of Engineering has the responsibility for coordinating all FHWA bicycle activities involving the Federal-aid highway program. The FHWA's present design and construction criteria for bicycle facilities is the current American Association of State Highway and Transportation officials (AASHTO) Guide, "Guide for the Development of New Bicycle Facilities -- 1981," or its equivalent. The current AASHTO Guide is not a Federal document and is only available from AASHTO. Their address: Mr. David Lee, AASHTO, 444 North Capitol Street, NW, Suite 225, Washington, D.C. 20001 (price for a copy of the guidelines is $2.50, plus $1.25 postage and handling). The Bicycle Coordinator for FHWA is Mr. John C. Wasley, HNG-22, 400 - 7th Street, SW, Washington, D.C. 20590.

Bicycle-Motor Vehicle Safety: The Federal Highway Administration is developing an RFP for FY 83, to study the safety effects of various bicycle lane design concepts have on bicycle-motor vehicle operations. On-roadway bicycle lane needs may be different depending upon the location, traffic volumes, and roadside environment. This proposed study will quantify the bicycle-motor vehicle interactions and conflicts for roadway having delineated or non-delineated bicycle lanes. The study will also estimate the difference in design, construction, operating, and safety costs for implementing delineated and non-delineated bicycle lanes. Contact: John Fegan, FHWA, HSR-30, Washington, D.C. 20590, (703) 285-2024. 92

822-4/BICYCLE PARKING

Problem Statement: The availability of safe and convenient parking facilities is a critical consideration for people using bicycles for transportation. Most buildings and major trip attractors in metropolitan areas presently lack safe, secure, and convenient bicycle parking. This seriously inhibits bicycle use, for bicycle theft is a major problem. Developers are often reluctant to accommodate bicycle parking. Cities need to take more aggressive action to bring about the desired changes, which can be achieved at low cost. Traditional pipe racks generally do not provide adequate security unless in a guarded area.

Solution Considerations: Changes in zoning codes can be used to require provision of adequate bicycle parking at significant trip generators. Transit and government agencies can provide parking for bicycles at facilities they control. Office building managers can be encouraged to permit bicycles inside office buildings or to provide secure adjacent parking. Bicycle racks should secure wheels and frame. Proper placement of bicycle parking is essential--in view of guards, in heavily travelled locations, not in isolated locations. Building access for bicycles is a no-cost, extremely effective solution.

LOCAL PROGRAMS

Bicycle Parking Requirements Incorporated into Zoning Ordinance: PALO ALTO, CA is one of several cities that have incorporated bicycle parking requirements into their zoning ordinances as part of the off-street parking and loading regulations. Contact: Ellen Fletcher, Vice Mayor, City of Palo Alto, 777-108 San Antonio Road, Palo Alto, CA 94303, (415) 494-8943.

Promotion of Bicycle Parking: DENVER, CO has an active bicycle transportation program aimed, in part, at encouraging greater provision of bicycle parking. Contact: Royce Sherlock, Commuter Bicycling Coordinator, Denver Planning Office, 1445 Cleveland Place, Denver, CO 80202, (303) 575-3375.

Bicycle Parking at Transit Stations. In WASHINGTON, DC, the transit agency, WMATA, has installed over 200 bicycle racks and over 125 bicycle lockers at transit stations. The program has been so successful that the number of bicycle lockers, which are rented to users, will soon be doubled. Contact: Mark Akins, WMATA, 600 5th Street, NW, Washington, DC., (202) 637-1207.

FEDERAL PROGRAMS

U.S. DOT's Office of Economics: A number of U.S. DOT funding sources and agency programs can be used to support acquisition of bicycle parking facilities. Information and technical assistance is available upon request. Contact: B.W. Stephens, HSR-30, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2031.

The FHWA's Office of Engineering has the responsibility for coordinating all FHWA bicycle activities involving the Federal-aid highway program. The FHWA's present design and construction criteria for bicycle facilities is the current American Association of State Highway and Transportation Officials (AASHTO) Guide, "Guide for the Development of New Bicycle Facilities - 1981," or its equivalent. The current AASHTO guide was originally developed by FHWA to replace the 1974 AASHTO "Guide for Bicycle Routes." The AASHTO Guide is not a Federal document and is only available from AASHTO. Their address: Mr. David Lee, AASHTO, 444 North Capitol Street, NW, Suite 225, Washington, D.C. 20001 (price for a copy f the guidelines is $2.50, plus $1.25 postage and handling). The Bicycle Coordinator for FHWA is Mr. John C. Wasley, HNG-22, 400 - 7th Street, SW, Washington, D.C. 20590.

Bicycle-Motor Vehicle Safety: The Federal Highway Administration is developing an RFP for FY 83, to study the safety effects of various bicycle lane design concepts have on bicycle-motor vehicle opertions. On-roadway bicycle lane needs may be different depending upon the location, traffic volumes, and roadside environment. This proposed study will quantify the bicycle-motor vehicle interactions and conflicts for roadways having delineated or non-delineated bicycle lanes. The study will also estimate the difference in design, construction, operating, and safety costs for implementing delineated and non-delineated bicycle lanes. Contact: John Fegan, FHWA, HSR-30, Washington, D.C. 20590, (703) 285-2024.

822-5/INTEGRATION OF BICYCLES WITH PUBLIC TRANSPORTATION

Problem Statement: A major opportunity for bicycle transportation that has been largely overlooked is the bicycle/mass transit interface. The lack of safe and secure bicycle parking at transit stops and stations strongly discourages use of the bicycle as a feeder mode. Generally bicycles are not allowed on transit vehicles, limiting use of the bicycle as a combined feeder/distribution mode.

Solution Considerations: Provision of secure bicycle parking along transit routes can allow improved transit access in low density areas and reduce automobile parking requirements at park and ride lots. The experiences of Santa Barbara, San Diego, and cities in Japan and Western Europe with bicycle access to transit have been overwhelmingly favorable. Bicycles could serve as a major feeder mode to transit in energy shortages.

LOCAL PROGRAMS

Bicycle Trailers Towed by Small Buses: The SBMTD, in SANTA BARBARA, CA, has a fleet of trailers holding 12 bicycles each that are towed by 19-passenger buses on five routes. Over 40,000 passengers a year bring their bikes with them on bus trips. Between 10% and 25% of the riders on these routes have bicycles with them. Costs per user for trailer maintenance and operations delay are about 30¢. The SBMTD has also provided extensive bicycle parking along bus routes. Contact: Sherry Allen, SBMTD, P.O. Box 355, Santa Barbara, CA 93102. (805) 963-3364.

Bicycle Parking at Transit Stations: WMATA, in WASHINGTON, DC, has installed over 200 bicycle racks and over 125 bicycle lockers at transit stations and plans to expand the program. Contact: Mark Akins, WMATA, 600 5th Street, NW, Washington, DC. (202) 637-1207.

Bicycle-Transit Integration Program: The City of ATLANTA, GA has implemented a network of bicycle routes along the MARTA East Line rail system. All routes were field checked by the Southern Bicycle League. Bike-safe sewer grates were installed, and a brochure outlining the routes was published. MARTA has bicycle lockers at all stations, which rent for $4 per month as well as free bicycle racks. Bikes are allowed on MARTA trains on Sundays. Contact: Cathy Thomas, Atlanta Bureau of Planning, 10 Pryor Street, Atlanta, GA 30335. (404) 658-6306.

Rear-Mounted Bicycle Racks on Buses: SAN DIEGO Transit operates 16 buses equipped with rear-mounted racks holding five bicycles. Over 13,000 people use the racks every year. Contact: Ron Weisman, Route Facilities Planner, San Diego Transit, P.O. Box 2511, San Diego, CA 92112, (714) 238-0100.

Front-Mounted Bicycle Racks on Buses: SEATTLE Metro operates 20 buses with front-mounted bicycle racks holding two bicycles. Over 4,000 riders use the racks annually. Contact: Thomas Friedman, Senior Transit Planner, Seattle METRO, 821 Second Avenue, Seattle, WA 98104, (206) 447-6399.

Bicycles Permitted Inside Advanced Design Buses: WESTCHESTER COUNTY DOT allows bicycles, strollers, and grocery carts on their 105 RTS-02 buses. Bicycles are stored in the space provided for wheelchairs, opposite the rear door of the bus. Bikes are restrained by the same device used to hold down wheelchairs. Two bikes can be accommodated at once. Bikes are not allowed on buses during peak hours (7-9 a.m. and 4-6 p.m.). There have been no accidents, safety, or insurance problems caused by this practice in over 2 years of operation. Twenty seven of the 70 routes operated on weekdays offer this service for wheelchairs, bicycles, strollers, and carts. Contact: Rich Stiller, Westchester DOT, County Office Building, 148 Martine Avenue, White Plains, NY 10601. (914) 682-7941.

FEDERAL PROGRAMS

U.S. DOT's Office of Economics can provide information on other applicants of bicycle-transit integration, along with guidance on funding sources and technical assistance. Contact: B.W. Stephens, HSR-30, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2031.

ADDITIONAL PROGRAMS

Public Technology, Inc.: The SMD Briefs published by PTI include discussion of the Santa Barbara, CA, bicycle trailer program along with a detailed comparative cost analysis of bike-bus services. Contact: Debra Guinaw, PTI, 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2400.

822-6/SAFETY OF BICYCLES ON RAPID RAIL

Problem Statement: Bicyclists in a number of major U.S. cities which have operating rapid rail systems have been pressuring these transit systems to allow bicycles on trains during off-peak hours. Three U.S. transit systems currently allow bicycles on their subways, but other systems are still reluctant to do so, primarily on the premise that safety of other passengers would be jeopardized. Information on the experience of rapid rail systems which do allow bicycles on trains is not widely available, nor have the different operating characteristics of the systems been compared as they directly affect the bike-on-rail program.

Solution Considerations: Conduct research to make information available to transit authorities on the success or failure, problems, and costs and benefits of existing bike-on-rail programs so they will be in a better position to determine the feasibility of undertaking a similar program. Accomplish this by 1) interviewing bike-on-rail program managers at BART, PATH, and WMATA, 2) conducting interviews or distributing a questionnaire to transit system planning chiefs in other U.S. cities to determine their concerns about allowing bicycles on their rapid rail systems, 3) sending questionnaires to permit holders at all three systems which have bike-on-rail programs to collect information about their use of the systems, 4) determining cost of existing bike-on-rail programs, and 5) distributing a questionnaire to regular passengers on BART, PATH, and WMATA on weekends to determine whether they are aware of the bike-on-rail program and their reactions to it.

LOCAL PROGRAMS

Bicycles on Rapid Rail: WMATA in WASHINGTON, DC allows bicyclists to use the METRO system on weekends and holidays. An evaluation of the program is available. Contact: Mark Akins, WMATA, 600 5th Street, NW, Washington, DC, (202) 637-1207.

Bicycles on Subways: THE BAY AREA RAPID TRANSIT (BART) in SAN FRANCISCO, CA has a highly successful program to integrate the bicycle with rail transit. Bike lockers and racks have been placed at most BART stations. Riders who have licensed bicycles (which subjects them to periodic safety inspection) can obtain permits to carry their bikes onto BART trains during non-peak periods and on selected non-peak-direction portions of lines in the peak periods. The program has been very favorably received in the community; over 9,000 people have obtained these BART permits over the past five years. Contact: Starla Bahem, BART, 800 Madison Street, Oakland, CA 94605, (405) 465-4100 Ext. 569.

822-7/BICYCLE-PEDESTRIAN CONFLICT

Problem Statement: As the bicycle becomes more widely used as a serious transportation mode in the United States, the number of bicycle-pedestrian accidents is bound to increase. Because pedestrians frequently use bicycle facilities for walking, potential for conflict is inherent in many separate facilities. Because both bicycles and pedestrians move with little noise, detection of potential conflicts where sight distances are poor is difficult.

Solution Considerations: Little research has been done on this problem. Data on bicycle-pedestrian conflicts and accidents needs to be collected and evaluated to identify appropriate measures to increase safety. Criteria need to be established for when it is appropriate to separate pedestrian and bicycle traffic.

LOCAL PROGRAMS

Enforcement of Traffic Laws on Bicycles: NEW YORK, NY has stepped up enforcement of traffic laws on bicyclists, particularly for violations that can lead to conflict with pedestrians, such as wrong-way riding. Contact: Larry Reilly, Bicycle Coordinator, NYC DOT, 51 Chambers Street, No. 1225, New York, NY 10007, (212) 566-6620.

FEDERAL PROGRAMS

FHWA's Office of Research sponsored a study titled, "An Investigation of the Potential for Pathways Shared by Pedestrians and Bicyclists" (Appendix W of the Pedestrian Planning Procedures Manual), issued in January 1978. This examines the issue of bicycle-pedestrian conflict from a theoretical perspective, but fails to account adequately for a number of critical factors. The maximum recommended flow of pedestrians on a 2.5 meter wide facility shared with any number of bicycles is given here as 145 per hour, but this appears to be unacceptable from a cyclist's perspective and a safety perspective for most urban bikeways. Contact: John Fegan, FHWA, HRS-30, 400 7th Street, SW, Washington, DC 20590, (703) 285-2031.

ADDITIONAL PROGRAMS

Criteria for Separation of Pedestrians and Cyclists: The Traffic Advisory Unit in LONDON, ENGLAND has recognized this problem and offered a possible separation criteria (leading to separate bicycle and pedestrian paths) of 30 pedestrians per hour and 15 cyclists per hour for a standard 2.5 meter wide path. Contact: Traffic Advisory Unit, 2 Marsham Street, London SW1 P 3EB, England.

822-8/BICYCLE LAW ENFORCEMENT

Problem Statement: Many bicyclists violate traffic laws. Police rarely enforce the applicable laws. This reinforces unsafe behavior and fosters disrespect for the law. Increased numbers of bicycle-motor vehicle accidents result.

Solution Considerations: Direct police officers to enforce applicable laws to bicyclists: for example, traffic light compliance, proper directional riding on one-way streets, use of lights at night. Stress importance and life-saving potential of these enforcement actions.

LOCAL PROGRAMS

Bicycle Law Enforcement: NEW YORK, NY has prepared a videotape to train police for bicycle law enforcement and issued an operations order with enforcement priorities. A special squad of police and traffic agents issues citations to errant bicyclists. A follow-up court system is essential to program operation. Fines in NYC are identical to those for motor vehicle violations. Over 1600 summonses were issued in the last half of 1980. Contact: Larry Reilly, CHCM, Bicycle Coordinator, NYC DOT, 51 Chambers Street, New York, NY 10007, (212) 566-8289.

Police on Bicycles: In DAVIS, CA, where about 25% of all trips are made by bicycle, the City has one officer assigned to bicycle patrol with arrest power. The University of California at Davis also has a bicycle police officer. Contact: John Wilson, City of Davis Police Department, Davis, CA 95616, (916) 756-3740.

822-9/BICYCLE ACCIDENT AND VOLUME DATA

Problem Statement: Lack of adequate data hinders effective planning to enhance bicycle use. Inconsistencies often exist among available data. Low quality police accident reports hamper analysis.

Solution Considerations: 1) Consistent monitoring of bicycle volumes is needed to develop valid data for comparison, analysis, and planning. 2) Accident reports should be accurately completed by police and should clearly distinguish cyclists from pedestrians. 3) Bicycle accident data should be analyzed for trends and high accident locations.

LOCAL PROGRAMS

Bicycle Volumes and Accident Monitoring Program: The NEW YORK City DOT does spot counts of bicycle volumes at fixed locations on commuter routes monthly during the peak season of use. Compliance data is also obtained. Police and Motor Vehicle Bureau accident data are compiled. Summonses data are compiled and tracked through the system. Theft and recovery data and trends are compiled. Fatal accidents are investigated by Police Accident Investigation Squad. Contact: Larry Reilly, CHCM, Bicycle Coordinator, NYCDOT, 51 Chambers Street, New York, NY 10007, (212) 566-8289.

822-10/BICYCLE DETECTION AT ACTUATED TRAFFIC SIGNALS

Problem Statement: Many actuated traffic signals do not respond to bicycles and lightweight motorcycles or mopeds. Information needs to be disseminated on ways to alleviate this problem.

Solution Considerations: Many loop detectors can be adjusted to respond to bicycles. Push buttons at the curb that actuate the traffic signal can be used, but this solution is generally not preferred except for separate bicycle paths.

822-11/BICYCLE-SAFE SEWER GRATES

Problem Statement: Traditional parallel bar grates on sewer inlets can trap bicycle wheels, causing loss of control over the bicycle or flip-over.

Solution Considerations: Bicycle-safe sewer grates need to prevent the narrowest bicycle tires (one inch wide) from falling through, and preferably should not utilize parallel slats. Hydraulically efficient bicycle-safe sewer grates are available commercially.

LOCAL PROGRAMS

Bike-Safe Sewer Grates: NEW YORK CITY has 350 bike-safe grates on order that will be installed at high bicycle volume locations to test the effectiveness of this design. Contact: Larry Reilly, CHCM, Bicycle Coordinator, NYC DOT, 51 Chambers Street, New York, NY 10007, (212) 566-8289.

STATE PROGRAMS

Manditory Bike-Safe Sewer Grates: The State of MARYLAND has passed a law requiring statewide use of bicycle-safe sewer grates. Contact: Steve McHenry, Maryland State Highway Administration, 300 W. Preston Street, Baltimore, MD 21203, (301) 383-6869.

FEDERAL PROGRAMS

FHWA has completed significant research activity on Bicycle Safe Grate Inlets which included ease of handling bicycles over grates and hydraulic testing for grates which were considered bicycle safe. The study, conducted by the Bureau of Reclamation (now Water and Power Resources Service), resulted in a five-volume report series - Report FHWA/RD-80/081. Contact: Dr. D. C. Woo, Structures Division, HNR-10, Office of Engineering and Highway Operations R&D, (703) 285-2087.

823 The Transportation Network -- Central City Concerns

823-1/IMPACTS OF REGIONAL TRANSPORTATION IMPROVEMENTS ON THE URBAN CORE

Problem Statement: What are the social, economic, and environmental impacts of major regional transportation improvements (freeways, beltways, rapid transit lines, transit terminals, and priority bus service) on the core area of the region.

Solution Considerations: Before and after studies of the impact of major regional transportation improvements should be conducted. What criteria are available to measure these impacts? Can planning or design factors be identified that have influenced the type or degree of these impacts? If studies have already been conducted, the results of the studies should be analyzed and the findings disseminated.

Related needs: 824-1, 821-2

LOCAL PROGRAMS

Joint Development and Value Capture Potential in the Harbor Freeway Corridor: LOS ANGELES, CA. has completed a study which analyzes joint development and value capture opportunties associated with proposals for freeway transit in the Harbor Freeway corridor and compares them with opportunities associated with a hypothetical extension of rail transit along Vermont Avenue. Objectives of the study were: (1) to investigate community/corridor needs and relate them to joint development opportunities; (2) to analyze the proposed facility and service options as they reflect joint development potential; (3) to conduct a real estate market analysis to gauge suport for residential, commercial, and industrial development in the corridor and the effect of transit improvements on demand; (4) to evaluate specific sites and prepare a station area joint development program; and (5) to outline an implementation strategy. Contact: Alvin T. Holman, Southern California Rapid Transit District, 425 South Main St., Los Angeles, California 90013, (213) 972-6191.

FEDERAL PROGRAMS

UMTA's Office of Planning Assistance can provide information on studies of the impacts of several major transit systems--BART, WMATA, AND MARTA. The rapid rail transit impact studies examined the impact of these systems on land values, land use, community development patterns, population, employment and property values.

823-1/IMPACTS OF REGIONAL TRANSPORTATION IMPROVEMENTS ON THE URBAN CORE

Contact: Richard Steinmann, Office of Strategic and Energy Planing (UBP-30), UMTA, 400 7th Street, Washington, D. C. 20590, (202) 426-4004, (WMATA and MARTA Studies). Sylvia Monroe, Office of the Secretary for Policy and International Affairs, (P-33), OST, 400 7th Street, S.W., Washington, DC 20590, (202) 426-4303 (BART Study).

DOT's Office of the Assistant Secretary for Policy and International Affairs has prepared a report titled, Land Use Implementation of Rapid Transit. Contact: Sylvia Monroe or Helen Doo, Office of Transportation Economic Analysis (P-33), OST, 400 7th Street, S.W., Washington, DC 20590, (202) 426-4303.

823-2/ECONOMIC IMPACTS OF TRANSPORTATION RESTRICTIONS

Problem Statement: Many local government officials and merchants are concerned about the effects of traffic restrictions on the economc vitality of a downtown area.

Solution Considerations: The economic and market impacts of various restrictions including parking supply ceilings, non-market parking cost increases, neighborhood traffic controls, auto free zones, and traffic engineering controls should be analyzed.

LOCAL PROGRAMS

An Auto Restricted Zone: BOSTON, MA's Downtown Crossing, a 25-block auto restricted zone, has increased pedestrian traffic, visits to the area, and sales volumes. Contact: Jane Algmin, Boston Redevelopment Authority, City Hall - 9th Floor, Boston, MA 02201, (617) 722-4300, ext. 266.

The Economic Impacts of State Street Mall: MADISON, WI is currently examining this issue. Contact: Ross Patronsky, Project Manager, Department of Transportation, City of Madison, III City-County Building, Madison, WI 53709, (608) 266-4761.

Increased Patronage: MEMPHIS, TN has created a 10-block pedestrian mall in the central business district. Because of the project's transit improvements, almost half of the downtown retail businesses have experienced an increase in patronage. Contact: Fred M. Gilliam, General Manager, Memphis Area Transit Authority, 701 North Main Street, P.O. Box 122, Memphis, TN 38101, (901) 528-2887.

FEDERAL PROGRAMS

UMTA's Office of Service and Management Demonstrations is concerned with impacts of various types of auto-restricted zones and transit and pedestrian malls. An evaluation of three transit malls, Nicollett Mall in Minneapolis, Chestnut Street Transitway in Philadelphia, and Portland Mall in Portland, Oregon has been completed. Contact: Ronald J. Fisher, UMTA, SMD, UPM-30, 400 7th Street, S.W., Washington, DC 20590, (202) 426-4995.

FHWA's Office of Highway Planning is concerned with parking management strategies and analyses, and the integration of highway projects and urban needs. Contact: Chief, Transportation Management and Ridesharing Programs Branch, Office of Highway Planning, HHP-25, FHWA, 400 7th Street, S.W., Washington, DC 20590, (202) 426-0210.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has prepared an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

823-3/CENTER CITY CIRCULATION AND TRANSIT FACILITIES

Problem Statement: What factors must be considered in the development of center city circulation policies? What projects or programs can be developed to implement these policies? What role can joint public-private development play in the implementation of these policies?

Solution Considerations: Transit, automobile, and walk modes should be considered. Analysis should examine the impacts of major new transit facilities, such as fixed rail systems and people movers, the impacts of bus and pedestrian malls, potential improvements resulting from central city freeway interchange design changes, high-occupancy-vehicle lanes on central city freeways, and traffic engineering approaches to reduce congestion. Will construction of one improvement (a transit mall, for example,) eliminate the need for another?

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823 The Transportation Network--Central City Concerns

823-4/LOW CAPITAL DESIGN SCHEMES

Problem Statement: Low capital urban design schemes that integrate pedestrian traffic with transit facilities are needed to encourage commercial growth in the central city.

Solution Considerations: Design examples should combine an emphasis on pedestrian and transit usage with the traditional concepts of easy automobile access to the downtown. Schemes should be relatively low cost and should require a short implementation time.

823-5/ECONOMIC IMPACTS OF PEDESTRIAN WALKWAYS

Problem Statement: Second level pedestrian walkways that provide an enclosed atmosphere like that of a pedestrian mall are proposed as a way to encourage central city revitalization. However, little is known about their long term economic impacts.

Solution Considerations: Before and after studies are needed to quantify long and short term impacts on general and street level retail sales, vacancy rates, office development, citizen attitudes, and street activities.

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823 The Transportation Network--Central City Concerns

823-6/URBAN REVITALIZATION AND TRAFFIC CONGESTION

Problem Statement: As older cities pursue urban revitalization through housing and business development, they often find neighborhood opposition developing to street improvements to facilitate traffic flow.

Solution Considerations: Alternatives should be considered, such as: diversion of traffic to other routes; diversion of travelers to modes other than the automobile; redirection of growth plans; the vitality of the center city.

Related needs: 824-2, 821-5

823-7/ENFORCEMENT OF TRAFFIC REGULATIONS

Problem Statement: Traffic violations reduce the effectiveness of the transportation system. Lax enforcement results in loss of revenue. Violations of many traffic laws reduce the effectiveness of the transportation system.

Solution Considerations: 1) Potential for increased violations should be included in the evaluation for transportation system impacts of land development proposals. 2) Enforcement might be improved through administrative judgement procedures, stiffer fines, more intensive tow-away programs, and more effective monitoring using civilian police. 3) The effects of improved enforcement on system performance should be measured.

Related need: 824-9

LOCAL PROGRAMS

Comprehensive Traffic Enforcement Program: WASHINGTON, DC Department of Transportation, Bureau of Traffic Adjudication has a comprehensive traffic enforcement program. Tickets may be paid by mail, in person, and with a credit card. Disputes may be adjudicated by mail. The District has decriminalized all but the most serious traffic offenses. Vehicle registrations will not be renewed in face of unpaid tickets. Washington D.C. will be experimenting with civilian radar teams. Contact: Tom Downs, Director, D.C. Department of Transportation, Presidential Building, 415 12th Street, NW, Washington, D.C. 20004, (202) 727-5847.

Selective Traffic Enforcement Program (STEP): BILLINGS, MT issues tickets, not warnings, for any violation (regardless of the severity of the violation) at intersections and on streets with high accident rates. Five officers are presently assigned to this program. Contact: Gene Kiser, City of Billings Police Department, Box 1554, Billings, MT 59103, (406) 245-8989.

Traffic Enforcement Committee: PORTLAND, ME has recently formed a committee responsible for reviewing areas with critical and recurring traffic problems. This committee is responsible for selecting the necessary corrective action and deployment of police manpower. Contact: William J. Bray, City of Portland, 3839 Congress Street, Portland, ME 04101, (207) 775-5451.

823-7/ENFORCEMENT OF TRAFFIC REGULATIONS

FEDERAL PROGRAMS

FHWA's Office of Traffic Operations is concerned with the traffic engineering aspects of traffic safety and enforcement. Contact: Marshall Jacks, Jr., HTO-1, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-0376.

FHWA's Office of Highway Planning is concerned with program planning and management. Contact: Gary Maring, HHP-33, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-0210.

NHTSA's Office of Enforcement and Medical Services is concerned with all aspects of traffic safety and enforcement. Contact: Harold A. Butz, NTS-40, NHTSA, 400 7th Street, SW, Washington, DC 20590, (202) 426-4913.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has prepared an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

824 The Transportation Network -- Management Information and Data Collection Needs

824-1/SOCIAL IMPACT OF NEW MAJOR TRANSPORTATION FACILITIES

Problem Statement: New transportation facilities and other large public works often have substantial impacts on community social structures and the general quality of life of those living or working near the facilities. This impact may be particularly apparent in central cities. At present, methods for measuring and evaluating these impacts are poorly developed, although some research has been conducted. As a result, social impacts are frequently dismissed as unquantifiable externalities in project evaluation and decision-making.

Solution Considerations: Research needs to focus on existing and potential methodologies for social impact assessment, including data needs, techniques, and means for incorporating measures of social impacts into project evaluations.

Related need: 823-1

824-2/TRAFFIC IMPACTS ON RESIDENTIAL AREAS

Problem Statement: Traffic impacts and congestion in residential areas may be perceived as problems by residents and local officials. The traffic may be caused by internal neighborhood forces or a traffic generator such as a large housing complex or by external factors such as a one-way street system on streets adjacent to the neighborhood. It may be necessary to verify and measure these traffic problems or impacts before action can be taken. Without such verification, actions can be easily challenged by the community, elected officials, and the courts, but these impacts may be difficult to measure.

Solution Considerations: Are data collection means available for verifying and measuring traffic impacts, particularly the impacts of external factors such as one-way street systems? Information about reliable mechanisms should be disseminated.

Related needs: 823-6, 821-3

FEDERAL PROGRAMS

FHWA's Traffic Control and Operations Division is presently completing work on a procedure which would permit explicit tradeoffs to be made between improved traffic operations (as occurs with one-way street operation) and the perceived impacts of more and faster traffic on residential streets. Contact: B.W. Stephens, Traffic Control and Operations Division, HSR-30, FHWA, Fairbank Highway Research Center, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2031.

824-3/STREET MANAGEMENT INFORMATION SYSTEMS

Problem Statement: Because urban areas are dynamic, continuously changing environments, local officials have found it almost impossible manually to maintain accurate, up-to-date, and readily accessible maps and records on existing public facilities. This problem is complicated by the enormous quantities of data required by different city departments, interagency needs for the same records, both private and public ownership of municipal services, and increasing demands for public accountability.

Solution Considerations: Several street management inventory systems exist and are used by cities. The troublesome part is collecting the data and maintaining an accurate file which reflects recent changes. All too often, data maintenance is neglected, making the file useless.

LOCAL PROGRAMS

Computer Based Road Inventory System: MARICOPA COUNTY, AZ has developed a computer based road inventory system. Files are maintained with information on road mileage by type, construction, and condition, and right-of-way structures and their condition, including what has been done, when, and at what cost. Contact: Roberta Blanchette, Data Processing Manager, Maricopa County Highway Department, 3325 West Durango, Phoenix, AZ 85009, (602) 262-3615.

Street Inventory and Management Information System: SAN ANTONIO, TX, in conjunction with the County MPO, is developing a street management and inventory system. Contact: Stewart Fischer, Director, Traffic and Transportation Department, City of San Antonio, P.O. Box 9066, San Antonio, TX 78285 (512) 299-7720.

Maps Planning System: HENNEPIN COUNTY and MINNEAPOLIS, MN are working on a jointly sponsored Planning System called MAPS. The system has been in operation since 1974 and includes information on street underground facilities, parcel boundaries, crime, accidents, and fires. Local private utility companies have also added information to the system. Contact: Al Azemove, Manager, Systems and Data Processing, Hennepin County Bureau of Public Service, 320 Washington Avenue South, Hopkins, MN 55343, (612) 935-3381.

Street Facilities Photolog: SAN JOSE, CA is developing a photolog inventory of street surface facilities data. Accident data may be added to the inventory in the future. Contact: Jim Kennedy, Transportation Safety Coordinator, 801 North 1st Street, Room 340, San Jose, CA 95110, (408) 277-5341.

Computerized Street Information System: NEW YORK, NY is developing a computerized street information system to include software, a photolog inventory of all streets within the City, extraction of photolog data, computerized field and office data, and comparative field and office data. Contact: Sheldon Fialkoff, Director, Office of Transportation Programming, NYC DOT, 40 Worth Street, New York, NY 10013, (212) 566-3960.

Computerized Street Inventory: DETROIT, MI maintains a street inventory that is periodically updated to indicate improvements, surface conditions, etc. Transfer of the inventory to a City-wide data base and expansion to include traffic signs are under consideration. Contact: Michael Kobran, Administrative Engineer, Transportation Engineering Division, Department of Transportation, 1301 E. Warren, Detroit, MI 48207, (313) 224-4919.

Public Works Inventory: MILWAUKEE, WI maintains a detailed inventory of all Public Ways (platted streets, alleys, and pedestrian ways) within the City. The inventory is continually updated and serves as the basis for numerous studies and reports and to provide City departments, utility companies, and contractors with information on pavement type, roadway widths and lengths, etc. Contact: Edwin J. Laszewski, City Engineer, Room 612, Municipal Building, 841 North Broadway, Milwaukee, WI 53202, (414) 278-2400.

Freeway Sign Inventory: COLUMBUS, OH is developing a computerized major freeway sign inventory. Data includes sign size, copy, structure type, lighting type, bulb and ballast size, plan book and page. Contact: Richard McGuiness, Freeway Operations Engineer, City of Columbus, 50 W. Gay Street, Columbus, OH 43215, (614) 222-7790.

ADDITIONAL PROGRAMS

The American Public Works Association is sponsoring a Computer Assisted Mapping and Records Activity System (CAMRAS) project. Contact: George Hinkel, American Public Works Association, 1314 East 60th Street, Chicago, IL 60637, (312) 947-2544.

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin on this subject. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2423.

824-4/COMPUTER USE FOR PLANNING

Problem Statement: Many small- and medium-sized planning agencies, city departments, and transit agencies need improved information reporting and analysis capabilities to aid in daily decision-making. Often, large computers would be helpful, but budget restrictions prevent their use. Mini-computers are often affordable, but lack the necessary software for discrete planning needs. Software development is needed and should be shared among diverse users.

Solution Considerations: Mini-computers and micro-computer software development needs to be undertaken to address a number of planning needs including transit performance monitoring and reporting, transit scheduling and routing, equipment maintenance monitoring, and local government information systems. Information needs to be made available to municipal DOTS about available hardware and software and how cities can effectively utilize these materials.

PROGRAMS

The Urban Consortium for Technology Initiatives, through Public Technology, Inc., has developed a financial expenditure program that works on a hand-held computer. The program is designed for use by local units of government. A revenue-forecasting program is now being developed. Contact: Bruce Steinthal, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2470.

824-5 PROJECT MANAGEMENT

Problem Statement: Much time, effort, and money is wasted because of inefficient and ineffective project management. Often, the individuals responsible for project management are not skilled in management techniques.

Solution Considerations: Information needs to be disseminated about successful project management techniques, training programs, and practices.

LOCAL PROGRAMS

Contractor Management: COLUMBUS, OH designed, prepared plans and specifications, and provided project engineers for major transportation and improvement programs. The City also installed one of the projects on a Force Account basis. The City has had good, direct experience with management of contractor work as opposed to Force Account with city forces. Contact: George L. Butzer, Systems Engineer, City of Columbus, 50 W. Gay Street, Columbus, OH 43215, (614) 222-7790.

824-6/IMPACT ANALYSIS OF URBAN TRANSPORTATION IMPROVEMENTS

Problem Statement: How do major transportation improvements impact the economic viability, the spatial development, the employment opportunities, and the private development potential of urban areas?

Solution Considerations: Have criteria been developed to measure these impacts? How can it be determined if an impact is critical?

PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., developed an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2424.

The Urban Consortium for Technology Initiatives and its Transportation Task Force, through Public Technology, Inc., have studied the transportation planning issues facing local governments and the manual and computer-based tools available to address these issues. One product of this effort is a document for local government managers describing the Federally developed Urban Transportation Planning System (UTPS). Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2424.

824 The Transportation Network--Management Information and Data Collection Needs

824-7/FUTURE IMPACTS OF COMMUNICATIONS ON TRANSPORTATION

Problem Statement: As communications technologies are advanced, refined, and applied, the impacts on transportation will be many and varied. Advances in both voice/video and data communications may increase the efficiency and reduce the operating costs of various modes of transportation, eliminate the need for certain types of trips or shipments, alter development patterns, or stimulate economic activity that will generate new travel demands.

Solution Considerations: Has research been conducted in this area? If so, the information gathered should be disseminated, particularly in instances where it may affect current decision-making.

LOCAL PROGRAMS

University Research: LOS ANGELES, CA reports that extensive work in this area has been conducted by the Center for Futures Research, University of Southern California, University Park, Los Angeles, CA 90007. Contact: Donald R. Howery, General Manager, Department of Transportation, City of Los Angeles, Room 1200, City Hall, 200 N. Spring Street, Los Angeles, CA 90012, (213) 485-2279.

824 The Transportation Network--Management Information and Data Collection Needs

824-8/INTEGRATED TRAFFIC MANAGEMENT SYSTEMS

Problem Statement: Many individual traffic system management techniques exist, such as traffic signals, information signs, and bus monitoring and priority systems. However these techniques are often not integrated into an efficient overall system.

Solution Considerations: The feasibility of integrated traffic management systems for medium and large urban areas should be investigated. The impacts of such systems should be analyzed.

Related need: 828-14

824-9/URBAN TRAFFIC ACCIDENT RATES DATA

Problem Statement: Data on traffic accident rates for urban street sections and intersections are needed for evaluating accident experience at specific locations. No consistent reporting form exists for cities, and consequently average accident rate information cannot be exchanged between jurisdictions.

Solution Considerations: National reporting forms need to be developed for different types of accidents. Accident rates should be computed for various types of urban streets based on data from many cities. Accident rates should be calculated for classes of streets, type of intersection traffic control, and other forms of controls.

Related need: 823-7

824 The Transportation Network--Management Information and Data Collection Needs

824-10/EVALUATION OF ENERGY CONSERVATION STRATEGIES

Problem Statement: Various transportation strategies have been developed to conserve energy. However, few comprehensive techniques exist to evaluate the individual effectiveness of these strategies or how well they work in combination as an energy conservation program.

Solution Considerations: Practical methods should be developed to estimate the energy impacts of transportation system management actions. These techniques should be quick, and easy to apply and should yield data on the relative fuel savings associated with various measures.

Related need: 828-14

LOCAL PROGRAMS

Transportation Energy Management Strategies: LOS ANGELES, CA, as part of the preparation of the Energy/LA Action Plan, has developed a listing of TSM strategies that have the potential of reducing Los Angeles' 1977 transportation energy use by 40% by 1990. Transportation energy management strategies combine improvements to the transportation system and in vehicle efficiency, including both roadways and transit, with incentives and education to encourage the more efficient transit choices. Preliminary work was done on the preparation of an energy contingency plan, in the event a gasoline shortfall occurs again. Contacts: Action Plan: Mark Braly, Energy Coordinator, Office of the Mayor, City of Los Angeles, Room 1400, City Hall, 200 North Spring Street, Los Angeles, CA 90012, (213) 485-6301; Philip M. Aker, City Planner, Department of Transportation, City of Los Angeles, Room 1200, City Hall, 200 North Spring Street, Los Angeles, CA 90012, (213) 485-7201.

824-10/EVALUATION OF ENERGY CONSERVATION STRATEGIES

FEDERAL PROGRAMS

Energy use and freeway management: Potential management and control strategies for freeways were tested using computer simulation models. The strategies and combination of strategies were rank ordered in terms of their fuel cost-effectiveness. See "Freeway Control and Management of Energy Conservation," FHWA-RD-82-058, September, 1982. Contact: H.H. Bissell, FHWA, HSR-30, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 275-2031.

ADDITIONAL PROGRAMS

Energy efficiency estimates for transportation improvements: A summary of transportation research conducted over the past several years. Includes estimates for strategies ranging from traffic signal improvements to institutional changes such as variable work hours. Institute of Transportation Engineers publication "Energy Impacts of Urban Transportation Improvements," August 1980. Contact: Mark R. Norman, ITE, 525 School Street, S.W., Washington, D.C. 20024, (202) 554-8050.

824 The Transportation Network--Management Information and Data Collection Needs

824-11/NOISE ABATEMENT PROGRAMS

Problem Statement: Federal noise abatement standards are of questionable quality. The cost effectiveness and utility of various noise abatement methods and procedures are not widely known.

Solution Considerations: Federal noise standards should take intermittent loud noises into consideration. Data should be assembled and disseminated on the acoustical and aesthetic effectiveness, installation problems, and cost effectiveness of different types of noise barriers.

LOCAL PROGRAMS

Highway Noise and Land Development: AURORA, CO is developing a process to evaluate the relationship between on-going urban land development and highway-related noise. A scheduled update of the City's Comprehensive Plan will incorporate highway noise as an important criteria in determining appropriate land use activities and development conditions. Contact: Frank Mizner, Transportation Planner, City of Aurora, 1470 S. Havana Street, Aurora, CO 80012, (303) 695-7250.

FEDERAL PROGRAMS

FHWA's Office of Environmental Policy is concerned with the development of appropriate noise abatement criteria, the effectiveness of noise abatement techniques and the development of local programs to ensure noise-compatable land-use development near highways. Contact: Noise and Air Analysis Division, HEV-30, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-4836.

FHWA's Construction, Maintenance, and Environmental Design Division: On-going and soon-to-be-initiated studies include "Design and Assessment Procedures to Mitigate Urban Traffic Noise," "Stop and Go Traffic Noise Prediction Procedure," and "Evaluation of Absorptive Barrier Designs Under Traffic Flow Conditions." Contact: Fred Romano, Construction, Maintenance, and Environmental Design Division, HNR-30, FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2004.

824 The Transportation Network--Management Information and Data Collection Needs

824-12/AIR QUALITY IMPACT FORECASTING

Problem Statement: Most major metropolitan areas are unable to attain EPA's standards for various types of air pollutants. Large-scale office, commercial or industrial developments are often accompanied by increases in concentrated or area-wide air quality problems.

Solution Considerations: Effective means are needed of analyzing the air quality impacts of various types of development proposals or projects. The techniques should not be excessively complex and should be applicable based on a minimum of input data, such as automobile ownership, square footage of development or transportation patterns.

Related need: 828-7

LOCAL PROGRAMS

Air Sample Analysis: COLUMBUS, OH reports that the Ohio EPA plans to evaluate air quality with actual air sample analysis both before and after a major signalization project is undertaken and completed in the City. Contact: George L. Butzer, Systems Engineer, City of Columbus, 50 W. Gay Street, Columbus, OH 43215, (615) 222-7790.

Park and Ride Lots and Air Quality: MILWAUKEE COUNTY, WI will conduct a study of the County's park-ride lots to determine their historical contribution to energy conservation, air quality (including possible emission offset banking), and alleviation of traffic and parking congestion. The study will include a survey of the users of the park-ride lots in Milwaukee County to determine:

1) The reduction in gasoline consumption, air pollution, and traffic and parking congestion due to the use of the park-ride lots.
2) The unused potential of the existing and planned park-ride lots to contribute to energy savings, air quality, and alleviation of traffic and parking congestion.
3) The public cost of building and maintaining park-ride lots and operating the freeway flyer services versus the benefits derived by the public and individuals.
4) The relationship between use of the park-ride lots and the price of transit fares and gasoline.

Contact: Fred Rehm, Milwaukee County Department of Public Works, 907 North 10 Street, Milwaukee, WI 53233, (414) 278-4874.

824 The Transportation Network--Management Information and Data Collection Needs

824-13/MULTI-PURPOSE URBAN DATA BASE

Problem Statement: At the present time, there is a full range of information that is utilized for urban land use and transportation planning, and transportation management and operation. Quite often, models are used that do not have an accurate, up-to-date information base and as a result cannot be used to validate a predictive model. Because of the magnitude of the required data, considerable time must be spent in acquiring and maintaining the data.

Solution Considerations: What management techniques are available for developing and maintaining an up-to-date and accurate data base?

LOCAL PROGRAMS

Local Data System: ATLANTA, GA Bureau of Planning maintains a PLAN file, a computerized inventory of 118,000 parcels of land in the City. The file contains information on the development characteristics of each parcel (land use, number of structures, number of residential units, tax valuation, condition of structure, etc.). The City also has non-computerized demographic information such as R.L. Polk data and various census publications and will acquire the 1980 census results on tape once they become available. A "Calcomp" system is in the initial stages of installation. Contact: Stephen Grilli, Atlanta Bureau of Planning, 10 Pryor Street, Suite 200, Atlanta, GA 30335, (404) 658-6306.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., is preparing several documents that will address this need. The documents include Census Computer Programs: An Introduction for Management and The Urban Transportation Planning System (UTPS): An Introduction for Management. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

824-14/ANALYSIS OF DEVELOPMENT IMPACT ON TRANSPORTATION

Problem Statement: Current methods for assessing the transportation impacts of proposed developments range from simple trip generation calculations to complex long-range computer models. No system is available that measures impacts on specific streets and can be used for immediate decision making.

Solution Considerations: Software for mini-computer application is needed that would require only basic input data (land use, square footage, parking spaces) and would provide related output quickly.

824-15/URBAN RAIL IMPACTS ASSESSMENT

Problem Statement: Goods movement by rail can create major problems in an urban area. Little is understood of the combined impacts of the grade crossing conflicts, noise and air quality problems, safety hazards, and economic and social difficulties that are related to urban railroads.

Solution Considerations: A means of assessing the impact of rail activity in cities is needed.

Related needs: 829-6, 828-12

824 The Transportation Network--Management Information and Data Collection Needs

824-16/PUBLIC TRANSPORTATION INFORMATION

Problem Statement: Transportation information exists in time-tables, maps, books available mainly to travel agents, and in larger public libraries. These sources are quickly outdated, and the paper format means long lead-times for updating. The information is not readily available to the average citizen for use.

Solution Considerations: Using rapidly expanding technologies in cable-TV, micro-computers, etc., provide all existing paper sources of transportation data (local, regional, national, international) to be input into an easily accessible video-data resource, for all modes.

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824 The Transportation Network--Management Information and Data Collection Needs

824-17/TRANSPORTATION PLANNING AND IMPACT FORECASTING TOOLS

Problem Statement: Rapid, reliable, policy-sensitive models and techniques for predicting the relationship between transportation and community development are needed. The techniques need not be computerized. More reliable data is needed for input into the planning process.

Solution Considerations: 1) Forecasting techniques are not very policy-sensitive. 2) Relationships between transportation and land use are not clear. 3) The problem of latent demand is not well understood. 4) Data base requirements are often unmanageable. New approaches to data collection--such as forms included in utility bill mailouts--should be considered. 5) Flexible, short- and long-range modeling techniques are needed.

LOCAL PROGRAMS

Transportation Improvement Program (TIP) Impact Assessment: The NORTHEASTERN ILLINOIS Planning Commission prepared a report consisting of recommendations for improvement of the TIP programming process and a detailed evaluation and assessment of the comprehensive planning impacts of the fiscal years 1979-83 TIP for northeastern Illinois. Contact: John Henry Paige, NEIPC, 400 North Madison, Chicago, IL, (312) 454-0400.

FEDERAL PROGRAMS

RSPA's Office of University Research is sponsoring several research projects in this area including: 1) Improvement of Large Scale Network Solution Procedures. Contact: Sam Zimmerman, URT-40, UMTA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9271. 2) Development and Application of a Plan Programming Model for High Accessibility Urban Corridors. Contact: Edward Weiner, P-33, OST, 400 7th Street, SW, Washington, DC 20590, (202) 426-4441. 3) Impact of Transportation Policy on the Special Distribution of Retail Activity. Contact: David Rubin, DTS-24, Transportation Systems Center, Kendall Square, Cambridge, MA 02142, (617) 494-2160. 4) Economic Structure, Community Development, and Transportation System: An Empirical Analysis of Household Activity Patterns. Contact: Jesse Jacobson, DTS-243, Transportation Systems Center, Kendall Square, Cambridge, MA 02142, (617) 494-2510. 5) Synthetic Travel Forecasting Using Traffic Count Correlations. Contact: George Schoener, HHP-24, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-0150.

824-17/TRANSPORTATION PLANNING AND IMPACT FORECASTING TOOLS

UMTA's Office of Planning Methods and Support develops computer and non-computer based planning tools, including the Urban Transportation Planning System (UTPS), disseminates information, and sponsors training courses. Contact: Sam Zimmerman, URT-40, UMTA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9271.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., developed an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2400.

The Urban Consortium for Technology Initiatives and its Transportation Task Force, through Public Technology, Inc., have studied the transportation planning issues facing local governments, and the manual and computer-based tools available to address these issues. One product of this effort is a document for local government managers describing the Federally developed Urban Transportation Planning System (UTPS). Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2400.

824 The Transportation Network--Management Information and Data Collection Needs

824-18/CARPOOL, STAGGERED WORK HOURS, AND FOUR-DAY WEEK PARTICIPATION MEASUREMENTS

Problem Statement: Information is needed on participation in and impacts of carpooling, staggered work hours, and four-day work week programs.

Solution Considerations: 1) Data base must enable analysts to determine the extent of regional participation. 2) Analytical techniques are needed to evaluate impact on total travel and travel patterns. 3) An information system is needed to monitor significant changes. 4) The effects of flextime on pooling programs should be determined.

LOCAL PROGRAMS

Carpool Program during Transit Strike Emergencies: PHILADELPHIA, PA made arrangements for bank offices to post a poster display containing pocket--size questionnaires and information on how best to find alternative means of traveling to the center city area during a transit strike. The banks arranged to collect the questionnaires for carpool information, for a drop at the computer facility where further coding, batch processing, and mailing to distressed commuters took place. Citizens were given names and telephone numbers of neighbors who had similar work destinations and work arrival times during the transit strike emergency. Contact: Ira Pierce, Delaware Valley Regional Planning Commission, Penn Towers Building, 1819 J.F. Kennedy Blvd., Philadelphia, PA 19103, (215) 567-3000.

Ridesharing Service Program: THE NORTHEASTERN ILLINOIS REGIONAL TRANSPORTATION AUTHORITY for the past two years has been studying a spectrum of ridesharing services, including carpooling and vanpooling. RTA is offering region-wide ridesharing technical assistance to help employers implement ridesharing programs. Contact: Dale Fitschen, Regional Transportation Authority, Operational Planning Department, 300 North State Street, Chicago, IL 60610, (312) 836-4126.

Staggered Work Hours and Ridesharing Programs: THE DELAWARE VALLEY REGIONAL PLANNING COMMISSION developed an extensive promotional campaign utilizing donated media time for public service announcements. This provided the required match for Federal Aid Highway Urban Systems funds for ridesharing. Two programs--Staggered Work Hours and Ridesharing--resulted in State deregulation of corporate-based vanpooling, significant financial

benefits to participating carpool/vanpool participants, as insurance service, know as abort coverage, cover 90% of any losses (should they be incurred in the first year), and benefits to the community in air quality and energy conservation. The viable structure for developing a ridesharing program was based upon the utilization of private contractors who would take responsibility for vehicle procurement, fleet maintenance, insurance and billing services. Contact: Roger Moog, Delaware Valley Regional Planning Commission, 215 Fifth Street, Bourse Building, Philadelphia, PA 19106, (215) 567-300/227-7665.

Variable Work Hours: THE MASSACHUSETTS BAY TRANSPORTATION AUTHORITY has initiated a variable work hours program to encourage major employers to offer staggered or flexible work hours to their employees. This is aimed at spreading peak hour transit demand, thus expanding the system's carrying capacity. Contact: Ernest S. Deeb, Massachusetts Bay Transportation Authority, 50 High Street, Boston, MA 02110, (617) 722-5000.

Work Schedule Changes: THE NORTHEASTERN ILLINOIS PLANNING COMMISSION has a program to evaluate the impact of work schedule changes on the region. Phase I: This technical study reviews and analyzes three basic variations of work schedule changes as a TSM strategy: staggered work hours, flexible work hours, and the modified work week. These are examined in the context of their applicability to TSM objectives in the Northeastern Illinois region. Case studies of precedents and experiences in other cities are examined. Phase II: This technical study of staggered and flexible work hours examines the impacts of work schedule changes on comprehensive regional planning goals and policies. Based on employment and traffic data, recommendations are made for prime sites for implementation of work schedule changes. Contact: John Henry Paige, NIPC, 400 W. Madison, Chicago, IL, (312) 454-0400.

Third-Party Vanpool, Sedanpool Leasing: THE GOLDEN GATE BRIDGE HIGHWAY AND TRANSPORTATION DISTRICT facilitates vanpool and sedanpool formation in District-owned vans and sedans, then attempts to divert poolers into privately-owned and operated vanpool or sedanpool arrangements after a get-acquainted trial period of about six months. Contact: Richard Ribner, Director of Ridesharing, GGBHTD, Box 9000, Presidio Station, San Francisco, CA 94129, (415) 921-5858.

Variable Work Hours: THE DULUTH TRANSIT AUTHORITY is testing a fare prepayment program to alleviate peak hour bus route congestion in Duluth, MN. It involves marketing and implementing flextime and staggered work hours among Duluth employers, and then making available to those employers with 30 percent of their workforces starting work at times other than between 7:45 and 8:00 A.M. regularly priced, unlimited-use passes and discounted passes for use any time except the peak period. Contact: Linda Zemotel, Project Manager, Duluth Transit Authority, 2631 W. Superior Street, Duluth, MN 55806, (218) 722-4426.

824-18/CARPOOL, STAGGERED WORK HOURS, AND FOUR-DAY WEEK PARTICIPATION MEASUREMENTS

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2400.

825 The Transportation Network -- Parking Management

825-1/PARKING AND ZONING REQUIREMENTS

Problem Statement: In many cities, large scale private redevelopment projects are changing the character of downtown. Zoning ordinances typically still specify the amount of parking that must be provided in conjunction with new development. The financial interests who underwrite these redevelopment projects insist upon the provision of more and more parking, which may be inconsistent with a city's overall downtown access and circulation goals.

Solution Considerations: 1) Compile the most current information from a number of major cities with respect to the actual parking demand generated by a variety of land uses, including office, retail, commercial, and residential. 2) Assess whether the abolition of minimum parking requirements really increases a lender's risk. 3) Identify steps that can be taken by public officials to minimize the negative impact that may result from increasing the parking supply.

LOCAL PROGRAMS

Flexible Parking Requirements: LOS ANGELES, CA has completed preparation of model ordinances that allow developers to reduce the amount of on-site parking that they will provide in return for a commitment to increased ridesharing and transit service to the development. Extensive background research was conducted to determine formulas to predict mode split and potential spillover. Contact: Frank Eberhard, Senior City Planner, Department of Planning, Room 510-City Hall, 200 N. Spring Street, Los Angeles, CA 90012.

SEATTLE, WA has a grant from the Environmental Protection Agency for a consultant study to examine formalizing flexible parking requirements in the zoning code. Contact: Jim Parsons, Chief Transportation Planner, Office of Policy and Evaluation, City of Seattle, 300 Municipal Building, 4th and James Street, Seattle, WA 98104, (206) 625-4591.

Parking Requirement Elimination: SAN FRANCISCO, CA no longer has a minimum parking requirement. City Planning Commission approval is required for any structure where parking is proposed for more than seven percent of the gross floor area. Contact: Alan Lubliner, Center City Circulation Project Manager, Department of City Planning, City of San Francisco, 100 Larkin Street, San Francisco, CA 94102, (415) 558-5423.

Central City Parking Restriction: CHICAGO, IL has changed its zoning ordinance to create a Central Area Parking District within which parking is permitted only as an accessory use. Floor area bonuses are provided for buildings that include hook-ups to pedestrian facilities and mass transit. Contact: Kitty Freidheim, City Planner, Department of Planning, City Hall, 121 LaSalle Street, Chicago, IL 60602.

Parking Ceiling Set: PORTLAND, OR has set a lid on the number of parking spaces permitted in its CBD. The program has reduced the amount of parking being provided in conjunction with new development. Contact: Bureau of Planning, 421 SW Adler, Portland, OR 97204, (503) 248-4254.

825-2/DESIGN STANDARDS FOR PARKING SPACES

Problem Statement: As Detroit continues to downsize the domestic automobile fleet and imports of small foreign cars continue to account for 20% of new car sales, design standards for parking spaces, both on and off-street, are becoming obsolete.

Solution Considerations: Parking space design and layout standards should be reviewed with an eye towards reducing space per vehicle requirements. Particular attention should be given to reconfiguring existing off-street facilities, both lots and garages.

825-3/PARKING IN NON-CBD AREAS

Problem Statement: Parking management programs have generally been applied only in CBD's and large activity centers where environmental concerns are most evident. However, in older business districts of cities, most new construction requires parking expansion. Such expansion is usually undesirable from a land use perspective; however, without it, major concerns are raised by surrounding merchants and residents.

Solution Considerations: Parking demand rates need to be reviewed and updated for medium to low density areas. Experience with flexible parking requirements and small area parking management strategies should be collected and reviewed.

LOCAL PROGRAMS

Parking Requirement Reduction: SEATTLE, WA is considering reductions in parking requirements for business and commercial areas. Also under consideration are partial substitution of carpool parking, vanpool subsidies, and transit subsidies for partial fulfillment of the parking requirement. Contact: James D. Parsons, Senior Transportation Planner, Room 300 - Municipal Building, Seattle, WA 98104, (206) 625-4591.

Special Districts: ATLANTA, GA adopted a new zoning ordinance that establishes a number of special districts adjacent to MARTA rapid transit stations. In general, the special districts specify a maximum limit on the number of spaces that can be provided but set no minimum number. Contact: Cathy Thomas, Atlanta Bureau of Planning, 10 Pryor Street, Atlanta, GA 30335, (404) 658-6306.

825-4/SECURITY IN OFF-STREET PARKING FACILITIES

Problem Statement: The perception that municipal parking lots and garages are unsafe may deter potential customers from using these facilities.

Solution Considerations: Analyze the design and operation of parking facilities from the point of view of crime prevention. Special attention should be given to lighting and surveillance.

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825 The Transportation Network--Parking Management

825-5/SLUGS IN PARKING METERS

Problem Statement: Many cities lose a great deal of revenue because motorists deposit slugs in the parking meters. The cities incur additional costs during the counting process separating the slugs from the real coins.

Solution Considerations: Develop a parking meter which will reject and return all slugs, and that will not cost more than models currently on the market.

825-6/ENFORCEMENT OF PARKING REGULATIONS

Problem Statement: In many urban areas parking enforcement is perceived as a major governmental problem by officials whose responsibilities include the street transportation system or public safety. However, in many urban areas, only a relatively small amount of time and money is spent on parking enforcement. Lax enforcement results in the loss of revenue and can reduce the effectiveness of the transportation system.

Solution Considerations: Various methods of enforcing parking regulations need to be investigated. The effects and potential of using civilian parking aides or traffic agents as opposed to police to enforce regulations, methods of adjudication, the degree of productivitiy improvement that can be achieved by better parking enforcement, and the effects of an improved enforcement effort on system performance should be examined.

LOCAL PROGRAMS

Comprehensive Parking Enforcement Program: WASHINGTON, DC has developed one of the country's most effective parking enforcement programs. Ticket writing is handled primarily by civilian parking control aides, who work for the DC Department of Transportation. The aides write approximately 100 tickets per day. Cars with four or more unpaid tickets are towed or booted. All but the most serious traffic offenses have been decriminalized, and adjudications of alleged violations are conducted by an administrative hearing examiner, not a court. Contact: Fred Caponiti, Public Parking Administrator, D.C. Department of Transportation, 65 Massachusetts Avenue, NW, Washington, DC 20001, (202) 727-9193.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has prepared an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

826 The Transportation Network — Non-CBD Concerns

826-1/PARKING AND TRAFFIC IMPACT FORECASTING FOR NON-CBD DEVELOPMENT

Problem Statement: Many cities are experiencing traffic, pedestrian, and truck operational problems in non-central business district activity centers. These activity centers are often located on beltways and major radial corridors in an urban area and include developments such as large shopping facilites and industrial parks. Activity centers in older business districts and city neighborhoods are also causes of concern. Most new construction of retail or commercial facilities in these areas requires major parking expansion. Such expansion is usually undesirable from a land use perspective, but without parking, major concerns are raised by surrounding residents and merchants. These factors make it difficult to increase densities and encourage more pedestrian and transit oriented business districts in older neighborhoods.

Solution Considerations: Information about successful planning, zoning, or management approaches to eliminating these problems should be disseminated.

826-2/NON-CBD REDEVELOPMENT PROCEDURES

Problem Statement: Most traffic impact analyses use trip generation rates that are based upon units of land use or employment and a linear assessment of needs and impacts. In practice, mixed-use redevelopment in already developed areas has different impacts on surrounding street systems and parking capacity than does new non-CBD development at the same intensity and level.

Solution Considerations: Develop procedures for evaluating the traffic and parking impacts of mixed-use redevelopment in the non-CBD area and for assessing the impacts on the transportation system that result as economic activity centers move outside the CBD.

826-3/TRANSPORTATION PLANNING AND IMPACT FORECASTING TOOLS FOR LARGE SCALE SUBURBAN DEVELOPMENT

Problem Statement: The rapid pace of development in many metropolitan area suburban communities places a premium on the efficient, consistent, and relatively easy analysis of the transportation impacts of large-scale office, commercial, and residential development. A means of manual analysis is needed to respond to short-range concerns including effects on existing roadways, signal systems, and transportation patterns.

Solution Considerations: Develop a method for analyzing development proposals, independent of consultant impact analysis. The method should be easily understood, not require computer access, and provide estimates useful in operational level decisions.

826-4/TRANSPORTATION PLANNING INFORMATION FOR MAJOR ACTIVITY CENTERS

Problem Statement: Information is needed on travel characteristics to and from, and within major activity centers. These centers are small, intensely developed areas (0.25 to 1.0 square mile) and are characterized by mixed land use (retail, office, and residential). Data on vehicular and person-trip generation, level of trips made entirely within the center, degree of mode split, including bicycles, and parking requirements is needed.

Solution Considerations: Develop a manual that includes model on-site interviews for employees and patrons of activity centers, as well as the level of manual and machine traffic counts, including pedestrian and bicycle counts, that are needed to establish travel characteristics.

827-1/URBAN GOODS MOVEMENT

Problem Statement: Traffic congestion adversely affects the collection and distribution of goods and freight in urban areas and has increased inconvenience and costs in both the public and private sectors. Older Northeastern cities lack extensive radial and circumferential expressway networks, and trucks must use minor arterials and local streets not designed to accommodate heavy truck traffic. Operating costs increase due to an inefficiently-used roadway network, and vehicle fleet sizes need to be increased to overcome lost productivity. The public sector is also adversely affected by such factors as pollution, high energy consumption, construction of new facilities, traffic enforcement and, in some cases, the shift of businesses to less congested, though more inaccessible, locations.

Solution Considerations: 1) Vehicle separation: (a) separation of passenger and freight vehicles by time of day, (b) separation into different roadway networks, and (c) off-street or grade-separated loading and unloading facilities. 2) Vehicle reduction: development of consolidation terminals or consolidated shipping and delivery programs. 3) Improved intermodal facilities. 4) Development and publication of truck route maps and an easily undertood and enforceable policing mechanism. 5) Vehicle parking management to include the optimization of curb loading zone usage and to minimize traffic conflict, particularly in downtown areas.

LOCAL PROGRAMS

Off-street Loading Ordinance and Curb Use Regulations: DALLAS, TX has recently enacted an off-street loading ordinance and curb use regulatory measures to improve the goods distribution process downtown, following several years of research. Before and after studies of over measure, a test of metering of loading zones, are planned for the fall, 1981. Contact: R.W. Kelly, Office of Transportation Programs, Room 5C South, 1500 Marilla, Dallas, Texas 75201, (214) 670-4025.

Thanksgiving Square Truck Terminal: DALLAS, TX has constructed a major grade-separated truck terminal in the heart of the CBD. The average number of daily deliveries increased from 98 in March 1977 to 260 in February 1981. The project is an excellent example of mixed use, joint development. A publicly-owned, underground pedestrianway with 15,000 square feet of leaseable commerical space tops the terminal. Both facilities are located under a privately-owned meditation park open to the public. Contact: R.W. Kelly, Office of Transportation Programs, Room 5C South, 1500 Marilla, Dallas, TX 75201, (214) 670-4025.

827-1/URBAN GOODS MOVEMENT

FEDERAL PROGRAMS

FHWA Urban Planning and Transportation Management Division prepared in 1979 a report entitled Urban Transportation Planning for Goods and Services: A Reference Guide. The report provides suggestions for addressing urban goods movement issues. Contact: Chief, Community and Environmental Planning Branch, HHP-23, FHWA, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-0215.

FHWA: The FHWA is not aware of any proposed innovations in urban goods movement which may be cost effective methods of improving traffic conditions. Contact: Dr. Paul Ross, Urban Traffic Management Division (HSR-40), FHWA, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2024.

827 The Transportation Network--Goods Movement

827-2/FREIGHT TRANSPORTATION RATE SETTING

Problem Statement: Deregulation of freight transportation is producing sharp competition among modes such as truck, rail, and barge. Although freight rates are the single most important factor in shippers' selection of one mode over another, planners have little experience with freight rates. This causes great difficulties in interpreting changes in goods movement and in projecting trends.

Solution Considerations: A primer that describes the effects of freight rate changes on mode choice and introduces planners to the mechanics of rate making is needed.

827-3/SEAPORT FREIGHT ACCESS

Problem Statement: Increasingly, port freight movements have specialized in bulk cargo or container cargo components and, in some cases, passenger traffic. Each mode has its own access problem caused by truck or rail traffic and adjacent land use and transportation infrastructure constraints. Yet, few studies deal with the particular impacts each freight mode has on port facilities and, therefore, the different infrastructure needs.

Solution Considerations: How can the access problem be examined to determine short- and long-range solutions, using variable growth projections, to develop adequate transportation improvement programs for both the port facilities and adjacent land use? How can these solutions be tailored to different port specialization within the context of urban transportation planning?

827-4/URBAN TRUCK ROUTE SELECTION AND ENFORCEMENT

Problem Statement: The development of an efficient urban truck route system is an integral part of an overall strategy to promote on-going economic development efforts. There is no process, however, by which to select and enforce truck routes. Ways of deterring violations without negatively impacting commercial or industrial pick-up and delivery services are particularly needed. Information is needed on ways in which priority primary and secondary truck route systems can be developed. Also needed are the legislative tools necessary to establish the system, a new city ordinance, for example.

Solution Considerations: Major factors to be considered include: 1) existing land use generators of truck traffic, 2) suitable direct service delivery routes to and from highways and other major roadways, 3) truck route selection conformance with thoroughfare plan, 4) minimal penetration of residential areas.

827-5/HAZARDOUS MATERIALS MOVEMENT

Problem Statement: Many hazardous materials that move through cities by truck or rail are unidentified until an emergency situation occurs. Safety precautions need to be established for routes selected for hazardous materials movement.

Solution Considerations: Coordinate actors involved in the movement of hazardous materials, including transporters, city police, and local emergency officials, so that appropriate safety precautions can be systematized.

LOCAL PROGRAMS

Local Government Involvement in Accident Prevention: THE PUGET SOUND COUNCIL OF GOVERNMENTS is investigating whether greater involvement by local governments in accident prevention and response could result in improved public safety without unduly restricting the transportation of hazardous materials. Contact: Puget Sound Council of Governments, 216 First Avenue South, Seattle, WA 98104, (206) 464-7090.

Channel Industries Mutual Aid: HOUSTON, TX's channel industries, local full-time and volunteer fire departments, and the port authority have joined together to provide protection along the City's industrial shipping channel. Contact: Chief Roy Granberry, Port of Houston Fire Strategy and Tactics, 333 Preston Street, Houston, TX 77002, (713) 222-4631.

Specialized Response Squads: MEMPHIS, TN has set up and trained two REACT squads to provide specialized services at the scene of a hazardous materials incident. Contact: Robert W. Walker, Director, Fire Services, Memphis Division of Fire Services, 65 South Front Street, Memphis, TN 38103, (901) 526-0706.

Hazardous Materials Response Teams: PRINCE GEORGE'S COUNTY, MD is planning to organize three response teams. The teams will provide technical assistance, coordination of outside assistance, and assistance in the use of special equipment in the event of an incident. Contact: Jim Estepp, Fire Chief, Prince George's County Fire Department, County Administration Building, Upper Marlboro, MD 20870, (301) 952-4730.

827-5/HAZARDOUS MATERIALS MOVEMENT

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has prepared an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has prepared an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004. Attention: Transportation Staff, (202) 626-2423.

FEDERAL PROGRAMS

FHWA Study Completed and Published: "Development of Criteria to Designate Routes for Transporting Hazardous Materials," (FHWA/RD-80/105), July 1980. A framework for designating hazardous materials highway routes was developed and pilot tested in three cities. It is based principally on accident risk. The primary factors considered are the chance of an accident and the impact on population and property. A user-oriented guide (FHWA-IP-80-15) illustrates the routing method and provides the necessary forms and worksheets to conduct the analysis. Contact: Howard H. Bissell, FHWA, HSR-30, Washington, D.C. 20590, (703) 285-2031.

Emergency response demonstration program: The Research and Special Programs Administration of the Department of Transportation is sponsoring six demonstration projects designed to help units of government prepare safety plans. Contact: Richard Hannon, Research and Special Programs Administration, DMT-62, Department of Transportation, 400 7th Street, S.W., Washington, D.C. 20590, (202) 472-8434.

828 The Transportation Network — Institutional Concerns

828-1/INNOVATIVE LOCAL FUNDING FOR TRANSPORTATION

Problem Statement: Cutbacks in Federal aid for transportation programs have increased the need for State and local funds to support these programs.

Solution Considerations: Local governments may lack statutory authority to levy user fees, and bond issues may be difficult to pass. Innovative methods of financing transportation should be studied and reported, and the results widely disseminated. Special attention should be given to dedicated taxes, and gasoline and other taxes, and the institutional mechanisms for distributing them.

FEDERAL PROGRAMS

FHWA Urban Planning and Transportation Management Division has underway a research contract to explore innovative methods to fund highway improvements. A state-of-the-practice report is expected to be completed in the Fall of 1983. In addition, contract efforts also have the purpose of developing and disseminating such information to State and local governments through a clearinghouse approach by the Fall of 1983. Contact: Chief, Community and Environmental Planning Branch, HHP-23, FHWA, 400 7th Street, S.W., Washington, DC 20590, (202) 426-0215.

828-2/TRANSPORTATION RESEARCH FUNDING FORMULA

Problem Statement: The existing Federal formula for the allotment of declining Federal appropriations for highway planning and research needs to be revised as the Interstate program winds down.

Solution Considerations: The revised formula should take into account: the density of population; person miles of travel in the area; the proportion of urban to rural areas; a minimum floor level for each State.

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828 The Transportation Network--Institutional Concerns

828-3/INSTITUTIONAL RIVALRY

Problem Statement: Planning and implementation of transportation improvements often are undertaken by different divisions within a local government or by different organizations. Consequently good plans are frequently not implemented simply because of institutional rivalry.

Solution Considerations: Institutional arrangements and management techniques should be examined to reduce unproductive competition between public agencies with common goals. Techniques might include: sharing credit for successful projects; integrating planning and operating personnel; changes in internal organization.

Related need: 828-13

828-4/ CITIZEN PARTICIPATION IN TRANSPORTATION PLANNING

Problem Statement: Federal mandates for citizen participation vary widely and often have resulted in ineffective and counter-productive local citizen participation efforts. Many cities have attempted to inform citizens affected by transportation capital projects so they know how their lives will be affected by the construction. Attempts have been made to inform people of what will be done and seek their input. However, little meaningful success has been achieved.

Solution Considerations: Research is needed to identify processes for matching citizen participation techniques to the various contexts in which they are used. Improved planning guidelines, training, information transfer, and citizen participation processes are needed.

LOCAL PROGRAMS

Neighborhood Planning: ATLANTA, GA established a Neighborhood Planning Unit (NPU) process which is used by transportation agencies to solicit citizen input. The City is divided into 24 NPUs, each of which represents several neighborhoods. Agencies such as the Georgia Department of Transportation meet with the NPUs frequently to solicit more participation than is possible to obtain from the federally mandated public hearing process. Input is solicited during the planning, design, and construction phases. Contact: Cathy Thomas, Atlanta Bureau of Planning, 10 Pryor Street, Atlanta, GA 30335 (404) 658-6306.

FEDERAL PROGRAMS

The Federal Highway Administrration has long been involved in the development and conduct of citizen participation (C.P.) programs. A host of techniques and guidelines have been transferred to the field via training courses and technical reports. Presently, a course entitled, "Improving the Effectiveness of Public Meetings and Hearings" is being presented to State and local personnel. The course focuses specifically on the development and implementation of creative and realistic approaches to the preparation, conduct, and follow-up of meetings and hearings. In addition, ongoing research is being performed to develop effectiveness measures for citizen participation programs. Such measures could be em-

design C.P. programs best suited to specific project type and community composition contexts; (2) to diagnose problems with ongoing C.P. programs; (3) to evaluate the results of completed C.P. programs to determine what improvements can be made in future program design and administration. Contact: Ronald Giguere, Urban Traffic Management Division, HSR-40, Office of Safety and Traffic Operations R&D, Federal Highway Administration, Washington, D.C. 20590, (703) 285-2024.

828-5/COORDINATION OF PARKING STRATEGIES WITH PUBLIC TRANSPORTATION AND RIDESHARING

Problem Statement: The coordination of parking strategies, public transportation, and ridesharing programs is critical to the effectiveness of the city's overall transportation system and operation of the individual programs.

Solution Considerations: What cities have been successful in coordinating public transportation, ridesharing, and parking strategies? How is the coordination accomplished? Cost-benefit analyses of fringe parking lots with transit or shuttle service should be included.

LOCAL PROGRAMS

A Private Non-Profit Corporation was formed in HARTFORD, CT to promote high-occupancy vehicle use. Presently, the corporation is focusing on carpool and vanpool formation, but eventually the corporation intends to become involved in promoting flex-time parking management, HOV incentives, and downtown pedestrianization and revitalization. Contact: Jonathan C. Coleman, Executive Director, Greater Hartford Ridesharing Corporation, Hartford, CT 06152, (203) 726-5966.

Coordinated Management Plan: WASHINGTON, DC has developed a coordinated parking management plan that encourages transit and HOV use. Fringe area park-and-ride lots are also provided. Contact: Tom Downs, Director, DC DOT, 414 12th Street, NW, Washington, DC 20001, (202) 727-5847.

Parking Program: PORTLAND, OR in conjunction with its downtown transit mall has enacted a parking management program that discourages the use of single occupant autos and encourages ride sharing through incentives such as on street preferential parking for carpoolers. Contact: Michael Fischer, Transportation Planner, Bureau of Planning, 421 SW Adler, Portland, OR 97204, (503) 248-4254.

828-5/COORDINATION OF PARKING STRATEGIES WITH PUBLIC TRANSPORTATION AND RIDESHARING

Share-a-Ride: DADE COUNTY, FL has designed a Share-a-Ride Project to encourage ridesharing, thus reducing highway congestion and air emission levels and conserving energy. The Share-a-Ride Project consists of four elements:

1. The employer based ridesharing element is designed to encourage ridesharing among employees of major employers (defined as a company or agency with 250 or more employees) by computer matching those people who live and work in close proximity to each other and share similar work hours.

2. The shopper ridesharing element is designed to encourage ridesharing among shoppers to a selected central business district in Metropolitan Dade County. Proposed incentives to encourage shoppers' ridesharing include reduced parking fees, discount store coupons, and special tram or bus service.

3. The tourist ridesharing element is designed to encourage ridesharing among tourists in Broward County. Plans for a Tourist Bus Pass are under development which would permit tourists to purchase a weekly bus pass for $5.00, entitling users to unlimited rides over a seven day period.

4. The fourth element of the project is directed at the unaffiliated rider; the individual who is not employed by a major employer. The unaffiliated rider is reached through radio and television public service announcements, highway and arterial Share-a-Ride carpool information signs, and other marketing tools.

Contact: Walt Liebman, Project Manager, Dade County Transportation Administration Share-a-Ride Project, 44 West Flagler Street, 14th Floor, Miami, FL 33130, (305) 374-POOL.

Parking Management and Supporting Transportation Activities: GENESSEE TRANSPORTATION COUNCIL has embarked upon a program to integrate parking management with supporting transportation activities in order to achieve a significant increase in vehicle occupancy for travel to downtown Rochester, NY and for industrial work travel at two or three other city locations. Contact: Nathan L. Jaschik, Central Staff Director, Genessee Transportation Council, 55 St. Paul Street, Rochester, NY 14604, (716) 232-6240.

Low-Cost Parking Management: NEW ORLEANS, LA has a comprehensive program to encourage the use of mass transit and to promote ridesharing. The program includes fringe parking, on-street parking for high occupancy vehicles, and a residential parking permit program. Contact: Mayor's Office of Analysis and Planning, City of New Orleans, City Hall - Room 8E06, New Orleans, LA 70112, (504) 586-3103.

828-5/COORDINATION OF PARKING STRATEGIES WITH PUBLIC TRANSPORTATION AND RIDESHARING

Improved Transportation Performance: LINCOLN, NE has developed a package of actions to improve the performance of transportation in downtown Lincoln, including preferential carpool parking, a park-and-shop program, and bicycle system improvements. Contact: Keith Moxon, Transportation Development Division, Lincoln Transportation Department, 233 S. 10th Street, Lincoln, NE 68508, (402) 473-6673.

Peripheral Parking and Shuttle Service: DALLAS, TX operates a shuttle service from a peripheral park-and-ride lot to downtown Dallas in an attempt to increase the number of short-term parking spaces available in the central business district. Contact: Cliff Franklin, General Manager, Dallas Transit System, 101 North Peak Street, Dallas, TX 75226 (214) 827-3400.

828-6/PUBLIC SAFETY IN TRANSPORTATION

Problem Statement: Pedestrian and public safety should receive greater emphasis as the increasing cost of transportation services makes higher service levels difficult to achieve.

Solution Considerations: Safety improvements are not automatically made as transportation service capacity increases. Research is needed into the types of safety improvements that are most effective, that can be implemented as part of local public projects, and that are cost effective.

LOCAL PROGRAMS

Comprehensive Pedestrian Safety Program: DADE COUNTY, FL's pedestrian safety program involves public information messages, an instruction program for school children, and police enforcement. Contact: Miles Moss, Dade County Traffic and Transportation Department, 7100 North 36th Street, Miami, FL 33166, (305) 592-0830.

Pedestrian Safety Program: DENVER, CO's pedestrian safety program is run by its police department. The program consists of public information and education, enforcement, and engineering. Contact: Detective Tom Heath, Denver Police Department, 1331 Cherokee Street, Denver, CO 802204, (303) 575-5722.

Pedestrian Safety Program: NEW YORK, NY's pedestrian safety program can claim success because in 1979 pedestrian fatalities were the lowest in 50 years. Contact: Samuel Schwartz, Assistant Commissioner, New York City Department of Transportation, 51 Chambers Street, New York, NY 10007, (202) 727-5777.

Pedestrian Safety Coordinator: WASHINGTON, DC has established the position of a full-time pedestrian safety coordinator within its transportation department. Contact: William Coryill, D.C. Office of Highway Safety, 415 12th Street, N.W., Washington, D.C. 20004, (202) 727-5777.

828-7/ECONOMIC IMPACTS OF AIR QUALITY STANDARDS

Problem Statement: The economic costs of air quality controls make decisions on precisely what quality standards should apply extremely difficult and sensitive.

Solution Considerations: The public and affected businesses should both be allowed input as the public agencies that mandate air quality standards make decisions. The monetary and political trade-offs between the air quality requirements and the desired level of economic activity should be considered.

Related need: 824-12

LOCAL PROGRAMS

Emissions Banking Programs: THE PUGET-SOUND AIR POLLUTION CONTROL AGENCY has developed an emissions control program for the Seattle-Tacoma area. Contact: Brent Carson, Puget-Sound Air Pollution Control Agency, 410 W. Harrison Street, P.O. Box 9863, Seattle, WA 98109, (206) 344-7330.

Emissions Banking Programs: SAN FRANCISCO, CA has recently established an emission banking program for private firms in the Bay Area. Contact: Dan Goaliven, Chief, Permits Section, 939 Ellis Street, San Francisco, CA 94109, (415) 771-6000.

Air Quality Study: MILWAUKEE CO, WI will conduct a study of the County's park-ride lots to determine their historical contribution to energy conservation, air quality (including possible emission offset banking), and alleviation of traffic and parking congestion. The study methodology will include a survey of the users of the park-ride lots in Milwaukee County to determine:

1. The reduction in gasoline consumption, air pollution, and traffic and parking congestion due to the use of the park-ride lots.

2. The unused potential of the existing and planned park-ride lots to contribute to energy savings, air quality, and the alleviation of traffic and parking congestion.

Contact: Fred Rehm, Milwaukee County Department of Public Works, 907 North 10 Street, Milwaukee, WI 53233, (414) 278-4874.

828-8/SUCCESSFUL USE OF MINORITY BUSINESS

Problem Statement: Many government contracts suggest the involvement of minority-owned businesses. There is a concern on the part of some local government officials that there may not be a sufficient number of qualified minority businesses in their areas from which to chose.

Solution Considerations: What jurisdictions have been successful in working with minority businesses? What factors account for their success? Can Federal, State, or local governments do more by helping to identify minority business firms or encouraging the formation of new minority businesses?

LOCAL PROGRAMS

Affirmative Action: The GREATER CLEVELAND REGIONAL TRANSIT AUTHORITY affirmative action plan requires contractors to submit their affirmative action plans prior to submitting a bid rather than after the bid has been awarded. Contact: Henry Williams, Affirmative Action Administrator, GCRTA, 615 Superior Avenue, NW, Cleveland, OH 44113, (216) 781-5100 ext. 444.

Minority Involvement: The SOUTHEASTERN MICHIGAN TRANSPORTATION AUTHORITY requires 20% minority involvement and 2% involvement of women on all contracts unless a waiver has been granted. SEMTA has compiled a register of minority and women owned and operated businesses. Contactors must submit evidence of their EOE commitment prior to submitting a bid proposal. Contact: Fay Paige, Director, Minority Business Office, SEMTA, 660 Woodward Avenue, Detroit, MI 48226, (313) 256-8722.

STATE PROGRAMS

Minority Business: MARYLAND DOT developed the first model minority business program in the country with a grant from the Federal government in 1976. Since 1976, the State has been a national leader in utilizing minority business enterprises. Contact: James A. Hester, Chief, Equal Employment Opportunity Section, State Highway Administration, 300 West Preston Street, P.O. Box 717, Baltimore, MD 21203, (301) 383-4217.

828-9/DRIVER EDUCATION AND TRAFFIC CONTROLS

Problem Statement: Many drivers need to learn how traffic controls and signals work both under normal and emergency situations.

Solution Considerations: A public information program should be developed for popular magazines and newspapers to explain how basic traffic controls function and why they are useful.

828-10/ELIMINATION OF FEDERAL REQUIREMENTS FOR THE EXPENDITURE OF FEDERAL AID URBAN SYSTEMS (FAUS) FUNDS

Problem Statement: Federal aid requirements are time consuming and costly to fulfill, often pushing the cost of a project beyond effective limits.

Solution Considerations: Local agencies carrying out local projects should have the final say in design and implementation. FAUS fund requirements should be in the form of guidelines only.

828-11/QUALITY CONTROL FOR GOVERNMENT EQUIPMENT

Problem Statement: Government equipment, from traffic counters to desk calculators, often performs poorly and does not match the claims of suppliers.

Solution Considerations: Government agencies sometimes contribute to this problem by purchasing developmental equipment. Model purchase agreements with provision for purchaser testing and subsequent manufacturer improvement should be drawn up and widely used. Reduced sales prices should be offered, as such purchses could be considered a form of market testing.

828-12/RAILROAD CROSSING IMPROVEMENT LIAISON

Problem Statement: In many cities, railroad facilities, especially crossings, need substantial improvement, yet the railroad companies are slow or unwilling to make improvements.

Solution Considerations: Successful methods of influencing the railroads to make necessary improvements in a timely manner should be studied and reported. Relations between local governments and railroad companies might be improved by creation of an independent railroad coordinator or liaison office at the State or regional level. Information about jurisdictions that have this type of office needs to be disseminated.

Related needs: 829-6, 824-15, 821-4

LOCAL PROGRAMS

Improved Crossings: GREENSBORO, NC has for the past several years had a good working relationship with the Southern Railway Company on improvement of railroad crossings. This relationship was achieved through the efforts of Greensboro's Department of Public Works in its contacts with railroad officials. All improvements involving the riding surface of the crossings were joint efforts (City paying for materials, and railroad furnishing manpower and installation). To date, 26 crossings have been completed although no official agreement has ever been signed. Contact: John V. Fox, Jr., Director of Public Works, Drawer W-2, Greensboro, NC 27402, (919) 373-2074.

ADDITIONAL PROGRAMS

Demonstration project: In 1979, FHWA funded a demonstration project in an Illinois railroad corridor with nine corssings. The FHWA, the State of Illinois, and the Southern Railway Company worked closely in identifying the crossings and the potential improvements. Local agencies and the railroad performed the work. Contact: Robert Winans, Office of Highway Safety, HHS-11, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-2131.

828-13/CONFLICTS BETWEEN MPO AND IMPLEMENTING AGENCIES

Problem Statement: Metropolitan Planning Organizations seldom have the authority to implement planning for which they are responsible. Conflicts with implementing agencies are inherent and inevitable products of the 3C planning process.

Solution Considerations: Are there ways that jurisdictions have found to reconcile these conflicts? MPOs need to recognize that implementing agencies are indirectly responsible to the political process. Can a reversal be effected to allow implementing agencies to plan, coordinate, and satisfy the several entities comprising Metropolitan Planning Organizations?

Related need: 828-3

828-14/TRANSPORTATION SYSTEM MANAGEMENT, AIR QUALITY, ENERGY CONSERVATION, AND TRAFFIC CONGESTION

Problem Statement: Transportation System Management (TSM) has the potential for reducing air pollution, energy use, and traffic congestion. Local conditions and needs dictate which TSM measures would be most effective.

Solution Considerations: The energy and economic tradeoffs of various TSM strategies, their effectiveness in reducing pollution, energy use, and congestion, techniques for evaluating TSM strategies in local settings, and the potential for TSM in energy contingency planning must be examined. Case studies of exemplary, synergistic TSM programs should be prepared.

Related needs: 824-8, 824-10

LOCAL PROGRAMS

Paratransit Programs: THE TIDEWATER TRANSPORTATION DISTRICT COMMISSION in NORFOLK-PORTSMOUTH, VA has developed a vanpool, carpool, and shared-ride taxi program to supplement peak period service, to reduce the need for transit subsides, and to provide service in outlying areas. Contact: James C. Echols, General Manager, TTDC, 509 E. 18th Street, P.O. Box 660, Norfolk, VA 23501, (804) 627-9291.

Ridesharing Corporation: HARTFORD, CT has formed a private non-profit corporation to promote high-occupancy vehicle use. Contact: Jonathan C. Coleman, Executive Director, Greater Hartford Ridesharing Corporation, Hartford, CT 06152, (203) 726-5966.

TSM and Parking Management: WASHINGTON, DC has developed a comprehensive parking management program combining numerous elements to encourage transit and HOV use and improve neighborhood quality. Contact: Tom Downs, Director, D.C. DOT, 415 12th Street, NW, Washington, DC 20004, (202) 727-5847.

TSM and Parking Management: MADISON, WI has combined transit improvements and parking management measures to encourage transit use. Contact: Ross Patronsky, Project Manager, City of Madison DOT, 111 City/County Building, Madison, WI 53709, (605) 266-4761.

828-14/TRANSPORTATION SYSTEM MANAGEMENT, AIR QUALITY, ENERGY CONSERVATION, AND TRAFFIC CONGESTION

Transit Preferential Streets: SAN FRANCISCO, CA has designated transit preferential streets to improve bus movement. Contact: Glenn Erickson, Transit Preferential Streets Coordinator, Department of City Planning, 100 Larkin Street, San Francisco, CA 94102, (415) 558-5423.

TSM Planning: THE MID-AMERICA REGIONAL COUNCIL of KANSAS CITY, MO, has developed a comprehensive TSM planning program. Contact: Hampton J. McDowell, III, Director, Mid-America Regional Planning Council, 20 West Ninth Street, Kansas City, MO 64105, (816) 474-4240.

Traffic Signalization Improvements: SAN ANTONIO, TX has used the TRANSYT signal timing model to optimize signal settings for traffic flow, energy use, and air pollution emissions. Contact: M. Taher Soomro, Department of Traffic and Transportation, City of San Antonio, P.O. Box 9066, San Antonio, TX 78285, (512) 299-7720.

Alternative Work Schedules: THE DELAWARE VALLEY REGIONAL PLANNING COMMISSION has been working since 1970 to develop and implement alternative work schedule programs for Philadelphia's downtown core. Contact: Randy Brubaker, Delaware Valley Regional Planning Commission, 1819 J.F. Kennedy Boulevard, Philadelphia, PA 19103, (215) 507-3300.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has prepared an Information Bulletin addressing this need. Five regional TSM meetings were also held. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC, 20004, Attention: Transportation Staff, (202) 626-2423.

FEDERAL PROGRAMS

Department of Transportation: Within DOT the Federal Highway Administration and the Urban Mass Transportation Administration are active in this area. Contact: Transportation Management and Ridesharing Programs Branch, Office of Highway Planning, FHWA, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-0210; Dan A. Rosen, Urban Traffic Management Division, HSR-40, Fairbank Highway Research Station, 6300 Georgetown Pike, McLean, VA 22101, (703) 285-2024; Urban Mass Transportation Administration, Office of Service and Management Demonstrations, URT-30, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-4995.

829 The Transportation Network -- Special Concerns

829-1/DEVELOPMENT FEES FOR ROAD IMPROVEMENTS

Problem Statement: Urban residential and commercial developments often occur before roadway network improvements can be completed. Affected governments often have insufficient funding for the capital improvements to the transportation system necessary as a result of such development.

Solution Considerations: A development fee structure should be established to defray the capital costs of improvements to the roadway network.

Related need: 821-1

829 The Transportation Network--Special Concerns

829-2/FINANCING LOCAL ROAD MAINTENANCE AND IMPROVEMENTS

Problem Statement: Inflation and increasing construction costs are eroding the ability of local governments to pay for road maintenance and improvements.

Solution Considerations: Possible management options include: spending available dollars only on higher priority projects, utilizing existing facilities and resources more efficiently, or creating new funding sources through user fees common to neighboring jurisdictions.

Related needs: 821-1, 828-1

829-3/SPECIAL EVENT TRANSPORTATION AND PARKING REQUIREMENTS

Problem Statement: Traffic from sports stadiums, conventions, and cultural events often creates severe strains on transportation facilities.

Solution Considerations: Examine efforts that have been made to handle this type of traffic. Should major capital improvements be made for infrequent events? How much parking should be provided? How can parking intrusion into surrounding areas be controlled?

LOCAL PROGRAMS

Facility Design: DENVER, CO's sports complexes were carefully designed to accommodate projected parking demand and to minimize traffic impact. Transit buses provide service from park-and-ride lots. Contact: James L. Brown, Director of Traffic Engineering, 5440 Roslyn, Denver, CO 80216, (303) 575-5781.

Facility Design: KANSAS CITY, MO's sports complex has been designed to minimize traffic to the adjacent areas. Park-and-ride service to sporting events is provided from shopping center parking lots. Contact: Richard F. Davis, General Manager, Kansas City Area Transportation Authority, 1350 East 17th Street, Kansas City, MO 64106, (816) 471-6600.

Special Events Task Force: The WASHINGTON METROPOLITAN AREA TRANSIT AUTHORITY's Special Events Task Force meets on an ad-hoc basis to develop plans for moving spectators and participants at events such as the Nation's Bi-Centennial, Presidential inaugurations, and the Pope's visit. Task Force members include the General Manager, Assistant General Manager, Directors of Bus and Transit Operations, Marketing Director, and the head of the Metro Police. Contact: Al Long, Acting Director of Public Affairs, Washington Metropolitan Area Transit Authority, 500 Fifth Street, NW, Washington, DC 20001, (202) 637-1234.

Special arrangements: MIAMI, FL has different specific arrangements for special events. The Dade County Transportation Administration - METRO-BUS Agency provides park-ride transit service from a number of parking facilities to the Orange Bowl during the college and professional football season. The Orange Bowl, with a seating capacity exceeding 76,000 seats, is the site for all University of Miami and Miami Dolphin home football games. Miami Dolphin football transit service is available from any of seven park-ride facilities located throughout Dade County. The

total number of transit vehicles assigned to Orange Bowl park-ride service varies according to the volume of tickets sold per game. An average of 130 transit coaches are scheduled to provide park-ride service for Miami Dolphin games.

This year, books of ten round-trip transit tickets are being sold for $35.00 per book to Miami Dolphin ticket holders desiring park-ride Orange Bowl service. The sale of transit ticket books was initiated to speed up vehicle loading and as a convenience to ticket holders who do not want to carry the exact change required for boarding.

For University of Miami football games (U of M), an average of 20 transit vehicles are assigned to park-ride service. These vehicles are assigned to service the four park-ride facilities operating for U of M home games at the Orange Bowl. Contact: Ronald Tober, Deputy Transportation Coordinator, Metro-Dade Transportation Administration, 44 W. Flagler Street, 17th Floor, Miami, FL 33130, (305) 579-5675.

New Construction: DETROIT, MI has done a study of the traffic problems expected in connection with the Joe Louis Arena and parking structure recently constructed on the Detroit riverfront west of the Central Business District. A special freeway exit ramp connecting directly to the parking garage, a pedestrian skywalk system, and surface road improvements were recommended and have been completed or are under construction. Contact: Michael Kobran, Administrative Engineer, Transportation Engineering Division, Department of Transportation, Detroit, MI 48207, (313) 224-4919.

Interagency Cooperation: COLUMBUS, OH in co-operation with other local agencies, provided traffic control for the Ohio State Fair (average Saturday or Sunday attendance 220,000) and the Ohio State University football games (six Saturdays, average 87,000 attendance). The key element is co-operation between enforcement, engineering, transit, and events officials at all affected levels. Contact: James A. Davis, Operations Engineer, City of Columbus, 50 W. Gay Street, Columbus, OH (614) 222-7790.

829-4/MARKETING RIDESHARING AND ALTERNATIVE WORK SCHEDULES

Problem Statement: Techniques for marketing ridesharing and alternative work schedules to employers, local government officials, and the general public need to be developed.

Solution Considerations: Marketing techniques should focus on the specific needs of the various audiences. Separate marketing programs may need to be developed for government officials, employers, and the general public. Information on successful marketing programs needs to be disseminated.

LOCAL PROGRAMS

Transportation Brokerage: The PENINSULA TRANSPORTATION DISTRICT COMMISSION has developed a vanpool marketing program that directly involves the area's major employers, including top management and members of the work force. As part of this marketing effort, a slide-tape presentation has been developed for use at major sites. Contact: Vicki Fox, Director, Handi-Ride, PTDC, 3400 Victoria Boulevard, Hampton, VA 23661, (804) 722-2837.

Marketing Ridesharing: PIMA ASSOCIATION OF GOVERNMENTS has developed a two-phase marketing strategy. Phase one involves convincing the public and employers of the need for ridesharing programs and apprising them of available ride-sharing alternatives. Phase two focuses on motivating potential ridesharers by dispelling any negative perceptions about ridesharing such as inconvenience, lack of privacy, and unreliability. Public service announcements, billboards, and roadway signs are used in the marketing effort. Contact: Steve Volckmann, Program Director, Pima Association of Governments, 405 Transamerica Building, Tucson, AZ 85701, (602) 844-RIDE.

Commuter Computer: A ridesharing program in LOS ANGELES, CA has developed a marketing strategy aimed at employees, employers, and individuals. Commuter Computer's transportation representatives work closely with employers in establishing management commitment. Commuter Computer's marketing strategy involves the use of freeway signs, public service announcements on radio and TV, and presentations to Chambers of Commerce and employee associations. Contact: Commuter Computer, 3325 Wilshire Boulevard, Suite 900, Los Angeles, CA 90010, (213) 380-7433.

City Program: ATLANTA, GA instituted a ridesharing program for city workers. A number of free parking spaces were reserved in a lot adjacent to City Hall for use by carpools. A follow-up questionnaire assessed the success of the program. Contact: Angie Jones, Atlanta Department of Budget and Planning, 700 City Hall, 68 Mitchell Street, Atlanta, GA 30335, (404) 658-7284.

Regional Ridesharing: In KANSAS CITY, MO, the Regional Ridesharing Program has developed a multi-level marketing program for encouraging carpool and vanpool programs. This marketing program includes a slide show, roadside signs, radio and T.V. spots, news releases, and booklets. Contact: Mr. John Franklin, Project Director, Transportation Department, Ridesharing Program, 414 East 12th Street, Kansas City, MO 64106, (816) 274-2215.

829-5/STREET IMPACT ANALYSIS FOR WOONERFS

Problem Statement: The Dutch woonerf concept appears to offer possible solutions to neighborhood traffic control. Little is known about the social and economic impacts and the cost effectiveness of the woonerf in the United States environment.

Solution Considerations: Before and after case studies of woonerfs in the U.S. are needed. Information should include: construction costs, neighborhood revitalization benefits, and changes in neighborhood attitudes. Long term impacts and comparisons with standard street reconstruction projects should be included.

LOCAL PROGRAMS

Seattle Woonerf: The City of Seattle is incorporating the Woonerf treatment into a portion of a planned low income housing development. The project is designed to demonstrate the safety and energy efficiency of a comprehensive, planned neighborhood Woonerf in an American environment. The project will begin in summer, 1983. Contact: William VanGelder, Seattle Engineering Department, Seattle Municipal Building, Seattle, Washington 98104, (206) 625-2354.

829 The Transportation Network--Special Concerns

829-6/STREET RAILROAD CROSSINGS

Problem Statement: Railroad tracks often cross urban streets, isolating sections of the city. Travel between sections of the city is difficult and dependent on train schedules. This creates severe problems during emergencies.

Solution Considerations: Emergency access to all parts of the city is essential. Overpasses or construction of above or below grade crossings may be necessary.

Related need: 828-12

829-7/ALTERNATIVE FUELS

Problem Statement: Given rising fuel costs and the uncertainties as to the availability of fuel, alternative fuels need to be identified, and the pros and cons of these fuels need to be examined.

Solution Considerations: Data on the use of alternative fuels should be collected and analyzed. Pilot tests of the effectiveness of new alternative fuels should be conducted and the results disseminated.

Related need: 825-8

LOCAL PROGRAMS

Alternative Fuels: PITTSBURGH, PA's transit system has received a Federal grant to study alternative fuels for transit. Contact: Director of Transit Operations, Port Authority of Allegheny County, Beaver and Island Avenues, Pittsburgh, PA 15233, (412) 237-7000.

STATE PROGRAMS

Methanol Tests: FLORIDA's Department of Transportation has received a Federal grant to test methanol as an alternative diesel fuel. If tests on several State diesel buses prove successful, the entire fleet of a local bus property will be converted and tested for methanol use. Contact: William W. Miller, Jr., Director, Division of Public Transportation, Haydon Burns Building, 605 Swanee Street, Tallahassee, FL 32304, (904) 488-8261.

Gasohol Use: NEW YORK STATE's Office of General Services has published a report documenting the results of tests of the use of gasohol in motor vehicles. Contact: James C. O'Shea, Commissioner, New York State, Office of General Services, Tower Building, Albany, New York, 12242, (518) 474-2121.

FEDERAL PROGRAMS

The U.S. National Alcohol Fuels Commission has issued its final report, Fuel Alcohol: An Energy Alternative For The 1980's. Contact: Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, (202) 275-2051. (Available for sale at cost.)

829-8/FUEL AND OIL ADDITIVES

Problem Statement: Fuel and oil additives to increase fuel economy, reduce air pollution, and increase engine life are being used in transit buses and city fleets across the country. Little information exists about the impacts of these additives.

Solution Considerations: A survey could be conducted to find out what additives are being used and their impacts. With funds from the Department of Transportation or the Environmental Protection Agency, empirical tests could be conducted to determine the actual impacts.

LOCAL PROGRAMS

Fuel Additives Analyses: ALLEGHENY COUNTY, PA used a fuel additive called Extra Energy (ERG) in County vehicles for one year. Though initial tests indicated a 14% increase in fuel economy, only 2% increase was experienced during the year of use. As a result, the County no longer uses the additive. Contact: Janet Murphy, Fleet Coordinator, 215 McKean Street, Pittsburgh, PA 15219, (412) 355-5683.

STATE PROGRAMS

Fuel Additives: FLORIDA State Department of Transportation has been using a fuel additive called Extra Power Combustion Lubricant in all of its State vehicles since 1969. Research conducted by the State DOT indicated that the additive increased mileage by as much as 25% and reduced hydrocarbon and carbon monoxide emissions. Contact: William W. Miller, Jr., Director, Division of Public Transportation Operations, Department of Transportation, Haydon Burns Building, 605 Swanee Street, Tallahassee, FL 32304, (904) 488-8261.

829-9/ELECTRIC VEHICLES

Problem Statement: As a result of the increasing cost of gasoline and increasing concern over the availability of fuel, electric vehicles may become an increasingly viable option, particularly in urban and suburban areas where high speed travel is neither essential nor possible.

Solution Considerations: What has been the experience of the private institutions, local governments, and businesses that have used electric vehicles? Are the vehicles practical for urban travel? Has the use of electric cars as public transportation in European cities been successful?

FEDERAL PROGRAMS

The Department of Energy through its Nevada Operations Office is sponsoring a national demonstration program to test electric and hybrid vehicles for commercial use. Contact: Daryl B. Morse, Director, Contracts and Procurement Division, U.S. Department of Energy, Nevada Operations Office, P.O. Box 14100, Las Vegas, NV, 89114.

ADDITIONAL PROGRAMS

The Electric Vehicle Council's Newsletter reports on electric vehicle research, State and Federal actions pertaining to electric vehicles publications, and conferences. Contact: Lynn Andrews, Editor, Newsletter, Electric Vehicle Council, 1111 19th Street, NW, Washington, DC 20036, (202) 828-7516.

829-10/TRANSPORTATION ENERGY CONTINGENCY PLANNING AND ENERGY CONSERVATION

Problem Statement: The short- and long-term effects of mass transportation on energy consumption need to be determined. Measurement of energy savings from interrelated transportation system management policies is difficult. Energy conservation programs that can be used by local transit agencies need to be developed. Action plans for local transportation systems in case of fuel shortages need to be developed.

Solution Considerations: 1) Conduct case studies on the impacts of different local transportation energy conservation policies and programs. 2) Develop an information exchange program on what is being done through transportation improvements to conserve energy. 3) Develop land use planning which would reduce energy consumption by eliminating excessive use of the automobile. 4) Develop Federal and local policies for energy conservation in times of a severe fuel shortage crisis. 5) Purchase energy efficient vehicles. 6) Determine the feasibility of using alternative fuels for local transit vehicles. 7) Establish reserve bus fleets and reserve fuel facilities for use in times of severe fuel shortages. 8) Develop local programs to enhance and encourage the use of bicycles for short trips and as a feeder mode coordinated with public transportation.

LOCAL PROGRAMS

An Energy Crisis Contingency Plan: THE MUNICIPALITY OF METROPOLITAN SEATTLE is updating a 1975 Energy Crisis Contingency Plan. The plan discusses how to get the transit system to do more during an energy crisis to meet increased demands for public transit and how to serve areas not normally served. The cost of implementing the plan is included, along with a discussion of what to do if not enough fuel is available for the transit system. Contact: Jackie Dewey, Municipality of Metropolitan Seattle, 821 2nd Avenue, Seattle, WA 98104, (206) 447-6768.

A Metropolitan Transportation Plan for National Energy Contingencies: NORTH CENTRAL TEXAS COUNCIL OF GOVERNMENTS developed a program by which the mobility of the workers of the region would be maintained in the event of restricted local fuel supplies. Problems created by fuel shortages are identified and analyzed, implementation considerations are discussed, and 11 recommended strategies for dealing with a crisis are listed. Contact: William J. Pitstick, Executive Director, North Central Texas Council of Governments, 360 Place, P.O. Drawer COG, Arlington, TX 76011, (817) 640-3300.

Gasoline Shortage Contingency Plan: THE SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT has prepared a contingency plan for its bus operations in the event a gasoline shortage of crisis proportions significantly restricts automobile mobility. Contact: Southern California Rapid Transit District, 425 S. Main Street, Los Angeles, CA 90013, (213) 972-6170.

Petroleum Shortage Contingency Plan: THE MEMPHIS AREA TRANSIT AUTHORITY has prepared a contingency plan in case of a serious petroleum shortage. The plan defines the general transportation options available in an emergency situation as well as transit and paratransit options. It also discusses the application of the energy conservation strategies. System capacity is identified, potential fuel savings are estimated, and specific actions to be undertaken by the various transit authority operating departments are outlined. Contact: Kerry D. Roby, Memphis Area Transit Authority, P.O. Box 122, 701 N. Main Street, Memphis, TN 38101, (901) 528-2893.

Petroleum Shortage Contingency Plan: NASHVILLE, TN's METROPOLITAN TRANSPORTATION AUTHORITY has developed a contingency plan which outlines the conditions which might lead to an emergency situation regarding petroleum supplies, discusses the major transit and paratransit options available to meet increased demand in a major fuel shortage, considers transit related options available to major employers and local decision makers, identifies the reserve capacity of the existing system, estimates fuel savings that could be realized, and defines a specific course of action for the Metropolitan Transportation Authority. Contact: Mike Harbour, Metropolitan Transportation Authority, 60 Peabody Street, Nashville, TN 37210, (615) 242-1622.

Transportation Energy Contingency Plan: The EAST-WEST GATEWAY COORDINATING COUNCIL has developed a plan which addresses how an energy shortage would affect ground transportation in the St. Louis region and recommends actions that could be implemented to help assure that travel to work would be maintained. The plan is designed to serve as a source of reference for persons concerned with short-term energy supply problems. Energy data is presented for the region along with a national overview, and recommendations and strategies are discussed and analyzed for effectiveness in dealing with several levels of energy shortages. Contact: James Bogart, East-West Gateway Coordinating Council, The St. Louis Area Council of Governments, Pierce Building, Suite 1200, 112 N. 4th Street, St. Louis, MO 63102, (314) 421-4220.

Contingency Action Plan: DADE COUNTY, FL has prepared a Contingency Action Plan that contains a number of gasoline conservation measures for implementation during different types of fuel shortages. Contact: Metropolitan Planning Organization for the Miami Urbanized Area, 44 West Flagler, Miami, FL 33130, (305) 579-5675.

Fuel Management Plan: DADE COUNTY, FL has developed a separate five-phase fuel management program that involves the rationing of fuel according to priority of use and level of fuel supplies available. Contact: Dana Alvarez, Energy Coordinator, Dade County, 140 West Flagler Street, Suite 1603, Miami, FL 33130, (305) 579-5675.

Transit and Paratransit Expansion Program: THE METROPOLITAN TRANSIT COMMISSION for the Twin Cities Area has developed a plan of contingency options for transit and paratransit expansion. Contact: Metropolitan Transit Commission, Metro Square Building, 7th and Robert Streets, St. Paul, MN 55101, (612) 291-6359.

Transportation Energy Contingency Plan: THE MID-AMERICA REGIONAL COUNCIL is preparing a plan for local governments in the Kansas City Metropolitan Region to be used in the event of a fuel emergency. The plan details the major actions to be taken and provides an in-depth analysis of their institutional and legal framework. The final plan will provide a "cookbook" for the transportation energy contingency planning process for use by other regional councils and local governments. The project is being funded by the Urban Mass Transportation Adminstration. Contact: Hampton McDowell, Mid-America Regional Council, 20 West Ninth, Suite 200, Kansas City, MO 64105, (816) 474-4240.

FEDERAL PROGRAMS

RSPA's Office of University Research is sponsoring several research projects in this area including: 1) Transportation Energy Consumption and Urban Form Relationships. Contact: Helen Doo, P-33, OST 400 7th Street, SW, Washington, DC 20590, (202) 426-4441. 2) Interactions Between National Energy Supply and Transportation-Related Energy Consumption. Contact: Louise Skinner, HPP-22, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-0182.

FHWA's Office of Planning and Policy Development provides direction for the FHWA policy statement and contingency plan through the FHWA Energy Council Project. Contact: Richard B. Robertson, HPL-1, FHWA, 400 7th Street, SW, Washington, DC 20590, (202) 426-0585.

Together with UMTA, a series of 5 Energy Planning Seminars were held to aid local governments in conducting conservation planning. Also with the Department of Energy and UMTA, 6 research contracts are underway to explore the inter-relation between energy, land use, economic impacts and transportation improvements.

UMTA's Office of Planning Assistance has conducted Energy Contingency Prototype Studies and a series of Energy Contingency Planning Workshops to assist local governments in developing contingency strategies. Contact: Richard Steinmann, UPM-13, UMTA, 400 7th Street, SW, Washington, DC 20590, (202) 426-5140.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has developed two Information Bulletins dealing with this need. The first, Mass Transportation Energy Conservation and Contingency Planning, addresses the medium- and long-term issues and actions that can be taken to soften the long-term impacts of petroleum shortages. The second, Transportation Energy Contingency Planning, addresses the short-term issues and suggests advance preparations local government officials might initiate. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

830 MASS TRANSIT

831 Management, Productivity

832 Financing

833 Service Planning and System Design

834 Information Management and Data Collection

835 Fares: Pricing and Collection

836 Maintenance and Rehabilitation of Equipment and Facilities

837 Human Resources

838 Paratransit and Special Services

831-1/TRANSPORTATION BROKERAGE

Problem Statement: In most communities a variety of public and private transportation services are available. These services may meet the needs of some population groups adequately while nothing is available to meet the needs of other groups. Existing services may be operating at capacity, or below, or above capacity. In many communities a need exists to match existing services to the needs of various population groups. This entails an inventory of available service and service capacity and the identification of service gaps in terms of population, groups, locations, and times for which service is not available.

Solution Considerations: Many communities and transit agencies are using transportation brokers to match the supply of public non-profit and privately owned and operated transportation services with the actual and latent demand for transportation services. This alternative is appropriate for rural and urban areas.

LOCAL PROGRAMS

Transportation Brokerage: THE GREATER BRIDGEPORT TRANSIT DISTRICT is acting as a transportation broker by matching local transportation suppliers with the local demand, actual and latent, for transportation. This allows the community to make effective use of available transportation services by tailoring these services to meet the transportations needs of various population and socio-economic groups, and the needs of people traveling to various parts of the community at different time of the day. As a transportation broker, the transit district is also seeking to involve the private sector in the provision of transportation services. Contact: Ross Burkhardt, Greater Bridgeport Transit District, 525 Water Street, Bridgeport, CT 06604, (203) 366-7070.

831-2/TRANSIT STRIKE CONTINGENCY PLANNING

Problem Statement: A transit strike can cripple a city. Transit contingency plans must be developed and be ready to be put into effect in event of a transit strike or unforseen events such as major equipment breakdowns.

Solution Considerations: The experiences of cities that have dealt effectively with a transit strike should be shared.

LOCAL PROGRAMS

Transit Strike Contingency Plans: During the NEW YORK, NY transit strike single occupant autos were prohibited from Manhattan, shared-ride taxi service was permitted, and bicycle use was encouraged. Contact: David Gurin, Deputy Commissioner, New York City Department of Transportation, 51 Chambers Street, Room 1412, New York, New York 10007, (212) 566-5856.

831-3/SMALL BUS STANDARDS

Problem Statement: In the past, the demand for small buses has not been great, and small buses have been characterized by excessive down time and a relatively short vehicle life. But the demand for small buses is increasing as is the demand for a set of small bus standards.

Solution Considerations: Information about existing small bus standards, such as those developed by State governments, should be disseminated.

STATE PROGRAMS

Small Bus Specifications: MICHIGAN's Department of Transportation has developed specifications for four different types of small buses. These specifications have been revised periodically to reflect the State's experience with various vehicles. Contact: Kip Grimes, Small Bus Manager, Bus Transit Division, Michigan DOT, P.O. Box 30050, Lansing, MI 48909, (517) 373-9183.

FEDERAL PROGRAMS

The U.S. Department of Transportation recently has published two reports on small transit vehicles. The reports are titled Operating Costs and Characteristics of Minibuses and Small Transit Vehicles: State-of-the-Art Overview and are available through the National Technical Information Service, Springfield, VA 22161, (703) 487-4650.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has prepared a Transit Technology Brief on small transit vehicles. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania, Avenue, NW, Washington, D.C. 20004, (202) 626-2424.

831-4/BUS MANUFACTURING QUALITY CONTROLS

Problem Statement: Wasted time, money, and manpower, and unreliable service are the needless results of ineffective bus manufacturing quality controls. Quality control inspectors must be highly qualified and well trained to effectively perform what has become an increasingly demanding job.

Solution Considerations: Mechanisms need to be identified to assure that effective quality control programs are developed. It may be necessary for the government or the transit industry to provide incentives to assure that certain quality control standards are met or to develop training programs for quality control inspectors.

FEDERAL PROGRAMS

UMTA's Office of Safety and Product Qualification can provide information on efforts in this area. Contact: Robert Hart, Program Manager, Product Qualification Technology Development and Deployment, UMTA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9545.

831 Mass Transit--Management, Productivity

831-5/REGIONAL STANDARDIZATION OF BUS SPECIFICATIONS

Problem Statement: Bus costs could be reduced if large single specification orders are placed. Properties rarely agree on specifications, however.

Solution Considerations: The savings that could be realized through large orders should be identified through case study examples.

831-6/IMPROVED ELECTRICAL ENERGY USAGE

Problem Statement: The peak demand for electricity by light and heavy rail systems often coincides with the peak utility load. This is particularly true during summer afternoon peak periods on hot days with high air conditioning loads. Several transit agencies have developed strategies to help reduce the demand for electricity by reducing certain non-critical loads, vent fans, escalators, and lighting during peak hours.

Solution Consideration: Disseminate information about the most effective methods to reduce the cost and usage of energy.

PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin that addresses this need. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2424.

831-7/MARKETING PUBLIC TRANSPORTATION

Problem Statement: Transit managers need accurate information about ridership needs, both actual and latent. In turn, current and potential transit users need better information about schedules, routes, fare structures, and system improvements. The transit industry needs a marketing approach that closely integrates needs and services.

Solution Considerations: Improved marketing fundamentally relies on effective market research: discovering consumer needs, preferences, etc. Effective methods of providing transit information can also be researched. Service planning and development, pricing, promotion efforts, and other decisions should be approached from the standpoint of maximizing consumer appeal. Marketing methods to achieve increased ridership need to be developed as standard industry practice.

LOCAL PROGRAMS

Regionwide Transit Rejuvenation: NORTHERN INDIANA COMMUTER TRANSPORTATION DISTRICT (NICTD) oversees and manages service and system improvements to the South Shore's passenger rail service that runs from South Bend, IN to Chicago, IL. In addition to physical improvements to the system, an on-going effort to identify and implement a package of service changes intended to integrate the South Shore with the surrounding network of transportation services will take place. Marketing and public information programs are included as part of the revitalization plan. Contact: John Laue, Project Director, Northern Indiana Commuter Transportation District, 8149 Kennedy Avenue, Highland, IN 46322, (302) 923-1060.

Regional Integrated Public Information System: The REGIONAL TRANSIT ASSOCIATION of the six major transit agencies in the San Francisco Bay Area has initiated a program to identify, develop, and use improved information techniques to facilitate and promote the use of the combined network of transportation services they provide. Contact: Hank Dittmar, Coordinator, Regional Transit Association, Metropolitan Transportation Commission, Hotel Claremont, Berkeley, CA 94705, (415) 849-3223.

831 Mass Transit--Management, Productivity

831-8/TRANSIT MARKETING FOR SMALL SYSTEMS

Problem Statement: Small transit agencies often lack the staff and the money to conduct a comprehensive marketing program. Available information on marketing techniques and programs may not address the specific needs of small systems.

Solution Considerations: A manual that addresses the specific needs of small transit systems should be developed. The manual could include descriptions of successful and proven marketing techniques and programs.

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831 Mass Transit--Management, Productivity

831-9/TRANSIT SECURITY CASE STUDIES

Problem Statement: Crime and fear of crime are ever growing problems in American society. Passenger perceptions of safety and personal security are major factors in their attitudes towards transit and transit use. The perceptions of employees are important to their attitudes and willingness to work.

Solution Considerations: Case studies of transit passenger security programs in several cities should be prepared. The case studies should address transit-associated crime rate changes, changes in riders' and non-riders' perceptions of personal security both on and off the vehicle, and the cost effectiveness of various measures.

FEDERAL PROGRAMS

UMTA's Office of Transportation Management has sponsored a national conference on transit security and a demonstration project with the Chicago Transit Authority. Contact: Marvin Futrell, UPM-40 UMTA, 400 7th Street SW, Washington, DC 20590, (202) 426-9274.

ADDITIONAL PROGRAMS

Passenger Safety and Convenience in Automated Guideway Transit is the subject of a two volume report written for the Transportation Systems Center. Contact: The National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161.

The National Cooperative Transit Research and Development Program is conducting research in this area as part of its 1980 Annual Work Program. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2424.

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has addressed this need through Transit Actions. This is an on-going series of reports on locally-initiated programs and programs funded by UMTA's Office of Transportation Management in the areas of transit operations, maintenance, marketing, information services, and human resources. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20014, (202) 626-2424.

831 Mass Transit--Management, Productivity

831-10/TRANSIT SERVICE EVALUATION STANDARDS

Problem Statement: Given increasingly constrained financial resources, coupled with escalating costs of providing service and the increasing demands for accountability for the expenditure of public monies, a need has arisen to develop standards by which transit service can be evaluated. However, evaluation standards of this nature have generated considerable controversy when used to compare the performance of one transit system with that of another.

Solution Considerations: How can evaluation standards be developed to measure both effectiveness and efficiency? How should evaluation measures be used? What comparisons should be made?

FEDERAL PROGRAMS

Bus Transit Monitoring and Evaluation: A number of reports are available from the U.S. Department of Transportation. Contact: Office of Planning Assistance, Urban Mass Transportation Administration, UGM-20, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-2360.

831 Mass Transit--Management, Productivity

831-11/TRANSIT PRODUCTIVITY IMPROVEMENTS

Problem Statement: Transit agencies throughout the country are taking steps to improve productivity. What steps, measures, and programs are most effective?

Solution Considerations: Information needs to be disseminated about proven techniques for improving transit system productivity. How-to-manuals and case studies outlining successful efforts should be prepared.

LOCAL PROGRAMS

Transit Resource Productivity. The CENTRAL OHIO TRANSIT AUTHORITY in Columbus, Ohio, is developing new, inexpensive techniques and procedures for collecting and analyzing data on transit markets and finances at the route level. These data and techniques will then be used to evaluate and refine COTA's service so that resources are used most productively while providing an acceptable level of service. Contact: Bruce Bowles, Project Manager, Central Ohio Transit Authority, 51 North High Street, Columbus, OH 43215, (614) 228-3831.

831 Mass Transit--Management, Productivity

831-12/PRODUCTIVITY CUTBACKS VERSUS SERVICE TO THE TRANSIT DEPENDENT

Problem Statement: Transit agencies across the country are concerned with improving productivity. However, this should not be done at the expense of meeting the needs of individuals who are transit dependent. Service cuts should not necessarily be based on measurements of productivity.

Solution Considerations: What rre the realistic and feasible limits of a taansit operator's responsibility to meet potentially nonproductive or less productive transportation needs? Can that responsibility be quantified? If not, what criteria should be considered in the decision-making process. Can existing services be replaced by less costly alternatives such as demand-responsive paratransit service? Will these alternatives adequately meet the needs of individuals who are transit dependent?

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831 Mass Transit--Management, Productivity

831-13/ASSESSMENT OF LOCAL EXPERIENCE WITH UMTA'S ALTERNATIVES ANALYSIS

Problem Statement: The UMTA alternatives analysis process was created to assure that transit decisions resulted in prudent and effective projects and to serve as a means of easing the burden on constrained Federal resources. Since the procedures were implemented several years ago, a number of projects have been completed or are now in process. UMTA has been working with the Federal Highway Administration to develop major investment policy for all modes. No comprehensive review has been undertaken to determine whether alternatives analysis has served its intended purposes, or whether it has, in fact, resulted in better decision-making.

Solution Considerations: Case-studies of projects subject to the alternatives analysis process should be conducted. Emphasis should be placed on the cost of delays to successful alternatives, the relationship of environmental analysis procedures, and benefits that have been derived. Recommendations should be made as to refinements and modifications in the procedures.

PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin that addresses this need. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2424.

831 Mass Transit--Management, Productivity

831-14/IMPROVED TRANSIT BUS ENERGY EFFICIENCY AND PRODUCTIVITY

Problem Statement: Advanced Design Buses introduced in recent years require increased energy over the buses replaced. This is the result of required emission control equipment, safety equipment, and noise abatement equipment, as well as passenger comfort provisions, and weight of materials. Advanced Design Buses also have fewer seats than previous buses.

Solution Considerations: 1) Review and identify causes of increased energy use in new buses. Identify means and effectiveness of corrective measures. 2) Review and identify causes of reduced seating capacity of 40-foot Advanced Design Buses and recommend means to increase seating capacity.

PROGRAMS

The National Cooperative Transit Research and Development Program is conducting research in this area as part of its 1980 Annual Work Program. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2424.

832 Mass Transit — Financing

832-1/FINANCING TRANSIT CAPITAL COSTS

Problem Statement: In light of reduced Federal assistance for transit projects and local opposition to increased taxes, new sources of funding are needed to support rail and other high capital cost projects.

Solution Considerations: Innovative means of tapping capital investment funds should be explored. These techniques include conventional and tax-exempt industrial development bonds, equipment trust certificates, and tax increment financing. Thorough examination should be made of how tax benefits can be used to attract private capital into the transit industry.

832-2/FINANCING TRANSIT OPERATING COSTS

Problem Statement: The costs of providing local fixed route and paratransit services are escalating rapidly. Small as well as large systems find farebox revenues and governmental subsidies are not keeping pace with rising costs. New sources of revenue are needed to cover operating deficits.

Solution Considerations: Information needs to be shared on innovative local sources of revenue, including taxes, advertising, charters, and other income producing techniques. Revenue sources should be evaluated according to their political acceptability--noting what factors caused some proposals to be defeated and others to succeed.

FEDERAL PROGRAMS

Innovative Financing Mechanisms: A report entitled A Guide to Innovative Financing Mechanism for Mass Transportation (December 1982) is available. Contact: Paul Verchinski, Office of Planning Assistance, Urban Mass Transportation Administration, UGM-20, 400 7th Street, S.W., Washington, D.C. (202) 426-2360.

832 Mass Transit--Financing

832-3/ALTERNATIVE APPROACHES TO BUDGET PREPARATION

Problem Statement: There are a variety of processes or methodologies that a transit agency can follow in preparing its capital and operating budgets. How should a transit agency decide what methodology to use?

Solution Considerations: A review is needed of the budgeting approaches used by transit agencies. Consideration should be given to the needs of agencies of various sizes and needs of growing versus established systems. Approaches to both operating and capital budgets should be identified.

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832 Mass Transit--Financing

832-4/COMPLYING WITH FUNDING REQUIREMENTS

Problem Statement: There are a number of requirements with which recipients of Federal grants for transit projects must comply. The ensuing paperwork has forced many transit operators to allocate substantial amounts of time to required procedural work and at the extreme has resulted in some systems turning down assistance altogether.

Solution Considerations: The cost of complying with grant requirements in terms of staff time, materials, and costs should be examined. Procedural reforms to speed the obligation of funds should be identified.

PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin that addresses this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004 (202) 626-2424.

833 Mass Transit -- Service Planning and System Design

833-1/PLANNING NEW PUBLIC TRANSPORTATION SYSTEMS

Problem Statement: Many communities have no public transportation services although the need exists for such services. In some cases, the community has never had public transportation; in other cases, the services have been eliminated for budgetary or other reasons.

Solution Considerations: Communities interested in starting a new public transportation service, whether a fixed-route, fixed schedule service or paratransit, will benefit from the experience of others. A manual outlining the steps involved in planning a new service might be helpful.

833-2/PULSE VERSUS GRID TRANSIT SERVICE

Problem Statement: There is a need for an anaysis of pulse transit service as an alternative to grid systems.

Solution Considerations: The analysis should address the advantages and disadvantages of pulse systems, and concerns such as system design and scheduling.

833-3/RIDERSHIP FORECASTING TECHNIQUES

Problem Statement: Forecasting ridership levels for local bus service routes is difficult. Most of the techniques for forecasting ridership are designed for large, regional systems. In addition, the process can be expensive.

Solution Considerations: Quick-response methodologies to forecast ridership changes for local bus service are needed.

833-4/INTEGRATION OF PARATRANSIT AND CONVENTIONAL TRANSIT

Problem Statement: How can urban areas integrate conventional transit and paratransit services so as to offer the highest level of mobility in the community?

Solution Considerations: 1) There is a need to devise criteria for the effective integration of these services. 2) What kinds of licensing controls and regulatory structures are needed? 3) What kinds of information systems are required? 4) Cooperative working agreements with the private sector should be considered. 5) Dial-a-ride systems should be explored.

833-5/TRANSIT SERVICE TO RECREATIONAL FACILITIES AND TOURIST SITES

Problem Statement: Public transportation often does not serve many tourist and recreational facilities, particularly those located in outlying areas, and especially on weekends. Consequently, those without personal forms of transportation are not able to take advantage of these recreational facilities.

Solution Considerations: Public transportation services should be extended to serve recreational and tourist facilities, including those in outlying areas, perhaps during certain hours on weekdays and weekends. Some cities have special bus schedules for recreational trips, cultural trips, and even "surprise" destination trips.

LOCAL PROGRAMS

Subscription Transit Service: LOS ANGELES COUNTY, CA, through a Federal grant to the Southern California Association of Governments, enjoys a seasonal transit service from heavily transit dependent areas of Los Angeles to two or more parks in the Santa Monica Mountains. Neither park is served by public transit. Contact: Bruce Eisner, Santa Monica Mountains Conservancy, Room 7106, 107 South Broadway, Los Angeles, CA 90012, (213) 620-2021.

833-6/TIMED TRANSFER CENTERS AND TRANSIT ROUTE NETWORK DESIGN

Problem Statement: One of the reasons for low modal split is that transit networks effectively connect far fewer parts of an urban area than do the street networks used by the automobile. Most transit networks in urban areas are radial, serving major activity centers. Travel to other destinations is often circuitous. While grid systems may be applied in denser, older, urban areas, they are often not applicable in lower density areas. The timed transfer concept has been successfully applied for modal changes (buses feeding rail stations) and has been suggested as a way to provide more direct routing between lower density areas.

Solution Considerations: Existing timed transfer centers should be examined. Routing redesign, transfer procedures, and system planning and management should be examined. Research is also needed to study the relationship of transit route structure and modal split. Evaluations of different network design philosophies should consider design variables such as city size, ridership levels, population density, trip characteristics, travel times, and operating costs.

LOCAL PROGRAM

Timed Transfer Project: TRI-COUNTY METROPOLITAN TRANSIT DISTRICT (TRI-MET) of Portland, OR has operated timed-transfer service in surburban west Portland since June 1979. Rather than operating numerous radial routes oriented to downtown Portland, Tri-Met operates a network of trunk and feeder lines in a system of multi-destination routes. Two transit centers provide physical focus for the service, integrating local feeder routes with regional trunklines at timed intervals. Contact: Rick Gleason, Service Analyst, Tri-Met, 4012 S.E. 17th Avenue, Portland, OR 97202, (503) 238-4905.

833-7/DOWNTOWN TRAFFIC INTERCEPT STRATEGIES

Problem Statement: Information is needed about effective strategies to intercept vehicular traffic at the edge of the downtown, then redistribute it in a downtown circulation system. These strategies would be designed to control downtown traffic congestion created by too many automobiles and transit vehicles. A strategy would be composed of three parts: an intercept facility, a downtown circulation plan, and a package of incentives and disincentives to reinforce the strategy.

Solution Considerations: Studies should include an array of possible measures or options for each of the components of an intercept strategy, the effects of transferring at the intercept, intercept facility design considerations, and the impacts of an intercept strategy on land use, transit use, street use, retail business, pedestrians, automobile use, and the environment.

LOCAL PROGRAMS

Intercept Terminals: DENVER, CO has recently undergone a major route restructuring that involved changing to a grid system to de-emphasize service to the central business district and allow increased service for suburb-to-suburb travel. The Regional Transportation District is now planning the development of transit centers at 13 activity centers around the region. These centers, both stations and park-and-ride lots, will feed two intercept terminals at either end of a 14-block transitway in the downtown. The centers will allow easy transferring between local and circulator routes and express routes. Contact: Larry Allwine, Denver RTD, 1325 S. Colorado Boulevard, Denver, CO 80202 (303) 534-5181.

Downtown Transit Project: SEATTLE, WA suffers from noise and congestion problems due to the long, narrow shape of its downtown, pedestrian conflicts, and the need for an improved downtown circulation system. The City of Seattle and Metro Transit have developed plans for an 8,600 foot long downtown transit mall with two intercept bus terminals at either end and an efficient distributor system connecting them. Preliminary planning was completed in early 1980. Contact: L. Joe Miller, Manager, Downtown Transit Project, Metro Transit, 821 Second Avenue, MS #52, Seattle, Washington 98104 (206) 447-6629, or James D. Parsons, Office of Policy and Evaluation, City of Seattle, 300 Municipal Building, Seattle, WA 98104 (206) 625-4591.

Transit Loop: TOLEDO, OH As part of a major revitalization of its central business district, the Toledo Area Regional Transit Authority is constructing a special bus lane on four streets that encircle the City's 12 square-block office and retail core. All of the 31 bus routes that presently serve the downtown will be rerouted along the new inner curbside bus lane. Every bus entering the downtown will proceed around the transit loop one time, stopping at each of five new transit stations that are being constructed as part of the project. An extensive series of elevated and below-grade pedestrian walkways will be constructed to connect the loop with points of interest in the downtown. Contact: Bill Herr, Director of Planning, Toledo Area Regional Transit Authority, P.O. Box 792, Toledo, OH 43695, (419) 243-1241.

Single Intercept: BELLINGHAM, WA recently moved its on-street transit center from the heart of the central business district to an off-street location one block away from the core due to rapid growth of the bus system and pedestrian-vehicular conflicts caused by the old center's location. The new facility avoids some of the conflicts and problems associated with the old transit center. All nine of the transit system's routes meet at the intercept on a timed-transfer schedule. Contact: Ed Grinsman, Manager, Bellingham Municipal Transit System, 2200 Nevada, Bellingham, WA, 98225 (206) 676-6843.

833-8/DESIGN CRITERIA FOR TRANSIT TERMINALS

Problem Statement: A number of cities are interested in constructing downtown transit terminals. If a terminal is to function effectively, the terminal and each of its elements--bus bays, waiting areas, information booths--must be carefully designed to facilitate movement of pedestrians and vehicles. Terminals should be designed to provide comfortable, safe, waiting areas and to minimize maintenance.

Solution Considerations: A transit terminal design handbook should be developed. The handbook could include criteria for the overall design and location of transit terminals as well as specifications for the design and location of the various components of a transit terminal.

833-9/TRANSIT ACCESS ALONG COMMERCIAL STRIPS

Problem Statement: The design of commercial strips lining major arterials in suburban areas makes transit service to stores and businesses along these strips difficult. The large parking lots that separate the stores from the street mean that bus patrons must either walk across the parking lots or that buses must compete with automobiles to cross the parking lots if they enter the strips to pick up passengers.

Solution Considerations: For existing shopping centers it would be necessary to provide new internal circulation patterns to minimize conflict between buses and other vehicles and to construct walkways to protect transit patrons from traffic. New commercial complexes should be designed to allow safe, convenient transit access.

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833 Mass Transit--Service Planning and System Design

833-10/INTERACTIVE COMPUTER GRAPHICS FOR TRANSIT ROUTE DEVELOPMENT

Problem Statement: Transit agencies need information about recent advances in computer programming techniques for designing and evaluating alternative transit routes based on current census data and modal split information. In addition, programs need to be identified that can be used by persons who have not had extensive computer training to evaluate various routes, service, and operations.

Solution Considerations: Information should be disseminated about existing computer programs such as RUCUS, DIME File, and IRIDS. Non-technical, program manager reports should be developed that describe these programs and their capabilities and limitations.

LOCAL PROGRAMS

Automated Run-Cutting and Driver Bidding: SAN DIEGO, CA The San Diego Transit Corporation has tailored the RUCUS automated scheduling package to meet its individual needs. In addition to using the package for runcutting transit vehicle routes, SDTC has developed several additional programs to work from the RUCUS database. These programs will provide pre-bid sign-up sheets, print driver worksheets, organize information on common transfer points for use by telephone clerks and operators, calculate data for Section 15 reporting, produce a computer tape that can be fed into a computer typesetter to print public timetables. Contact: Ken Mead, Planning Department, San Diego Transit Corporation, 100 Sixteenth Street, P.O. Box 2511, San Diego, California 92112 (714) 238-0100.

Passenger Information: PORTLAND, OREGON'S TRI-COUNTY METROPOLITAN TRANSPORTATION DISTRICT uses the RUCUS package for runcutting. The database feeds a video passenger information system in the passenger shelters along the downtown transit mall. Contact: Mark Landis, Tri-Met Schedule Automation Coordinator, Tri-Met, 4012 S.E. 17th Avenue, Portland, OR 97202, (503) 238-5831.

833 Mass Transit--Service Planning and System Design

833-11/INTERJURISDICTIONAL TRANSIT SERVICE COORDINATOR

Problem Statement: Public transportation is a regional concern. To serve a region effectively, jurisdictions and agencies should coordinate their transit services in terms of schedules, routes, and transfer policies.

Solution Considerations: The steps that various agencies and jurisdictions have taken to coordinate their services should be documented. Special consideration should be given to the coordination of city and suburban, rural and urban, and feeder and express services.

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834 Mass Transit -- Information Management and Data Collection

834-1/MANAGEMENT INFORMATION SYSTEMS FOR TRANSIT AGENCIES

Problem Statement: There is a need to provide management information methods that transit operators can tailor to their local transit system and operational situations. Such information systems should accept actual system operations and cost data for measurement of productivity. Similarly, the system should permit forecasting and evaluation of productivity measures under assumed operating and cost conditions. Managers who are accountable for different aspects of the system operations should be aware of and contribute to the overall decision-making as various policies are considered and implemented.

Solution Considerations: Collect and disseminate information about state-of-the-art management information system (MIS) approaches being used by transit managers. Continue research and prepare case studies on productivity measurement and forecasting as it relates to transit system goals.

LOCAL PROGRAMS

Sacramento's MIS: The SACRAMENTO REGIONAL TRANSIT DISTRICT has successfully implemented a management information system that meets specific needs identified by individual board members and managers and fulfills Section 15 reporting requirements as well. Contact: Errol G. Belt, Systems Analyst, Sacramento Regional Transit District, P.O. Box 2110, Sacramento, CA 95810 (916) 449-7591.

834-2/MANAGEMENT INFORMATION SYSTEMS FOR SMALL TRANSIT SYSTEMS

Problem Statement: The storage, manipulation, and retrieval of large volumes of information is essential to the effective management of even small transit systems. However, many small systems cannot afford their own computer systems or the necessary software for processing the data.

Solution Considerations: Information on transit agencies' experience in sharing computer facilities should be disseminated to managers of small transit systems. The information might be disseminated through case study reports or how-to planning documents.

OTHER PROGRAMS

Public Technology, Inc., serving as Secretariat for the Urban Consortium for Technology Initiatives, has prepared a series of documents on transportation planning and impact forecasting tools. Three of the reports in this series may be of particular interest to managers of small systems who are interested in the development of a mangement information system. The reports are: Computer Transportation Models for Local Government: Gaining Access to the Tools; Census Computer Programs: An Introduction for Management; and Census Programs for Geocoding and Computer Mapping: Program Manager's Report. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue NW, Washington, DC 20004, (202) 626-2400.

834-3/MANAGEMENT INFORMATION FOR SUBSIDIZED AND CONTRACTUAL TRANSIT SERVICE

Problem Statement: When transit service is provided on a contractual basis or with user-side subsidies, careful recordkeeping and service monitoring are important although often time consuming and burdensome. Procedures and methods need to be developed for simplifying these tasks while assuring the accuracy and availability of necessary information.

Solution Considerations: Mini-computers could be used for these recordkeeping and monitoring tasks. Information should be collected about transit agencies or other service providers that are using mini-computers for these purposes.

LOCAL PROGRAMS

Mini- and Micro Computers: BRIDGEPORT, CT's Human Services Transportation Consortium, a consortium of private and public bodies that provides service to elderly and handicapped individuals, uses both a mini- and a micro computer in the management of its operations. Contact: Diane Pivirotto, Program Manager, Human Services Transportation Consortium, Easter Seal Rehabilitation Center, 226 Mill Avenue, Bridgeport, CT 06610, (203) 366-7551.

834-4/COLLECTION PROCEDURES FOR RIDERSHIP DATA

Problem Statement: The collection of transit operating data as required by Section 15 of the Urban Mass Transportation Act of 1964, as amended, can be time consuming and expensive. Manual collection of data can be particularly time consuming and inefficient. Automated collection devices can be expensive, particularly for small transit agencies, and are sometimes unreliable.

Solution Considerations: Simple, reliable, and cost-effective techiques are needed for collecting Section 15 data. An evaluation of automated collective devices should be conducted.

FEDERAL PROGRAMS

Data Collection: The Bus Transit Monitoring Manual (August, 1981) published by the Department of Transportation provides information on data collection techniques. Contact: Office of Planning Assistance, Urban Mass Transportation Administration, UGM-20, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-2360.

835 Mass Transit -- Fares: Pricing and Collection

835-1/TRANSIT PRICING POLICY

Problem Statement: With the decline in Federal operating assistance, increased reliance upon the farebox will become essential. Many transit systems still charge a flat fare while others add a peak period surcharge or charge an additional fee for multi-zone trips. How will changes in the fare structure affect transit ridership, particularly trips taken by the transit dependent?

Solution Considerations: A review of transit pricing policy should be undertaken with particular attention to: 1) determining the true costs of providing different types of service, such as express vs. local, peak vs. off peak; 2) ascertaining which types of fare increases have the greatest potential for increasing revenue; 3) calculating the impact upon low-income persons of any changes in fare policy.

LOCAL PROGRAMS

Variable Fares: WASHINGTON, DC, The Washington Metropolitan Area Transit Authority charges an additional fee for multi-zone bus trips, bases its charges for rail trips on the distance travelled, and charges a lower fare for off-peak travel. Contact: Eckhart Bennewitz, Director, Office of Budget and Management Analysis, WMATA, 600 Fifth Street, Washington, DC 20001, (202) 637-1701.

835 Mass Transit--Fares: Pricing and Collection

835-2/FARE ELASTICITY

Problem Statement: The old formula describing the relationships between changes in the price of transit and resulting increases or decreases in ridership may no longer be valid in view of recent, dramatic increases in fuel prices and CBD congestion during peak commuting hours.

Solution Considerations: Review the formula regarding fare elasticity, particularly with respect to cities of different sizes and varying levels of transit service.

835-3/INNOVATIVE FARE COLLECTION OPTIONS

Problem Statement: In an attempt to reduce operating costs, many transit systems are exploring new fare collection options such as the honor system, prepaid passes, and using private businesses to sell and distribute tickets or passes. What effect do these schemes have with respect to increasing transit efficiency or generating new ridership?

Solution Considerations: Review the experience of transit systems with pass sales, the honor system, and greater involvement of the private sector in sales and distribution.

LOCAL PROGRAMS

TransCard: THE METROPOLITAN ATLANTA RAPID TRANSIT AUTHORITY has devised a TransCard which costs the holder $21.00 for unlimited bus trips for a one month period or $5.00 for a weekly pass. The ordinary fare is 60¢, with free transfers. The TransCard is sold at a "Ride Store" in the Five Points rail station and in local businesses. Companies can also provide a payroll deduction plan for employees who wish to purchase the TransCard. Average sales are currently 20,000 monthly, with 20,000 additional cards sold on a weekly basis. Contact: Bruce Emory, MARTA, 401 West Peachtree Street, Atlanta, Georgia 30365, (404) 586-5161.

Prepaid Fares: THE SACRAMENTO REGIONAL TRANSIT DISTRICT sells unlimited ride monthly passes through major employers in the area and through public outlets. Over the next two years, the District will introduce and evaluate five new methods for transit fare prepayment: mail order, telephone order, automatic telephone payment, sales through vending machines, and pre-authorized funds transfer. Contact: Beth Beach, Sacramento Regional Transit District, P.O. Box 2110, Sacramento, CA 95810, (916) 444-7591.

Honor System: PORTLAND, OR plans to implement self service fare collection on its bus routes in 1982 and, later in the decade, on its light rail line. Contact: Gerald Fox, Tri-Met Self Service Program, 4012 SE 17th Avenue, Portland, OR 97202, (503) 238-4974.

836 Mass Transit -- Maintenance and Rehabilitation of Equipment and Facilities

836-1/BUS REHABILITATION

Problem Statement: Substantial ridership increases on transit lines, particularly under energy crisis conditions, make it desirable to expand transit bus fleets. However, new buses are becoming increasingly expensive, and it often takes a long time to receive the vehicles once an order has been placed. Rehabilitation of old buses can provide additional vehicles in the short term and at a lower cost than new vehicles.

Solution Considerations: Research needs to focus on rehabilitation standards and criteria, technology support needs, planning requirements, and financing methods for bus rehabilitation.

LOCAL PROGRAMS

Bus Rehabilitation: NEW JERSEY TRANSIT has embarked upon a three year program to rehabilitate 715 buses. Complete rehabilitations will be contracted to private firms, with less extensive work done by NJ Transit maintenance forces. Contact: Dick White, NJ Transit, McCarter Highway and Market Street, P.O. Box 10091, Newark, NJ 07101, (202) 648-7472.

Bus and Trolley Rehabilitation: SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY has embarked on an ambitious bus and trolley rehabilitation program. SEPTA plans to rehabilitate 318 buses and some trolley cars. Contact: David Feeley, Assistant General Manager, Southeastern Pennsylvania Transportation Authority, 2028 PSFS Building, 12 South 12th Street, Philadelphia, PA 19107, (214) 574-7300.

FEDERAL PROGRAMS

UMTA's Office of Transportation Management has published a report titled: Survey and Analysis of Bus Rehabilitation in Mass Transit Industry. Contact: A.B. Hallman, UPM-43, UMTA, 400 7th Street, SW, Washington, DC 20590, (202) 426-9274.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has addressed this need through Transit Actions. This is an on-going series of reports on locally-initiated programs and programs funded by UMTA's Office of Transportation Management in the areas of transit operations, maintenance, marketing, information services, and human resources. Contact. Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2424.

836 Mass Transit--Maintenance and Rehabilitation of Equipment and Facilities

836-2/IMPROVED BUS TIRES

Problem Statement: In-service equipment failure severely damages mass transit's credibility as a safe, reliable alternative to the automobile. For systems operating heavy-duty coaches on deteriorating streets, tire failure is the prime villain.

Solution Considerations: Development of a foam-core or puncture-proof tire for transit vehicles is needed. The tire should have safety, comfort, and wear characteristics similar to those of standard bias-ply tires now in use. Consideration might also be given to a quick-repair kit that could be employed by the driver to temporarily seal and reinflate the tire for use until a replacement vehicle arrives.

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836 Mass Transit--Maintenance and Rehabilitation of Equipment and Facilities

836-3/GRAFFITI RESISTANT MATERIALS

Problem Statement: Defacing of both vehicles and fixed facilities with graffiti is a problem for many transit systems.

Solution Considerations: Paints and coatings need to be developed that resist graffiti or are easy to clean. Physical configurations discouraging to graffitists need to be identified. Techniques that can be applied to existing structures and new construction need to be determined.

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836 Mass Transit--Maintenance and Rehabilitation of Equipment and Facilities

836-4/IMPROVED BUS INTERIOR CLEANING EQUIPMENT

Problem Statement: Transit bus interiors must be cleaned daily so that buses are attractive to passengers. Most operators bring buses to stationary cleaning equipment to reduce labor requirements. This is usually at the fuel island. Present equipment uses air flow to blow trash out the front door of the bus, but turbulence causes dust to settle on seats and windows. An alternative is hand sweeping, but that is time-consuming and expensive.

Solution Considerations: 1) Review alternate air flow methods, graffiti removal, and vermin control. 2) Evaluate types of vacuum cleaner equipment, both portable and stationary. 3) Examine quality and time standards for cleaning operation. 4) Identify the most effective equipment and work procedures.

PROGRAMS

The National Cooperative Transit Research and Development Program is conducting research in this area as part of its 1980 Annual Work program. Contact: Transporation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, (202) 626-2424.

836-5/IMPROVED BRAKE MATERIALS

Problem Statement: The choice of brake materials and braking mechanisms is critical to the safety and economy of transit bus operations. Brake materials on new buses have not performed well, getting 10,000-15,000 miles per reline as compared to 50,000-60,000 miles on older buses. Brake pads that include asbestos may pose environmental and health threats.

Solution Considerations: Brake materials should be tested to identify those that provide maximum mileage and safe operations. Testing should be conducted by brake dynomometer and in the field with a cooperating transit property. Test documentation should include: maintenance costs, brake lining life, and brake performance. If the duty cycle is less than 50,000 miles, development and testing of advanced brake systems should be considered. European experiments with methods for converting the braking phase into useful energy with storage techniques including fly wheels, compressed gas, and electrical storage should also be investigated.

LOCAL PROGRAMS

Brake Retarders: MICHIGAN DEPARTMENT OF TRANSPORTATION is working with the Detroit Department of Transportation and the Grand Rapids Area Transit Authority to test electric and hydraulic brake retarders on a dozen New Look and Advanced Design buses. Contact: Kamel Boctor, Michigan DOT, P.O. Box 30050, Lansing, MI 48909, (517) 374-9189.

ADDITIONAL PROGRAMS

The National Cooperative Transit Research and Development Program is conducting research in this area. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Ave., NW, Washington, DC 20004 (202) 626-2424.

836 Mass Transit--Maintenance and Rehabilitation of Equipment and Facilities

836-6/RELIABLE LIFT EQUIPMENT

Problem Statement: Many transit systems that have lift-equipped vehicles have found the lifts to be unreliable and expensive to maintain.

Solution Considerations: Transit operators require additional technical and financial assistance as they attempt to develop a lift system that is safe and reliable and can be used efficiently in revenue service.

LOCAL PROGRAMS

Fully Accessible Small Systems: THE PALM BEACH COUNTY TRANSPORTATION AUTHORITY has operated only lift-equipped buses on all fixed-route lines since May 1980. The system's 63 accessible buses are equipped with a 36" ramp and, on balance, the equipment has proven to be fairly reliable. Contact: Irving Cure, General Manager, COTRAN, P.O. Box 1989, Palm Beach, FL 33402, (305) 686-4555.

Accesible Large System: SEATTLE Metro has had a policy of purchasing only lift-equipped buses and electric trolley buses since 1978. Currently, Metro provides accessible service on 60 routes, using 259 diesel and 57 trolley buses. Contact: Marilyn Watkins, Seattle Metro, 821 Second Avenue, Seattle, WA 98104, (206) 447-6358.

836 Mass Transit--Maintenance and Rehabilitation of Equipment and Facilities

836-7/BUS AIR CONDITIONING

Problem Statement: Bus air conditioning systems have always been characterized by low reliability and high cost of maintenance. The problem has been exacerbated by the introduction of the Advanced Design Buses with their fully automatic a.c. systems and their sealed windows.

Solution Considerations: Systematically review what transit systems have done to improve the performance of their bus a.c. systems. Work with the manufacturers to hasten the development of improved components, especially the compressor.

Advanced Design Bus Retrofit: VIA Transit in SAN ANTONIO has made a number of changes to its ADBs, including relocating the condenser, modifying the engine cooling fan, blocking off the fresh air intakes, and replacing the automatic control system with a simple, manually operated system. Contact: Wayne Hale, VIA Transit, 800 W. Myrtle Street, San Antonio, TX 78212, (512) 227-5371.

837 Mass Transit — Human Resources

837-1/ABSENTEEISM AND MORALE PROBLEMS

Problem Statement: The transit industry is beset with personnel problems, such as low morale, high absenteeism, and low job satisfaction. Mechanisms need to be developed that address these issues.

Solution Considerations: A review of both public and private sector approaches to the problem and the dissemination of that information to public agencies would be useful. The value of employee input as well as innovative management approaches should be summarized and an assessment made of why transit properties have or have not adopted these approaches. If they have, help is needed to disseminate information on their problems and successess.

LOCAL PROGRAMS

Labor Management Cooperation: FLINT, MI has established management-labor committees to address problems of the workplace. The disciplinary system has been revised and financial incentives for good attendance have been introduced. Contact: Robert Foy, Assistant General Manager, Flint Mass Transportation Authority, 1401 S. Dort, Flint, MI 48503, (313) 767-6950.

Improved Record Keeping: RICHMOND, VA has computerized their employee attendance records so that they can more accurately track attendance, unexcused absenteeism, and sick leave. Contact: Joseph Carter, Director of Transportation, Greater Richmond Transit Company, 101 South Davis Highway, Richmond, VA 23201.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives Transportation Task Force, through Public Technology, Inc., has addressed this need through Transit Actions. This is an on-going series of reports on locally initiated programs and programs funded by UMTA's Office of Transportation Management in the areas of transit operations, maintenance, marketing, information services, and human resources. Contact: Transportation Staff, Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC (202) 626-2424.

837-2/PART-TIME DRIVERS

Problem Statement: Productivity may be increased by adding part-time drivers during the peak hours only and thus not increasing the size of the work force during periods of low demand.

Solution Considerations: What are the productivity benefits of part-time drivers? What transit properties have been successful in employing part-time drivers?

LOCAL PROGRAMS

Part-time Drivers: SEATTLE, WA has had part-time drivers for several years. The part-time drivers must join the unions and the regular drivers are protected by a base figure below which the number of full-time workers may not fall. Contact: Manager, Transit Services, Seattle Metro, 821 2nd Avenue, Seattle, WA 98104, (206) 447-6666.

Part-time Drivers: IOWA CITY, IA has a work force that is made up of 50% full-time and 50% part-time bus drivers. The latter receive the same hourly wage and benefits as regular drivers, with the benefit prorated on the basis of their average 30 hour work week. The extra board is made up exclusively of part-time drivers. Contact: Hugh Mose, Transit Manager, 410 E. Washington, Iowa City, IA 52240, (319) 356-5154.

Community Based Drivers: San Diego, CA. Contact: Frank Shipman, (414) 238-0100.

837-3/TRAINING PROGRAMS FOR TRANSIT EMPLOYEES

Problem Statement: A number of transit agencies have developed training programs for both their operators and their maintenance workers and for both their new and their old employees. Are these programs effective? Is the cost of conducting these programs justifiable, since most participants are paid to take the classes? Can the results be measured?

Solution Considerations: What is the reaction of transit agencies that have used these training programs? Has job performance improved?

LOCAL PROGRAMS

Shared-Training: The SOUTHERN CALIFORNIA RAPID TRANSIT DISTRICT administers a regional transit training center that allows transit agencies in 14 Western States to make regular and simultaneous use of a curriculum of training seminars developed based on their common needs. Contact: Byron Lewis, Project Director, Regional Transit Training Center, c/o SCRTD, 425 S. Main Street, Los Angeles, CA 90013, (213) 972-6737.

Selftrain: The SAN DIEGO TRANST CORPORATION uses SELFTRAIN, a computerized training system that consists of a color video monitor with a specialized keyboard, to augment on-the-road training. Text and color graphics are used, developed primarily in-house from the existing training curriculum, along with an optional voice track, to present the instructional material. The system keeps complete records of each trainee's performance over time. Contact: John Garland, Manager, Safety Training, San Diego Transit Corporation, 100 Sixteenth Street, P.O. Box 2511, San Diego, CA 92112, (714) 238-0100.

Job Performance Aids: UMTA is testing the effectiveness of tools known as job performance aids, which provide easy-to-follow, step-by-step instructions for individual maintenance tasks on transit vehicles, at the Detroit Department of Transportation. Contact: A.B. Hallman, UMTA, UPM-43, 400 Seventh Street, SW, Washington DC 20590, (202) 426-9274.

Bus Operator Training: THE AFL-CIO APPALACHIAN COUNCIL and UMTA have developed training courses in passenger relations, bus maneuvers and defensive driving, and emergency and accident procedures. The courses are taught by a transit agency's own employees who have attended a special train-the-trainer session. Contact: Charles Morison, UMTA, UPM-43, 400 Seventh Street, SW, Washington, DC 20590, (202) 426-9274.

837-4/SCREENING PROCESS FOR PROSPECTIVE TRANSIT VEHICLE OPERATORS

Problem Statement: There is a need for a screening process to identify those job applicants who, when given proper training, will make good bus drivers. An effective screening process will protect the training investment.

Solution Considerations: Bus drivers are constantly in touch with the public and often under stress. A process that identifies those suited for this type of public service might also be useful to police and fire departments. Such a screening process would have to protect the civil rights of applicants.

LOCAL PROGRAMS

Self-screening Tool: THE MUNICIPALITY OF METROPOLITAN SEATTLE has used a self-screening tool with some success for permanent full-time job applicants. This tool is a written narrative which requires the applicant to affirm his or her ability and willingness to work odd, irregular, and long hours for up to two years as a condition of employment. The narrative emphasizes the negative aspects of the job, yet indicates the positive aspects of seniority. The tool identifies at an early stage applicants who are not qualified for or serious about careers as transit operators. Contact: Eugene C. Matt, Employment Supervisor, Metro Transit, 821 Second Avenue, Seattle, WA 98104, (206) 447-6883.

Test Battery for Bus Operator Selection: THE MEMPHIS AREA TRANSIT AUTHORITY administers a battery of three untimed, self-evaluation tests to bus operator applicants. This battery of tests was formulated by a team of University of Chicago psychologists. Contact: Faye Beck, Memphis Area Transit Authority, 701 No. Main Street, Memphis, TN 38103, (901) 528-2881.

Validated Test Battery: THE MASSACHUSETTS BAY TRANSPORTATION AUTHORITY, with UMTA financial assistance, has developed a test battery for operator selection that is now used by over 20 transit systems. The test is valid for white, black, and Spanish-speaking males and is currently being validated for females. Its non-discriminatory character has been upheld by the courts. Contact: Dr. Chester Higgins, MBTA, 50 High Street, Boston, Massachusetts 02110, (617) 722-3280.

838-1/TAXICABS AS PUBLIC TRANSIT

Problem Statement: Taxi companies throughout the country are going out of business. However, taxicabs can provide a needed door-to-door service to elderly and handicapped persons and residents of rural areas where public transit fixed-route bus systems often are non-existent and can serve as feeder service to existing transit lines. These services can often be provided on a shared-ride basis. Shared-ride service appears to have certain advantages, but in some instances it may be prohibited or discouraged by local or State ordinances.

Solution Considerations: Information on experiences with innovative, exemplary taxicab services needs to be disseminated. Regulatory revision, subsidy and payment methods, and labor concerns need to be examined. A model taxicab ordinance may be useful.

LOCAL PROGRAMS

Shared-ride Taxicab Service: CHAPEL HILL, NC initiated shared-ride service in August 1977 as a replacement for an under utilized fixedroute evening service. Contact: Robert Gooding, Chapel Hill Transit, City of Chapel Hill, 306 North Columbia Street, Chapel Hill, NC 27514, (919) 929-1111, Ext. 238.

A User-Side Subsidy: KINSTON, NC's user-side subsidy program was implemented in 1978 for elderly and handicapped persons. The subsidy coupons can be used for service from any of the City's taxicab companies. Contact: Patricia Johnson, Assistant City Manager, P.O. Drawer 339, Kinston, NC 28501, (919) 527-2513.

Regulatory Revisions: SEATTLE, WA has revised its regulations to eliminate the ceiling on taxicab licenses and to allow competitive fare pricing. Contact: Regina Glenn, Director, Department of Licenses and Consumer Affairs, Municipal Building, Seattle, WA 98109, (206) 625-2536.

Fixed-Route Replacement: THE TIDEWATER TRANSPORTATION DISTRICT COMMISSION offers a shared-taxi service called Maxi-Taxi. Maxi-Taxi has replaced a fixed-route bus service and offers feeder service to existing fixed-route transit. Contact: Jeff Becker, Service Development Manager, Tidewater Regional Transit, P.O. Box 6600, Norfolk, VA 23501, (804) 627-9291.

Regulatory Revision: PORTLAND, OR has revised its regulations to eliminate the ceiling on taxicab permits and to allow special fare rates for shared-ride, jitney, or contract services. Contact: Office of Taxicab Supervisor, Room 211, City Hall, Portland, OR 97204, (503) 248-4151.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., published the proceedings of a two day conference on Taxicab Innovations: Services and Regulations. An Information Bulletin on this subject has also been prepared. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

838-2/SCHOOL BUS USE FOR NON-SCHOOL TRANSPORTATION

Problem Statement: Recent oil shortages, environmental concerns, and inflation have raised interest in using school buses to supplement regular transit systems. Many legal, institutional, and physical constraints exist that may inhibit the use of these vehicles even for emergency situations.

Solution Considerations: Information about both successful and unsuccessful programs that use school buses to supplement regular transit service under emergency and non-emergency situations should be collected and disseminated. Information about legal, physical, and institutional constraints also needs to be collected.

LOCAL PROGRAMS

Elderly and Handicapped Service: JOHNSON COUNTY, KS is under contract with a private school bus operator to transport elderly, underprivileged, and mentally handicapped persons to and from vocational workshops and employment centers. Contact: Jim Meyers, General Manager, A.T. Meyers & Sons, Inc., 6200 Carter Street, Merriam, KS 66203, (913) 722-4076.

Public Transportation: MOREHEAD, KY uses school buses to provide hourly, fixed-route service. Prior to inauguration of this service, a single taxicab operator provided the only public transportation service. Contact: Dave Evans, City Administrator, City of Morehead, 168 E. Main Street, Morehead, KY 40351, (606) 965-3211.

Elderly and Handicapped Service: LATAH COUNTY, ID uses publicly owned school buses operated on a contractual basis to an area agency on aging to transport elderly and handicapped people to community services. Contact: Joan Grosse, Supportive Services Coordinator, Area Agency on Aging, 1032 Bryden Avenue, Lewiston, ID 83501, (208) 746-3351.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin dealing with this need. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2423.

838-3/PROCEDURES MANUAL FOR CONTRACT CARRIER SERVICES

Problem Statement: Transit authorities, in an effort to expand transit services throughout their jurisdictions, have contracted with private bus companies for the provision of supplemental services. At present there appears to be minimal inspection of the equipment and maintenance practices employed by contract bus carriers. A manual for inspection and safety procedures is needed.

Solution Considerations: A procedures manual, at a minimum, is needed to guide operations, planning and supervisory personnel (who often have responsibility for overseeing the contract carrier operation). The link between maintenance and operations needs to be strengthened in this regard. Procedures for collecting data related to safety, maintenance of vehicles, and motor vehicle records of operators should be established and initiated. Standardized contract vehicle inspection programs should result.

838-4/STANDARDS FOR ASSESSING THE PERFORMANCE OF PRIVATE PROVIDERS

Problem Statement: Cities issue certificates of public convenience and necessity to private transportation providers whether or not they charge a fee. To facilitate certificate reviews, they need standards, both financial and performance, against which to judge the applicants in order to make recommendations on renewals or issuance of new certificates.

Solution Considerations: What standards are available for assessing the performance of private transportation providers and what staffing is required to administer these standards?

838-5/JITNEY SERVICE

Problem Statement: In view of budget constraints and service cutbacks in public transit, it may become necessary to develop alternatives to fixed-route public transit such as jitney service.

Solution Considerations: Develop a scenario for implementing and operating jitney service. Under what circumstances is it an appropriate alternative to public transit?

LOCAL PROGRAMS

Jitney Transit Service: SAN FRANCISCO, CA has been served on Mission Street, a major corridor, by an established, private, jitney fleet of 27 vehicles. Contact: Abraham Endzweig, Manager, Mission Street Jitney, 8822 Clement Street, San Francisco, CA 94121 (415) 752-3860.

838-6/SUBSIDIZED TRANSPORTATION SERVICE

Problem Statement: Because the elderly poor live on small, fixed incomes, the elderly are less able to afford to travel, even at one-half the normal fare as transportation costs increase.

Solution Considerations: A means of reducing or entirely funding the cost of transportation for the elderly is needed.

LOCAL PROGRAMS

Sunday Dial-A-Ride: PHOENIX, AZ began a subsidized Sunday Dial-A-Ride service in 1980. The system provides about 350 unlinked trips each Sunday, primarily serving elderly and handicapped persons who have no vehicle available to them. The City has subsidized over 90% of the service cost. Contact: Chester Colby, Public Transit Administrator, 17 South Second Avenue, Room 203, Phoenix, AZ 85003, (602) 262-9242.

User-side Subsidies: KINSTON, NC offers a transportation subsidy directly to memebers of its elderly and handicapped population who register for the program. Registrants may purchase up to $25.00 worth of tickets a month at 50% of the tickets' face value. The tickets may be used to pay for taxi service by any taxicab company. Contact: Patricia Johnson, Assistant City Manager, P.O. Drawer 339, Kinston, NC 28501, (919) 527-2513.

User-side Subsidies: LAWRENCE, MA offers a similar user-side subsidy to its elderly and handicapped residents. Under the program, called TRANSFARE, eligible residents who register may purchase $10 worth of taxicab ride tickets for $5.00. Only four one-way trips a week may be taken using TRANSFARE tickets. Contact: Roberta Leites, Project Manager, TRANSFARE Program, 370 Common Street, Lawrence, MA 01840, (617) 685-1559.

838-7/TRANSPORTATION SERVICE FOR ELDERLY AND HANDICAPPED PERSONS

Problem Statement: There is an increasing recognition of the need to improve transportation services for elderly and handicapped persons. Providing free or low cost transportation to transit-dependent persons with little or no income should be studied to determine the best way to meet their needs. The coordination of existing providers of services for elderly and handicapped persons, paratransit options, and door-to-door service also needs to be examined.

Solution Considerations: 1) An information exchange to address the following questions among jurisdictions is needed: (a) What definitions of elderly, handicapped, and transit-dependent persons are now being used and who certifies them? (b) What kind of identification do they carry? (c) How do you reach them to describe the transportation services available? (d) How do you predict demand for special transportation services? 2) Fragmentation of social services transportation programs is a serious barrier to improved service. Have any jurisdictions overcome it? 3) There is a need to disseminate Federal regulations with brief explanations of their implications. Other areas of study include 1) the feasibility of distributing special transit passes or tokens; 2) paratransit operations; 3) the feasibility of subsidizing taxi fares as a means of providing transportation; 4) the coordination of existing services.

LOCAL PROGRAMS

Countywide Paratransit Brokerage for Elderly and Handicapped Persons: the PORT AUTHORITY OF ALLEGHENY COUNTY operates ACCESS, a wholly-owned subsidiary that coordinates non-profit and for-profit carriers countywide to provide service to the county's elderly and handicapped persons. Contact: Tom Letky, Manager of Elderly and Handicapped Services, Port Authority of Allegheny County, Beaver and Island Avenues, Pittsburgh, PA, (412) 237-7260.

User-Side Subsidy: Lawrence, MA has a program, TRANSFARE, that provides direct subsidies to elderly and handicapped persons for transportation services. The City issues tickets that pay for part or all of the fare to eligible persons. The City monitors the levels of service delivered by the private providers. Contact: Roberta L. Leites, City of Lawrence, TRANSFARE Program, 370 Common Street, Lawrence, MA 01840, (617) 685-1559.

LOCAL PROGRAMS

Share-A-Fare: KANSAS CITY, MO uses two taxi companies to provide transportation service to elderly and handicapped persons. As part of the Share-A-Fare program, the participating taxis are permitted to offer shared ride service under a special exemption of the taxicab ordinance. In 1981, the program provided over 350 passenger trips per day. Contact: Mrs. Verna Shumate, Director of Special Transit, Transportation Department, 414 East 12th Street, Kansas City, MO 64106, (816) 274-1802.

User-Side Subsidy: MILWAUKEE, WI has a program to subsidize transportation services to elderly and handicapped persons. Eligible persons receive a transportation subsidy for the purchase of a ride from a provider of their choice. The user pays the initial $1.50 fee for each one-way trip and any additional cost that exceeds a subsidy limit of $9.50 for wheelchair users and $6.50 for non-wheelchair users. Total program funding is about $1 million per year, 60% coming from Milwaukee County and the rest from the State. Contact: Thomas M. Knight, Special Transit Services Coordinator, Courthouse Annex, Room 309, Milwaukee, WI 53233, (414) 278-4091.

Curb-to-Curb Service: DADE COUNTY, FL provides curb-to-curb transportation to persons unable to use regular transportation because of a handicap. The County contracts with several taxicab companies to provide both the routing and scheduling and the transportation service. Most trips are made in non-metered vehicles. A recently passed ordinance gives Dade County responsibility for licensing and regulating all taxicabs, and it is expected that greater use will be made by this program of metered taxicabs in the future. The County pays the contractor a flat fee ($12.75 for taxi and $22.75 for lift-equipped van) for each user trip. Patrons pay a minimum fare of $1.00 and a maximum fare of $3.00. Contact: Orrie R. Strubinger, STS Project Manager, 44 West Flagler Street, 14th Floor, Miami, FL 33130, (305) 579-2594.

ADDITIONAL PROGRAMS

The Urban Consortium for Technology Initiatives' Transportation Task Force, through Public Technology, Inc., has developed an Information Bulletin dealing with this need. It has also prepared two reports entitled Elderly and Handicapped Transportation: Local Government Approaches and Paratransit for Elderly and Handicapped and a series of SMD Briefs on the user-side subsidy demonstrations for elderly and handicapped persons in Kinston, NC and Lawrence, MA, a diala-ride service demonstration in New York, NY and the Tri-Met social service agency coordination project. Contact: Public Technology, Inc., 1301 Pennsylvania Avenue, NW, Washington, DC 20004, Attention: Transportation Staff, (202) 626-2424.

FEDERAL PROGRAMS

Special Paratransit Service for Elderly and Handicapped Persons: Operational Experience. A report published by the U.S. Department of Transportation, November, 1981. Contact: Office of Technology and Planning Assistance, U.S. Department of Transportation, I-30, 400 7th Street, S.W., Washington, D.C. 20590, (202) 426-4208.

840 AVIATION

841 Airport Design, Location, and Operations

841 Aviation — Airport Design, Location, and Operations

841-1/DIFFERENTIAL PRICING FOR AIRPORT ACCESS

Problem Statement: The increased peak hour use of airports by private aircraft is causing airport congestion and delays for commercial aircraft.

Solution Considerations: Peak hour landing fees could be increased to discourage small planes from using major airports during periods of heavy commercial use.

FEDERAL PROGRAMS

Joint-Use of Military Airport: Joint-use of military airports convenient to metropolitan areas could help alleviate capacity problems at large air carrier airports. Congress has required that a joint-use plan be prepared by the Secretaries of Defense and Transportation; the plan will be completed in September, 1983. Contact: James V. Mottley, National Planning Division, APP-400, FAA, 800 Independence Avenue, S.W., Washington, D.C. 20591, (202) 426-3451.

841 Aviation--Airport Design, Location, and Operations

841-2/SHORT TAKEOFF AND LANDING (STOL) AIRCRAFT APPLICATION

Problem Statement: Congestion in and around existing airports is reaching unmanageable levels.

Solution Considerations: Develop smaller specialized airports. Small, quiet aircraft that can use parking-lot size airports are available and could serve short-distance commuter flights for which transferring is not important.

841-3/AIRPORT NOISE CONTROL

Problem Statement: The most effective way to prevent airport noise problems and to avoid land use conflicts is to purchase land surrounding or impacted by an airport. Since fee simple purchase of all impacted areas would be prohibitively expensive, less costly land use control techniques need to be investigated. If this approach is not feasible, other methods for controlling noise levels should be identified.

Solution Considerations: 1) The feasibility of purchasing the development rights of property near airports should be investigated. The analysis would compare the cost of development rights with fee simple purchase. Factors that would influence cost differential might include current land use, proximity to public services, and the level of the noise impact. 2) Since the purchase of development rights may not be feasible in all cases, other efforts to control noise levels should be examined such as: ordinances that would regulate the type and number of planes using an airport, restrictions on late night and early morning take-offs, and requirements that, when possible, take-offs and landings follow patterns that minimize noise impacts on developed areas.

841-4/STREET CLOSURES FOR EMERGENCY HELICOPTER OPERATIONS

Problem Statement: When helicopters on emergency operations land or take off at local hospitals, the FAA requires that local streets near the hospital be closed. This causes traffic disruption and creates a need for complex traffic controls.

Solution Considerations: A study needs to be made of how local jurisdictions are dealing with this problem. One option may be to require alternative landing areas that do not require street closures.

841-5/AIRPORT PARKING AND GROUND TRANSPORTATION

Problem Statement: Recent increases in passenger traffic and rapid growth in air freight have adversely affected airport access. Problems include congestion, visitor transportation, and parking. Several airports (San Francisco, Washington National) regularly run out of airport parking. Complicating the problem are funding restrictions that prevent the use of Airport and Airway Development Aid Program funds for most access-related problems.

Solution Considerations: A number of urban area access studies have been conducted. An initial effort might include an inventory of these studies and the impacts of attempted solutions.

LOCAL PROGRAMS

Groundside Transportation Systems Evaluation: DALLAS, TX through its Office of Transportation Programs conducted an extensive study at Love Field Airport. Love Field Airport is served by three regional airlines servicing twenty cities within 500 miles. A simple model was developed to predict the parking demand generation based on enplaning passengers on a twenty hour basis. Impact of the differential parking rates on the parking durations in various parking facilities were analyzed by comparing "before" and "after" data. Contact: Kirti N. Patel, Office of Transportation Programs, 5C South, 1500 Marilla Street, Dallas, TX 85201, (214) 670-4037.

850 WATER BORNE TRANSPORTATION

851 Water Borne Transportation Facilities

851 Water Borne Transportation -- Water Borne Transportation Facilities

851-1/INTRA-URBAN WATERBORNE SERVICE

Problem Statement: Central business district streets are becoming increasingly congested with commuter traffic, and automobile parking is also a growing problem. Therefore, those cities with water access should encourage commuting over the water. Among other benefits, using waterways eliminates the cost of right-of-way maintenance.

Solution Considerations: Localities with water access should initiate marketing studies to assess the potential demand for commuting by water. The studies should include an evaluation of origin and destination data, cost-benefit analyses of alternative routes and terminal locations, and pricing policy.

851-2/DEVELOPMENT OF PORT FACILITIES

Problem Statement: Needed port facilities are not being constructed because of depressed local economic conditions and cut backs in Federal funding.

Solution Considerations: A study should be made of innovative financing techniques to support the development of port areas. These techniques could include special benefit district assessments, industrial development bonds, and other incentives to attract private capital.

URBAN CONSORTIUM TRANSPORTATION TASK FORCE

The Urban Consortium's Transportation Task Force identifies and defines the most important transportation needs of the nation's urban areas. The Task Force provides guidance to the staff of Public Technology, Inc. to ensure that resultant research and development efforts are directly responsive to local government transportation problems. The members of the Transportation Task Force who participated in the fifth needs identification and selection process were:

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