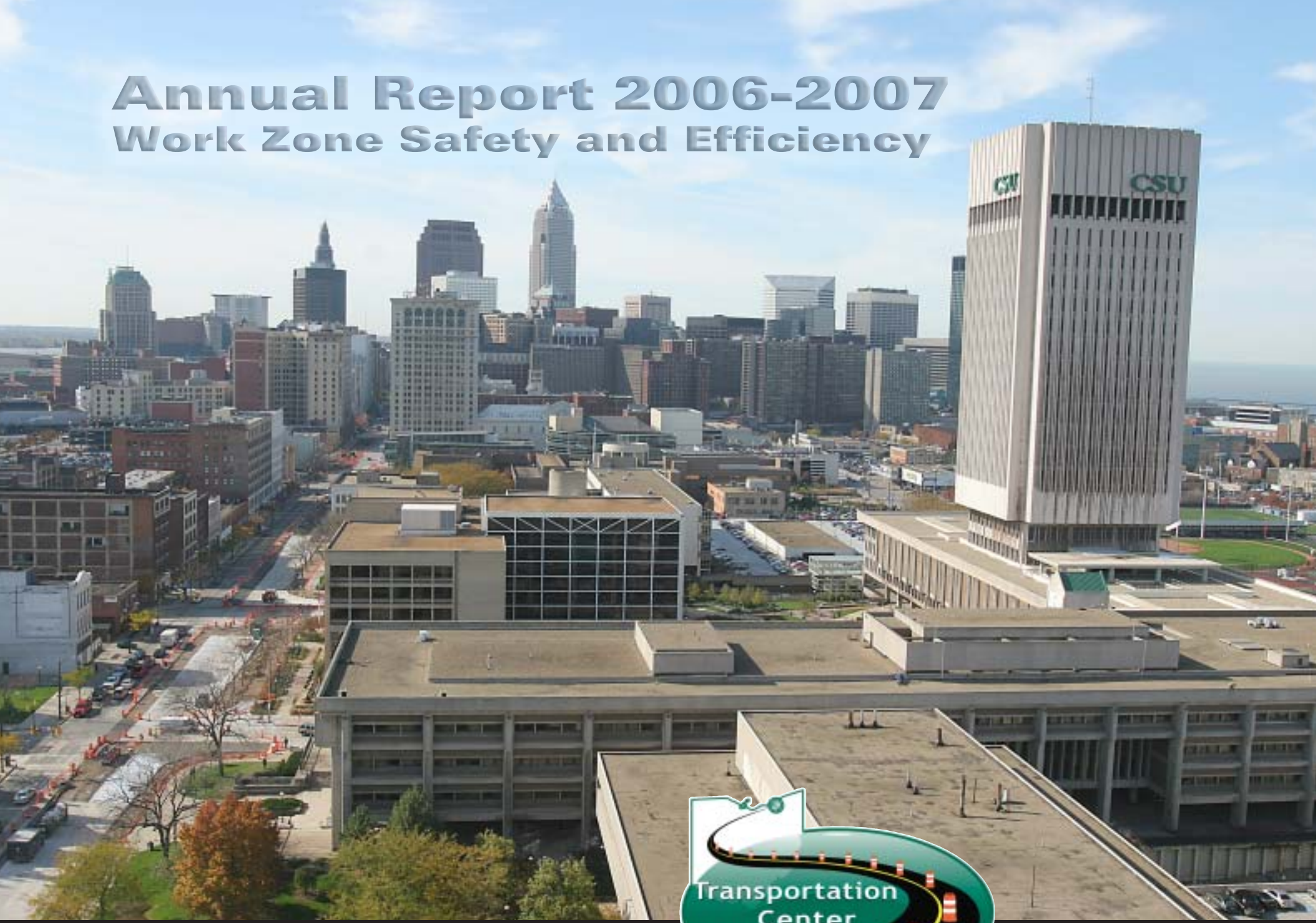
Annual Report 2006-2007
Work Zone Safety and Efficiency



Transportation Center
Cleveland State University

"Working to Save Lives"

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Efficiency Transportation Center

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Director's Message

Transportation has always played a pivotal economic role in our society. Research breakthroughs in transportation technology have increased accessibility and positively impacted the general well being of nearly all segments of our nation's economy. The mission of the federal University Transportation Center (UTC) Program is to advance American technology and expertise through education, research and technology transfer. This mission and its implementation through various UTCs throughout the nation has, over the years, leveraged the impact of the transportation research and development conducted at these centers.

Since Congress began funding UTCs in 1987, many universities have participated in these federal partnerships. These partnerships have yielded a variety of innovative concepts that cut across multiple transportation modes and have advanced the state of the art in the transportation field. Cleveland State University (CSU) began participating in this program through support enacted in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) legislation, which was passed in August of 2005.

At CSU the mission of the University Transportation Center for Work Zone Safety and Efficiency encompasses the provision of training, education, and research focused on highway construction safety. From research based on human factors engineering to transportation-related degree programs, the Center at CSU serves as a primary regional resource for preparing transportation professionals as our nation effectively and safely rehabilitates the transportation infrastructure,

The need for safer work zones has never been greater. While highway construction and maintenance have continued to improve safety for motorists, the challenge has been in preserving that safety while the improvements are implemented. The Transportation Center at CSU is responding to this challenge through efforts in the following areas.

- Increased Research Performance: Through a varied human resource infrastructure that includes graduate student assistants, faculty, and research personnel, the Center has begun to contribute to the body of knowledge associated with work zone safety and congestion abatement over the past year. A research program has begun that offers opportunities to develop multi-disciplinary approaches to problems related to work zone safety. Projects supported in our first year of operation have been consistent with the needs of industry and public safety advocates. Initially, human factors engineering has served as the cornerstone of most our efforts.

- Improvements in Transportation Education: Increases in both undergraduate and graduate student enrollments were a paramount objective of the Center's education program. It

was anticipated that this would include increases in both the Civil and Environmental Engineering, as well as the Industrial and Manufacturing Engineering programs. Transportation related courses have been added to the curriculum with the intent to meet the technical and safety needs identified in collaboration with the Ohio Department of Transportation (ODOT) and the Occupational Safety and Health Administration (OSHA). Multi-disciplinary research efforts that targeted student involvement have been implemented. Finally, the Center has inaugurated a "Student of the Year" award. The Center identifies one graduate student each academic year to receive this award. Our first recipient is highlighted in a later section of this report.

- Increased Recruitment of Transportation Professionals: With the advent of the new transportation specialty in the Civil Engineering Department activities are now being focused on student recruitment. The Center has hired an Education Coordinator that oversees this activity. Several K-12 outreach programs have been instituted. We want to fill our regional pipelines to schools in the area with future transportation professionals. In addition, we intend to construct pipelines with larger diameters. These efforts are discussed in more detail later in the report. Undergraduate students on Center scholarships have worked as co-op students with regional highway construction companies and design firms focusing on transportation engineering. Recent recipients of industry supported scholarships for students graduating from two year civil technology programs were recruited into the Civil Engineering program at CSU utilizing follow on scholarships supported by the Center. The 2007 freshman cohort in Civil Engineering has apparently doubled in size from previous years (from on average 18 students to 35 students).

- Improved Diversity in the Transportation Field: With an ever-increasing number of minorities working at highway construction sites, it has become equally important to increase the number of underrepresented minorities as well as impact the number of female transportation professionals in a positive manner. The Center has piggy backed Cleveland State University's ability to educate and graduate a large percentage of minority students (20% - the highest percentage of any non-HBCU in Ohio). Our K-12 recruitment efforts further reflect our commitment to racial and gender diversity.

- Technology Transfer Initiatives: Looking forward, the Center intends to support the kinds of technology that is relevant to, and has near term application for,

the heavy highway construction industry. As this technology comes on line and matures, the Center intends to disseminate information about our achievements in several ways. The Center maintains a website and publishes a newsletter on a regular basis. The Center has worked with external organizations such as the Ohio Contractors Association (OCA) and the regional section of the American Society of Civil Engineers (ASCE) by co-sponsoring several seminars. The Center has a burgeoning internal collaboration with the University's Division of Continuing Education that will be fostered.

From our inception efforts at the Center have primarily focused on work zone safety and congestion, as well as education issues. This narrowly defined focus has allowed the Center to partner with the transportation industry, government agencies and labor organizations on specific issues relating to these topics. So far our ability to raise matching funds from stakeholders and our success obtaining externally funded projects underscores our initial success.

It is my privilege to serve as the founding Director of the Center. It has also been my good fortune to work with several key individuals whose efforts lead to the creation of the Center. Primarily I am indebted to George Palko (Chair - Center Advisory Board, President/CEO of Great Lakes Construction Company), and United States Congressman Steven C. LaTourette who sponsored legislation in the SAFETEA-LU bill that formally created the Center. Without the help of these two individuals none of this would have been possible In addition, United States Congressman Ralph Regula had the foresight to see the educational impact of the Center and sponsored legislation early on to support aspects relating to the Center's educational mission. Almost immediately after the SAFETEA-LU legislation passed Laborers Union Local 860, a Cleveland local, and the OCA asked to be involved in Center Activities. Within a year of their involvement the Ohio Laborers-Employers Cooperative Education Trust (LECET) made a sizable donation to the Center which has been put to good use.

I want to take this opportunity to express my gratitude by simply saying "Thank You" to these individuals, the organizations and to numerous others who have given their time and expertise to this endeavor. Our successful startup efforts affirm their belief in the Center concept, and point to a promising future where heavy highway construction safety research yields better educated engineers, the development of life saving products, and the implementation of safer construction methods.

Stephen F Duffy PhD, PE, F.ASCE
Director, Work Zone Safety Center

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Center Theme

The theme of the Center at CSU is "Highway Work Zone Safety and Efficiency." The overall safety of America's highways has steadily improved over the years after construction upgrades have been completed. However, these same segments of the highway system that offer up improvements in motorist safety after construction is completed are yielding disturbing safety trends during construction and rehabilitation. In fact, deaths per year in work zones have steadily increased since 1995. Estimates by the American Road and Transportation Builders Association (ARTBA) and recent history point to an increasing number of highway work zones. However, only a limited number of projects lend themselves to diverting traffic around construction work zones. So when highway work zones are present motorists must share the road with construction equipment and personnel. This dangerous mix is particularly hazardous. As we repair our nation's highway infrastructure motorists, construction personnel, as well as public maintenance personnel, are being placed at greater risk, as evidenced in Figure 1.

Figure 1 Work Zone Accident: I-71, ODoT Project #239-00

Even though the heavy highway industry has made safety along roadway construction sites a priority, since the year 2000 over 1000 people have been killed in work zones on an annual basis (see trends in Figure 2). On average, over 37,000 are injured every year. However, most of the work zone crash data simply describes the type of crash and speed. The data does not answer the question "what factors increase crashes on roadways where a work zone is present?" - e.g., driver attention, pre-crash activity, traffic environment, etc. Driver behaviors (i.e., human factors) prior to the crash have been analyzed based on subjective information when available from drivers and observers, and the usefulness of this information is limited. Effective countermeasures based on incomplete or inaccurate data has contributed to the fact that work zone safety is still a critical issue.

Work zones lead to congestion, and congestion has been generally viewed as an anchor on economic prosperity. This issue is cross-cutting including issues such as congestion at

the entrance to construction work zones, increased delays during rush hour traffic, and downtown congestion during construction season. The traveling public is particularly sensitive to and resentful of congestion generated by construction activities. Thus the Center not only focuses on upgrading safety in work zones, but we also will develop and help deploy strategies to mitigate congestion.

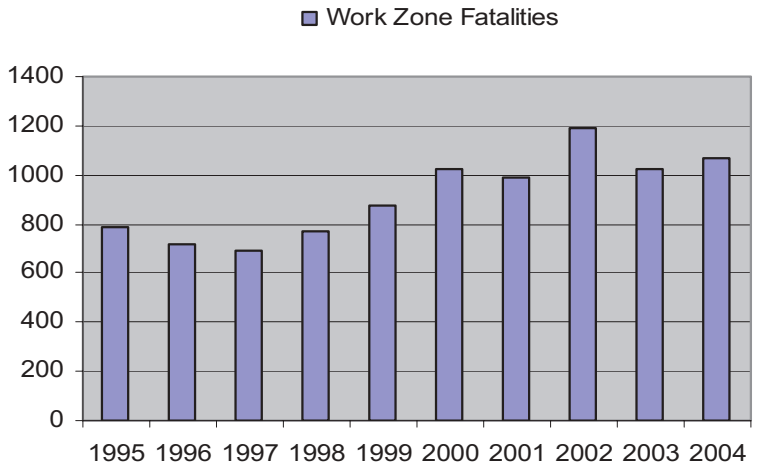


Figure 2 Work Zone Fatalities – National Data

It is not enough to merely repair our nationís infrastructure. In the process of reconstructing our highway system to its optimal condition, engineering designs must be implemented to allow for future maintenance with minimal disruption to traffic flow. This must be accomplished with a corresponding minimum number of safety hazards. These viewpoints dovetail with the 2006 "National Strategy to Reduce Congestion on America's Transportation Network" published by the U.S. Department of Transportation. Research personnel at the CSU Transportation Center have adopted the philosophy that congestion and reduced safety are not natural outgrowths of rehabilitating the nationís infrastructure. Hopefully our efforts will lead to low cost operational improvements in work zones.

From an organizational standpoint (see Figure 3) management of the Center resides in the Fenn College of Engineering. The Director formulates the operating policies and administrative procedures. It is also the role of the Director to serve as the liaison between all internal and external partners of the Center. Currently, external liaisons are conducted primarily through the Center's Advisory Board.

The Advisory Board plays a key role in guiding efforts relevant to the transportation industry. The External Advisory Board's mission consists of

- helping the Center define and address problems and issues that are of importance to Northeast Ohio and are consistent with national and state initiatives in

Management Structure

the areas of work zone safety and congestion abatement;

- providing contacts and liaison with governmental agencies, the private sector, non-profit organizations, and the public that would facilitate the Center to work creatively and cooperatively with all interested stakeholders concerned;

- serving as contacts to personnel and experts who will be willing to work on interdisciplinary teams to carry out research on significant safety and efficiency issues;

- facilitating mutual understanding and delineate the constraints which will define workable solutions to safety issues which affect work zones and the heavy highway industry; and

- serving as a review board for proposed plans and policies developed by the Center Director and Staff on the operation and management of the Center;

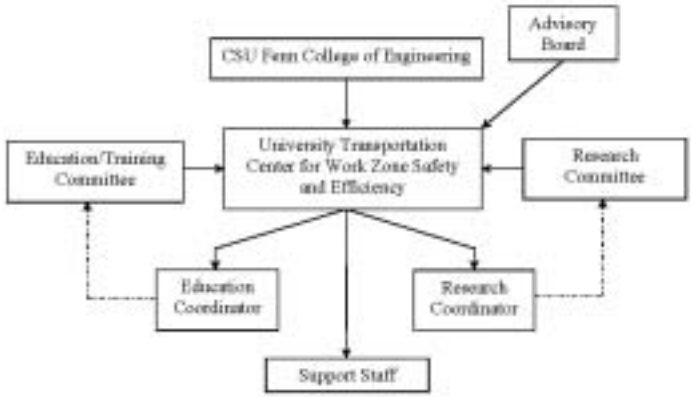


Figure 3 Management Structure

The advisory board for the first year of operation consisted of the following individuals:

George Palko PE
(board chair)
President/CEO
The Great Lakes Construction Company

Bruce Owens
Plastic Safety Systems
(ATSSA National Board Member)

Mark Potnick
Director, Labor Relations & Safety Affairs
Ohio Contractors Association

Tracy Scriba
Work Zone Mobility and Safety Team
Federal Highway Administration
Office of Transportation Operations

William A Fink
President/CEO
Area Wide Protective

Anthony D. Liberatore, Jr.
Business Manager/Secretary Treasurer
Laborers Local 860

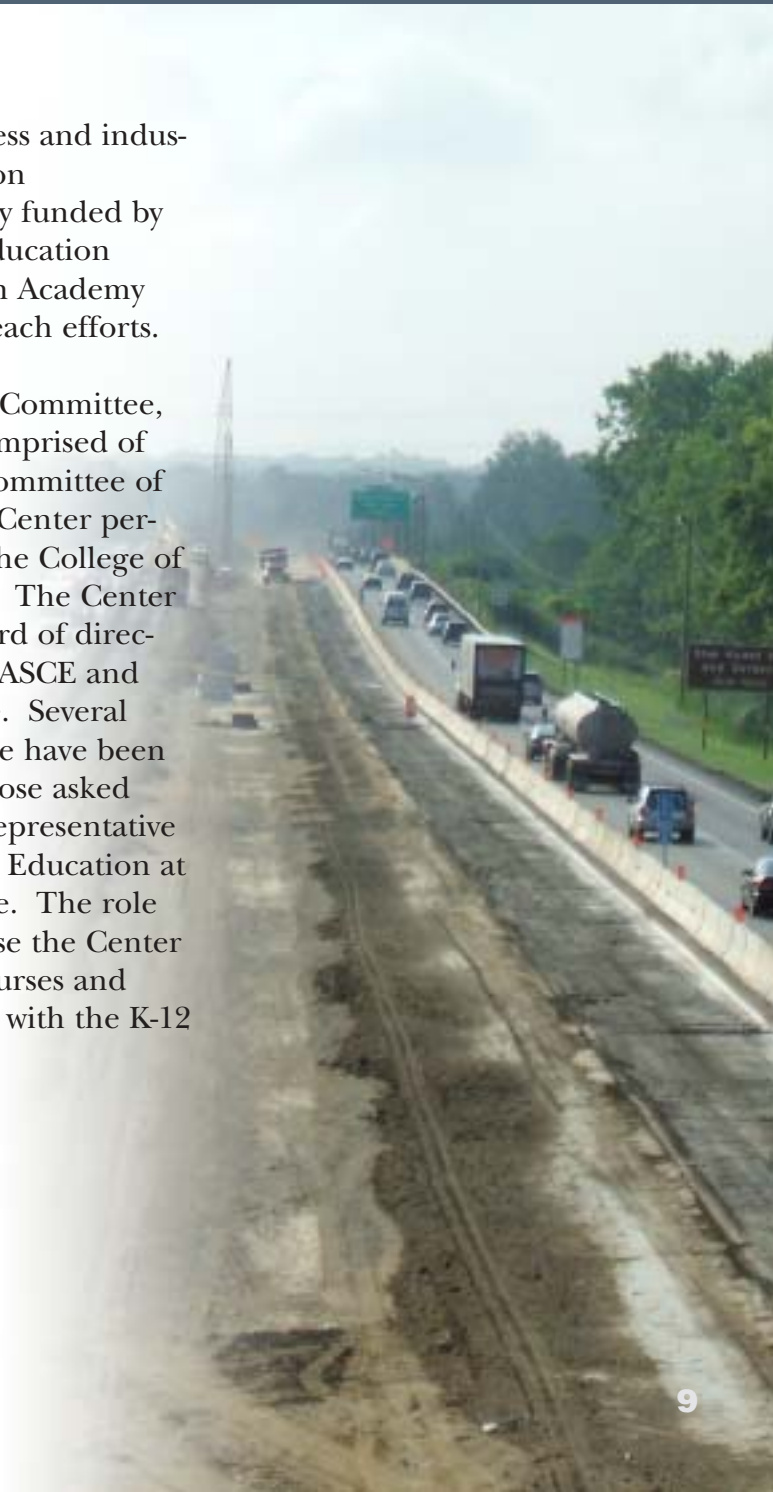
Dennis O'Neil
Ohio Department of Transportation
District 12

This group of individuals helped the Center carry out its mission during the past year and we are pleased to have such a distinguished and knowledgeable group of individuals on our Board.

The Research Committee, which has not yet been formally constituted, will consist of three to five individuals including both academic and industrial representatives as well as someone from the U.S. Department of Transportation. The Center Associate Director will initially serve as the Director of Research. The role of the Research Committee will be to participate in proposal reviews, and serve as an assessment group to track progress in the research projects.

Near the end of the Center's first year of operation an Education Coordinator was hired. The Education Coordinator has begun efforts to implement outreach efforts to school districts for the purpose of inserting pre-engineering topics into K-12 curriculums throughout the Northeast Ohio region. These efforts are helping to build an engineering related educational support system that brings together K-12 educators, students, post-secondary educators, business and industry constituencies. The Education Coordinator's position is partially funded by the Fenn Academy. Thus the Education Coordinator participates in Fenn Academy initiatives as well as Center outreach efforts.

Finally, the Education/Training Committee, when it is constituted, will be comprised of members from the Education Committee of the Cleveland Section of ASCE, Center personnel, and select faculty from the College of Education and Human Services. The Center Director is a member of the board of directors of the Cleveland Section of ASCE and chairs the Education Committee. Several members of the ASCE committee have been asked to serve dual roles, and those asked have agreed. In addition, one representative from the Division of Continuing Education at CSU will serve on this committee. The role of this committee will be to advise the Center Director on scheduling short courses and training seminars as well as help with the K-12 outreach efforts.



Center Personnel

During the first year of operation the Transportation Center at CSU has expertise from staff and faculty members in two different departments within the Fenn College of Engineering, i.e., the Civil and Environmental Engineering (CVE) Department and the Industrial and Manufacturing Engineering (IME) Department. The faculty who are making significant contributions to the success of the Center are:

Norbert Delatte PhD, PE

Associate Director, Professor, CVE

Professor Delatte joined Cleveland State University in 2004. His research interests have focused on designing concrete pavements as well as forensic engineering. He has been awarded the American Concrete Institute (ACI) Walter P. Moore, Jr., Faculty Achievement Award for work associated with NSF sponsored Research Experience for Undergraduates (REU) project. He has developed a series of seminars that address basic concepts in ethics, fraud, ethical issues in research, and ethical issues in engineering practice. Dr. Delatte has recently been integrally involved in the organization of a national forensics conference and a conference on issues relating to the design of porous concrete – both held at CSU. He serves as the editor of the ASCE Journal of Professional Issues in Engineering Education and Practice.

Nancy Grugle PhD

Faculty Researcher, Assistant Professor, IME

Professor Grugle joined the faculty at CSU in September 2005. As a member of the IME department, she focuses on human factors engineering and work zone safety. She has been the recipient of several research grants that are detailed elsewhere in this newsletter. Her dissertation research focused on the effects of sleep deprivation on cognitive function and situation awareness. This work was conducted at the Walter Reed Army Institute of Research. She received her Ph.D. from Virginia Tech in May of 2005.

Saini Yang PhD

Faculty Researcher, Assistant Professor, CVE

Saini Yang received her doctorate degree in the Department of Civil and Environmental Engineering at the University of Maryland, College Park in July, 2006 and joined the faculty at CSU two months later. Her Ph.D. dissertation topic is ìIntegrated Emergency Response Vehicle Fleet Management.î She teaches Traffic Flow Theory and other transportation courses. She focuses on issues relating to work zone efficiency and sustainable transportation systems. Projects she works on span the disciplines of operations research, traffic engineering, highway safety and ITS applications.

Diane Burrowbridge PE

Education Coordinator

Diane directs outreach efforts to school districts for the purpose of incorporating pre-engineering topics into K-12 curriculums. She develops and maintains contacts with various school systems including those systems belonging to the Fenn Academy. The Education Coordinator works in conjunction with faculty from the College of Education and Human Services through involvement in the development of regional STEM (Science, Technology, Engineering and Mathematics) programs. Diane has a Masters Degree in Civil Engineering from the University of Akron. She also has broad K-12 teaching experience.

Overview of Research Efforts & Donations

The Center has, and is, participating in matching-funds grants as well as federal grants that leveraged efforts in certain areas. These efforts are described below.

Sponsor: *Ohio Department of Transportation (OPREP grant)*

This research project investigates the causes of work zone crashes, near crashes and incidents using naturalistic driving data collected from 100 cars over a one-year period. In addition, the DriveSafety DS-600c driving simulator is used to replicate the findings from the naturalistic data and study the effects of various work zone configurations on driver behavior. Dr. Nancy Grugle is the principal investigator. ODOT contributed $62,683 in funding, and the Center provided matching funds in the amount of $61,315.

Figure 4 CSU Transportation Center Driving Simulator

Sponsor: *The National Science Foundation (NSF MRI grant)*

Dr. Nancy Grugle obtained an NSF Major Research Instrumentation (MRI) grant which was used to acquire a DriveSafety DS-600c High-Fidelity Driving Simulator in August 2006. The grant was made in the amount of $107,051. In addition these efforts were augmented by $40,000 in Ohio "house bill" funds to renovate a laboratory in Stillwell Hall to house the simulator. The renovations were completed and the new simulator installed in June 2007. The simulator is being used to conduct research on a wide range of projects, many of which will be geared toward human factors influences in work zone safety

Sponsor: *CSU Faculty Research Development Grant*

The DriveSafety DS-600c driving simulator will be used to evaluate the effects of posted speed limits, multiple highway work zone geometry factors and environmental factors on driver behavior in work zones. The goal of this study is to develop an objective, scientifically-based prediction model for determining an optimal "safe speed" based on work zone geometry and environmental factors. CSU contributed $6,720 and the UTC provided $25,907 in matching funds.

Sponsor: *The U.S. Department of Transportation (USDOT)*

In August 2007 Dr. Stephen Duffy, in conjunction with The Shaker Heights School System, obtained a Garrett A. Morgan Technology and Transportation Education grant in the amount

of $100,000. The purpose of the grant program is improvements in the preparation of students, particularly women and minorities in STEM disciplines through curriculum development and other activities related to transportation. (see next section for more details).

Several faculty associated with the Center have participated on educational panels at conferences this past year. Drs. Duffy and Grugle were members of the Work Zone Safety Panel at the Ohio Contractors Association Winter Conference in December 2006 as well as presenters at the Safety Congress and Exposition in March 2007.

Dr. Saini Yang instituted two new classes relating to transportation engineering. The first entitled "The Traffic Flow Theory" provides the basic concepts and theories of traffic flow characteristics and the associated analytical techniques. This course reviews the foundations of traffic science and presents the major classes of models derived for traffic flow. Recent developments and topics of current research are introduced. The course also addresses the implications of the models and the traffic system properties for traffic operations and control. The second course entitled "Urban Transportation Planning" focuses on factors involved in the process of urban planning and regional transportation systems, encompassing all transportation modes. Provides students with theory and applications of urban transportation planning studies, traffic models, investment models, programming and scheduling.

Dr. Duffy instituted a new class entitled "Construction Safety Engineering." The class is a grad/undergrad course taught in the Civil Engineering program. The course includes the following major elements: OSHA CFR 1926, the Ohio MUTCD Part 6, the Federal Work Zone Safety and Mobility Rule 23 CFR Section 630 Subpart J, and the Bureau of Workmen's Compensation.

The Center has benefited greatly from a number of donations. These donations came from organizations (Ohio LECET), companies (Area Wide Protective), and individuals (George and Linda Palko). The Center has also benefited from donations that preceded our existence, especially from the HNTB, who for years have supported undergraduate scholarships in the Civil and Environmental Engineering Department at CSU.

K-16 Education Outreach

Shaker Heights City School District, a district that educates approximately 2,900 African-American students each year (52% of the student body) and is recognized as one of the finest public schools in the nation by publications such as The Wall Street Journal, The New York Times, Newsweek, Money, and the Herald Tribune, has developed a pre-engineering program that spans grades 3-12 in collaboration with the Transportation Center at CSU. The goal of this collaboration with the Center is to establish a regional and national model for building a pipeline of diverse students pursuing science and engineering degrees from the lower elementary grades through university study. Regional companies associated with the Center, the Ohio Department of Transportation, the Science and Mathematics Achievement Required for Tomorrow (SMART) Consortium of more than 50 Northeast Ohio School Districts, and the Ohio Contractor's Association, are working with Shaker Heights on this endeavor. These efforts are developing a comprehensive pre-engineering program with both academic and career awareness components within a public school district with an emphasis on the transportation field. The long-term goal of this effort is changing the way Ohio approaches the training of our future scientists and engineers by building a love and knowledge of the field early in every students' academic experience (see Figure 5).

Figure 5 Shaker Heights Students Working in Teams on a Project in the Pre-Engineering Class

The collaboration between the Center and the Garrett Morgan program at Shaker Heights High School began with a simple conversation between the Curriculum Director for Shaker School Systems, Dr. Jim Paces, the High School Principal Mike Griffith, and the Transportation Center Director, Dr. Stephen Duffy. Dr. Paces made the comment that the Shaker High School English teachers talked with English professors at local universities on a regular basis. The high school teachers have endeavored to implement an English curriculum that prepares their students for the mandatory college English courses encountered typically in their freshman year. The Transportation Center Director took note that this sort of conversation rarely takes place in engineering education anywhere in this nation, i.e., a conversation between engineering faculty and high school math and science teachers. To

Figure 6 Echo Hills Students Working in Project Teams – Project Leaders wear the Construction Team Hat

foster this conversation the Transportation Center Director invited the Curriculum Director to attend an event sponsored by the OCA known as "Contractor for a Day." This program is a recruitment tool for the heavy highway construction industry to recruit Civil Engineering students at the undergraduate level. Dr. Paces came away from this event with a mind set that led to the Shaker Heights School System applying with the CSU Transportation Center for a U.S. DOT Garrett Morgan Grant.

As another example of the Center's outreach activities fourth grade teachers, Deb Miles and Jamie Tanner, at Echo Hills Elementary School in Stow, Ohio also participated in the OCA "Contractor for A Day" program in October of 2006 and again in October 2007. As a result of their experiences Deb and Jamie taught a special pre-engineering curriculum in their science and math classes. Students learned engineering principles that relate to state academic standards for math and science by learning how to cost and prepare construction bid estimates (see Figure 6).

Several companies from the American of Traffic Safety Systems Association (ATSSA) and the OCA donated various signs, products and equipment in order to turn the two fourth grade classrooms at Echo Hills into construction work zones. These companies included Great Lakes Construction, RoadSystems, Inc., and Plastic Safety Systems. Cleveland Barricading Systems placed portable message board in front of the school calling attention to the teacher's effort at the School (see Figure 7 below).

Figure 7 Fourth Grade Class (2006/2007) at Echo Hills Elementary School

Student of the Year

John Cleary – 2007 Student of the Year Award

John Cleary is the initial recipient of the CSU Transportation Center Student of the Year Award. John is an ACI student member and actively participates in the activities of the ACI Northeast Ohio Chapter. In addition, John is certified as an ACI Concrete Field Testing – Grade I. He has shown a very strong interest in structural and transportation engineering and in many different aspects of concrete materials technology, including high performance concrete, internal curing, and pervious concrete. John graduated in May 2006 Summa Cum Laude with a 3.95 GPA, and in any other year he would have been the CSU Valedictorian. The Civil Engineering program was blessed the year John received his undergraduate degree – a classmate graduated with a 4.00 GPA and was the University Valedictorian. Dr. Norb Delatte, John's advisor, noted that "I am very fortunate to have John on my research team." While working on his own research, John assists other students in the laboratory on their research projects on relating to roller compacted concrete, bonded concrete overlays, pervious concrete, and nondestructive evaluation.

Figure 8 John Cleary Being Congratulated by Secretary of Transportation Norm Mineta

John already has a strong publication record as an undergraduate and graduate student. As an undergraduate student, he was the co-author of *"Developing a Structural Design Method for Pervious Concrete Pavement"* which Dr. Delatte presented at the 14th Annual International Center for Aggregates Research (ICAR) Symposium in Austin, Texas, in April 2006. John has written some important chapters for the draft final report on the ODOT project *"Evaluation of High Absorptive Materials to Improve Internal Curing of Low Permeability Concrete."* He provided important input for a Transportation Research Board (TRB) paper on this ODOT project which Dr. Delatte presented in January 2007.

John also prepared a poster on *"Causes and Remedies for Bridge Deck Cracking"* for the 4th ASCE Forensics Congress in Cleveland, Ohio, October 6 – 9 2006, for the student poster competition. His poster was an award winning presentation.

Publications and Presentations

Doctoral Dissertations Supported

"Laboratory Evaluation of Fatigue Behavior of Thin Bonded Overlays on Roller-Compacted Concrete Pavement," Nader Amer, Doctoral Dissertation, Cleveland State University, August 2007.
Advisor: N. Delatte

Masters Theses Supported

"Effects of Secondary Tasks on Driving Performance in Work Zones," Ayan Ghosh, Masters Thesis, Cleveland State University, March 2007.
Advisor: N. Grugle

"Reducing Concrete Cracking for Structures and Pavements," John Cleary, Masters Thesis, Cleveland State University, December 2007.
Advisor: N. Delatte

Conference Proceedings – Center Personnel

"Evaluation of Cellular Probe Traffic Data: Issues and Case Study," Saini Yang and Ali Haghani, accepted for the Proceedings of Transportation and Development Innovative Best Practices, Beijing, China, 2008.

"Mesh Network Applications in First Responders Service, Case Study: Policy Simulation," Saini Yang, accepted for the Proceedings of Transportation and Development Innovative Best Practices, Beijing, China, 2008.

"Exact and Heuristic Solution for Containership Loading Problem Considering Crane Utilization," Masoud Hamedi, Saini Yang and Ali Haghani, Proceedings of the 86th Annual Meeting of the Transportation Research Board, Washington, DC, 2007.

"Container Stowage Optimization with Crane Utilization: Modeling and Heuristics," Masoud Hamedi, Saini Yang and Ali Haghani, Proceeding of the 11th Euro Working Group on Transportation, Joint Conferences, pp.667-671, 2006.

Conference Presentations – Center Personnel

"Issues in Cellular Traffic Probe Data Evaluation," Saini Yang, Presented in Ohio Transportation Engineering Conference, Columbus, Ohio, 2007.

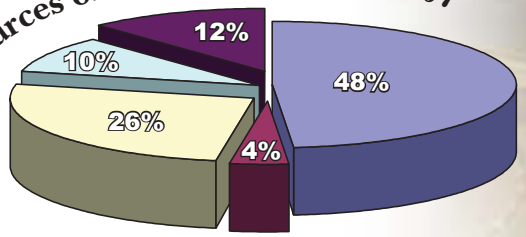
"Evaluation of Cellular Probe Data: MMTIS," Yang, Saini and Ali Haghani, Presented in the 86th annual meeting of the Transportation Research Board, Washington, D.C., 2007.

Funding Sources and Expenditures

The Center is an offspring of the Safe, Accountable, Flexible, Efficient Transportation Equity Act – Legacy for Users (SAFETEA-LU), enacted in 2005. This act authorized up to $76.7 million per year from federal fiscal year 2005 to 2009 to establish and operate up to 60 UTCs throughout the United States. Each facility receives a grant for each of the four years. These federal funds must be matched dollar for dollar by local funds.

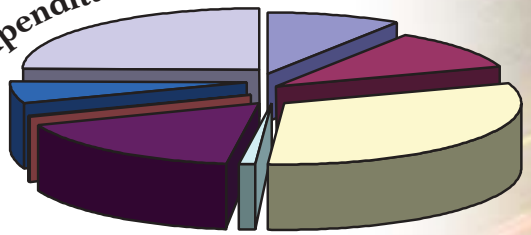
Today, there are four transportation centers in Ohio including the Universities of Akron, Toledo, Youngstown State as well as CSU - each authorized to receive a federal grant in the amount of $500,000 per year.

Sources of Funds as of June, 2007



US DOT	$430,000.00
Ohio House Bill Money	$ 35,000.00
CSU	$230,326.00
Non Federal Grants	$ 85,250.00
Donations	$105,000.00

Expenditures as of June 2007



Undergraduate Scholarships	$ 23,760.00
Graduate Assistantships	$ 28,220.00
Salaries & Wages	$ 82,438.00
Contract Services	$ 3,000.00
Fringe Benefits	$ 44,693.05
Supplies	$ 235.37
Travel	$ 15,252.72
Indirect Costs	$ 65,288.75

The Transportation Center at CSU is funded by the SAFETEA-LU authorization legislation which passed Congress in August of 2005. Subsequent to passing the bill the US DOT approved the Center's Strategic Plan in December of 2006. The Center was authorized to incur costs of up to $150,000 until the Strategic Plan was approved by the US DOT, and those costs could be recovered up to 90 days prior to the passage of the legislation. Moreover, as part of the Strategic Plan the fiscal year of the Center coincides with the fiscal year of the State of Ohio, i.e., July 1 to June 30. As a result of the multiple possible financial reporting periods, financial information is reported herein as follows: income is reported over a one year period of time ending June 30, 2007. Expenses are reported over the life of the grant through June 30, 2007. However, very little expense was incurred prior to July 1, 2006. Thus for reporting purposes the data below essentially represents the Center's first year of operation.

Funds

US DOT	$430,000.00
Ohio House Bill Money	$ 35,000.00
CSU	$230,326.00
Non Federal Grants	$ 85,250.00
Donations	$105,000.00
	$885,576.00

Expenses

Undergraduate Scholarships	$ 23,760.00
Graduate Assistantships	$ 28,220.00
Salaries & Wages	$ 82,438.85
Contract Services	$ 3,000.00
Fringe Benefits	$ 44,693.05
Supplies	$ 235.37
Travel	$ 15,252.72
Indirect Costs	$ 65,288.75
	$262,888.74

In future annual reports financial information will be reported based on the Center's fiscal year.

Photography courtesy of: William Rieter/CSU

Transportation Center
Cleveland State University