Our region is in the midst of facing some truly tough choices – how to select priorities for major capital investments; whether to create new revenue sources for its major transportation agencies; how to retool its infrastructure agencies so they can address a new generation of policy objectives. These problems are not only politically difficult; the challenge of developing sound solutions for them also stretches our collective wisdom and analytical skills to the limit.

An unheralded development in the midst of the region’s infrastructure crises has been an emerging recognition by decisionmakers that these complex problems require new tools for analysis, given the potentially high costs of making the wrong choices. Public agencies are placing renewed emphasis on policy analysis, and are starting to consider how to reorganize their missions and methods to meet 21st Century policy objectives.

As these efforts unfold, they are creating exciting opportunities for collaboration between the region’s government agencies and its academic institutions. As this issue of the CIUS Newsletter highlights, CUNY faculty are already finding numerous creative ways to partner with government and industry to address emerging infrastructure challenges. And CIUS is preparing to address an even broader array of these issues, by expanding its network of CUNY faculty to include experts in regional economics and policy analysis.

Across all sectors of infrastructure, CIUS hopes to foster a common approach to public investment that weighs costs and benefits, evaluates long-term fiscal impacts, and sets and achieves strategic goals. Probing questions and sound analysis are at the heart of these endeavors. CIUS aims to help CUNY faculty apply their skills to help inform – if so slightly – this regional dialogue.

Sustainable Construction is on the verge of becoming a major industry in New York City and the region. Post-industrial cities worldwide are relying less and less on easy access to natural resources. Instead, intricate human face-to-face networks within smarter, healthier, more resilient, secure cities are in demand. Such cities develop their resilience through healthy living and working conditions, efficient energy production, water and air quality management as well as conservation of materials, including procurement, use, recycling, deconstruction and reconstruction.

Recognizing the educational opportunity Sustainable Construction presents, The City University of New York (CUNY) through the facilitation of Continuing Education & Public Programs at The Graduate Center, CUNY, is bringing together its diverse resources across 20 campuses. The new CUNY Sustainable Construction Initiative will coordinate efforts of the University to provide a wide range of education and training programs within the Sustainable Construction Industry field.

Through the collaboration of academics, administrators, research centers, institutes, degree programs, continuing education and workforce development programs, we are working on a range of activities — research, development of credit and non-credit educational programs, training work-
Capital Finance, Technology and the Evolution of Transport

CIUS has invited Jim Cohen, Associate Professor of Public Management and Economics at John Jay College, to write about some of his research. This launches a new series of invited columns by faculty throughout the CUNY system.

By James K. Cohen

One of the less well researched aspects of the history of structural changes in U.S. and European transportation systems over the past 100 years involves the role of capital markets. That this deficiency exists is somewhat surprising since, within economic history, a fundamental debate has long involved the direction of causality in relationships between the development of financial markets and changes within corporate and public enterprise. For example, Hicks, on one side, argues that while certain production techniques were invented long before the industrial revolution in England, they were actually implemented only after improvements occurred in the ability of financial intermediaries to reduce liquidity risk. This supports Schumpeter’s classic thesis that finance spurs innovation. On the opposing side, Joan Robinson, based on her research on emerging markets, has argued that “where enterprise leads, finance follows.”

Since the transportation sector is capital intensive and depends heavily upon both public and private financing, it provides rich terrain for examining relationships between financial markets, technological change, and transport development. In a major research project begun three years ago, I have sought to understand the extent to which the long term structural change from rail to automotive/highway and airplane technology in the early to mid-20th Century, as well as the failure to implement high speed rail technology within the U.S. after World War II, was affected by developments in the American financial system.

From the mid to late 19th Century until the Great Depression passenger and freight transportation in the U.S. was dominated by steam railroads. Rail enterprises were both financed and largely controlled by commercial, savings and investment bank and insurance company capital, such that the portfolios of these private intermediaries were heavily weighted with railroad bonds. For example, in 1929, almost 20% of the loan assets of life insurance companies and 15% of savings bank assets were rail bonds. A decade earlier these proportions were even higher.

With the development of automotive technology and highways in the 1910s and 1920s, the economic foundation for rail bonds declined, setting the stage in the Great Depression for a steep decline in the value of those bonds, concomitant weakness in the overall liquidity of the U.S. monetary system, and widespread railroad equity reorganizations. Unprecedented public intervention by the Reconstruction Finance Corporation (RFC) rescued the banking and insurance industry, in large part through purchase and refinancing of rail bonds. Thus, the RFC became the first of many government financial intermediaries created under Roosevelt that provided the institutional foundation for development of a large, powerful public capital market in the U.S. by the late 1930s.

The growth of public financial intermediaries and markets occurred at the same time as the shift from rail to automotive technology and enterprise in the U.S. in the mid-20th Century. By the 1950s control of American transportation had shifted unmistakably from rail to automotive enterprise. My research explores whether this shift was driven primarily by technological change or whether concomitant changes in financial markets and arrangements, especially during the 1920s and under the Roosevelt Administration, played a causal role.

To answer these questions, data was collected from a variety of financial market sources, such as the archives of the RFC, the Life Insurance Association of America and the Federal Reserve Bank. Legislative developments from 1890 through the 1960s provide important institutional context, as do government and corporate documents concerning the development of highways and the struggle between rail and auto for control of passenger and freight transportation. These sources provide insights into how much and what types of credit, including credit for transportation, was outstanding in the U.S. economy, 1900-1950, as well as who provided that credit and for what specific uses. They also show trends in the amount and composition of both public and private credit for rail transport, 1900-1950, as well as data on capital flows between public and private financial intermediaries during the watershed period of the Great Depression. With the research phase of this work nearly complete, one or more articles presenting the findings will follow soon.

While the initial focus of this work has been on the period from 1890 through the Depression and end of World War II, the time frame of this research will eventually be extended to the 1970’s or 1980’s, when highway, air and high-speed rail transport modes were fully developed both technologically and economically. The post-World War II period will open additional sources of data relevant to understanding how and why automotive and airline technology and enterprise came to dominate the structure of the U.S. transportation system.
CIUS Welcomes Two New Senior Fellows

Benjamin Miller

Benjamin Miller is a writer and environmental policy consultant. He is the author of *Fat of the Land: Garbage in New York, the Last Two Hundred Years* and of numerous articles related to infrastructural planning. As a consultant, he has conducted environmental policy analyses for numerous public- and non-profit agencies. Miller has also served as director of policy planning for the NYC Department of Sanitation, where he was project manager for and primary author of the city’s first comprehensive solid waste management plan, which was adopted in 1992. Miller has also served as deputy director of the Mayor’s Office of Environmental Coordination. He is a founder of CommunityCartography, Inc., a GIS services firm. Miller has held adjunct teaching and research positions at Columbia University, Hunter College, and New York University. He graduated from Hampshire College, has an M.A. in anthropology from Temple and completed Ph.D. coursework in urban ecological anthropology at Columbia.

Miller's latest project is a book on the history and politics of New York’s proposed cross-harbor rail freight tunnel. The Tunnel was first seriously proposed in 1888, and construction actually began in 1923 but was halted in 1925. In 1996, the idea once again reached the front pages when it was endorsed by then-mayor Rudolph Giuliani. Today it is the subject of an ongoing environmental impact analysis, one of the final steps before a final decision is made whether or not to build the multi-billion-dollar project.

Along with covering the 116-year history of the tunnel, Miller’s book looks at the fundamentally differing views of the most effective ways to promote economic development, differing visions of the region’s potential futures, and varying perspectives on the appropriate roles of the public and private sectors. The Cross Harbor Tunnel provides a useful thread with which to trace the physical, social, and economic development of the New York metropolitan region, the development of the region within the context of larger national and global trends, and the roles played in this development by a range of public and private entities.

For CIUS, Miller is studying New York's Full Freight Access Program. This program, which was conceived in the mid-1970s and for which construction was substantially completed in 1997, was to make it possible to use rail cars carrying containers on the east side of the Hudson, where height restrictions, inadequate trackage, and a lack of intermodal terminals had precluded their use. Now that the program is complete, an analysis of its development and current operations will help provide lessons for the future management of the region’s rail freight network.

William B. Shore

Bill Shore is a public administration scholar with extensive experience in government and non-profit organizations. He was most recently a senior associate at the Institute of Public Administration, which is affiliated with the Wagner Graduate School of Public Service at New York University. Shore has recently been involved in the initiation of two organizations: the Nature Network, a collaboration of major environmental organizations of the Tri-State Region; and the CUNY Sustainable Construction Initiative. Shore is also Secretary of an organization dedicated to preserving the Korean Demilitarized Zone, which has been almost untouched for 51 years, as an environmental laboratory and peace park.

For 35 years, Shore worked at the Regional Plan Association, most of the time in charge of public information. While at the RPA he initiated a series of public participation projects, including two TV series with listening groups and ballots – the 1973 series consisted of five one-hour programs on all NY area stations with about a million viewers. Shore also developed grassroots planning projects with multiple task forces and approximately 800 participants in Westchester, Fairfield, and the Bronx.

Prior to his time at the RPA, Shore worked as Publications Director for the American Society for Public Administration and managing editor of *Public Administration Review*. He also worked for the University of Wyoming Division of Community Services. Shore started his career in politics, working as the research director for Hubert H. Humphrey’s 1948 Senate campaign, and as the research and publicity director for Orville L. Freeman’s 1952 campaign for Governor of Minnesota. Shore received his B.A. from the University of Minnesota, his M.A. in Administration from Manchester University in England and completed Ph.D. coursework at the Maxwell School at Syracuse University.
Staten Island faces a unique set of transportation challenges. It has the fastest population growth of all counties in New York State, the longest average commutes in the region, and almost no transit access to neighboring job centers in New Jersey. At the same time, its strategic geographic position means that it provides critical transportation corridors connecting other parts of the New York metropolitan region.

As a result, traffic and congestion have long been big issues on Staten Island. Recently, the Staten Island Chamber of Commerce asked two professors at the College of Staten Island-CUNY (CSI), to do a nonpartisan strategic scan quantifying the magnitude of the problem and proposing some possible solutions for further investigation. The result was a recently issued report, “Present Problems and Future Solutions for Staten Island Transportation,” by Dr. Cameron Gordon and Dr. Jonathan Peters, both Assistant Professors of Finance in the CSI Business Department.

While acknowledging the fact that Staten Island’s transit system carries many people relatively efficiently each day, the report outlines the gaps in the borough’s transport system, including heavily congested surface roads; no direct transit access to the region’s airports; a lack of a subway connection to the rest of the city; reliance on the Staten Island ferry as the only direct transit access to Manhattan; and limited or nonexistent bus and/or rail service to between various parts of the Island and the rest of New York City and New Jersey, and other points in the region’s so-called “Southern Corridor.”

The report identifies three groups of solutions for these problems: short-term (one year or less for implementation), medium-term (one to three years), and long-term (greater than three years). Short-term solutions include rerouting of buses on the Island, and expansion of bus service on and off-island, as well as increases in the frequency of the Staten Island ferry to meet changing and growing demand. Medium-term solutions include various capital improvements to roads, bus rapid transit (BRT) and/or exclusive express bus lanes on key corridors and across bridge crossings into Brooklyn and New Jersey, and intelligent transportation system (ITS) investments. Long-run solutions include reactivation of the North Shore Railway, bus or rail service to connect to the Hudson-Bergen light rail in New Jersey, and intelligent transportation system (ITS) investments. The report does not endorse any of these solutions, but suggests they merit further analysis. Whatever solutions are adopted, the report argues, should be chosen systematically, not piecemeal.

To carry discussions beyond the publication of this report, the Staten Island Chamber of Commerce secured agreement from the major transportation authorities on the Island to participate in a new Transportation Improvement Council. This Council includes representatives from the New York City and New York State Departments of Transportation, the Port Authority of New York and New Jersey, and the Metropolitan Transportation Authority, amongst others. So far, it has held two meetings, the first to hear a briefing on the report and the second to hear back from agencies regarding their plans to improve transportation on Staten Island. Further meetings are scheduled for next year. Gordon and Peters are actively participating in the Council, and are planning further research on Staten Island transportation issues.
shops, professional development, and public information programs as well as proposals for infrastructure changes within CUNY linked to the creation of learning laboratories.

These efforts began last spring with a daylong conference entitled “Fostering a Sustainable Construction Industry in the NYC Region” initiated the effort. The CIUS and CUNY Continuing Education & Public Programs, and The Graduate Center, CUNY, organized the conference; The NYC Department of Environmental Protection (DEP) and the New York Building Congress were co-sponsors. The conference’s focus was strengthening the links between green building practices and higher education. Speakers included Robert Paaswell, Director of CIUS; Allan H. Dobrin, Senior Vice Chancellor and Chief Operating Officer, CUNY; NYC DEP Commissioner Christopher Ward; NY Building Congress President Richard T. Anderson; and Deborah Taylor, NYC Department of Buildings.

Continuing the effort, David Levine, Director of Continuing Education & Public Programs at The Graduate Center, in collaboration with many CUNY campuses, applied for and received a CUNY Workforce Development Initiative grant in September 2005. The project’s intent is researching existing CUNY resource people; surveying existing courses, trainings and programs; cultivating relationships with industry; developing of structures to enable ongoing collaboration between CUNY and industry; surveying of business and industry’s education and training needs in this field; and identifying and creating of credit and non-credit educational programs, training workshops, and professional development.

In October, Jean Gardner became the Sustainable Construction Initiative’s new Coordinator. She is Senior Faculty at the Department of Architecture, Interior Design & Lighting at the Parsons School of Design, The New School.

The Sustainable Construction Initiative received assistance from Urban Agenda, located at the Queens College Labor Resource Center, in identifying opportunities to collaborate with labor unions. Gardner and Levine worked with James Barry, Manager of Program Development, Local 32BJ Thomas Shortman Training, Scholarship and Safety Fund, to apply for EPA monies to develop a course on green/environmental maintenance practices beginning in the Fall of 2005. Additionally, they are working with Local 94, the Operating Engineers’ Union to enable their programs to become accredited by CUNY and to explore the co-development of programming on retrocommissioning. In December, the CUNY Sustainable Construction Initiative in cooperation with the Environmental Business Association and Urban Agenda received approval for a grant from the New York State Energy Research and Development Authority to provide educational training for installers of photovoltaic systems.

The Sustainable Construction Initiative is planning a full roster of conferences, workshops and lectures for the spring. The centerpiece of these activities will be the first annual High Performance Building Academy planned for April 4-8, 2005. The Center for Economic and Environmental Partnership, Inc. (CEEP), and Continuing Education & Public Programs, The Graduate Center, CUNY’s have developed a five-track program to provide education to many segments — from design and construction to building management, from development to brokerage — so that people in each segment are able to participate in the emerging high performance building marketplace.

With assistance from CIUS, two interns have joined the project: Susan Robinson, graduate student, Masters of Urban Planning at Hunter College, and Douglas Adams, Graduate Student in NYU’s Master of Urban Planning Department. They are developing surveys for CUNY and for the real estate industry, labor, developers, owners, and contractors.

The Sustainable Construction Initiative welcomes the participation of all interested persons. Please contact them at 212-817-7141 with questions, suggestions, and information.
In the wake of the terrorist attacks of September 11, 2001, the restoration of Lower Manhattan’s strategic place in the regional and global economies has become a prominent public policy objective. Transit improvements have been seen as central to this agenda, and preparations for several major improvements are already underway: a new subway station at South Ferry; improved ferry terminals; and a dramatically improved subway hub at Fulton Street, linked by a pedestrian tunnel to a soaring new PATH terminal at the World Trade Center.

The most ambitious of all is a vision of a new rail connection to Lower Manhattan championed by Governor George Pataki, Mayor Michael Bloomberg, and much of the downtown business community. This project, which is estimated to cost from $3.5 to $6 billion, would link Lower Manhattan with the Long Island Rail Road and JFK Airport.

Since January, the Port Authority, Metropolitan Transportation Authority, NYC Economic Development Corporation and the Lower Manhattan Development Corporation have been studying the feasibility and costs of creating this link. Late this past spring, they released a set of three proposed and one recommended alternatives (see inset). The proposed and recommended alternatives all extend the current AirTrain service from the Jamaica terminal through the Atlantic terminal in downtown Brooklyn and into Lower Manhattan, in some cases in conjunction with a shuttle for LIRR passengers.

Running concurrently with the official study this past spring, nine students in Dr. Robert Paaswell’s Advanced Transportation Planning class in the graduate Transportation Engineering program at City College took up the challenge of designing alternate visions of a connection from downtown Manhattan to JFK airport. The students divided into three groups with differing mandates for their designs. The first group, consisting of Chris Andrachak, Carmine Calleo and Diego Suarez design a connection that would be integrated with the NYC subway system. The second group, Yeshitla Argaw, Tom Temistokle and Pablo Valle, designed a system that would be operationally integrated with the Long Island Railroad (LIRR). And a third group, Denis Denisov, Kester Eke and Aminu Suraju, focused on developing a system that would work as an extension of the JFK AirTrain system. To give the students real-world experience and to be able to compare their analysis to that of the engineering consultants employed by the government groups, Dr. Paaswell had the groups work on nearly every detail of a professional plan: analyzing potential ridership markets; detailing alternative routes; performing demand, operational and benefit-cost analysis on selected alternatives; and determining and utilizing evaluation criteria in selecting a recommended alternative.

In designing their systems and evaluating alternatives, the groups dealt with problems and opportunities they felt might have been overlooked in the official plan. The subway group looked at the needs of airport bound riders wanting comfortable express service versus those of local riders needing more stops while trying to fit within the design and operational bounds of the current system. The LIRR group considered the needs of inbound commuters and outbound airport riders while handling the possibility of two different payment systems. And the AirTrain group weighed adding connectivity and flexibility options for local and commuting riders while still keeping the benefits of the express "one seat ride" elements that differentiate this option.

The students presented their interim findings at the LMDC’s Lower Manhattan offices. In May, they made a final presentation of nine alternatives to a panel of local transportation experts, which critiqued the students’ presentations and gave their insights on comparisons to the official plans for downtown to JFK access.

### In the next issue of the newsletter:

- NYC: Highlands to Ocean
- Greening Infrastructure in the Public Right of Way
- The New York Harbor Estuary Watershed Study
- Center for Regional Economic Analysis
This past summer, the University Transportation Research Center was invited by New York State Department of Transportation (NYSDOT) to assist the department in gathering public input and formulating policy for the revision of its 20-year Statewide Transportation Master Plan. NYSDOT Commissioner Joseph Boardman and the New York State Advisory Panel on Transportation Policy for 2025 held nine public hearings throughout the state to hear public comments and develop principles and priorities to guide NYSDOT’s development of the plan. A team from UTRC accompanied the panel on its listening tour, and assisted the panel in the formulation of its recommendations.

Panelists included Dennis Fitzgerald, former Executive Director, Capital District Transportation Authority; Richard Garman, President, R&P Oak Hill LLC; Patricia Gilchrest, Executive Director, Orange County Citizens Foundation; James McGowan, President, AAA New York State; Dr. James M. Melius, Administrator, NYS Laborers’ Tri-Fund; James D. Newman, President, NOCO Energy Corp.; Mitchell Pally, Vice President, Long Island Association; Arthur J. Roth, former NYS Commissioner of Taxation and Finance; Janette Sadik-Kahn, Senior Vice President, Parsons Brinkerhoff; Elliot G. Sander, Director, NYU Rudin Center for Transportation Policy and Management; G. Thomas Tranter, President, Corning Enterprises; and James T.B. Tripp, General Counsel, Environmental Defense.

The Transportation Master Plan was last updated by NYSDOT in 1996, as required by New York State and federal transportation law. The plan is used to assist transportation agencies such as the metropolitan planning organizations (MPOs), NYSDOT, the Metropolitan Transportation Authority (MTA), the Thruway Authority, and local transit providers and governments in devising their multi-year plans. For this current update, commissioner Boardman has identified three major factors in the reliability and affordability of New York state’s transportation infrastructure: traffic, especially truck traffic; technology, as just-in-time inventory systems and customers require immediate goods flow; trade, with changing global flows that can affect our future. In addition, Governor Pataki has given NYSDOT a directive to better integrate statewide transportation, and the capital plans of NYSDOT, MTA and the Thruway Authority will each expire during this upcoming fiscal year, allowing for the further possibility of improved coordination in future transportation services.

UTRC was given the task of attending all of the statewide public meetings to record and create summaries of the comments for use by the panel. Ross Weiner, an associate professor of economics at City College, and Camille Kamga, Assistant Director of UTRC, were in charge of this effort, along with CIUS intern Chris Andrichak and four undergraduate interns. UTRC also assisted NYSDOT in formulating policy statements from its internal directives and the public comments to be used when sitting down with the panel for final drafts of the master plan document. The panel’s final report, Transportation—Trouble Ahead, is now available on the UTRC web site (http://www.utrc2.org/).
CIUS Briefs

Networked Cities

As part of its *The Networked Cities Series*, Routledge has released three new books edited by CIUS board chair Richard E. Hanley, Steve Graham and Simon Marvin. *The Networked Cities Series* has as its focus local, global, physical, and virtual urban networks of movement. It is designed to offer scholars, practitioners, and decision makers studies on the ways cities, technologies, and multiple forms of urban movement intersect and create the contemporary urban environment.

The first book of the series, *Moving People, Goods and Information in the 21st Century*, edited by Richard E. Hanley, has just been published. The book defines cutting-edge infrastructures, details their importance to cities and their regions, and addresses the obstacles - technical, jurisdictional, financial, and social - to creating those infrastructures. Additionally, it explores issues behind the creation of new infrastructures: their integrated, technical components, the decision making involved in their creation, and the equity and environmental questions they raise.

The next book in the series, *Digital Infrastructures*, edited by Rae Zimmerman and Thomas Horan, presents an interdisciplinary analysis of the technological systems enveloping the digital technology networks that underlie the highly visible networks of roads, waterways, satellites and power-lines. The book balances analyses of civil and environmental infrastructures with broader policy and management issues, including the challenges of using information technology to manage these critical systems under crisis conditions.

The third book in the series, *Sustaining Urban Networks*, edited by Olivier Coutard, Richard E. Hanley and Rae Zimmerman, deals with the development of telecommunications, transport, energy and water supply networks and the economic, social and environmental issues associated with them. These networks have often emerged as the result of complex and often contested dynamics involving systems, users and users, institutions and territories. Analyzing the relations between cities and networks is crucial to discussions of the sustainability of networks and of cities.

Tourism And Markets