

PLANNING MANAGEMENT DESIGN POLICY LAND USE



annual report fiscal year 2000 - 2001  
university transportation research center - region 2

# UTRC



ENGINEERING GIS ENVIRONMENT ITS OPERATIONS EDUCATION



[www.utrc2.org](http://www.utrc2.org)

The preparation of this report was funded by the Research and Special Programs Administration of the U.S. Department of Transportation. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

PLANNING MANAGEMENT DESIGN POLICY LAND



University Transportation  
Research Center

Building Y, Suite 220

The City College of New  
York, New York, NY 10031

Phone 212.650.8050

Fax 212.650.8374

[www.utrc2.org](http://www.utrc2.org)

ENGINEERING

GIS

ENVIRONMENT

ITS

OPERATIONS

EDUCATION

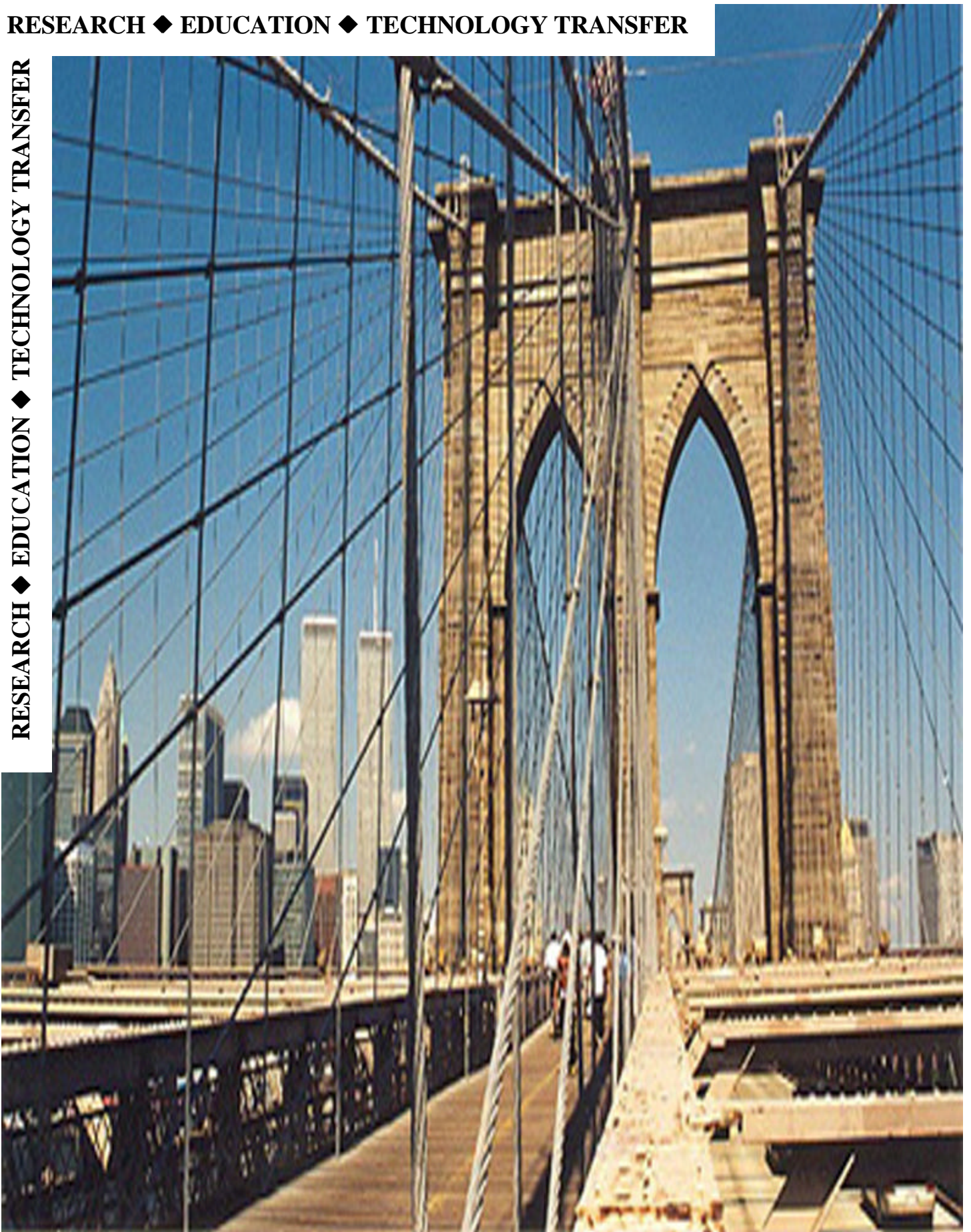
**University  
Transportation  
Research Center  
Region 2**

**Annual Report**

**Fiscal Year  
2000 - 2001**

RESEARCH ♦ EDUCATION ♦ TECHNOLOGY TRANSFER

RESEARCH ♦ EDUCATION ♦ TECHNOLOGY TRANSFER



# FISCAL YEAR 2000 - 2001

## Table of Contents

- ◆ *Message from the Chairman and the Director* ..... 6
- ◆ *Theme* ..... 8
- ◆ *Staff* ..... 10
- ◆ *Management Structure* .... 12
- ◆ *Member Universities* ..... 14
- ◆ *Financial Report* ..... 18
- ◆ *Research* ..... 20
- ◆ *Education* ..... 28
- ◆ *Technology Transfer* ..... 32

# FISCAL YEAR 2000 - 2001



John Faloccochio

## Chairman's Message

◆ This annual Report details the progress  
◆ made by UTRC in the past year. As a con-  
◆ sortium of twelve major Academic Institu-  
◆ tions, UTRC draws upon a broad set of  
◆ disciplines and professional experience.  
◆ To the more traditional engineering disci-  
◆ plines, UTRC adds management, public  
◆ policy, psychology and behavior, political  
◆ science, GIS, planning, architecture and  
◆ urban design.

◆ Over the past thirteen years, UTRC has  
◆ served Region 2 in strong and positive  
◆ ways. These are seen in the tremendous  
◆ variety of projects done for a number of  
◆ sponsors - a market study for a proposed  
◆ new regional ferry, commuter stress and  
◆ mode choice or new freight models. The  
◆ strength of UTRC is seen through the pro-  
◆ fessionals it trains. The many students,  
◆ taking courses or programs in these disci-  
◆ plines, enter into or are promoted upwards  
◆ in careers that address regional transporta-  
◆ tion issues. And a common "success story"  
◆ is from the many students who cite sig-  
◆ nificant career advancement as a reward  
◆ for being engaged in UTRC programs or  
◆ studies. UTRC also plays a leadership and  
◆ integrative role with the many other Insti-  
◆ tutes and centers in the region.

◆ It has been gratifying to serve as Chair-  
◆ man during this period of progress and  
◆ growth and I am proud to present this re-  
◆ port on our many achievements.

**John Faloccochio**

## Director's Message



Robert E. Paaswell

Any message from New York City in Region 2 has been shaped by the dramatic, tragic events of September 11, 2001. We have learned that much of transportation analysis is based on working with trends, or within some ranges of predictability. We could even work with the recent economic boom in Region 2, and look at infrastructure needs for increasingly congested urban areas, sustained suburbanization and auto use, and, more and more, the global links to the region. The attacks of September 11 removed predictability and left us with new types of uncertainty.

The challenges to the transportation professionals of the region are substantial. The first challenge, of course, is to regain the lives and work of those most directly affected - those in the WTC. The second is to be a part of the rebuilding process. And the third, and what the academic community represents most strongly, is to be a part of the continuity and growth of the profession. The University Transportation Centers, collectively, are a place for a more rational discourse of cause and effect, and of action and reaction. We still train and work with the professional community; we articulate and work on the difficult questions; we try to stay locally unbiased in our work.

In Region 2, UTRC is working with a number of groups that will define, or describe or even come to grips with the questions that must be asked that constitute, "what next for lower Manhattan?" The work for this generation of students is profound. It is a little ironic to think that after 50 years of refining and teaching transportation to our students, this generation of students will now have to become the new teachers. Peace.

**Robert E. Paaswell**

## Center's Theme

### “Planning and Management of Regional Transportation Systems”

The transportation systems and the environment in which they operate throughout Region 2 are complex and undergoing rapid change.

The complexity comes from the extent of the Region, and the impact that the nation's largest city has on it. For example, the New York Metropolitan area has over 19 million people, 600,000 businesses and 9 million workers, three major airports, 10,000 miles of highway, one third the nation's transit riders, dozens of marine and intermodal terminals, and over 700 million tons of freight that must be moved.

The Region also serves International borders along the Great Lakes and Northern New York, and in Puerto Rico.

**Planning** today, in Region 2, assumes knowledge of multi-modal and intermodal systems serving both freight and passenger movements. Professionals must address the demands of sustainability and the environment while squeezing more capacity out of aging and costly infrastructure to meet current pressures of economic growth. Planners must also understand why regional stakeholders make implementation of projects time consuming and difficult while the region is characterized by severe congestion and the high costs of moving goods and people. And planners must understand the links between investment needs and funding strategies.



Today's professionals involved with regional infrastructure improvements need to integrate a broad base of disciplines that cut across technology, law, finance, management and consumer behavior.

**Management** today, in Region 2, means knowledge of interaction among complex multi modal systems, budgeting, system operations and performance targets, customer needs, and, when fighting fires stop, a sense of vision of system performance and regional change. Management takes place at every level - from Board Chairpersons to line operators. Managers are called upon to become productive and efficient, to understand their roles in operations and administration, and to help make the complex set of many modes in the region respond to customer needs from a quality perspective in a multi modal fashion.

**Planning and management as a response to change:** Transportation systems serving the Region are being rapidly modernized. The introduction of electronic toll or fare collection has had major impact on the region: 80% of morning commuters over the Tappan Zee Bridge use EZ Pass; introduction of Metrocard on New York subways and buses have generated 1 million new riders per day! New Jersey is building a number of new rail transit lines, using innovative financing. It will need to plan and design new organizations to operate these systems and manage the development they stimulate. Puerto Rico is building a rail system in San Juan; it will force major cultural changes in the traditional *por puesto* - a private cab system.

While modernization involves the integration of new technologies into the modes it also concerns new ways of linking labor and management to operate the systems, new organizational and institutional structures to address multi modal and multi jurisdictional issues, and new means of funding investments - coupled to new means of users paying for the services they receive. Planners and managers need new tools to address such issues.

The examples show that the momentum of change in our systems is well underway; we need to create a momentum toward advanced capability for those who plan and manage these systems.

**The University Transportation Research Center (UTRC) presents unique capabilities to the profession as these changes evolve. A concentration of major universities with capabilities to address such issues: the quantification of environmental impacts (Columbia) and valuation of externalities and congestion pricing (RPI, POLY, Rutgers, SUNY), Intermodal (SUNY, UPR, Cornell), transit operations and reform (CCNY), UTRC, is at the intersection of practice and the entering professional.**

# FISCAL YEAR 2000 - 2001

## Center's Staff



***Dr. Robert Paaswell***  
Director and Distinguished Professor of Civil Engineering, City College of New York



***Darlene Williams***  
Assistant to the Director



***Herbert Levinson***  
Icon Mentor



***Camille Kanga***  
Assistant Director,  
Administration & In-  
formation Technology



***Robert Baker***  
Assistant Director,  
Research



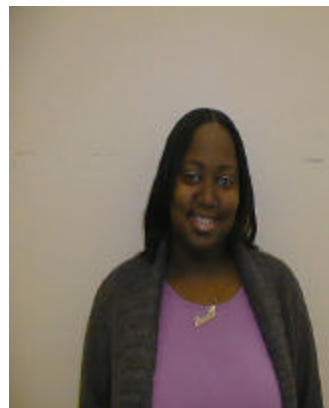
***Dr. Claire McKnight***  
Assistant Director,  
Education & Training



***Dr. Frederick  
Brodzinski***  
Business Manager



***Dr. Joseph  
Berechman***  
Visiting Scholar



***Lashelle Riley***  
Administrative Assis-  
tant

# FISCAL YEAR 2000 – 2001

## Management Structure

UTRC has adopted a corporate style of management. In this style, the UTRC Board provides policy guidelines, and approval of UTRC activities. Dr. Robert Paaswell, Distinguished Professor of Civil Engineering at City College of New York, serves as Chief Executive Officer, overseeing day to day operations and providing a bridge between UTRC policies and the activities and resources used to carry out those policies.

The Board of Directors, chaired by Dr. John Falcochio of Polytechnic University, and conducts its business through a well organized committee structure. The Board (Committee of the whole) reviews Center Objectives and Programs, approves budgets, and reviews and recommends actions forwarded by its two major working committees.

The two committees, Research and Technology Transfer, chaired by Dr. Ali Maher of Rutgers University, and Education and Training, chaired by Dr. Neville Parker of City College, are the working hearts of the Board. Each is responsible for developing the yearly program of activities, overseeing the selection of projects, and recommending to the full Board the programs of projects commensurate with the budget



# FISCAL YEAR 2000 - 2001

## Member Universities



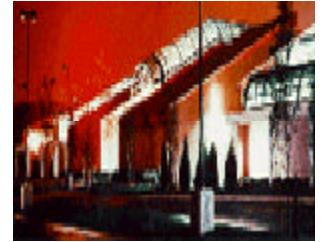
**City University of New York**  
The City University of New York (CUNY), situated in one of the world's pre-eminent cities, is the largest urban university in the United States and its third-largest public university system. Some 200,000 students are enrolled for degrees on 20 campuses in all five boroughs of New York City. Another 150,000 students take adult and continuing education courses.



**Rensselaer Polytechnic Institute**  
The Center for Infrastructure and Transportation Studies provides a focal point for campus research addressing the world's infrastructure and transportation needs. More than 30 faculties over 15 departments and each Rensselaer's five schools participate in the research of the Center.



**Princeton University**'s program in transportation is an interdisciplinary program offered jointly by the School of Engineering and Applied Science and the Woodrow Wilson School of Public and International Affairs.



**Dowling** Housed at the Brookhaven Center, Dowling College's School of Aviation & Transportation is a nationally recognized leader in aviation education, as well as a pioneer in the field of intermodal transportation.



**State University of New York**  
**Maritime's** graduate program offers instruction in transportation management.

**Stony Brook's** graduate programs lead to degrees in applied mathematics and statistics, computer science, electrical engineering, material science and engineering, and mechanical engineering.



**Cornell University** offers a Master of Civil Engineering Program (usually a ten course curriculum) designed to prepare students for professional practice. There are two options in this program: one in civil and environmental engineering design and one in engineering management. Both options require a broad based background in an engineering field.



**Columbia University**  
 Through its broad range of innovative multidisciplinary programs, and through the earnest exploration of difficult questions, Columbia provides students from the United States and around the world with the depth of understanding and intellectual flexibility they need to respond to the challenges we all will face in the years to come.



**New York University**  
 Center for Transportation Policy and Management conducts research and education in the field of transportation policy and management, with particular emphasis on urban transportation issues. The Center has an extensive program for transportation managers and professionals.



**Polytechnic University** - The Urban Intelligent Transportation Center was established by New York City Department of Transportation to promote the use of ITS technologies that enhance the operational efficiency of City services, better serve customer travel needs, and improve the City's quality of life.



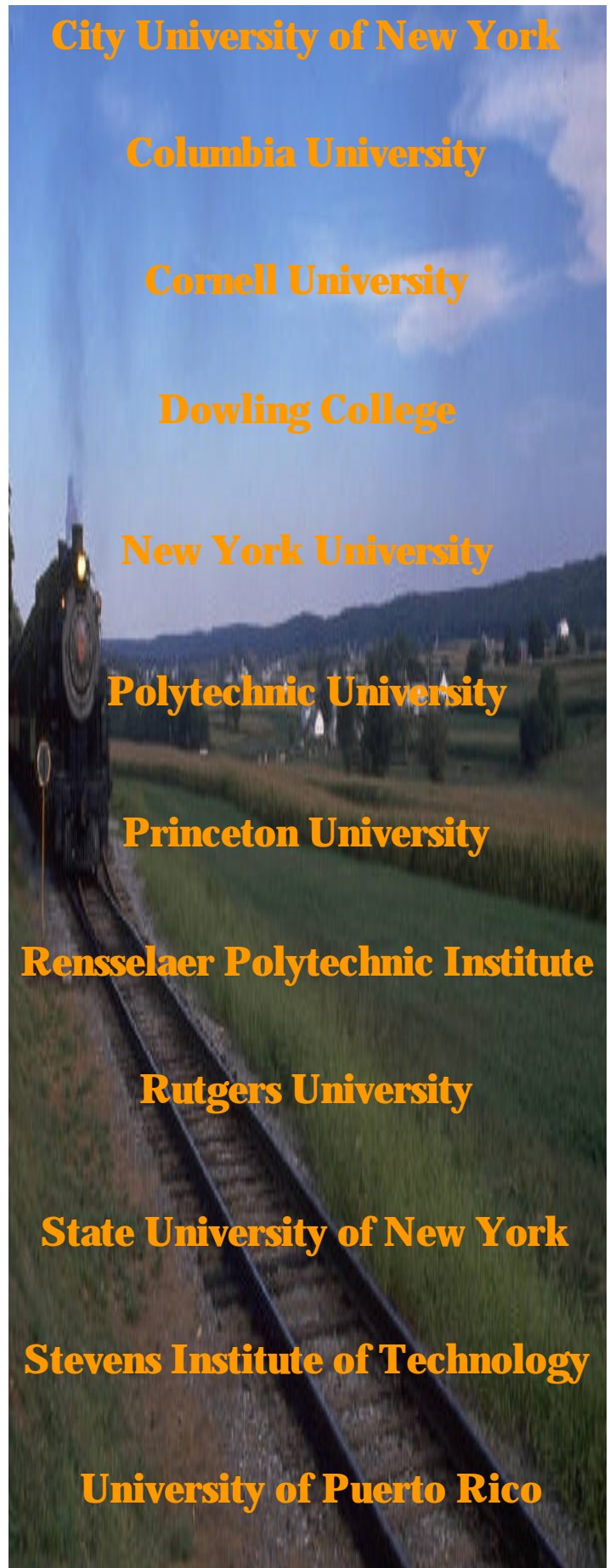
**Rutgers, The State University of New Jersey** programs of graduate study leading to the Masters of Science and Ph.D. degrees may be arranged in a wide variety of areas. The fields of specialization may include structural analysis and design, computational mechanics, structural reliability, or structural optimizations., et el.



**University of Puerto Rico** offers a five year degree of Bachelor of Science in Civil Engineering, and programs leading to the degrees of Masters of Science, and Doctorate of Philosophy. Students specialize in Structural, environmental/water resources, soils or transportation engineering.



**Stevens Institute of Technology**  
 Major areas of current faculty research include soil structure interactions, soil mechanics and deep foundation systems, advanced oxidation of hazardous wastes, transport of nonaqueous phase liquids in the subsurface.



# FISCAL YEAR 2000 – 2001

## Member Universities

The Consortium brings to the Center a rich and extensive diversity of talented faculty. It also allows the Center to address regional issues from a local perspective and simultaneously to employ the most qualified experts in the region on any given issue. The majority of all research projects are joint ventures involving two or more member institutions.

The UTRC Board of Directors, which meet bi-annually, consists of one member and one alternative from each Consortium school. The Center Director is an ex-officio member of the Board and The Center management team serves as staff to the Board. The City University of New York, through its Research Foundation, is the formal contractor for the grant.



## UTRC Board of Directors

***Neville Parker, Ph.D.***

*City College of New York, New York*

***Arthur Lerner-Lam, Ph.D.***

*Columbia University, Earth Center, New York*

***Jack W. Lowe***

*Cornell University, New York*

***Roy Sparrow, Ph.D.***

*New York University, New York*

***John Falocchio, Ph.D., Chairman***

*Polytechnic University, New York*

***Allen J. Sinisgalli, Ph.D.***

*Princeton University, New Jersey*

***George List, Ph.D.***

*Rensselaer Polytechnic Institute, New York*

***Ali Maher, Ph.D.***

*Rutgers University, New Jersey*

***Shmuel Yahalom, Ph.D.***

*State University of New York, Maritime, New York*

***Herbert Herman, Ph.D.***

*State University of New York, Stony Brook, New York*

***Henry Dobbelaar, Jr., Ph.D.***

*Stevens Institute of Technology, New Jersey*

***Benjamin Colucci, Ph.D.***

*University of Puerto Rico, Puerto Rico*

***Robert Paaswell, Ph.D.***

*Executive Director*

The transportation systems that serve UTRC Region 2, both multimodal and inter-modal must serve the customers and stakeholders within the region and globally.



# FISCAL YEAR 2000 - 2001

## Financial Report

The chart at right summarize the UTRC revenues and expenditures for FY 2000 - 2001. The University Transportation Research Center Region 2 budget totaled \$1,680,033 in 2000-2001.

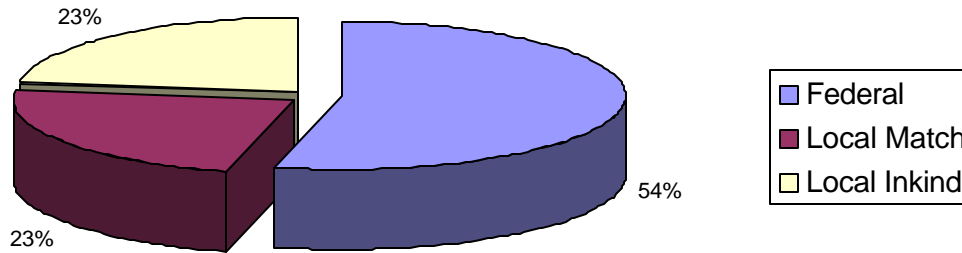
This year, the annual federal grant allocated to programs represents 54 percent of the total budget.

UTRC's longtime partners, New Jersey Department of Transportation, New York State Department of Transportation, and the Port Authority of New York & New Jersey provided a combined 23 percent of the budget in 2000-2001.

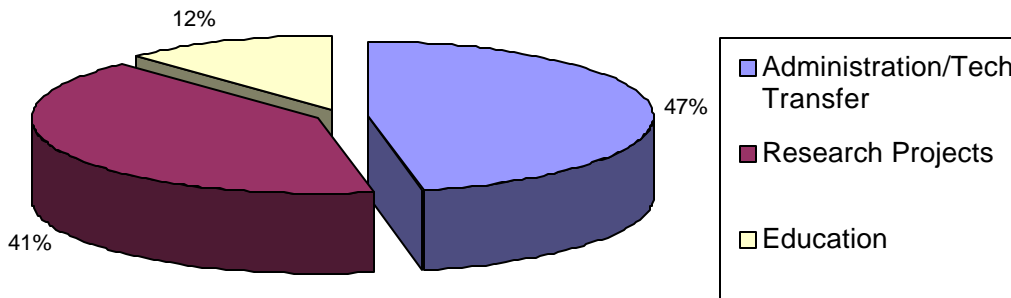
UTRC's In-kind funds from university members and agencies were 23 percent of the total budget.

The share of funds allocated among expenditure categories remained relatively constant with the previous fiscal year. UTRC allocated 41 percent of its total budget to research projects. Almost half of the annual budget (47 percent) was used for salary, fringe, operating expenses required for Central Staff to carry out administrative and technology transfer programs. The remaining 12 percent of the budget is provided for the Advance Institute for Transportation Education.

### FY 2000-2001 Revenues



### FY 2000-2001 Expenditures



**UTRC currently operates on an annual joint grant from the Federal Highway Administration and the Federal Transit Administration that is matched with funds from state, local, university, and private sources. The Center is administered through U.S. DOT's Research and Special Programs Administration.**

# FISCAL YEAR 2000 - 2001

## Research Projects

The objective of the research program is to develop an agenda that is responsive to the problems addressed by regional organizations and stakeholders, and to conduct that program in close cooperation with these partners, developing means of rapid dissemination of results.

The program includes both peer reviewed studies as well as targeted, short term projects. All have one fundamental characteristic: they are conducted by teams of faculty and students, and bring current thinking and state of practice approach to the problems.

Each of the studies incorporate the latest analytic tools and theories. Sponsors can evaluate competitive proposals to insure the most responsive UTRC team conducts the work. Research work spills over directly to the classroom. For example, a project for New Jersey DOT involves the use of a complex land use transportation model. The inventor of the model was invited to UTRC to present a series of classes on all aspects of designing, using and interpreting the model. The class was attended by a large group of students, as well as faculty and staff from transportation agencies.

The program includes both studies that are identified with research partners of projects targeted to the theme, and targeted, short-term projects. The program develops competitive proposals, which are evaluated to insure the most responsive UTRC team conducts the work.

Under the current grant, the new research projects and the ongoing research projects concentrate the program efforts on the categories of Transportation Systems Performance and Information Infrastructure to provide needed services to the New Jersey Department of Transportation, New York State Department of Transportation and the Port Authority of New York and New Jersey while enhancing the center's theme.



**The research program is responsive to the UTRC theme**

# FISCAL YEAR 2000 - 2001

## Research Projects

### New Research Projects

During the fiscal year October 1, 2000 to September 30, 2001, the following new UTRC research projects are listed and are funded under the current USDOT grant:

**Project No: 49777-11-02**

**Title:** Characteristics of Traffic Flow in 55 & 65 MPH Speed Limits

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Raghavan Srinivasan, Ph.D., Assistant Professor, Dowling College

**Project No: 49777-07-02**

**Title:** Analysis of Human Factors in Nighttime Work Zones

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Jose Holguin-Veras, Ph.D., Assistant Professor, City College of New York

**Project No: 55657-01-13**

**Title:** Benefits Package Value

**Performing Organization:** New York State Department of Transportation

**Sponsors:** United States Department of Transportation & New York State Department of Transportation

**Principal Investigator:** Frederick Brodzinski, Ed.D, Associate Director, Institute for Transportation Systems, City College of New York

**Project No: 49777-12-02**

**Title:** ITS Operation Support Contracts - Phase 1

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Hualiang Teng, Ph.D., Assistant Professor. Polytechnic University

**Project No: 49777-13-02**

**Title:** Intermodal Productivity and Goods Movement - Phase 3

**Performing Organization:** Port Authority of New York & New Jersey

**Sponsors:** United States Department of Transportation & Port Authority of New York & New Jersey

**Principal Investigator:** Shmuel Yahalom, Ph.D., Associate Professor, SUNY Maritime College

**Project No: 75144-01-02**

**Title:** Evaluation of the Performance of Retroreflectors in Snowplowable Raised Pavement Markers

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Neville A. Parker, Ph.D., Director, Institute for Transportation Systems, City College of New York

**Project No: 49777-15-02**

**Title:** Developing Data Resources for the 21<sup>st</sup> Century: Urban Applications of Geographic Information Systems

**Performing Organization:** New York State Department of Transportation

**Sponsor:** United States Department of Transportation

**Principal Investigator:** Catherine Lawson, Ph.D., Assistant Professor, SUNY, University at Albany



# FISCAL YEAR 2000 - 2001

## Research Projects

### Ongoing Research Projects

The following projects were initiated during the first year current grant, which began in October 1999. This research work is ongoing and active.

**Project No: 75144-01-01**

**Title:** New Jersey Link to the 21<sup>st</sup> Century: Maximizing the Impact of Infrastructure Investment - Phase 2

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Robert E. Paaswell, Ph.D., Director and Distinguished Professor of Civil Engineering, University Transportation Research Center, City College of New York

**Project No: 75144-04-01**

**Title:** Evaluation of the Effectiveness of the Graduated Driver Licensing System in New Jersey - Phase 1

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Raghavan Srinivasan, Ph.D., Assistant Professor, Dowling College



**Project No: 75144-06-01**

**Title:** Analytical Tool for Measuring Emission Impact of ACCEL/DECEL Lanes

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Hualiang Teng, Ph.D., Assistant Professor, Polytechnic University

**Project No: 75144-07-01**

**Title:** Crosswalk Safety: Evaluation of the LightGuard System - Phase 2

**Performing Organization:** New Jersey Department of Transportation

**Sponsors:** United States Department of Transportation & New Jersey Department of Transportation

**Principal Investigator:** Peter Boyce, Ph.D., Assistant Professor, Rensselaer Polytechnic Institute

**Project No: 55332-01-02**

**Title:** An Assessment of Methodological Alternatives for a Regional Freight Model in the NYMTC Region, Phase 2

**Performing Organization:** New York Metropolitan Transportation Council

**Sponsor:** New York Metropolitan Transportation Council

**Principal Investigator:** Jose Holguin-Veras, Ph.D., Assistant Professor, City College of New York

**Project No: 58635-01-02**

**Title:** Development of Bus Maintenance Information

**Performing Organization:** New York City Transit

**Sponsor:** New York City Transit

**Principal Investigator:** Mohsen Jafari, Ph.D., Professor, Department of Industrial Engineering, Rutgers University



# FISCAL YEAR 2000 – 2001

## Research Projects

### Completed Research Projects

The following project has been completed during this grant year.

**Project No:** 75150-00-01

**Title:** NYCDOT Green Bus Lines Route Analysis

**Performing Organization:** New York City Department of Transportation

**Sponsors:** United States Department of Transportation & New York City Department of Transportation

**Principal Investigator:** Claire McKnight Ph.D., Associate Professor, Civil Engineering, City College



# FISCAL YEAR 2000 - 2001

## Education & Training

The objective of the UTRC Education and training program is to train students and provide advanced or re-training of practitioners to plan and manage regional transportation systems.

To achieve this objective, UTRC concentrates on both the tools of education and the ways of delivering the programs to a diverse group of future and practicing professionals. One aspect of UTRC's program is to reach out to under represented minorities, women, and others to whom transportation was an unthought of or unattainable career choice. UTRC has a history of training and educating such students, who have gone on to great rewards in their careers.

## **Advanced Institute for Transportation Education ( AITE)**

The Advanced Institute for Transportation Education (AITE) provides fellowships to Master's level students in transportation programs at Region 2 consortium schools. The fellowships may be used for either a traditional civil engineering transportation program or in related fields, such as urban planning or public administration. The program is aimed at two types of students: the recent bachelor degree recipient who has not yet started a transportation job (termed a "full time student") and the working transportation professional who wants to enrich their transportation expertise. Besides free tuition and a stipend, the full time students have the opportunity to work on a major research project under a faculty mentor; some of the research projects are listed below. The scholarship for full time students lasts for three semesters.

For the transportation professionals, the UTRC AITE coordinator works closely with agency coordinators at the major regional transportation agencies to promote the AITE program, to target those employees who can most benefit, and to ensure a smooth application process. Each agency employee must have their supervisor sign off on the application to minimize conflicts between job and school responsibilities and to encourage the agencies to benefit from the program, for instance, by having the students do master's projects on topics of interest to the agency. The employee/students receive free tuition and paid time off from work for four semesters.

In the 2000-2001 academic year, UTRC received 25 applications for AITE Graduate Scholarships. Awards were made to six students and three agency employees. One of the students had turned down the scholarship in favor of accepting a full time job.

The ten scholars from the previous year was reduced to nine because one of them decided to attend a different (non-UTRC) school. The remaining nine are making good progress toward their degrees.

### **Undergraduate Program in Transportation**

**The University Transportation Research Center and the Institute for Transportation Systems at the City University of New York developed the undergraduate program in transportation education in the early 1990's, with the objective of encouraging undergraduates, especially women and minorities, to pursue studies in transportation, planning, urban affairs and economic development.**

The program is available to both students currently matriculated at a college or university, in an Associates or Bachelors degree program, as well as transportation agency/industry employees who demonstrate an interest in furthering their education. Scholarships are earmarked in amounts up to a maximum of \$2,500. Scholarship recipients must include internships, and research assistantships as well as course work in their programs of study, and are awarded pro-rated payments from the overall award when they achieve grades of B+ or higher in those studies.

## 2000 UTC Outstanding Students of the Year Awards



**Ellen Thorson** received her master's degree in Civil Engineering from the City College of New York, CUNY in June 2000. She is now a student of the doctoral program of Civil En-

gineering at the Graduate School of the City University of New York.

As a Research Assistant at the University Transportation Research Center, Ellen is working on a number of major projects dealing with freight transportation modeling.

Ellen has won many scholarships since starting at the City College of New York including the Advanced Institute for Transportation Education Graduate Scholarships from UTRC, the Helene Overly Graduate Runner-up Scholarships from New York Metropolitan Seminars. She is a recipient of the Eisenhower Fellowships.

The 10th Annual Outstanding Student of the Year Awards ceremony took place in January during the Transportation Research Board (TRB) 80th Annual Meeting in Washington, DC. For the past nine years, DOT has honored the most out-



standing student from each UTC at a special ceremony held during TRB Week.

Each student received a certificate presented by the Deputy Secretary and \$1,000 from his/her UTC.

Traditionally, all awardees have been affiliated with the UTC program administered by the Research and Special Programs Administration, with funding from the Federal Highway Administration and Federal Transit Administration. This year, in the spirit of "One DOT", the Department for the third time also honored an awardee from the Federal Aviation Administration's Air

# FISCAL YEAR 2000 - 2001

## Technology Transfer

UTRC goes far beyond what might be considered "traditional" technology transfer activities. The Center has designed its Technology Transfer activities to be far reaching and responsive to the needs of both practicing professionals and interested citizens.



## Visiting Scholar Seminar Series

The UTRC Visiting Scholars Seminar (VSS) series continues to be one of the regions most repeatedly and well attended programs, and brings cutting edge scholars and practitioners of national and international influence to present talks before large audiences of regional professionals and lay people.



## Globalization's Impacts on Regional Economic Competitiveness: Infrastructure and Institutional Challenges for the 21st Century"

*by Dr. Dennis A. Rondinelli, Director of the Center for Global Business Research, University of North Carolina at Chapel Hill, November 17, 2000*

The economies of metropolitan regions are being reshaped by relentless globalization, driven by expanding international trade and investment and rapid changes in transportation, telecommunications, and digital technologies. Globalization will change the way business compete and metropolitan areas must nurture, retain and attract competitive economic activities in the 21st century. The economic growth of metropolitan regions will depend on the ability of business and governments to create the infrastructure and institutions capable of responding to the needs of competitive organizations in an increasingly global and digital marketplace.

New forms of transportation, telecommunications and their logistics infrastructure will be needed in the 21st century to allow metropolitan regions to continue to play their historically crucial role as hubs of economic interaction. New and revitalized social and political institution will be needed to enable their residents to participate effectively in and benefit from globalization in the future.

# FISCAL YEAR 2000 - 2001

## Technology Transfer

Dr. Rondinelli described the forces driving globalization and analyzed the trends affecting the competitiveness of metropolitan economies. He assessed the factors that contribute to the ability of metropolitan regions to develop the conditions needed to remain competitive in the "new economy" and the types of transportation and physical infrastructure and social institutions that are likely to contribute to making regions more competitive in an era of globalization.

Dr. Rondinelli is the Glaxo Distinguished International Professor of Management, Kenan-Flagler Business School, and Director of the Center for Global Business Research, at the Frank Hawkins Kenan Institute of Private Enterprise, University of North Carolina at Chapel Hill.

Dr. Rondinelli does research on international business, economic development policy, corporate environmental management, and private enterprise development. He has carried out research in North America, Asia, Central Europe, Latin America, and Africa. He has authored or edited 16 books and published more than 200 book chapters and articles in scholarly and professional journals.

## Transportation Costs to the American Public and Land Use Patterns

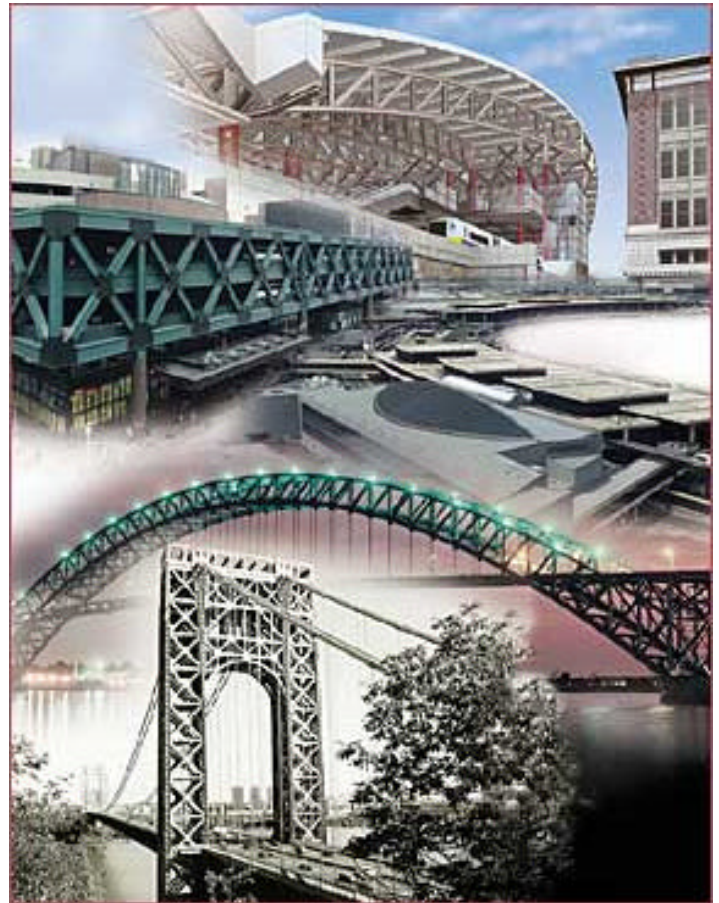
by Sarah C. Campbell, President of TransManagement, Inc., January 19, 2001

Transportation Costs to the American public increases when certain land use patterns are effected.

Ms. Campbell discussed the consequences for individual wealth and regional economies of our current transportation choices and land use patterns. She also reviewed the nature of the data on which we are relying to make our policy decisions regarding transportation and land use and propose policy options to consider in addressing the economic and social effects of current transportation and land use trend.

Ms. Campbell is president of TransManagement, Inc. She has over twenty years of professional experience in the transportation field and has worked at all levels of government. Ms. Campbell's career has included overseeing planning of major capital improvement programs and developing public policies for transportation programs that encourage strong community roles.

Prior to joining the firm Ms. Campbell served as founding director of the Surface Transportation Policy Project, a public interest coalition that united for the first time a broad range of transportation, environmental, design, business, and planning interests on national transportation policy issues.



## Technology Transfer

### Using Archived ITS Data to Improve Transit Operations

by *Steve Callas*, Coordinator of Service and Performance Analysis within Tri-Met's Transportation Planning Department, June 29, 2001

Urban transit service providers are turning towards Intelligent Transportation System (ITS) technology in an effort to better manage bus operations in the face of growing traffic congestion and passenger demands for more reliable service. However, very few transit agencies are taking advantage of the large amounts of archived data that these systems provide.

Recently, Tri-Met, the regional transit agency in Portland, Oregon, installed a technologically advanced bus dispatch system (BDS) which utilizes a GPS based automatic vehicle location system. Besides providing real time information to dispatchers, the system is used to collect and archive an enormous amount of data related to bus operations.

**More than 60 percent of Tri-Met's 700 buses are equipped with automatic passenger counters (APCs) which adds stop level boarding and alighting information.**

The presentation focused on the various types of data Tri-Met is collecting and the unique and different ways the information is being used to improve transit operations and performance.

Steve Callas is the Coordinator of Service and Performance Analysis within Tri-Met's Transportation Planning Department, where he is responsible for operations performance measurement and ridership analysis. Mr. Callas is also involved in various transit operations research projects in conjunction with TransNow and Portland State University.

Steve has a Master's in Urban and Regional Planning from the University of Iowa and has been with Tri-Met for about 4 years. Prior to joining Tri-Met, Mr. Callas worked as a consultant, specializing in transportation economics and planning.



## Technology Transfer

### The New Transportation Professional

by *Dr. Joseph M. Sussman, Professor of Civil and Environmental Engineering and Engineering Systems, Massachusetts Institute of Technology, April 27, 2001*

While the field of transportation is a venerable one, recent years have seen substantial changes. A variety of new technologies have presented opportunities and challenges for the transportation field. Further, economic forces such as the global economy and regional competitiveness added to the complexities of issues transportation professionals face. Also, environmental and other resource constraints have created yet another layer of requirements for the transportation system of the future.

All of this suggests the need for a new generation of transportation professionals, who can deal with issues of technology, systems and institutions in an effective and imaginative way. This talk focused on the capabilities the new transportation professional must have, how that person can be educated by our nation's universities and challenges that organizations and institutions in the public and private sector face in effectively utilizing the capabilities of such individuals. Examples from fields such as intelligent transportation systems and high-speed ground transportation were used to illustrate the concepts described above.

Dr. Joseph M. Sussman is the JR East Professor in the Department of Civil & Environmental Engineering & the Engineering Systems Division at MIT, where he has served as a faculty member for 33 years. He is the author of "Introduction to Transportation Systems", a graduate text published in 2000 by Artech House of Boston and London. Dr. Sussman specializes in the study of "Complex, Large-Scale, Integrated, Open Systems" (CLIOS), working in many applications areas. His research in railroads focuses on service reliability, rail operations, maintenance, high-speed rail (HSR), and risk assessment; he has had a major impact on the railroad industry, and has several prize-winning papers.

He currently participates in the Mexico City project on transportation and the environment, the Lean Sustainment Initiative, dealing with the U.S. Air Force's maintenance and distribution system, the NSF Mid-America Earthquake Center, working on vulnerability of transportation networks to earthquakes, and MIT's Cooperative Mobility Program. Dr. Sussman writes a column entitled "Thoughts on ITS" for the ITS Quarterly, and was the program chair of the ITS America Annual Meeting in 2000.



## Technology Transfer

### Land Use, Transportation and the New Economy

by *Dr. Genevieve Giuliano*, School of Policy, Planning and Development, University of Southern California, March 16, 2001

The increasing use of information and telecommunications technologies (ICTs) and globalization are having dramatic impacts on patterns of metropolitan growth, urban form, and transport demand. While the “ICT revolution” has been underway for almost three decades, the productivity gains and accompanying economic expansion of the past decade have accelerated the rate of change associated with the “New Economy.” The rapid advancement and diffusion of ICT technologies have both changed the structure of economic production and the nature of what is produced. These changes have in turn had profound effects on the nature of work, location of firms, and transport demand across all modes.

This seminar began with a brief overview of the “ICT revolution,” describing why its effects have been so profound. The second section discussed the theories and evidence regarding impacts on urban growth patterns and metropolitan form. The third section addressed impacts on transport demand. The seminar was concluded with a discussion of implications for metropolitan planning.



Genevieve Giuliano is a Professor in the School of Policy, Planning, and Development, University of Southern California. Her research interests include: relationships between land use and transportation, transportation policy evaluation, and impacts of information and communications technology on transportation and travel behavior. Recent research projects include impacts of changes in the organization of work on commuting and location patterns, mobility patterns of low income and minority households, and international comparisons of metropolitan growth and travel patterns.

Professor Giuliano has an extensive publication record. She serves on the editorial boards of Urban Studies and Journal of Transport Statistics, is a member of the Executive Committee of the Transportation Research Board, and a former member of the Executive Committee of the Association of Collegiate Schools of Planning. She is a regular participant in National Research Council special studies, and is currently on the Committee for Evaluation of the CMAQ Program.



# FISCAL YEAR 2000 - 2001

## Technology Transfer

### **NJDOT's Second Annual Research Showcase**

The second Annual Research Showcase, held at the New Jersey Performing Arts Center (NJPAC) at Newark on November 8, 2000, attracted transportation professionals from across the region. The conference, which was organized by the Division of Research and Technology of the New Jersey Department of Transportation (NJDOT), and hosted by the National Center for Transportation and Industrial Productivity (NCTIP), featured speeches and presentations by local officials and transportation experts on a variety of issues. The forum offered attendees the opportunity to discuss the latest transportation technologies and research. This year's theme was "Turning Problems into Solutions".

Dr. Saul K. Fenster, President of New Jersey Institute of Technology (NJIT), host of NCTIP, welcomed over 200 attendees.

Mr. Bill Hoffman, Director of the Division of Research and Technology of NJDOT, emphasized the significance of the relationship his department has with the three transportation research centers. He insisted on the importance of the rich resources offered by universities and encouraged other state departments of transportation to partner with Transportation Research Centers to find solutions for their transportation problems.



Mr. Nicholas Vitillo, Manager of the Bureau of Research of NJDOT, thanked all participants and addressed the commitment of his department to continue to enhance the partnership with the three transportation centers.

As Keynote Speaker, Mr. Robert Skinner, Executive Director of The Transportation Research Board addressed current issues that transportation professionals face and discussed national travel trends in the new millennium. Honorable James Weintin, Commissioner, NJDOT, Mr. Dennis Merida, District Administrator, FHWA, Honorable Diane Allen, Vice Chair, Senate Transportation Committee, and Honorable Alex De Croce, Chair, Assembly Transportation Committee, addressed the attendees.



The conference showcased research projects currently done by the transportation research center in the region. Dr. Robert E. Paaswell, Director of UTRC, led UTRC team presentation that covered its mission, the technology transfer and education programs, and the capability of the center in Geographic Information System and Transportation Modeling.



UTRC will host the third Annual Research Showcase on October 12, 2001 at Princeton University.

**Clean Fuels in  
Northern Manhattan**

In collaboration with the West Harlem Environmental Action, Inc., New York Metropolitan Transportation Council and the US Environmental Protection Agency - Region 2, UTRC has hosted the Clean Fuels in Northern Manhattan Conference on May 4th, 2001 at the City College of New York.

Manhattan Borough President, Honorable C. Virginia Fields delivered the key note address.

The morning program addressed the issues of air pollution in the region caused by motor vehicles and the relationship with public health and quality of life, while adding to the cost of living and doing business in our communities. The afternoon sessions consisted of panel discussions with perspectives from vehicle manufacturers and clean fuel providers to address the issues of fuel availability and technical aspects of using alternate fuels.

Fuels Providers and Original Equipment Manufactures and presenters were available throughout the display area to answer questions. Alternate fuel vehicles were available for demonstrations and viewing onsite throughout the day.



# FISCAL YEAR 2000 - 2001

## Technology Transfer

### ◆◆◆ First Annual Transportation / Academic Research Forum

◆◆◆ The FHWA Universities and Grants Programs sponsored the First Annual Transportation/Academic Research Forum from June 25-27, 2001 in Washington, D.C.

◆◆◆ The objective was to provide a forum of University and FHWA Researchers to exchange information and to strengthen the relationship among and between these researchers.

◆◆◆ The Forum involved the researchers in addressing research priorities and workforce issues of the national transportation industry. The Forum included: Training, Education and Research Programs; Meeting the 21st Century Workforce Needs; Safety Research Technology; Institutional Partnership Opportunities; University Transportation Centers; Growth and Demand of Cross Disciplines in Research Technology. Also, the program included guided laboratory tours, demonstrations and workshop sessions at the Turner Fairbank Highway Research Center. Approximately 150 participants participated in the Forum.

The Region 2, University Transportation Research Center participated in a forum panel discussion on University Transportation Centers and presented the Center's theme, objective and research and education program. The presentation emphasized the center's services as the regional source for preparing new professionals for the twenty first century transportation workplace, and provides the tools and environment for practicing professionals, and key stakeholders to understand and address critical problems as they plan and manage the region's complex transportation systems.



**The mission of the FHWA's Universities & Grants Programs (U&GP) is to attract the Nation's brightest minds to the field of transportation by providing both students and faculty at the Nation's colleges and universities with opportunities to expand and deepen their understanding of transportation-related fields and to retain top talent in the transportation industry of the United States.**



### Summer Transportation Institute

The CUNY Institute for Transportation Systems conducted its Summer Transportation Institute (STI) program from July 9, to August 4, 2001 with twenty-two (22) students, six (6) of them returning students (Interns), from a cross-section of schools across New York City.

This year marks the sixth year that the program is being hosted at the City College. The internship component is unique to the program at CCNY and was introduced in 1997 as a mechanism of student tracking and sustaining student interest. In April 2000, CCNY received a meritorious award from FHWA for furthering the motives of the program by incorporating the Internship Component.

#### Program Objectives

- ◆ Stimulate student interest in a career in the field of transportation at the secondary education level.
- ◆ Provide students with academic and technological enrichment to assist them in the pursuit of a career in the transportation industry.
- ◆ Sustain motivation among students towards transportation careers



## Program

To achieve these objectives, the Institute has developed two (2) separate components: The first or the primary component consists of a curriculum that combines academic instruction, hands-on activities, and field trips to transportation related sites. The second component is an internship program.

**Primary Component:** With intermodalism over multimodalism as a common theme and, using the various New York City's transportation networks for illustrations, the students engaged in a range of topics that included studies of land, air, and water transportation; transit planning and operations; intelligent transportation systems and traffic control; archives and history; highway and rail construction; transportation safety; and environmental impacts. There were field trips to various sites.

In addition, the Institute held computer workshops to train the students on transportation research, web page design and basic Windows System skills. Oral communication is emphasized during the entire program and the students made slide presentations using PowerPoint and/or transparencies.

**Internship component:** This component coincides with the existing program, and is open only to previous Institute graduates. During the first week, the interns attend a rigorous orientation program conducted by Dr. Parker, the Program Director. Four days per week over a four week period the students serve on internship at a station that specializes in transportation engineering design, construction or supervision.

On the fifth day, interns met at the ITS office to share their experiences and engaged in various activities which included resume writing, college and career guidance, and developing job-related skills and research. Six (6) previous STI graduates returned to participate in the intern program. Intern placements included positions at Urbitran Associates, CUNY-ITS; Gandhi Engineering; and UTRC/Region 2.

## Funding & Participation

Funding support for the STI was provided by the FHWA, New York City Transit (NYCT), the City University of New York (CUNY), the University Transportation Research Center/Region 2 (UTRC), and Jackson & Tull. Strong support in the form of participation was also received from many agencies including the FHWA Office in NYC, New York City Department of Transportation (NYCDOT), New York State Department of Transportation (NYSDOT), and the Metropolitan Transportation Authority (MTA), Dowling College and SUNY-Maritime College.

**Icon Mentor Program**



Region 2 is rich in professionals who have devoted their careers towards advancing transportation theory and practice. Each year, the University Transportation Research Center

will select one of these persons to serve as its Consortium wide mentor. He/she will be available throughout the year to meet with students, and faculty at each consortium institution and literally, give out pearls of wisdom.

For the past two year UTRC selected Herbert Levinson, a member of the National Academy of Sciences to serve as this year's icon mentor. Herbert Levinson is considered to be one of the fathers of modern transportation planning and has extensive knowledge of transportation activities and operations throughout the world.

Herb is a planning innovator and member of NAE. He is also one of the major leaders and innovators in modern transportation planning. His knowledge about technique, practice and projects is without parallel. Herb is an invaluable resource to the region.

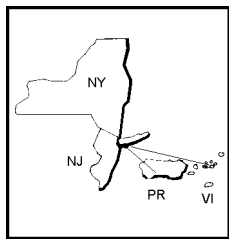
## UTRC's Website

The University Transportation Research Center Region 2 maintains a Website at <http://www.utrc2.org> which contains a comprehensive overview of the center's objectives, purposes and functions for planning and management of regional transportation systems.

The Website serves as an information tool for those transportation agencies that are interested in the Center's Research activities and as a bulletin board for students who are interested in pursuing transportation research studies toward advanced degrees.

The Website is a focal point for updated information presented in an accessible format which is visually pleasing and logically navigable.

The screenshot shows the Netscape browser window displaying the UTRC website. The browser's address bar shows the URL <http://www.utrc2.org/>. The website's main heading is *...Planning and Management of Regional Transportation Systems...*. The central content area features a collage of transportation-related images (Statue of Liberty, bridges, highways, city streets) with the text **University Transportation Research Center** overlaid. To the left is a vertical navigation menu with buttons for Home, About us, Research, Education, Tech. Transfer, and Events, along with a link to UTRC's Theme & Strategic Plan. To the right are promotional banners for the NJDOT 3rd Annual Research Showcase and the UTRC Research Conference. A logo for UTRC SEARCH ENGINE is also present. At the bottom left, a notice states: "This site was last updated on September 5, 2001. Please, send comments and suggestions to [Camille Kamga](mailto:Camille.Kamga)". A navigation bar at the bottom contains links: [Home] [About us] [Research] [Education] [Tech. Transfer] [Events]. The Windows taskbar at the bottom shows the Start button, several open applications (Exploring, utrc2.org, UTRCAnnu..., untitle - Pa...), and the system clock at 3:04 PM.



University Transportation Research Center - Region 2