ANNUAL REPORT

ALAN M.VOORHEES TRANSPORTATION CENTER

2012

RUTGERS

Edward J. Bloustein School of Planning and Public Policy



OUR NAMESAKE: ALAN M. VOORHEES

A lan M. Voorhees was one of the nation's pivotal figures in city planning and transportation concerns. From Atlanta to Zurich, Mr. Voorhees set the pace in initiating a myriad of ventures related to planning and transportation.

A list of the many projects Mr. Voorhees piloted reflects the visionary role he took in creating blueprints for change, including the development of planned cities such as Columbia, MD and Canberra, Australia, and metropolitan transit systems such as the Washington Metro.

In 1961, he founded the transportation consulting firm of Alan M. Voorhees & Associates, Inc., which grew to include ten offices in the United States, as well as offices in Caracas, London, Melbourne, São Paulo, Toronto and Zurich.

With Mr. Voorhees steering the course, the firm planned many of the metropolitan transit systems built in the free world in the 1960s and 1970s, including those in Washington, D.C. and Atlanta, Georgia. In 1967, his firm merged with Planning Research Corporation, where he continued to work in transportation planning.

In the late 1970s, Mr. Voorhees moved his career into a new area to become dean of the College of Architecture, Art and Urban Sciences at the University of Illinois at Chicago.

In 1980, Mr. Voorhees' multifaceted interests took him in new directions. He founded Atlantic Southeast Airlines (ASA), which has become one of the most successful commuter airlines in the country. Now operating as ExpressJet, the company founded by Mr. Voorhees remains the largest regional airline in the world with over 400 aircraft in operation.

Throughout his prolific career, Mr. Voorhees contributed extensively to the field of planning, serving as president of the American Institute of Planners and chairman of the Transportation Research Board, the largest unit of the National Academy of Sciences. He was the recipient of numerous awards and received honorary doctoral degrees from Rensselaer Polytechnic Institute and Voorhees College.

Mr. Voorhees was born in New Brunswick, New Jersey, and was a veteran of World War II. He received both silver and bronze stars for his distinguished service in the Pacific as a Navy Frogman, the predecessor to today's US Navy SEAL.

SPONSORS AND DONORS

Special thanks to James Kellogg for his generous contribution to this report.

Project Sponsors

The following is a partial list of project sponsors who currently support or have previously supported VTC research efforts:

New Jersey Department of Transportation NJ TRANSIT National Academy of Sciences New Jersey Office of Homeland Security and Preparedness New Jersey Office of Emergency Management New Jersey Division of Disability Services United States Department of Housing and Urban Development University Transportation Research Center – CUNY United States Department of Transportation Federal Highway Administration Federal Transit Administration

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Alan M. Voorhees, 1922-2005. Photo by Nancy Voorhees.

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Photos provided by: VTC Staff Shutterstock NJ TRANSIT The Voorhees Transportation Center Advisory Board



THE DIRECTOR

Over the last year, the Alan M. Voorhees Transportation Center has experienced significant growth and new research initiatives. Our research staff has grown to 21 staff currently working on 32 projects. Over this time period, New Jersey has also seen major changes with three natural disasters culminating in Hurricane Sandy in late October of 2012. I am happy to report that all our staff weathered these major impacts to the state and it has refocused our attention on issues associated with climate change and how the research undertaken at VTC can contribute to solving real problems.

STAPANES STAPANES

The relevance of this research was made clear last year during Hurricane Irene. Our work on evacuation planning was put to the test and those plans that VTC completed were actually implemented, and with great success. This plan was aimed at moving those without cars to shelters for the duration of the storm, and from all reports this was successfully realized. The plan was again implemented for Hurricane Sandy and was again successfully applied.

We have also been assisting the New Jersey Department of Transportation in mitigating the impact of their operations on climate change. We have developed a software tool that will assist the DOT with designing construction and maintenance activities that will minimize life-cycle greenhouse gas emissions. This is a comprehensive tool that covers everything from project staging decisions to the selection of materials used in road construction. This project was specified in New Jersey's Global Warming Solutions Plan and we will be working with the DOT to conduct case studies over the next few months.

A major grant was awarded to VTC from the US Department of Housing and Urban Development to develop a regional plan for sustainable development in the 13-county North Jersey Transportation Planning Authority region. Branded as *Together New Jersey*, this initiative involves a broad coalition of stakeholders aiming to develop and implement a regional plan that integrates transportation and land use for a more sustainable future.

Another major initiative is our participation in the Mineta National Transit Research Consortium (MNTRC). This is a collaboration of nine universities throughout the nation, led by the Mineta Transportation Institute at San Jose State University. In collaboration with colleagues at the School of Engineering, we are currently conducting seven projects across a wide variety of areas relevant to public transit, with more to be developed in the coming year. The MNTRC is funded by the US Department of Transportation as one of only two tier-1 transit University Transportation Centers in the country.

The direction that national transportation policy will take in the future remains unclear, but the need for research continues. Our research on public transit, evacuation planning, regional development, transit-oriented development, transportation equity concerns and bicycle and pedestrian modes of travel are all relevant for the future, especially in a world of changing climate. Faculty and staff continue to disseminate and publish research at leading academic conferences and journals.

As an integral part of the Bloustein School of Planning and Public Policy, training future transportation professionals is a key part of our mission. The Masters program in Urban Planning and Policy Development offers a concentration in transportation, which is the most popular option chosen by our students. The School is currently engaged in a search for a new faculty member in this area, who we hope will add to the research portfolio of the Voorhees Center in the future. The School remains a national leader in producing skilled professionals in planning and transportation.

The gifts of support we receive are integral to growing our research program and supporting the students we are educating. In the next year, we hope to expand our efforts in attracting funding for high quality research work while continuing to support our service mission to the State of New Jersey and beyond.

Sincerely,

Robert Noland Professor of Transportation Planning and Policy Director, Alan M. Voorhees Transportation Center

ABOUT THE VOORHEES TRANSPORTATION CENTER



RESEARCH

VTC conducts interdisciplinary applied and academic research on aspects of transportation policy and planning that are of a critical nature and that are not otherwise addressed by conventional sponsors.

Specific areas of concentration include but are not limited to:

- Transportation planning and analysis
- Transportation and social equity
- Transportation security and evacuation planning
- Environmental impacts of transportation
- Transportation finance and economics
- Transportation and the built environment
- Bicycle and pedestrian mobility and safety
- Multi-modal transportation planning and policy

The Alan M. Voorhees Transportation Center (VTC) at Rutgers, The State University of New Jersey, is a national leader in the research and development of innovative transportation policy. Established in 1998, VTC is one of 16 research centers within the Edward J. Bloustein School of Planning and Public Policy.

In the context of New Jersey as a living laboratory, VTC seeks to lead an informed public discussion of transportation policy issues and is committed to conducting research and finding innovative approaches to transportation problem solving. Through its research, VTC identifies and explores transportation linkages to other public policy areas, such as economic development, social policy, land use, political governance and finance. VTC participates in educational activities, both in professional training for the transit industry through the National Transit Institute and through the transportation curriculum of the Master of City and Regional Planning, the undergraduate program in Planning and Public Policy, and by the supervision of PhD scholars at the Bloustein School.

FY2012 Funding Sources



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Ralph W. Voorhees, Overseer Emeritus, Rutgers University Board of Overseers; Senior Vice President for Investments, UBS Financial Services (retired)

RESEARCH HIGHLIGHTS

Since it's inception in 1998, VTC has focused its research activities on a blend of applied and academic research. The Center receives funding from federal, state and local government agencies, private foundations, individuals and other entities involved in transportation policy and research. Between 2011 and 2012, VTC continued its strong history of partnering with stakeholders and peers both within and beyond the Rutgers University community to accomplish its research work.

TRANSPORTATION PLANNING AND ANALYSIS

AN ARCHIVE OF DOCUMENTS AND ORAL HISTORIES.

This project will establish the Alan M. Voorhees Memorial Library and an Oral History Archive that documents transportation plans, projects and histories of those people involved with the building of our modern transit and interstate highway systems. Materials collected will be cataloged with assistance from the Rutgers Library and many resources will be made available online. Oral history interviews will highlight—in interviewees' own words—the significant professional achievements of noteworthy transportation professionals from A.M. Voorhees Associates, New Jersey and beyond. The interviews will be made available as part of this archive. *(Clients: University Transportation Research Council and generous donations from the VTC advisory board)*

TOGETHER NORTH JERSEY. In January 2012, the Bloustein School of Planning and Public Policy, led by researchers at VTC, received a \$5 million Sustainable Communities Regional Planning grant from the US Department of Housing and Urban Development. *Together North Jersey*, a consortium including representatives from five cities and 12 north Jersey counties, will prepare a Regional Plan for Sustainable Development (RPSD) that will help to define and foster "sustainable community development" within the region. (See inset on page 6 for more.) (*Client: United States Department of Housing and Urban Development*)

TRANSPORTATION AND SOCIAL EQUITY

ADA PARATRANSIT SERVICE AREA GEOGRAPHIC REALIGNMENT. In an effort to search for measures to make Access Link, NJ TRANSIT's complementary paratransit service, more efficient and effective, this research examines the potential impacts of reconfiguring its service regions. Current service demand based on local and patron characteristics and future demand based on demographic changes will be estimated. Performance measures to evaluate costs pertaining to different demand scenarios are being developed. Results will provide recommendations on the reconfiguration of service regions. This research is being conducted by VTC as an equal partner with the Center for Advanced Infrastructure and Transportation of Rutgers University. (*Clients: New Jersey Department of Transportation and NJ TRANSIT*)

AN ASSESSMENT OF "LAST MILE" SHUTTLES IN NEW JERSEY. "Last Mile" shuttles provide access to job sites from public transit nodes. In New Jersey, these shuttles are provided by different agencies, including counties, transportation management associations and private companies. This study examined the "Last Mile" shuttles in New Jersey and involved an onboard survey of shuttle passengers on 18 routes and a land use analysis of 34 shuttle corridors. It was revealed that the shuttles serve a useful purpose by providing job access to a large number of workers from households without vehicles to areas that are not conducive to conventional transit. Analysis of the onboard survey showed that for many shuttle users, the "Last Mile" shuttles provide the only travel option to work. Morning peak period and evening service frequency are the greatest concerns for shuttle users. (*Clients: Rutgers University*)



TOGETHER NORTH JERSEY.

Connecting People, Places and Potential

Together North Jersey (formerly known as the North Jersey Sustainable Communities Consortium) is a voluntary partnership of local government jurisdictions, non-profit organizations, state agencies and other stakeholders. In November 2011, the US Department of Housing and Urban Development (HUD) awarded *Together North Jersey* a \$5-million grant to develop a

Regional Plan for Sustainable Development (RPSD) in the 13county North Jersey Transportation Planning Authority region of New Jersey.

VTC is the lead organization tasked with the complex role of facilitating the development and implementation of the RPSD, as well as maintaining communication among partners and recruiting future partners. Over the next two years, *Together North Jersey* will engage in a variety of tasks, including scenario planning, educational and training events, local demonstration projects and administering grants to local governments and community organizations. The scenario development will be structured around community workshops. This public outreach process will help *Together North Jersey* answer critical planning questions about the present state and potential future of northern New Jersey communities.

Three standing committees have been formed to provide input and advice on the development of the RPSD: Livability and Environment; Economic Competitiveness and Workforce Development; and Society and Community. Following HUD's focus on the combined impacts of housing and transportation, the RPSD will use sustainability and the connection between transportation and land use as the central framework for integrating plans, regulations, investments and incentive programs at all levels of government to improve economic and environmental conditions, while promoting regional equity and resource efficiency. The outcome of plan implementation will be a more sustainable future for the region by investing in existing communities where housing, jobs, and educational, cultural and recreational opportunities are made more easily accessible to most residents of the region without having to drive to them.

Up to date information about *Together North Jersey* can be found on the *Together North Jersey* website: <u>www.togethernorthjersey</u>. <u>com</u>.

Standing Committees

LIVABILITY & ENVIRONMENT

- Land Use and Urban Design
- Housing
- Transportation
- Natural Systems
- Energy and Climate

ECONOMIC COMPETITIVENESS & WORKFORCE DEVELOPMENT

- Asset-Based Economic Development
- Industry Sector Development
- Workforce Preparedness and Training
- Business Environment and Entrepreneurial Support

SOCIETY & COMMUNITY

- Health and Safety
- Education
- Arts and Culture

The Scenario Planning Process



Transportation Coordinating Council and the Federal Transit Administration)

COMMUNITY **TRANSPORTATION** ASSOCIATION OF AMERICA JOB ACCESS MOBILITY INSTITUTE. VTC is a member of the Essex County, New Jersey team selected through a competitive process by the Community Transportation Association of America (CTAA) as one of seven teams nationwide invited to participate in the Association's Job Access Mobility Institute. This multi-month project will involve each team researching, designing and implementing a new transportation service to meet critical transportation challenges that area job seekers and employees are experiencing, many of whom are transportation disadvantaged. All team members attended a summit in Arlington, Virginia that was facilitated by CTAA. This summit and a series of webinars and workshops will assist the team in collaboratively designing a new transportation service. (Client: Community Transportation Association of America)

CONNECT TO TRANSIT – A PILOT TRANSPORTATION INFORMATION PROGRAM TO BENEFIT PERSONS WITH DISABILITIES SEEKING EMPLOYMENT. This study focused on developing and implementing a pilot transportation information program entitled Connect to Transit. Created with the travel training experts at NJ TIP, Inc., the overarching goal of the initiative was to familiarize the employment/social service provider community with the public transportation options and trip planning tools available to their clients with disabilities who are seeking employment. A total of eight Connect to Transit trainings were convened throughout the state. Feedback received on the training sessions from participants through a detailed pre- and postsession survey effort was extremely positive. (Clients: New Jersey Department of Human Services, Division of Disability Services, and Centers for Medicare & Medicaid Services)

NEW DRIVE-RECORDING TECHNOLOGIES TO AID NJ TRANSIT'S ACCESS LINK SERVICE. VTC directed efforts to develop, disseminate and analyze a nationwide survey of transit agencies to determine best practices and issues related to drive-recording technologies. Over 200 agencies from 44 states responded to the survey, with nearly unanimous support for drive-recording technology because of safety benefits to customers, the agency and the public. The majority of respondents (86%) reported using continuous recording devices as opposed to short segment systems. Those utilizing continuous recording devices emphasized the benefit of being able to capture events and sequences that would not be triggered with a short segment system, including actions that lead up to an incident. (Clients: New Jersey Department of Transportation and NJ TRANSIT)

EXPANDING RESOURCES AVAILABLE FOR NEW JERSEY'S COUNTY PARATRANSIT PROVIDER COMMUNITY. VTC investigated how to expand the resources available to enhance county community transportation in New Jersey - particularly to improve the transportation environment for people with disabilities seeking employment. Interviews were convened with 26 stakeholder organizations, two focus groups were held with consumers with disabilities seeking employment and a nationwide survey was fielded to determine best practices being implemented by peer paratransit agencies, to which almost 200 agencies responded. They detailed the extreme hardships many are experiencing in maintaining paratransit services that support the transportation disadvantaged community. Based on findings from VTC's primary and secondary research, a series of recommendations were determined to help alleviate financial difficulties community transportation providers are facing. (Clients: New Jersey Department of Human Services, Division of Disability Services, and Centers for Medicare & Medicaid Services)

TCC/FTA DISABILITY EMPLOYMENT STUDY. This study identified, through a state-wide survey, the transportation barriers that hinder job searches and employment opportunities for persons with disabilities. Approximately 500 persons responded to the survey. Findings demonstrated that transportation plays a critical role in enhancing job access for people with disabilities and many respondents reported currently using public transport and/or were willing to consider using it to travel to/from employment. Many also reported that public transit helped with their job



Researcher Profile – Ryan Whytlaw

Based on successful collaboration on past emergency planning efforts, in 2008 VTC was hired to develop a regional mass evacuation plan for the seven counties that make up the Northern New Jersey Urban Areas Security Initiative Region and to conduct evacuation planning studies in the 14 remaining counties in the state. To conduct these studies, VTC brought together a multidisciplinary team of researchers from within the broader Rutgers University community. Our team includes experts in transportation planning and policy, transportation engineering and travel demand modeling, transit security and emergency management, and survey research.



The overall approach to these studies has been to develop capability-based plans built upon a foundational understanding of the true capacity of the region's transportation infrastructure to support mass evacuations under a variety of operational conditions and planning scenarios. In October 2012, New Jersey experienced a historic event in Hurricane Sandy. Although the planning efforts were not yet completed and implemented in time for this disaster, it did re-enforce the importance of VTC's efforts to enhance the state's capability to respond to such emergencies.

The project uses behavioral studies and a variety of evacuation, transportation and traffic-modeling tools to inform the plan development process. We have also worked closely with our planning partners at the New Jersey Office of Homeland Security and Preparedness, the New Jersey Office of Emergency Management and County Offices of Emergency Management throughout the state to ensure the policies and procedures being developed are well-grounded and acceptable to the emergency managers and first-responders who will be called upon to implement them.

search process. Respondents, however, also reported a variety of environmental, informational and service-related barriers to using public transportation. (Clients: Rutgers University Transportation Coordinating Council and the Federal Transit Administration)

VETERANS TRAVEL NEEDS AND TRANSIT-ORIENTED

DEVELOPMENT. This research seeks to explore and better understand the travel, employment and housing needs of New Jersey military veterans with disabilities who are of working age. New Jersey is home to over 400,000 military veterans, many of whom recently returned from Afghanistan and Iraq.

Through a series of interviews with a variety of stakeholders, as well as focus group sessions with this veteran population, the study team will determine if and how access to transit and transitoriented development housing and employment opportunities could improve this population's quality of life and reintegration with the community. (Client: Mineta National Transit Research Consortium)



TRANSPORTATION SECURITY AND EVACUATION PLANNING

NON-UASI COUNTY EVACUATION PLANNING STUDY. VTC is managing a multidisciplinary team of researchers and consultants working with the New Jersey Office of Emergency Management to enhance the evacuation planning capacity of the state's 14 non-UASI counties. The project involves outreach to county offices of emergency management, a review of Emergency Operations Plans, resident surveys, transportation modeling scenario planning and development of regional evacuation plans for each of the

> three non-UASI planning regions. (Client: New Jersey Office of Emergency Management)

REGIONAL CATASTROPHIC PLANNING SUPPORT. VTC was selected as a preferred vendor to support catastrophicemergency management planning for the US Department of Homeland Security designated NY-NJ-CT-PA Regional Catastrophic Preparedness Grant Program region. The region consists of 30 counties in four states accounting for roughly 22 million people. For this project, VTC assembled a team of researchers from the Bloustein School with a broad range of expertise to provide on-call planning support on disaster-related topics ranging from evacuation and logistics to long term housing, critical infrastructure protection and response to chemical, biological, radiological, nuclear and explosives disasters. Currently, VTC and the Rutgers Intelligent Transportation Systems Laboratory are supporting the NY-NJ-CT-PA Regional Catastrophic Planning Team by analyzing the feasibility of developing a logistics tool designed to allow emergency logistics professionals to make multi-modal routing decisions in an effort to optimize delivery time of critical assets during a disaster. (*Client: US Department of Homeland Security*)

ENVIRONMENTAL IMPACTS OF TRANSPORTATION

CARBON FOOTPRINT PHASE II. The Carbon Footprint Project is developing a planning tool to estimate greenhouse gas (GHG) emissions from transportation capital and maintenance projects. A spreadsheet tool, the Greenhouse Gas Assessment Spreadsheet for Transportation Capital Projects (GASCAP) is being developed to estimate emissions from pay items on New Jersey Department of Transportation contract bid-sheets. GASCAP incorporates emission factors from the EPA NONROAD and MOVES models, as well as the GREET model developed by Argonne National Laboratory. Phase II work on GASCAP adds a detailed project staging module that estimates additional GHG emissions from increased vehicle miles traveled and congestion due to traffic disruption during highway construction. Other new modules include a life-cycle maintenance module and an induced travel demand module. An enhanced equipment module that incorporates equipment activity profiles will also be included. (Client: New Jersey Department of Transportation)

GEORGETOWN UNIVERSITY TRANSPORTATION AND CLIMATE INITIATIVE. In association with the National Center for Neighborhood and Brownfields Redevelopment (NCNBR) of the Bloustein School, VTC worked on a study for the Georgetown University Transportation and Climate Change Initiative (TCI) on transportation and climate change. The TCI includes all eleven states of the Northeast and Mid-Atlantic, as well as Washington, DC. The TCI states have adopted five principles for sustainable transportation in the region. Staff from the NCNBR and VTC identified, evaluated and refined performance measures and metrics relevant to the TCI principles by analyzing data and garnering insights **Research Highlights**

from a stakeholder workshop. The study prepared a short list of metrics for adoption by the TCI states for monitoring sustainability and climate change in the region. (*Client: Georgetown University Transportation and Climate Change Initiative*)

PLANNING LEVEL ASSESSMENT OF GREENHOUSE GAS EMISSIONS FOR ALTERNATIVE TRANSPORTATION CONSTRUCTION PROJECTS. This project furthers the development of the GASCAP model from a project-level assessment tool to a planning tool. (See Carbon Footprint Phase II, above.) This project will add a usage and deterioration component that will estimate changes in GHG emissions based on motorists' fuel economy due to the roughness of the road. It will also add the capacity to do planning-level analyses for highway and rail, allowing a better understanding of how decisions made in long-range plans may affect GHG emissions associated with the construction, maintenance and use of the facilities. (*Clients: New Jersey Department of Transportation and NJ TRANSIT*)



TRANSPORTATION FUTURES. VTC has initiated a project to evaluate new federal regulations affecting the climate change impacts of the US transportation sector. Renewable Fuel Standards mandating the production of cleaner biofuels and aggressive new CAFE standards promise an average fuel economy of about 50 miles per gallon by 2025 that will change the emissions of greenhouse gasses (GHG) per mile of travel. VTC researchers are working with a research team at the University of California, Davis to investigate what steps will need to be taken to achieve a target of 50% reduction in GHG emissions from passenger transportation by 2050. VTC will develop baseline estimates of GHG reductions based on current regulatory trends and UC Davis will model various transit, land use and travel-demand management policies

Researcher Profile – Deva Deka

In the past couple of years, I have written research papers on a number of topics, including benefits from off-peak commuter rail transit, impacts of non-resident parking restrictions at rail stations, assessment of transit shuttles, racial disparity in job access for persons with disabilities, evacuee forecasting and access to bicycling and fitness facilities for low-income and minority populations. Currently, I am conducting research on a variety of other topics, including economic benefits from transit service to recreational facilities, demand forecasting for ADA paratransit services, people's preference for bicycling and pedestrian infrastructure elements and the implications of school siting practices on transportation mode choice. I take pride in my ability and willingness to do research on varied topics by applying different research



methods. I enjoy working with numbers, particularly estimating statistical models to evaluate transportation issues.

Despite my fascination with quantitative methods, I understand the importance of communicating technical knowledge in non-technical language. I also believe in applying technical knowledge for developing and influencing policies. I enjoy transportation research that uses knowledge and techniques from different disciplines, especially economics, geography, and sociology. My work is still inspired by the scholars who taught me – in India, Canada, and here in the US – and helped me in many other ways to establish myself as a researcher.

needed to fill the gap. (Client: Mineta National Transit Research Consortium)



TRANSPORTATION FINANCE AND ECONOMICS

AGGLOMERATION AND TRANSIT: ECONOMIC PRODUCTIVITY OF URBAN REGIONS. A suite of VTC research projects have focused on examining how transit can influence the economic productivity of regions. The objective of the current research is to conduct a more intensive analysis of two databases collected during previous work. The first analysis will determine whether there are any clustering or agglomeration effects that can be attributed to the growth of the light rail systems in Dallas, TX and Portland, OR. The second analysis will expand to a national investigation of metropolitan regions using structural equation modeling to examine the links between transit, agglomeration and productivity. Meta-analysis techniques will be used to determine whether or not research analysis methods influence results, as well as provide a summary report that delivers an overview of the work accomplished on a variety of projects. *(Clients: Mineta National Transit Research Consortium and the University Transportation Research Council)*

ECONOMIC CONTRIBUTIONS OF NON-MOTORIZED TRANSPORTATION IN NEW JERSEY. This study researched, analyzed and estimated the statewide economic contributions of bicycling and walking activities in New Jersey. An important focus of this work consisted of the measurement of statewide economic impacts, including: 1) the construction and operations of bicycle and pedestrian infrastructure and facilities; 2) the economic activity of the bicycling sector; and 3) spending on bicycling-related tourism. The study drew upon a combination of methods that included interviews; primary data collection; analytical research on infrastructure, operations and related industries; and a review of relevant capital program budgets and reports. To estimate the potential economic impact of bicycling and pedestrianrelated investments, the analytical approach considered both capital budgets and operations and maintenance budgets for each of the programmed and funded investments. Statewide economic impacts were reported in terms of job impacts, sales, income and taxes. (Client: New Jersey Department of Transportation)



Mineta National Transit Research Consortium

The Mineta National Transit Research Consortium (MNTRC) was funded beginning in 2012 and VTC is a major partner within the consortium. Led by the Mineta Transportation Institute at San Jose State University, MNTRC bid successfully to be a tier-I transit University Research Center. Funded by the US Department of Transportation, the funding for two years is almost \$7 million and VTC will receive nearly \$800,000 of that for a wide variety of research projects. The funds, which will be used for research, education and other projects that help improve public transit, are distributed through DOT's Research and Innovative Technology Administration (RITA). The federal grant is matched with funds from local Departments of Transportation and other sources.

The nine MNTRC universities include:

- Mineta Transportation Institute at San Jose State University (San Jose, CA) (lead institute for the consortium);
- Alan M. Voorhees Transportation Center and the Intelligent Cyberphysical Systems Center at Rutgers University (New Brunswick, NJ)
- Howard University Transportation Safety Data and Research Center at Howard University (Washington, D.C.)
- Four members of the Michigan-Ohio University Transportation Center, led by the University of Detroit Mercy (Detroit, MI); with Bowling Green State University (Bowling Green, OH); Grand Valley State University (Allendale, MI); and University of Toledo (Toledo, OH)
- Nevada University Transportation Center at the University of Nevada, Las Vegas (Las Vegas, NV)
- Thomas D. Larson Pennsylvania Transportation Institute's Bus Research and Testing Center at Penn State University (University Park, PA)

"We all are honored that the Mineta National Transit Research Consortium was given this award," said Rod Diridon Sr., executive director of the Mineta Transportation Institute (MTI). "The need to support mass transit in America has never been more profound. Americans must set an example for the rest of the world by reducing highway congestion in metropolitan areas, combating our deficit balance of trade away from oil imports, and combating climate change."

Robert B. Noland, PhD, director of VTC, also noted, "The Voorhees Transportation Center has focused on policy research that can inform decision makers. The MNTRC will allow us to expand our research on transit and provide useful information to understand the social, economic and environmental implications of different policy choices."

In collaboration with partners at the Rutgers School of Engineering, the projects being conducted in the first year of funding include the following:

- Modeling Bus Transit Driver Availability (Extraboard Management)
- Understanding Public Transit Demand and Mode Choice
- Evaluation of the Impacts of Rail Investments and Engineering Improvements on Transit
- Examining the Attractiveness of Transit-Oriented Development for Working Age New Jersey Veterans with Disability
- Transportation Futures
- Evaluating the Impacts of Transit-Oriented Development in New Jersey: Economic, Environmental, Public Health and Overall Community Cohesion
- Evaluation of How Transit Systems Can Lead to Greater Economic Productivity of Metropolitan Regions

Research Highlights

IMPACT ANALYSIS OF RECREATIONAL TRANSIT SERVICES ON LOCAL **COMMUNITY ECONOMIC** DEVELOPMENT, EMPLOYMENT AND SPENDING. The objective of this study is to estimate the economic benefits from public transit service for recreational activities in New Jersey. The study will specifically focus on three markets served by public transportation: the Prudential Center in Newark, the shore communities served by the NJ TRANSIT Coast Line and the Cape May/Wildwood area served by the NJ TRANSIT Philadelphia-Cape May bus service. The study will use onboard surveys and focus groups involving visitors to recreational sites to assess the economic impacts of public transit service to recreational locales. Regional economic modeling will be used to quantify direct and indirect benefits from public transportation service. Researchers from four centers at Rutgers University will participate in the study. (Clients: New Jersey Department of Transportation and NJ TRANSIT)

TRANSPORTATION AND THE BUILT ENVIRONMENT

THE APPEAL OF TRANSIT-SUPPORTIVE RESIDENTIAL DEVELOPMENT IN A CHALLENGING HOUSING MARKET: EVIDENCE FROM THE HUDSON-BERGEN LIGHT RAIL LINE. The Hudson "Gold Coast" has recently experienced a period of intense development, due in large part to newly completed transit investments, including the Hudson-Bergen Light Rail (HBLR). This study documents recent residential development associated with select HBLR stations and investigates the value that new residents place on transit accessibility. In addition, the study assesses the degree to which land development in transit-supportive locations has continued, despite downturns in the real estate market. (Clients: Rutgers University Transportation Coordinating Council and the Federal Transit Administration)

MEASURING THE BENEFITS OF TRANSIT-ORIENTED DEVELOPMENT (TOD). A major goal of transit-oriented development is to direct land development to where public transit and infrastructure already exist, with the expectation that transit ridership will increase and auto use will decrease as the convenience of transit leads it to become the mode of choice for residents, employees and visitors. Increased transit ridership and decreased auto use are generally accepted as public benefits, resulting in reduced air pollution, greenhouse gas emissions, traffic congestion and crashes, as well as increased physical activity if walking trips increase. Additionally, there may be other benefits from TOD, including



the creation of a more stable economic base, support for healthier behaviors and promotion of community. This project will investigate and measure these transportation, economic, health, community and environmental impacts of TOD to individuals and communities. (Clients: New Jersey Department of Transportation, NJ TRANSIT, and the Mineta National Transit Research Consortium)

PEDESTRIAN AND BICYCLE MOBILITY AND SAFETY

BROADENING SRTS OUTREACH EFFORTS FOR CHILDREN WITH DISABILITIES IN NEW JERSEY, VTC is researching effective methods and tools that will allow the New Jersey Department of Transportation to become a leader and national model for inclusiveness in statewide Safe Routes to School (SRTS) programs. To that end, VTC is conducting a series of interviews with organizations representing the interests of persons with disabilities statewide to determine how best to engage children coping with a diverse range of physical, developmental, emotional and mental disabilities. Information gathered from the interviews will facilitate an understanding of what steps New Jersey SRTS programs can take to appeal to children with disabilities and their families, learn about the travel issues often unique to different disability types and develop a core network of stakeholders to assist and guide New Jersey SRTS in incorporating the needs of more children with disabilities. (Client: New Jersey Department of Transportation)

THE CITY OF NEW BRUNSWICK SUSTAINABLE SAFE STREETS INITIATIVE. VTC has received a Rutgers University Community Research Grant to provide recommendations for improving safety on Livingston Avenue in the city of New Brunswick. The New Brunswick Sustainable Safe Streets

Safe Routes to School Resource Center

Working with NJDOT, Safe Routes to School (SRTS) Regional Coordinators have been established at the eight Transportation Management Associations throughout New Jersey and offer advice and assistance with launching and implementing SRTS programs in communities in all 21 counties. The NJ SRTS Resource Center oversees and supports SRTS Regional Coordinators as they help communities and schools throughout New Jersey with walk and bike to school events, walking school bus programs, youth bicycle and pedestrian education, school travel plans and surveys that provide evaluation and feedback on local programs.



As communities continue to engage in SRTS activities and events,

municipalities and schools will be able to apply for the SRTS Recognition Program, which launched in June of 2012. SRTS Regional Coordinators will nominate and assist schools and municipalities with online applications for First Step, Bronze, Silver and Gold level recognition. Participants in the SRTS Recognition Program will not only have access to technical assistance from New Jersey's SRTS Regional Coordinators as they promote and encourage safe walking and biking to school for students in their communities, they will also earn Sustainable Jersey points for their municipality and gain recognition both locally and statewide for SRTS efforts. Application deadlines are twice a year on May I and December I.

Supporters of SRTS can become Friends of NJ SRTS by applying online through the NJ SRTS Resource Center website. Friends can be municipalities, non-profits, police, counties, state agencies, organizations outside New Jersey and more. SRTS Friends can contribute in many different ways such as promoting, donating or volunteering for SRTS events and activities and will be recognized and listed on the SRTS website frequently throughout the year.

Initiative will use advanced traffic simulation techniques to model the impacts of reducing the number of travel lanes. Evaluating this safety-enhancing "road diet" will help to identify how the current right of way could be better utilized to serve all road users safely and efficiently. (*Client: Rutgers* University)

EFFECTIVE PRACTICES TO CONFRONT SCHOOL BUSING CUTS. School districts throughout New Jersey have been



forced to make significant budget cuts due to declining state aid, and courtesy busing has been a primary target. School district personnel and administrators across New Jersey have been interviewed in order to collect information on cost reductions in school transportation. Feedback regarding reductions, changes or eliminations of courtesy busing, effects and reactions from the school community and strategies implemented during bus cuts were solicited. Based on interviews with the school districts, both short and long-term strategy recommendations were made for when reductions and eliminations to busing are required. Many of these suggested recommendations can be instituted without making drastic changes to student transportation. (*Client: New Jersey Department of Transportation*)

INFLUENCE OF SCHOOL SITING ON STUDENT TRANSPORTATION. School siting practices can affect children's ability to walk and bike to school. It impacts mode choice, roadway congestion and traffic safety, as well as fuel consumption by the transportation sector. Data has been collected from 82% of kindergarten through eighth grade

Research Highlights

public schools in New Jersey. The traffic and pedestrian patterns and neighborhood interactions around schools throughout New Jersey will be analyzed. This data includes establishment year, census tract information for areas surrounding the school, pedestrian crashes, parcel size, class size and street network data. Data analysis will reveal how differing location patterns of schools throughout the state relate to pedestrian crashes and daily trips to school. Field work will further study the characteristics, traffic and pedestrian patterns and neighborhood surroundings of schools throughout New Jersey with a high incidence of pedestrian crashes of people under 18 years within a half mile of the school. (*Client: New Jersey Department of Transportation*)

PARENT RISK PERCEPTION SURVEY. A successful Safe Routes to School (SRTS) Program requires not only improvement to school environments and policies, but must also account for the fact that parents ultimately decide

whether or not children walk or bike to school. In order to better understand the role of parents in school transportation, a revised and updated New Jersey SRTS Parent/Caregiver survey was developed and implemented. Results from the survey will enable an understanding of why parents feel the way they do and will help the New Jersey Department of Transportation and the New Jersey SRTS Resource Center to better understand how to best target the SRTS message to parents as well as how best to respond to feedback. (Client: New Jersey Department of Transportation)

PERCEPTIONS OF BICYCLING AND PEDESTRIAN ELEMENTS. This study will evaluate New Jersey residents' preferences for various types of bicycle and pedestrian infrastructure. This research includes a web survey of residents in two large geographic areas about the quality of available infrastructure and their perceptions of bicycling and pedestrian infrastructure elements. Respondents rank different

New Jersey Bicycle and Pedestrian Resource Center

The New Jersey Bicycle and Pedestrian Resource Center (BPRC) was established by the New Jersey Department of Transportation and has been at VTC since 2001. Its mission is to motivate, educate and empower citizens to create safer and more accessible walking

and bicycling environments through research, education and sharing resources. The BPRC annual work program includes: 1) primary research, applied studies and program evaluation; 2) training and education, and; 3) information dissemination, outreach and technical assistance. Elements of the work program undertaken each year include serving as an information clearinghouse through a help desk and webbased resources; providing leadership and support to the New Jersey Bicycle and Pedestrian Advisory Council; and providing on-call technical expertise to NJDOT, local government officials and other stakeholders.



Current projects and outreach include:

- Regional Complete Streets Workshops: VTC is conducting regional workshops throughout the state for local officials, promoting the adoption of Complete Streets policies and procedures to include all users in the project development process, new design standards and new project evaluation criteria.
- Pedestrian Safety Enforcement Training: VTC continues to hold pedestrian safety enforcement trainings in two locations in the state each year. The training educates police departments on how to successfully conduct pedestrian "sting" operations by enforcing the Stop and Stay Stopped Law, with the goal of reducing pedestrian injuries and fatalities.
- NJ Bicycle and Pedestrian Ambassador in Motions Program: This program is most active between April to November, and comprises a team of five bicycle and pedestrian safety experts, educators and advocates. The primary goals of the program are to promote a culture of acceptance of all road users; strengthen a network of community organizations that can advocate for safe bicycling and pedestrian activity and provide training, encourage non-motorized transportation and encourage safe travel practices.

types of bicycling and pedestrian infrastructure elements, such as sidewalks, bicycle lanes and trails, and the reasons for their preferences. It includes a number of questions on walking and bicycling behavior, barriers to active transportation and preferences for different types of strategies to promote walking and bicycling. (*Client: New Jersey Department of Transportation*)

Resources for **Crossing** GUARDS. A school crossing guard training manual that will form the basis of a uniform, statewide training program has been designed as a training tool and reference resource. The manual includes information on traffic hazards, laws and control devices; characteristics of children in traffic; crossing techniques; classroom and field training; orientation for municipal departments; emergency police procedures; and public image. The crossing guard resources webpage



on the New Jersey SRTS website includes research on the state of school crossing guard training, work conditions in New Jersey and current best practices in use throughout the country. The Model Municipal Crossing Guard Policy and accompanying report, More Than Crossing Streets: Training, Policies and Procedures for School Crossing Guards in New Jersey, incorporate interviews with crossing guard supervisors to examine current hiring, training and supervision procedures, as well as insights from crossing guard focus groups. (Client: New Jersey Department of Transportation)



MULTI-MODAL TRANSPORTATION PLANNING AND POLICY

Assessing Opportunities for Coordinating School and Public Transportation in New

> JERSEY. School bus and public transportation agencies face similar economic obstacles, yet they have distinct operating characteristics and scheduling needs, and are restricted by different regulations and policies. However, potential exists for improved efficiencies, cost savings and retention and expansion of mobility through transportation coordination between school districts and public transit agencies. The current state of the practice of coordination nationally and its potential feasibility in New Jersey has

been expanded. Examples of coordination in New Jersey are limited but suggest that more communities could pursue these arrangements to their benefit. (*Clients: Rutgers University Transportation Coordinating Counsel and the Federal Transit Administration*)

SAFE ROUTES TO PUBLIC TRANSIT FOR PERSONS WITH DISABILITIES AND THE ELDERLY. An important goal of NJDOT is identifying and improving roadway environmental and infrastructure conditions to meet the safe travel needs of all New Jersey residents. The primary objective of this study is to assist NJDOT in achieving this goal by developing a standardized route check assessment tool in the form of a mobile application for use by entities in the state that conduct travel training activities, which are designed to teach transportation-disadvantaged populations to safely, independently and confidently use public transit. The mobile application will include information that NJ TIP Inc. and other travel trainers collect on both state and local roadway conditions during travel training field visits, and will be standardized in a user-friendly format to assist travel trainers with organizing field observations. The tool will also provide other means for identifying and potentially mapping roadway environmental and infrastructure conditions. (Client: New Jersey Department of Transportation)

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O U T R E A C H

THE VTC WEB PRESENCE

New Jersey Safe Routes to School Resource Center Website and Safe Routes Scoop Blog

With the new, enhanced New Jersey Safe Routes to School (SRTS) Resource Center website (<u>http://www.saferoutesnj.org</u>), the New Jersey Department of Transportation's SRTS program offers information and resources to assist schools, municipalities and families to enable and encourage students to walk and bicycle to school. New features of the website include: tools for contacting a regional coordinator who can



help schools and municipalities create and implement SRTS programs; applications for SRTS recognition programs for schools and municipalities; information on funding and running programs; and tool kits of resources for crossing guards, best practices for schools and municipalities and an interactive guide for creating a school travel plan. The Safe Routes Scoop blog publishes news, ideas and examples of SRTS projects around New Jersey and the country; announcements about research, education programs and presentations from the Center and our sponsor agencies; and other newsworthy items about SRTS, bicycling and walking in New Jersey.



New Jersey Bicycle and Pedestrian Resource Center

The New Jersey Bicycle and Pedestrian Resource Center (BPRC) launched a new website in summer 2012. The new site is a public gateway to the various resources the Resource Center provides to accomplish its mission of creating a safer and more accessible walking and bicycling environment in New Jersey through primary research, education and dissemination of information about best practices in policy and design.

Resources include media libraries, a guide to the "complete streets" movement in New Jersey and information on training and outreach that the BPRC conducts, including the

NJ Bicycle and Pedestrian Advisory Council and the New Jersey Ambassadors in Motion. The website also features a comprehensive collection of reports that the BPRC has published. Finally, the site is home to the New Jersey Walks and Bikes blog, where news and editorials on bicycling and walking in the state are published. The website can be found at: <u>http://www.njbikeped.org/</u>.

New Jersey Transit-Friendly Development Newsletter

This past year has been a period of transition for the Transit-Friendly Development Newsletter. The publication, the result of collaboration between VTC and NJ TRANSIT, is designed to enrich the conversation about transitoriented development in New Jersey. The newsletter is an important resource, reaching more than 6,000 subscribed readers. To better serve those readers in an increasingly dynamic media environment, changes are being made to transform the newsletter from a periodical to a continually updated website. This will more fully incorporate the benefits of online media and to improve the timeliness of articles. The effort will result in a new web identity, <u>www.njtod.rutgers.edu</u>,

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which will serve as the home for the Transit-Friendly Development Newsletter. The new website will be better able to incorporate videos and other media, serve as a platform for publishing new articles more frequently, provide a showcase for other TOD research conducted at VTC and incorporate social media. The new site will be launched in early 2013.

VTC is also on Facebook and LinkedIn:

- www.facebook.com/VTCrutgers
- www.linkedin.com/groups/Alan-M-Voorhees-Transportation-Center-3959349

Alan M. Voorhees Distinguished Lecture Series

VTC has a rich history of convening lecture series open to the public, featuring a diverse body of transportation professionals and leaders. Past lectures have included presentations on topics related to privatization and the public interest, federal transportation policy, bicycling and public health, the Surface Transportation Act, and land-use and transportation concerns. Among the notable speakers who have shared their work through the Distinguished Lecture Series are James Oberstar, former US Congressman; Joseph Boardman, Amtrak president and CEO; Emil Frankel, former Assistant US Secretary of Transportation; Anne Canby, President of the Surface Transportation Policy Project; Jack Lettiere, former New Jersey Department of Transportation Commissioner; Roy Kienitz, US Department of Transportation Under Secretary for Policy; and authors Jill Jonnes and Joseph Giglio.

The 2012 Alan M. Voorhees Distinguished Lecture was presented by Dr. Peter Norton, a historian of technology at the University of Virginia. This presentation covered topics from Dr. Norton's book, *Fighting Traffic: The Dawn of the Motor Age* in the American City (MIT Press, 2008), which documents how the motor age came to the city only after a tumultuous struggle between pedestrians, parents, auto clubs, street railways and other groups that competed over different ideas about what streets are for. His article "Street Rivals: Jaywalking and the Invention of the Motor Age Street" (*Technology and Culture*, 2007) won the Usher Prize from the Society for the History of Technology for "the best scholarly work published during the preceding three years under the auspices of the Society."



TRAINING

The Planning Program at the Bloustein School of Planning and Public Policy

The Master of City and Regional Planning program at the Bloustein School, ranked third in the country, prepares students for practice in planning and program development through a curriculum designed to develop an understanding of the linkages between the social, economic and political factors of urban society and the physical and environmental framework of regions and communities. VTC employees contribute to the Master's program by offering classes in transportation policy and coordinating certificates in transportation studies and transportation security.

Mentoring the upcoming generation of transportation planners and policy professionals is a core goal of the Voorhees Transportation Center. Each year, VTC provides several graduate assistantships to Bloustein students, as well as offers part-time work opportunities to the broader Rutgers student community. Many of our students serve an integral role on the projects to which they are assigned and contribute fresh perspectives to our work efforts. Some highlights of student awards and achievements over the past year are described below:

Advanced Institute for Transportation Education Scholarship

- Scott Fishberg, MCRP 2013
- Heather Martin, MCRP 2013

First Place: APA, Transportation Planning Division Paper Competition

• Kyle Gebhart, MCRP 2013

American Public Transportation Foundation Scholarship

- Mike Benson, MCRP 2013
- Kwan Hui, MCRP/MPA 2012

Dwight David Eisenhower Fellowship Program

- Aimee Jefferson, MCRP 2013
- Grant Engel, MCRP 2013
- Heather Martin, MCRP 2013
- Dorothy Le, MCRP 2012

Eno Fellows/Eno Leadership Development Conference

• Kwan Hui, MCRP/MPA 2012

Graduate Transportation Security Scholars Award

• Xiaodan Yan, MCRP 2011



Transportation Studies Certificate

The graduate Transportation Studies Certificate is a cross-disciplinary program open to graduate students in the Department of Civil and Environmental Engineering and in the two graduate programs (Urban Planning and Public Policy) of the Bloustein School. Two concentrations are offered: technology and design, and policy and planning. The technology and design concentration focuses on analysis and design issues and is directed to students interested in traffic engineering and facility design. The policy and planning concentration focuses on these two processes and is directed to students with these interests.

Transportation Management: Vulnerability, Risk and Security Certificate

The graduate certificate in Transportation Management: Vulnerability, Risk and Security provides students with a risk analysis approach to transportation policy. Participants develop expertise through a multidisciplinary approach, providing them with skills that apply to future work and enrich their research skills in the field of transportation planning and management. The certificate enables students to apply their classroom experience to reducing risk exposures and developing efficient interdisciplinary networks in response to system vulnerabilities. It is offered through the Bloustein School in cooperation with the schools of Engineering, Arts and Sciences and the University of Medicine and Dentistry of New Jersey.

PARTNER CENTERS

Center for Transportation Safety, Security and Risk

The Center for Transportation Safety, Security and Risk (CTSSR) combines the strengths of faculty and staff with complementary expertise in risk analysis and transportation. The Center is part of the Edward J. Bloustein School of Planning and Public Policy and works cooperatively with its sister organizations, the National Transit Institute and the Voorhees Transportation Center. CTSSR also works with other Rutgers faculty and staff in the School of Engineering, Center for Advanced Infrastructure and Transportation, School of Environmental & Biological Sciences, School of Public Health and with University staff involved



in disaster preparedness and emergency response. Together, these organizations provide outstanding expertise in risk analysis and transportation security and safety. For more information on CTSSR, visit their website at <u>www.policy.rutgers.edu/ctssr/</u>.

National Transit Institute

VTC's commitment to achieving the education component of our mission is realized through our relationship with the National Transit Institute (NTI). Established in 1992 at Rutgers University under the Intermodal Surface Transportation Efficiency Act of 1991, in 1999 NTI became part of the Voorhees Transportation Center. NTI receives funding through the Federal Transit Administration and through supplemental project-related grants.

NTI's mission is to provide training, education and clearinghouse services in support of public transportation and quality of life in the United States. The institute is a valued partner with public transportation service providers, Rutgers University, trade associations and other industry organizations. NTI offers a robust and diverse course catalog, as well as a variety of education products and tools. In 2012, NTI began producing webinar-based videos for dissemination on the Rutgers-NTI YouTube channel. During the 2012 Rutgers Fiscal Year, NTI conducted 480 instructor-led courses, webinars and special offerings, training 12,016 transportation professionals. In addition, NTI distributed more than 25,500 CD-ROMs and videos, handbooks, pocket guides and posters to transit agencies and their employees. The NTI annual report can be found online at policy.rutgers.edu/news/reports/NTIAnnualReportFY2012_Final.pdf. For more information on NTI, visit their website at www.ntionline.com.

Ralph W. Voorhees Center for Civic Engagement

The Ralph W. Voorhees Center for Civic Engagement is a collaboration between university faculty, students and community development actors that seeks to enhance educational opportunities, facilitate research and build community development capacity. The Center was established in 2011 with generous support from Susan Voorhees and Scott Voorhees, Ralph Voorhees' niece and nephew. In 2008, they intiated their commitment to honor their uncle with a \$500,000 gift to establish the Ralph W. Voorhees Fellowship Program in Public Service for students, enabling their involvement in experiential civic engagement and providing them with a network of civic-minded scholars and practitioners. These efforts build community capacity and contribute to the intellectual life of the university.

The Center's activities also include conducting community and urban research. Faculty and students collaborate with local actors on original research, publish in journals and present their findings at academic conferences. The Center also seeks to enhance dialogue and discussion among communities, government, students and scholars and support the development of responsive public policy. For more information on the Center for Civic Engagement, visit their website at http://policy.rutgers.edu/rwv.



Edward J. Bloustein School of Planning and Public Policy

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