

UNIVERSITY TRANSPORTATION RESEARCH CENTER
REGION II

REGIONAL RESEARCH CONFERENCE

APRIL 8, 1994

SPONSORED BY:
THE PORT AUTHORITY OF NEW YORK AND NEW JERSEY

THEME: MEETING REGION II TRANSPORTATION RESEARCH NEEDS

AGENDA

9:30 AM **Registration**

10:00 AM **PART I**

Opening remarks	Robert Paaswell, UTRC
Keynote Address	John Clements, FHWA/AAR&D
The Transit Alternative	Larry Schulman, FTA
UTRC Research Potential	Arnim Meyburg, Cornell
UTRC Achievements	George List, RPI

11:00 AM **PART II**

Panel Overview of Regional Research Needs:	Richard Roberts, PANYNJ Richard Hollinger, NJDOT Robert Perry, NYSDOT Raymond Ruggieri, NYMTC Gerard Sofian, NYCDOT
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12:00 PM **Questions and Answers**

12:30 *LUNCH*

1:30

PART III WORKING SESSIONS

TRANSIT

Moderator Ross Kapilian, NYCTA

Panel Barry Hecht, NYSDOT
Larry Fleischer, MTA
Isaac Takyi, NYCTA

Faculty Claire McKnight, CUNY
Shmuel Yahalom, SUNY

INFRASTRUCTURE

Moderator Jim O'Connell, NYSDOT

Panel Nicholas Vitillo, NJDOT
Barney LaGreca, NYCDOT

Faculty Neville Parker, CUNY
Ali Maher, Rutgers

INTERMODAL

Moderator Richard Roberts, PANYNJ

Panel James Le Cleir, NYSDOT
Representative of PANYNJ
John "Jack" Dean, RPA
Representative of UPS

Faculty George List, RPI
Mark Turnquist, Cornell

FUNDING UNDER ISTE A

Moderator Raymond Ruggieri, NYMTC

Panel Arnold Kupferman, NYSDOT
Representative of NJDOT
Rick Maldonado, PANYNJ

Faculty John Falcocchio, Polytechnic
Arnim Meyburg, Cornell

4:30

DEBRIEFING SESSION

ALL Moderators
ALL Faculty members

Working Session 1: **TRANSIT**

(Prepared by Shmuel Yahalom from notes taken during the session and from written input provided by Clair McKnight, Ross Kapilian and Gerry Bogacz)

Moderator: Ross Kapilian, Manager, Long Range Planning, NYC Transit

Panel: Larry Fleischer, Deputy Director, Planning, MTA
Isaac Takyi, Director, Facilities and Equipment Planning, NYC Transit

Faculty: Clair McKnight, CUNY City College and UTRC
Shmuel Yahalom, SUNY Maritime College and UTRC

Participants: Jim Redeker, Senior Director, Business Planning, NJ Transit
Gerry Bogacz, Director of Planning, Westchester County DOT (WCDOT)
Bob Donnelly, PANYNJ
Tom Kligerman, NYSDOT and Rensselaer Polytechnic Institute
Norbert Oppenheim, City College

Discussed in the transit session were the following 37 research projects, which are of concern to the participants. Each project was identified with the principle proponent. The project topics are divided into six groups:

1. Decision-making process
2. Planning methods and tools
3. Seamless Transportation System/Intermodal
4. Technology
5. Information
6. Others

Depending on the subject matter most of all UTRC supporting agencies (NJDOT, NYDOT, MTA, NYCDOT, PANY/NJ, TA, WCDOT, NYSER&DA, PRDOT, TBTA) could be approached to comment on the research projects and for sponsorship. Even though the NJT is not a sponsor, it should be approached for sponsorship. Note that the NJT representative (Jim Redeker) had a significant input in the research topics below. Some projects are agency specific; they were kept in their original language.

I. DECISION-MAKING PROCESS

1. Customer travel needs.

Objectives: Customer travel patterns are available from previous research. Travel Patterns are synonymous with customer travel needs. The objective of this project is to determine customer travel needs, particularly for non-work trips and linked trip needs.

Principal proponent: Jim Redeker, Senior Director, Business, NJ Transit

2. Business travel needs.

Objectives: Study employee transportation demands and employee trip reduction (ETR). We need to understand their need for work force transportation and for transportation of goods and services as it links to business development.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

3. Profiles of a potential transit rider.

Objectives: The demographic information (economic and demographic profile) gathered every 10 years by the census is not sufficient to identify the potential transit rider. The present high level of immigration makes the identification much more difficult. The riders economic profile should include the real and relative cost of travel and travel subsidy impacts on transportation decisions.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

4. Integration of Passengers and Goods.

Objectives: The potential of passengers and goods sharing the same transportation mode should be studied.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

5. Customer satisfaction.

Objectives: Methods to determine customer's satisfaction. The methods could include better surveys and linking survey information to business modeling techniques or linking customers satisfaction with other transportation-related issues.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

6. Customer's security.

Objectives: Due to security considerations customers are reluctant to use public transportation. Security is a perception problem and a technological one. How to improve security and change perception.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

7. Customers and advanced technology.

Objectives: Technological innovations take over many transportation activities. The technological advancements are designed to improve performance and are primarily to satisfy the provider. This objective although noble might exclude customers' interests. Advanced technology should incorporate the customers' interests.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

8. Testing stated preference surveys against revealed preference (improving data collection).

Objectives: Research and survey techniques need to incorporate advanced technology in order to reduce cost. Use of multiple language is too costly. The design of research that will incorporate the new technologies at a low cost is needed. Comparison of survey results with ex-post statistical data could be part of this project.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

II. PLANNING METHODS AND TOOLS

1. Management system.

Objectives: Management concepts like life cycle costing and smart and expert systems need to be introduced, developed and studied. We need systems for matching the decisions that are made to the regional goals and objectives.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

2. Improve modeling of the transportation/transit/land use system.

Objectives: The model needs to operate on a more desegregate level.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

3. Fare Policy.

Objectives: Optimal fare policy should be determined to improve regional economic benefits in order to bring customers to public transportation. Public participation needs to be broadened to more than the “usual suspects”.

Principal proponent: Larry Fleischer, Deputy Director, Planning, MTA

4. Quantification of benefits.

Objectives: Many projects are not quantified; e.g., bicycle lanes get funded because people believe they are good; we cannot forecast their impact on air pollution; will they actually be a transportation alternative or a recreational alternative? How do you develop the criteria appropriate to evaluate diverse projects?

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

5. Joint transit/highway planning.

Objectives: The customer should be perceived as a person who travels, not as a transit or highway user. How can we get joint planning for transit and highway? What type of planning is needed? What process and what methods? Has it been done anywhere and what were the results? How can we accommodate customers' and providers' needs?

Principal proponent: Larry Fleischer, Deputy Director, Planning, MTA

6. Innovative procedures for mobile drug testing.

Objectives: With advent of the requirement for 50% random employee drug testing, testing costs under current procedure will be extraordinarily expensive. Employees must take time off their assigned shifts to a centralized testing facility, then wait several hours to be tested, while the substitute employee is paid overtime to cover for the tested employee. This project would explore and document methods of bringing drug testing to employee work sites to minimize disruption and inconvenience to employees while containing transit agency costs. It would cover revised employee sampling for

maintaining compliance with federal requirements as well as the nature of the mobile testing program: initial cost, operating cost and staffing, testing procedure, among other factors.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

7. Innovative strategies to improve rapid transit service reliability in a past-ATS environment.

Objectives: The implementation of ATS will provide significant opportunities to improve the reliability of NYC transit rapid service by providing early warning of train bunching, signal malfunctions, and track blockages. The purpose of this project would be to inventory and document control strategies which can be undertaken once ATS has been implemented. This project should examine international experience and impact of other metro systems converting to ATS. Documentation of ATS and the control strategies. The resulting project would be a manual of control strategy plans for dealing with incidents occurring on the rapid transit system. A methodology for assessing impact of NYC transit's implementation would also be prepared. This plan would be analogous to incident management plans developed for freeway systems in conjunction with IVHS technology.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

8. Enforcement of arterial high occupancy vehicle (HOV) lane installations.

Objectives: NYC has an extensive system of designated HOV lanes on its major arterial streets. This HOV system has been historically plagued by a high degree of interference from non-HOV traffic, in part due to an absence of rigorous enforcement. This project would document and evaluate North American experience with arterial HOV lanes. The major focus of this effort would be to highlight those factors which promote low violation rates and maximum improvement in bus operating speeds. At a minimum, issues to be considered include law enforcement (e.g., number of officers, deployment strategies, traffic court treatment of violations, cost), signing, prevailing volumes of HOV usage, and type of physical arterial treatment (e.g., with-flow or contra-flow lanes). This work would build on recent completed NYC transit work in the area of surface congestion management.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

9. Advances in transit passenger counting procedures and technology.

Objectives: This could include developing periodic counts of all boarding and alighting activities. While many systems use electronic fareboxes to record boarding activity, the reliability of results is unknown and even regarded as suspect. Transit systems have experimented with, or considered, passive counting procedures using electronic recording equipment at bus doors or calculating rail passengers based on vehicle weight. This project would survey North American systems relative to their latest advances in passenger counting. Issues to be considered include equipment and staffing cost, size of implementation, length of usage, ease of implementation and reliability of results obtained. Frequent and accurate transit passenger count are not only important for routine transit service planning and scheduling, but a critical input to regional transportation plans and congestion management plans required under ISTEA.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

III. SEAMLESS TRANSPORTATION SYSTEM/INTERMODAL

1. Seamless transportation and Fare integration.

(This part could be treated as two different projects.)

a. Objectives: In light of the advent of automatic fare collection there is a need to study the seamless transportation system and fare integration. The study should determine trip patterns: who will transfer, what type of trips will be taken, where to. How to overcome the agency agendas vs. regional agenda. Develop a process/mechanism so that a customer can obtain tickets at one place with the blessing of the agencies. Thus, agencies cooperation, interagencies agreements and fare structure agreements are needed. The agreements need to include coordination of fares, schedules of transfers (between vehicles and between systems), and information. What is the effect of toll discounts on the occasional rider? We should move towards a universal travel card. There will be a need for real time information on routes, schedules, fares, current operating conditions (are vehicles on time) and what the trip will be like.

b. Objectives: Under this title there is need for a regional vision with the interjurisdictional planning, operations and cooperation of NJT, PANY/NJ, NYCDOT, MTA and others. This is not to say that there is a need for full-scale merger. It is to focus on the need to develop a cooperation mechanism instead.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit
Ross Kapilian, Manager, Long Range Planning, NYC Transit

2. Economic Benefits of Network Expansion Projects (regional).

Objectives: A study should be undertaken to determine the impact of transit investment on the region, primarily mobility and economic activity. The approach should be of a regional overview type. Minimum or no expenses as an investment alternative should be considered as well. Fare policy and relative fares could be a part of the analysis.

Principal proponent: Larry Fleischer, Deputy Director, Planning, MTA
Gerry Bogacz, Director of Planning, Westchester County DOT

3. Link across the Hudson.

Objectives: The integration of transportation systems across the Hudson has very large potential benefits in jobs and interstate economic growth. In order to motivate the link, a study of the economic benefits (identify benefits qualitative and quantitative) should be undertaken. Incorporating the ferry system into the seamless system over the Hudson should be part of the study.

Principal proponent: Larry Fleischer, Deputy Director, Planning, MTA

4. Transfer between mode and systems.

Objectives: How do we facilitate transfer between modes and systems. We need criteria for intermodal transfer facilities between: rail-bus, ferry-bus, bus only, etc. When and how to develop such facilities (e.g. number of routes serving area, number of expected riders, boarding activity, on vs. off street, number of bus bays, other amenities, and possibly a vehicle-holding policy). What type of scheduling or dispatching policies are needed? What are the trade-off's between customer service and operational efficiencies?

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

IV. TECHNOLOGY

1. Future vehicle design.

Objectives: There is a need to incorporate both the customers and the operators needs. The operators should have a say in the future design and standard requirements. We also need to keep the bus manufacturing industry in the US.

Principal proponent: Jim Redeker, Senior Director, Business Planning, NJ Transit

Agencies support:

2. Impact of “Smart Technology” systems on bus speeds and reliability.

Objectives: NYC transit is implementing Automated Vehicle Location and Control (AVLC) systems technology on its bus system. As an AVLC is implemented, it would be extremely useful to document the anticipated improvements in bus operating speed and schedule adherence encountered in other metropolitan area operations. In addition, it is important to identify and evaluate the changes in operating strategies implemented by other areas as AVCL or other “smart technology” is implemented. The results from these areas should be incorporated in a new AVLC “operations manual”, including recommendations for designing appropriate “before” and “after” tests on NYC transit implementation. Any university research would build upon ongoing or completed NYC transit work in this area.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

3. Vehicle size.

Objectives: Formalize criteria to determine appropriate vehicle size given a particular environment (ridership, street, neighborhood). Also what is the trade off between the additional cost to maintain a diverse fleet and the advantages (operational, maintenance, and marketing) of an appropriate bus size.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

4. Transit bus selection criteria for alternative operating environments.

Objectives: The increase in new bus manufacturers and services for the disabled in the 1980s and 1990s has led to the availability of buses of many different sizes and amenities, ranging from van-type vehicles to high-capacity articulated buses. NYC transit uses a small number of vehicle types and sizes despite operating a wide variety of local, limited stops, and heavy or light-used bus routes. This project would explore North American experience to quantify the extent to which the savings of applying the appropriate size vehicle to a corridor’s operating characteristics outweigh the costs and problems of maintaining a diverse vehicle fleet. NYC transit’s bus system could serve as a case study. This project would set forth specific criteria for selecting the appropriate vehicle type to a wide variety of urban transit corridors (i.e., local vs limited-stop vs park-ride, fixed route vs route paratransit, loading and headway standards). This project fulfills a specific goal identified in NYC transit’s *Bus Service Strategy and Facility Development Plan*.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

5. Development of threshold and alternative designs for Light rail service.

Objectives: There is need for work to be done on developing criteria for when light rail is appropriate. The designs should incorporate: density, location of business, and current corridor use. This research could also be a study of alternative service design in the NY-NJ metropolitan area. It could supplement NYC transit's current study to identify potential light rail corridors in NYC or focus on MTA territory outside of that operated by NYC transit. Furthermore, an evaluation of LRT should be undertaken throughout the region.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit
Gerry Bogacz, Director of Planning, Westchester County DOT

6. Technology transfer mechanisms.

Objectives: We need to know more about this.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

7. Gap Reductions.

Objectives: Under the American with Disability Act, the horizontal and vertical gap between subway platform and subway car must be substantially reduced. To date, NYC transit has focused on platform-based modifications to reduce the gap. This project would examine car-based gap filled currently in use in Grenoble, France and Munich, Germany to determine their applicability to NY's operating environment. Issues such as the device's speed and its impact on dwell time and throughput would be evaluated. The ability to retrofit the device onto existing subway cars would also be examined, as would its inclusion into new subway car purchases.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

V. INFORMATION

1. Real time/on-line information.

Objectives: Study the real time/on-line multi-agency schedule and fare information systems to improve service and service reliability. The declining cost of electronic equipment has put sophisticated modules on vehicles. We are in the “intelligent vehicle” era. The E.G., AVLIC will tell you where the vehicle is. What do you do with the information, how do you respond to delays or to emergencies. The adoption of this technology by urban centers is a question of time. However, there is a need to study the location and the type of such applications. A prototype and testing center for the NY and NJ metropolitan area need to be established. A project could be designed to identify the elements of success in this undertaking, determine the hardware needed, software needed, data development and maintenance, cooperative management, operating agreements and information location centers.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

2. Impact of real-time customer information system on modal shifts

Objectives: The decreasing cost of electronics has increased transit agency interest in real-time customer information systems. This project would catalogue the types of system in place and under development in North America. Documentation of known modal shifts is critical to justifying development of these projects for funding under federal programs such as the ISTEA Congestion Mitigation/Air Quality (CAMQ) program.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

VI. OTHER

1. Land use impacts of fixed system in project evaluation.

Objectives: This should be included in evaluations, like, Will a new link across the Hudson create more dispersal of population? How will the land use impacts of commuter rail, light rail, or HOV differ? What type of analysis is needed? Or, how to integrate transportation and land use planning with home rule.

Principal proponent: Gerry Bogacz, Director of Planning, Westchester County DOT

2. Complementary transportation.

Objectives: Feeder service to fixed rail. There is a particular interest in DRT. What are the parameters of the system that need to be provided.

Principal proponent: Gerry Bogacz, Director of Planning, Westchester County DOT

3. Feeder/egress service.

Objectives: Would like to see an evaluation of NJT's effort in this line. What service strategies should they follow? Why do people move between modes? How can we keep them in one mode?

Principal proponent: Bob Donnelly, PANY/NJ

3. Diverse transportation projects.

Objectives: The models used in the CMAQ process need to be better at forecasting the benefits of diverse transportation projects. The current tools interfere with good decision making. We need methods that allow the evaluation and comparison of diverse projects, e.g., HOV vs a bicycle lane. Perhaps we need to look at the process more than the models and improve it systematically.

Principal proponent: Larry Fleischer, Deputy Director, Planning, MTA
Bob Donnelly, PANYNJ

4. Impact of roadway and bridge congestion pricing on modal diversions.

Objectives: Under the Clean Air Act, the NY-NJ Metropolitan area is classified as a "severe" nonattainment area. As a nonattainment area, strategies have to be found to significantly reduce pollution from all sources, particularly motor vehicles. Much of the inability to induce large mode shifts from solo commuting to transit and carpooling has been attributed to pricing distortions in the nation's transportation systems. With access to the Manhattan business district restricted to a discrete number of heavily traveled bridges and tunnels, and an extensive transit infrastructure, this region is well-suited to consider a demonstration of road and bridge congestion pricing.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

5. GIS as tool.

Principle proponent: Larry Fleischer, Deputy Director, Planning, MTA

6. Allocation of the street.

Objectives: We need to recognize the diverse use of the streets for transit, goods movement, goods loading, car movement, pedestrians; develop criteria for allocation between uses; find a low-cost (i.e., not labor-intensive) means of enforcement.

Investigate the enforcement of a transit-first policy; can it be compatible with goods movement?

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit

7. Labor/union issues.

Objectives: Part time labor; differential pay for different types of vehicles.

Principal proponent: Ross Kapilian, Manager, Long Range Planning, NYC Transit
Tom Kligerman, NYSDOT and Rensselaer Polytechnic Institute

Working Session 2: **Infrastructure**

Following is a summary of discussions on infrastructure at the Regional Research Conference held April 8, 1994, and subsequent follow-up deliberations with various parties in UTRC and the AIC. It was prepared by Prof. Neville Parker.

1. Break-Out Session

There was strong representation by NYSDOT (Jim O'Donnell), NJDOT (Nick Vitollo) and NYCDOT (Barney La Greca). While each spoke to their particular needs – summary proceedings will be entered into the record – the single most persistent cross-cutting need was the development and testing of materials for fast-tracking maintenance, repair and rehabilitation of roads and bridges, including:

- new materials, including recycling
- performance, durability and life cycle economic costs
- expert solutions/guides for implementation
- early payoff (appx 5 years)

Other researchable ideas included:

- ISTEA management systems
- cost-effectiveness of ADA regulations/standards, eg. sidewalk cross slope < or = 2%
- construction cost and time estimating systems for urban highways
- maintenance of traffic in work zones, eg. development and use of low-cost opaque or one-way curtains to prevent rubbernecking
- instantaneous quality assurance tests
- movable barriers

It was also expressed by NYCDOT and NJDOT that the ongoing project on NDT of urban pavements (using FWD, SASW and GPR) be continued with their financial and in-kind support.

2. Recommendations

The following projects under the overall heading of “**Fast Track Pavement Technology**” are suggested for inclusion in the 1994-95 RFP, with the understanding that project scopes be developed and formalized in a series of meetings with the participating agencies (this was emphasized):

FAST TRACK PAVEMENT TECHNOLOGY

MATERIALS

- Asphalt and Cementitious Binders
- Additives & Admixtures
- Mix Designs & Strength Development
- Recyclable Materials from Roads and Buildings

PERFORMANCE & DURABILITY

- Laboratory and Field Results of Current Materials
- Laboratory and Field Investigation of Potential Innovative Materials

CONSTRUCTION TECHNIQUES

- Placing & Finishing
- Curing
- Quality Control and Assurance
- Construction Costs and Timeframes

SAFETY BARRIERS FOR WORK ZONE AREAS

- Safety Barriers
- Traffic Control Barriers
- Visibility Barriers
- Movable Barriers

PAVEMENT EVALUATION

- NDT Techniques
- Rehabilitation Alternatives

3. Enclosed as attachments are:

- 3.1 Submission of “critical issues” by Ben Colucci for consideration at the Research Conference
- 3.2 Suggestions for a “Fast Track Pavement Technology” thrust prepared by Dimitrios Goulias, subsequent to discussions we had following the Research Conference.

**UNIVERSITY OF PUERTO RICO
P.O. BOX 5000
MAYAGUEZ, PUERTO RICO 00681-5000**

April 6, 1994

Ms. Danielle Petretta
University Transportation Research Center
C/O Institute for Transportation Systems
The City College of New York Y-220
138th Street and Convent Avenue
New York, NY 10031

Dear Ms. Petretta:

As requested in our telephone conversation today, please find a list of critical issues associated with transportation to be considered at the UTRC Region II Research Conference:

1. Evaluation of Alternative to Solve Urban Congestion, (i.e., parking regulation, IVHS, construction of new infrastructure, multiple use for right of way, incentives for mass transit patronage).
2. Implementation of Management Systems.
3. Innovative Materials for Highway Maintenance Activities.
4. Use of Geographic Information Systems in Transportation.
5. Innovative Highway Financing.
6. Technology Transfer to State and Municipal Employees.

If you need additional information, please do not hesitate to contact me at your convenience.

Cordially,

Benjamín Colucci
Professor

BC/mrs

**POLYTECHNIC UNIVERSITY
DEPARTMENT OF CIVIL AND
ENVIRONMENTAL ENGINEERING
(718) 260-3220**

DATE: April 26, 1994

TO: **Dr. Neville Parker**
UTRC
The City College
New York, NY 10031
(212) 650-8055

FROM: Dr. Dimitrios G. Goulias
Professor & Program Coordinator
Dept. of Civil & Environmental Eng.
Polytechnic University
Six Metrotech Center
Brooklyn, NY 11201
(718) 260-3220
FAX (718) 260-3136

SUBJECT: Outline for Fast Track Pavement Technology

COMMENTS: Based on the comments of the agencies' representatives related to quick repair and durable materials, the attached outline might be considered for a potential research project. As you can see it covers the wide range of their concerns and we might want to address these issues in different phases. Please let me know what you think so as to include this item as a potential RFP for this year. Potential sponsors are NJDOT and NYCDOT.

FAST TRACK PAVEMENT TECHNOLOGY

MATERIALS

- Asphalt and Cementitious Binders
- Additives & Admixtures
- Mix Designs & Strength Development

PERFORMANCE & DURABILITY

- Laboratory and Field Results of Current Materials
- Laboratory Investigation of Potential Innovative Materials

CONSTRUCTION TECHNIQUES

- Placing & Finishing
- Curing
- Other

TRAFFIC CONTROL IN WORK ZONE AREAS

- Operations Scheduling & Timing
- Traffic Management in Work Zones

SAFETY BARRIERS FOR WORK ZONE AREAS

- Safety Barriers
- Traffic Control Barriers
- Visibility Barriers

Working Session 3: Intermodal Analysis and Goods Movement

prepared by: Mark Turnquist, Cornell
George List, RPI

Based on discussions held at the UTRC Research Conference on Friday, April 8, the following short descriptions are suggested as possible projects to be included in the RFP due out in May. These descriptions are being circulated for review, comment and prioritization only, and probably will not all be in the final RFP.

Decision Support for Intermodal Investments

It is important for the New York Metropolitan region that the total costs of moving freight decrease and that the environmental impacts of freight movements be reduced. Nationally, as well as regionally, the effectiveness of the freight transportation system is a key to "sustainable economic development" and international competitiveness. Investments in intermodal freight operations and facilities are being suggested as a way of accomplishing these goals, but resources are very limited. What investments have the highest potential for substantial benefits? How can we best expand our view from a project-by-project analysis to a system-wide analysis? How should public and private funding, facilities and operations best be combined? What are the risks to both the public sector and the private sector? What are the indirect costs and benefits, as well as the direct ones?

In previous and current research, projects undertaken within the UTRC have focused on assembling a coherent database of truck movements in the region and building network-based analysis tools for evaluating highway-oriented strategies for enhancing goods movement. This project should build on those results, and extend the methods to deal more directly with rail-based and intermodal movements and projects.

Information Strategies for Enhancing Goods Movement

Intermodal freight movement options may allow improved service with lower costs and reduced environmental impact, but intermodal connections require more information resources than do single-mode services. In addition, the current infrastructure for intermodal connections has several types of bottlenecks. Since both financial resources and space for investment in new facilities are limited, we should explore ways in which greater use of information technology can substitute for investments in physical capacity. If we can find ways to use the existing physical capacity more efficiently, and make the intermodal transfers work more smoothly, by using information more effectively, many potential benefits of intermodal operations may be obtainable while still minimizing investment in new facilities (both public and private).

This requires research to develop methods for evaluating the effects of better information in various parts of the intermodal system. What information is most useful, to whom, where, and when? Can automatic vehicle location (AVL), automatic vehicle identification (AVI), electronic data interchange (EDI), etc., be used to increase the

efficiency of intermodal transfers? Shippers, carriers and public agencies are investing in various types of information and communication technologies; how can these be integrated? How should IVHS/CVO initiatives be designed to be most effective?

This research should build on the tools being developed in the current UTRC "Commercial Corridor" project, and focus on identifying alternative means of providing information to transportation carriers, as well as evaluating the benefits and costs of providing such information. An important outcome of the project should be identification of specific types of information, and specific users of that information, which will yield the largest net benefits.

Effective Design of Intermodal Management Systems

Under ISTEA mandate, each state must create a series of management systems, including an Intermodal Management System (IMS). States are in the process of designing such systems, and are struggling with what data should be collected to support them, what measures of effectiveness should be included, how to merge operational data with facility condition data, and how to use such systems for decision-making.

What are the "best practices" among various states in implementing IMS? Since many of the facilities involved are private, detailed data on both facilities and operations may be considered proprietary; how can data to support an IMS be collected and managed to protect legitimate private interests, while still supporting necessary public planning functions? How can we avoid expensive data collection efforts which produce numbers with little real value? How should a state designate overall responsibility for an IMS when it might include information on bus-to-rail transit connections, commuter rail park-ride lots, and truck-rail freight terminals?

This project should include a state-of-the-art review of current efforts underway to develop IMS's in various states. It should also provide guidance OR selection of measures and data to be included in an IMS. It should address the problems of incorporating proprietary data, and the organizational issues of supporting such a system within a state DOT.

Effects of Taxation Policies on Intermodal Development

Federal, state, and local governments have a complicated pattern of taxes which impact different transportation modes quite differently. For example, privately-owned railroad right-of-way is subject to local property taxes, while trucks pay usage-based fuel taxes (state and federal) to partially support maintenance of public highways. Urban development can sometimes raise property values (and property taxes) of terminal facilities to the point that relocation is advisable, to allow for more intensive use of the land. So-called “carbon” taxes on energy use (for environmental objectives) might undermine one of the major commodities carried by rail, at the same time as efforts are being made to shift other traffic to rail for energy and air quality reasons.

The focus of this research would be to evaluate taxation policies, particularly as they are implemented in the New York – New Jersey region, and their relative effects on the various freight modal carriers. How might taxation policy be changed to foster more integrated, intermodal, development? What would be the pros and cons of various kinds of tax changes?

This project should build on past efforts, particularly in New York, to examine the incidence of various taxes on truck operators. It should extend that work by taking an intermodal view, and addressing questions of relative impact of taxation policies on the various modes, probably using an econometric approach. It should also provide guidance on ways of using tax policy to encourage effective intermodal operations.