



RESEARCH NEWS

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Assessing New York State DOT's Alternatives to Herbicides, Integrated Vegetation Management, and Related Research Programs

by

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Herbicides have been widely used to control vegetation on roadside rights-of-way because they are perceived as more cost effective than other treatments. However, as knowledge of environmental systems has developed along with a growing social perception of health and environmental issues, a need for alternative methods to herbicide use for vegetation control along roadsides has become a prominent issue. As many organizations are also looking into innovative control methods, it is important to gather and review information generated throughout the industry. An annotated bibliography of non-herbicide alternative treatments to control roadside vegetation was developed based upon a review of the literature conducted from January 2004 through February 2005. Electronic search engines for Internet, journal, and library databases were searched using various keywords.

Select literature was formatted into an annotated bibliography, searchable database, and glossary. A total of 81 references were found during the literature search. A large number of references were found in each of various categories of weed control (biological—n=21; chemical—n=18; and physical—n=26) and vegetation management tactics (cultural—n=14), and some references on weed prevention (n=5). Many of the non-herbicide alternatives presented in the references found during this literature search have

[Continued on page 3](#)



Director's Message

Robert "Buz" Paaswell, Ph.D.
Director & Distinguished Professor

CONTENTS

Title	Page
Assessing New York State DOT's Alternatives to Herbicides, Integrated Vegetation Management, and Related Research Programs	1
Director's Message	2
The Outstanding University Student in Transportation Award	3
The 2005 Outstanding Paper in the Field of Geometric Design	4
Roundtable on Advanced Technology in Transportation	4
Partnerships for New York	4
Concentrating at Work: Reducing Auto Use Via Transit-Oriented Development at the Workplace	5
Rudin Center Events	5
Visiting Scholar Seminar: The High Cost of Free Parking	6
Empty Marine Container Management in a Port MegaCity Region	6
Visiting Scholar Seminar: Transit Oriented Development	7
What ever happened to . . . ? Women's Transportation Seminar Graduate Scholarship.	8

New York City has gotten through two dissimilar, yet somehow related events reflecting on the important, yet fragile nature of our infrastructure. Just before Christmas, 2005, there was a strike by the Transport Workers Union, shutting down the public system that serves more than 8 million trips per day. And in mid April, the tram that serves to link Roosevelt Island with Manhattan got stuck stranding dozens of riders for more than 6 hours. Both events show clearly how critical public transit – in all of its complimentary forms – is to the smooth functioning of America's largest City. But they also underscore that these systems need some TLC, tender loving care. And this care means that it is imperative to maintain our systems, at all times, in a State Of Good Repair. The systems must operate as designed. For the Unions and Management this means that, in this age of high tech and real time information, rethinking approaches to operations and maintenance, even rethinking the nature of works and evolving jobs. UTRC has been on the front line in stimulating this "new paradigm" approach leading to the advanced training of an emerging generation of transit workers. The tram, part of Roosevelt Island recent history, built by a Swiss firm more than 30 years ago needs specialty care and replacement of critical parts. Like the aging subway system, the constant attention to maintenance and upkeep is time consuming and costly; this in an era when public funds are hard to come by. But the innovative spirit that defines Region 2 must be brought to bear in order to solve these co mingled problems of expensive maintenance and funding. UTRC can help through its programs of education and training in both new technology and in management approaches, and we can seed the agencies with a new generation of can-do students.

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Continued from Page 1

already been tested, are currently under testing, or are under consideration by NYSDOT. Some new prevention and control measures were found in the literature review that may warrant testing, including mulches, soil solidifiers, natural herbicides, and mycoherbicide.

This UTRC funded study consists of a set of five research projects and the final reports on roadside right-of-way vegetation management were conducted in 2004-2005 by the State University of New York College of Environmental Science and Forestry for the New York State Department of Transportation (NYSDOT).

Objectives for the research were as follows:

- Objective No. 1: evaluate NYSDOT's current vegetation management program and "Alternatives to Herbicide" program
- Objective No. 2: develop recommendations for the vegetation management program and "Alternatives to Herbicide" program
- Objective No. 3: develop a systematic framework and research protocol for identification, evaluation and implementation of environmentally sensitive, lower maintenance, and cost -effective vegetation

management techniques that can be integrated into the overall vegetation management program.

The UTRC-SUNY research team met these objectives over the course of 2004-2005 using the following projects (all reports finalized in December 2005).

- Research Project #1 - A thorough search for existing information and knowledge on highway ROW vegetation management policies and techniques, and alternatives to herbicides programs and demonstrations, as applicable to New York State
- Research Projects #2 and #3 - Development of assessment standards (Project #2) and assessment of NYSDOT's vegetation management program (Project #3)
- Research Project #4 - Development of a cost-effectiveness model for evaluating alternative vegetation management techniques for research, development, and application.
- Research Project #5 - Proposition of alternative vegetation management techniques and evaluation protocol for testing, demonstration, and operational application of those techniques.

All reports are available on the UTRC website: www.utrc2.org.

The Outstanding University Student in Transportation Award **Award: Mr. Zhihua Yi, Ph.D. Student, City College of New York**

Mr. Yi is current a Ph.D. student at the City College of New York. Mr. Yi's Ph.D. thesis is on "Blast Loads on Highway Bridges: Mechanisms and Mitigations". In this work, Mr. Yi has been working on modeling approaches for blast loads and behavior of bridges components during blast loads using high-precision Finite Element Analysis.

Mr. Yi has developed a unique approach through which existing software from Department of Defense for blast loading can be used for highway bridges without any modification. In fact, detailed high-precision finite element model of a highway bridge developed by Mr. Yi may be used by FHWA Resource Center as a part of the course on blast loads on bridges. In addition, Mr. Yi has done extensive work on the preparation of "Handbook on Bridge Scour Countermeasures", a project funded by NJDOT, under the supervision of his advisor, Professor Agrawal, and Dr. Khan of STV, Inc.

University Transportation Research Center, News

The 2005 Outstanding Paper in the Field of Geometric Design

Mr. Herbert S. Levinson, University Transportation Research Center's Icon Mentor was awarded the 2005 Outstanding Paper Award in the Field of Geometric Design at the January 2006 Annual Meeting of the Transportation Research Board in Washington, DC. The award was given in recognition of an outstanding paper entitled: *Safety of U-Turns at Unsignalized Median Openings-Some Research Findings* by the Committee on Geometric Design (AFB10). Mr. Levinson is an active contributor to this Newsletter and the UTRC research program.

Roundtable on Advanced Technology in Transportation

The University Transportation Research Center at City college hosted a roundtable bringing together for the first time some of the region's leading advanced technology research centers to discuss transportation research needs and opportunities for collaboration. Participants included Albany Nanotech-College of Nanoscience and Engineering, SUNY, the Center of Advanced Technology in Photonics Applications, the Center for Transportation Injury Research, The City College Visual Computing Laboratory, and the Center for Information Forensics and Assurance, as well as representatives from the New Jersey Department of Transportation, New York State Department of Transportation, MTA New York City Transit and the New York Metropolitan Transportation Council. Each research center made a brief presentation of its work, focusing on potential applications in Transportation.

The participants discussed potential transportation research which will involve advanced transportation research and hi-tech applications. Each participant highlighted areas of interest for future research ideas. The Transportation agencies identified various areas for

future research to benefit their agencies and transportation. These areas included global research initiatives, development and deployment of high technology, and education resources for supporting high technology and transportation.

Partnerships for New York Innovative Transportation Financing and Contracting Strategies: Opportunities of New York State

The New York State Department of Transportation and the University Transportation Research Center of the City College of New York co-sponsored a conference on Partnerships for New York at the Swyer Theater, The Egg, Empire State Plaza in Albany, New York on March 8, 2006.

Across the U.S., many states and transportation authorities are exploring innovative financing and contracting mechanisms that can improve the efficiency, flexibility, and accountability of capital project management. This conference, sponsored by the New York State Department of Transportation, examined "Transportation Development Partnerships" around the country, and the issues and best practices New York State should keep in mind as it considers how it might authorize similar partnerships. The conference was intended to inform key policymakers and stakeholders on the use of Transportation Development Partnerships, their value, when and where they are appropriate, where they have been successful, and how they can be structured to protect the public interest.

The conference featured expert speakers from universities, civic organizations, consulting firms, financial institutions, and federal and state agencies. It was attended by approximately 275 people. UTRC Briefing Papers on Public Private Partnerships in Transportation and the NYSDOT paper on "Transportation Development Partnerships": Executive Summary / Full Paper are available on the UTRC web site: www.utrc2.org.

University Transportation Research Center, News

Concentrating at Work: Reducing Auto Use Via Transit-Oriented Development at the Workplace

The University Transportation Research Center organized the NYMTC Brown Bag Lunch Seminar, Concentrating at Work: Reducing Auto Use via Transit Oriented Development of the Workshop. The speaker, Dr. Daniel G. Chatman, Assistant Professor of Planning and Public Policy and Director of Research, Alan M. Voorhees Transportation Center, Rutgers University presented the seminar at the NYMTC Headquarters in New York on February 15, 2006.

Transit-oriented development (TOD) planning efforts in U.S. cities are often intended to create mixed-use developments near transit stops that include a significant amount of housing, consistent with Peter Calthorpe's pioneering definition of transit-oriented development. But mixed-use, primarily nonresidential areas within cities may also have an important role to play. Dense development with shops and personal services near transit-served workplaces makes it easier for workers to carry out personal commercial activities on foot before, during, and after work, both providing a market for cost-effective transit commuter service and enabling reduced personal vehicle use during the rest of the day. It has also long been argued that primarily nonresidential development near transit stops may have stronger effects on both commute mode choice and non-work auto trip frequency. In part this is because, for historical, economic, and political reasons, both actual and potential development densities are usually higher, parking standards lower, transit service better, and availability of shops and services greater in predominantly non-residential areas.

This presentation will explore various ramifications of a nonresidential TOD strategy, and will present

empirical evidence supporting the notion that concentrating at work has bigger transportation efficiency payoffs than concentrating at home. Regional and city planners trying to get people to use their cars less might profitably re-focus their land use strategies on nonresidential areas, particularly to the extent that development of and in such areas is constrained by existing policies such as zoning codes and minimum parking requirements.

Rudin Center Events:

The Coming Transformation of Travel

The NYU Wagner Rudin Center for Transportation Policy & Management in concert with the Council on Transportation and the NYU Wagner Transportation Association presents A Policy Maker Breakfast featuring John Poorman, Staff Director, of the Capital District Transportation Committee.

Mr. Poorman presented the results of a national colloquy held to identify key demographic, technological, and economic changes anticipated over the next 30 to 50 years and their implications for metropolitan planning in the United States. The event was held from 8:30am – 10:00am at NYU Kimmel, Rosenthal Pavilion on Wednesday, April 19, 2006. 60 Washington Square South, 10th Floor.

Smart Growth, Smart Transportation

The NYU Wagner Rudin Center for Transportation Policy & Management in concert with American Planning Association, New York Metro Chapter, NYU Wagner Urban Planning Student Association, and NYU Wagner Transportation Association presents a Breakfast with Larry Silani and Jim Yanchula.

Mr. Silani, Director of Planning of LaSalle, Ontario, discussed innovative approaches to planning aimed at creating livable

Continued on page 6

University Transportation Research Center, News

Continued from page 5

neighborhoods, mixed-use town centers, and a well-planned transportation system. Mr. Yanchula, Manager of Urban Design and Community Development of Windsor, Ontario, addressed Windsor's plans for integrating planning and design measures as a means to promoting economic growth, diversifying residential developments and redesigning its downtown. The event was held from 9:00 – 10:30 am at the Puck Building, 2nd Floor Conference Room, on April 20, 2006, 295 Lafayette Street.

Visiting Scholar Seminar:

The High Cost of Free Parking

The University Transportation Research Center sponsored the Visiting Scholar Seminar: The High Cost of Free Parking. The seminar was co-hosted by The Rudin Center for Transportation Policy and Management, and co-sponsored by CUNY Institute for Urban Systems, Port Authority of New York and New Jersey and New Jersey Department Of Transportation. The speaker, Dr. Donald Shoup, is Professor of Urban Planning, University of California, Los Angeles.

How many parking spaces are enough? How much should parking cost? Why are decisions about parking vital to the future of our communities?

In this presentation, Donald Shoup will discuss how New York City and surrounding communities can cope with complex parking issues. Shoup argues that the average parking space costs more than the average car. When we shop, dine out, or see a movie, we pay indirectly for parking because its cost is included in the price of everything from hamburgers to housing.

He also shows that free parking has other costs: it distorts transportation choices, warps urban form, and degrades the environment. Shoup estimates that if all U.S. parking spaces were combined into one surface lot, it would be the size of Connecticut. He also estimates that every year we spend as much to subsidize off-street parking as we spend for Medicare or na-

tional defense.

Donald Shoup is a professor of Urban Planning at UCLA, where he has served both as Chair of the Department of Urban Planning and as Director of the Institute of Transportation Studies. He teaches courses on transportation, land use, public finance, and urban economics. His recent research has centered on parking, and his book, *The High Cost of Free Parking*, was published by the American Planning Association in 2005.

Empty Marine Container Management in a Port MegaCity Region

The University Transportation Research Center organized the NYMTC Brown Bag Lunch Seminar, Empty Marine Container Management in a Port MegaCity Region. The speaker, Dr. Maria Boilé, Assistant Professor of Civil and Environmental Engineering and Director of Research and Education, Maritime Infrastructure Engineering and Management Program, Rutgers University presented the seminar at the NYMTC Headquarters in New York on February 15, 2006.

With the global container population approaching 16 million TEU (20-foot container equivalent units) and the annual production of new boxes exceeding two million TEUs, an estimated 2.5m TEU of empty boxes are currently sitting in yards and depots around the world waiting for use. Stockpiling of containers at the port terminals or at nearby areas is a potential environmental hazard and consumes valuable land for businesses. The talk will address the very dynamic and multidimensional problem of empty marine container management in a port megacity region, with special reference to the NY-NJ region. The two major aspects of empty container management, namely effective use of empty equipment with empty trip minimization, and empty container accumulation, will be dis-

Continued on page 7

University Transportation Research Center, News

Continued from page 6

experiences and trends and regional challenges for NY-NJ will be presented. The talk aims at promoting awareness of the nature of this crucial intermodal transportation industry problem among stakeholders associated with it and the policy, planning and scientific community in the region.

Visiting Scholar Seminar:

Transit Oriented Development: Transportation Solution, Real Estate Challenge

The University Transportation Research Center sponsored the Visiting Scholar Seminar: The High Cost of Free Parking. The seminar was co-sponsored by The Rudin Center for Transportation Policy and Management, CUNY Institute for Urban Systems, Port Authority of New York and New Jersey and New Jersey Department of Transportation.

The speaker, Robert T. Dunphy is Senior Resident Fellow, Transportation and Infrastructure at the Urban Land Institute, a global education and research organization based in Washington, D.C. His research in traffic congestion, transit, transportation solutions, and parking has emphasized their connection to housing, land use, and development. He was managing author of the recent ULI publication, *Developing Around Transit: Strategies and Solutions that Work*. Dunphy is active in the Transportation Research Board, for which he chaired the Transportation and Land Development committee from 1998 – 2004, the Institute of Transportation Engineers, Lambda Alpha International, an honorary land economics society, and other national transportation committees. His previous experience includes consulting, metropolitan transportation planning, and teaching. He received a Bachelor's Degree in Civil Engineering from the Catholic University of America, and a Master of Science in Civil Engineering from Texas A&M University.

Current interest in public transit investments is enormous. The challenge will be to also create the supporting development to make them work. Robert Dunphy discussed experiences in transit oriented development from a new Urban Land Institute book, *Developing Around Transit: Strategies and Solutions that Work*, a collaboration among six authorities from the fields of development, planning, and transit. The value of transit to developers and property owners as well as broader community aspirations will be addressed along with new research on real estate property values. Fundamental challenges are examined for new transit projects; convincing the larger community that transit will work there; and making the case that compact, urban development around transit, will work there. The importance of such smart growth in established markets that have grown up around transit will also be discussed.

The importance of collaboration was highlighted, because from a transit perspective, urban projects yield the greatest leverage in expanding transit ridership and supporting transit services. However, building in such established urban areas is transit friendly, but development unfriendly. In contrast, the vast majority of the growth in most regions is expected to be in the suburbs, which are developer friendly, but generally transit unfriendly. The challenges of re-making the suburbs to support desired transit services and more urbane growth will be presented. The presentation will conclude with a number of principles for successful development around transit.

Mr. Dunphy is also a co-author of the recent TCRP report, *Transit-Oriented Development in the United States--Experiences, Challenges, and Prospects*.

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

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University Transportation Research Center, News

What ever happened to . . . ?

Women's Transportation Seminar (WTS) Graduate Scholarship.

UTRC has been supporting women in transportation is a number of ways, one of which is to supplement the Women's Transportation Seminar (WTS) Graduate Scholarship. In October 2005, UTRC will be making their 13th award to an outstanding woman transportation scholar, Neha Mittal. We tracked down a few of the past winners of the graduate scholarship and asked them what they have done since receiving the UTRC award. Here are the answers from four past scholarship winners.

Janine Jankowski (now Janine Viscount) won the WTS/UTRC scholarship in 1993. At the time she was working at Parsons Brinckerhof in their highway group while earning a master's degree in transportation. In 1996, she moved to Buffalo, to be Area Manager of PB's new Buffalo office. She grew the office to a staff of nine before moving back to the New York City office two years later. She is now working in the Parsons Brinckerhof Seattle office as Operations Manager for development and execution of transit and rail projects in the Northwest. She is also assisting Sounder Transit (which serves the Puget Sound area including Seattle, Tacoma, and Everett, Washington) to extend the Sounder Commuter Rail from Tacoma to Lakewood.

UTRC, in conjunction with WTS, made an award to **Nellia Shakmina** in 1998. At the time she was working at URS, studying transportation at Brooklyn Polytechnic University, and raising her daughter. Winning the scholarship, to quote Nellia, "encouraged me to go after interesting and challenging projects, gave me confidence, professional worth and personal satisfaction." Nellia started working for B. Thayer Associates when they had a sub contract to do a pedestrian study as part of the Proposed Number Seven Line Ex-

ension, Feasibility Study for Construction of Stadium on Manhattan's West Side for 2012 Olympics. (NYCTA). "I had one week to put together a work program to take pedestrian counts at over 40 intersections and four key subway stations on the Number Seven Line. . . . Up to 280 people were hired to do the job. We had to train people and provide everyone with equipment. All our efforts had to be coordinated with other consultants doing vehicular counts at the same intersections. It was a new company and new job.

In 2003, **Sophie Hartshorn** won the Graduate Scholarship, which she used to finish her Master's of Urban Planning and earn a Transportation Certificate at Rutgers. The scholarship helped Sophie financially, but as she says: "more importantly, winning the scholarship showed me that I had the support of a large group of women transportation practitioners - people that are both mentors and friends. It really helped to boost my confidence and belief that I was studying the right thing." Sophie finished her Master's in May 2004 and started working for Wilber Smith Associates in their Seattle and San Francisco offices.

In 2004, the scholarship was awarded to **Laynie Weaver**. Laynie relocated to the UTRC Region from Colorado two years ago in order to pursue a Master's degree in City and Regional Planning at Rutgers University. "Writing my essay [for the scholarship application] actually made me stop, ponder and compose why a career in transportation was the right road for me. For that reason the essay proved invaluable, fortunately at the same time it proved to be quite valuable." Laynie graduated in May 2005 with a Master's degree in City and Regional Planning and a job with the National Transit Institute. She is working in the Workplace Safety and Security division, assisting with proposals and budgets as well as conducting research and drafting training materials designed to address front-line and supervisory worker safety.