



Illinois Bituminous Paving Conference

Imad L. Al-Qadi



**ILLINOIS CENTER FOR
TRANSPORTATION**

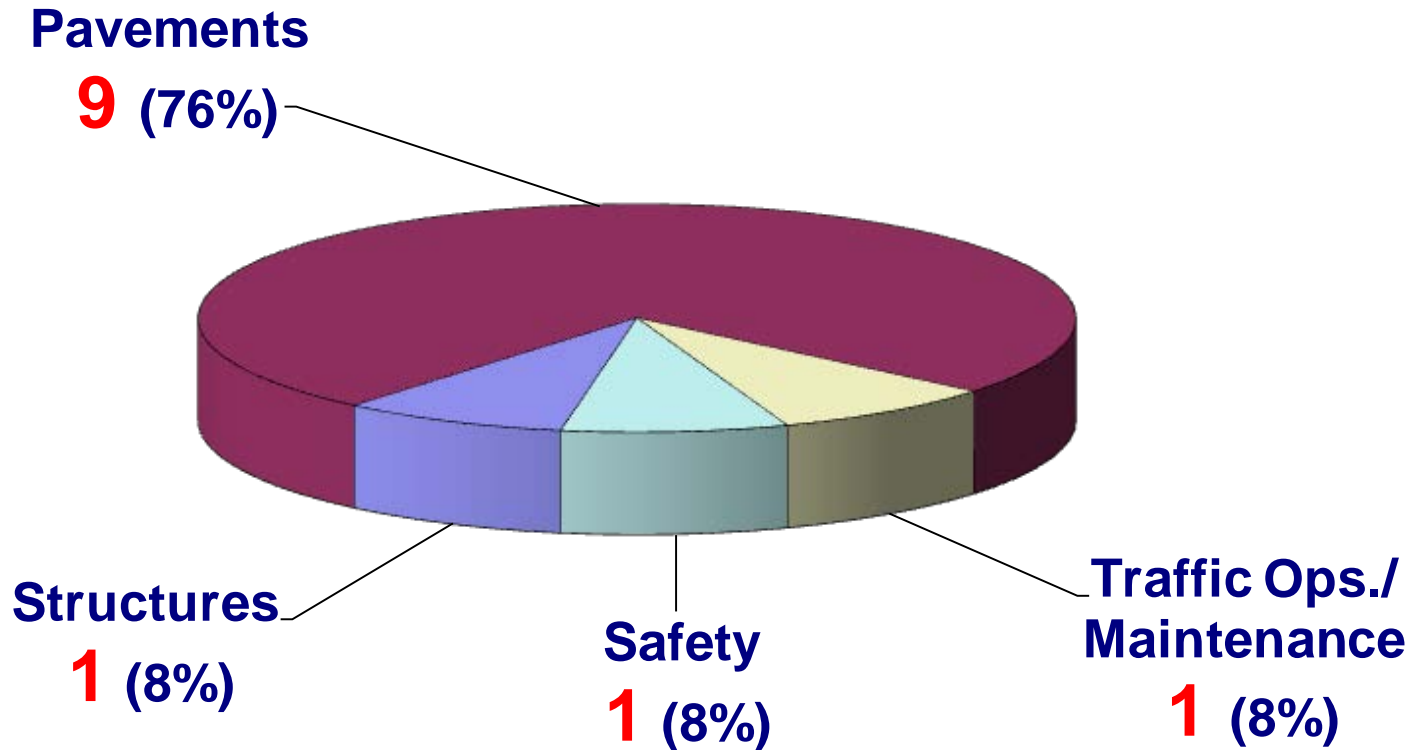


ICT - Where Transportation and Excellence Meet

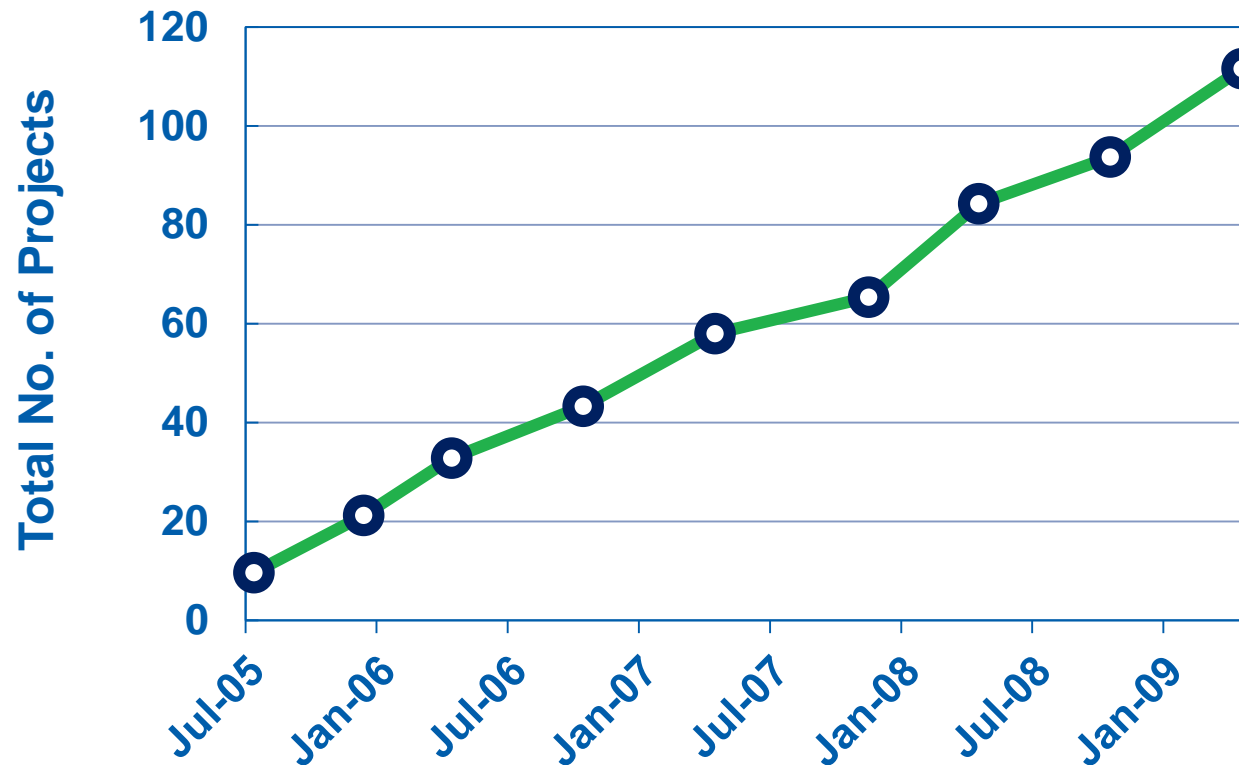
ICT Vision, Since its inception in 2005

- Serve the **transportation needs** of IDOT, the State of Illinois, and the nation through *research, education, and outreach*
 - **Rapid response** to future scientific challenges in transportation
 - Adapt to changing needs
- **Develop and implement** innovative and cost-effective technologies
- **Optimize the limited** resources of IDOT

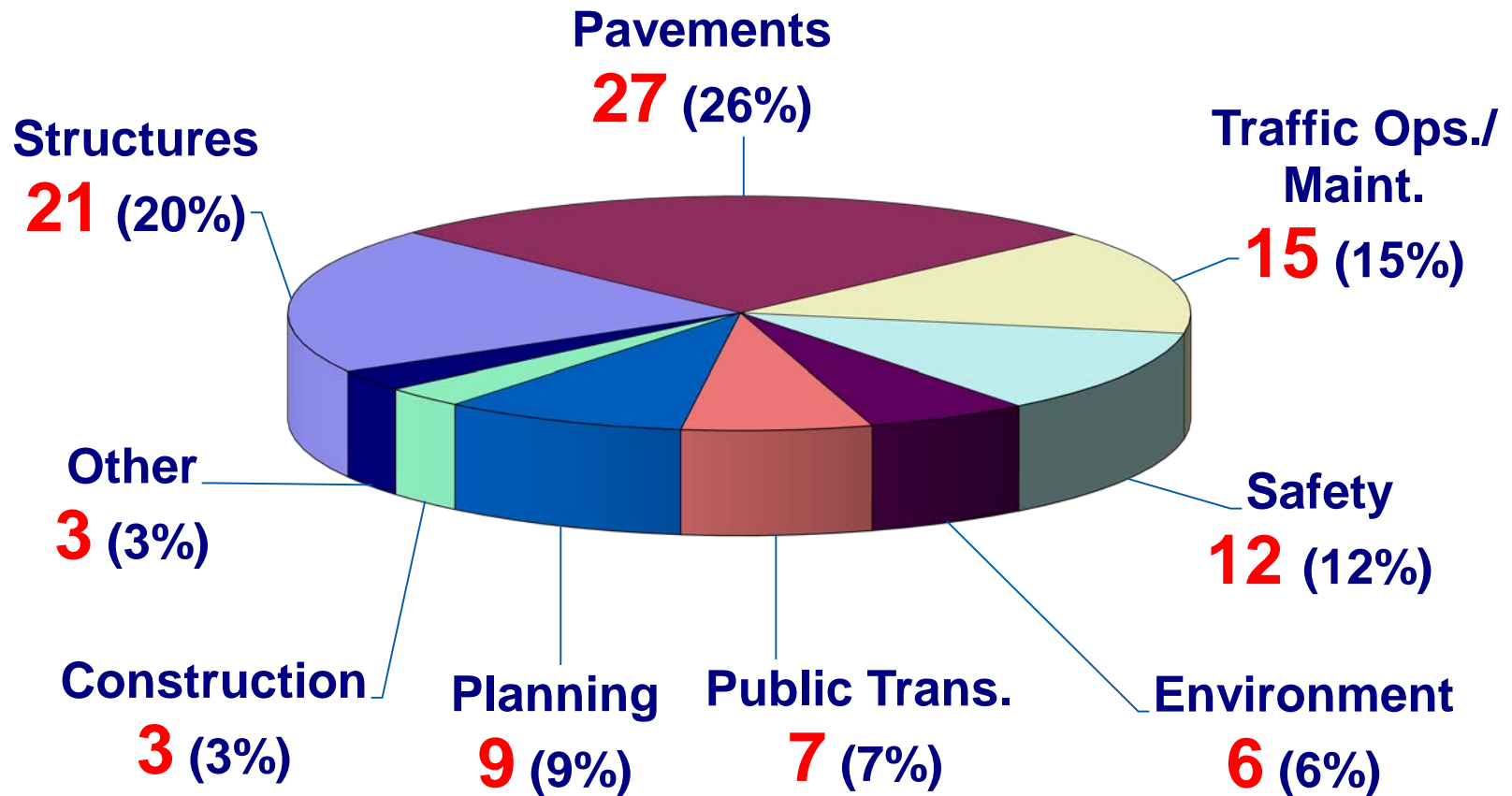
Initial Projects (2005)



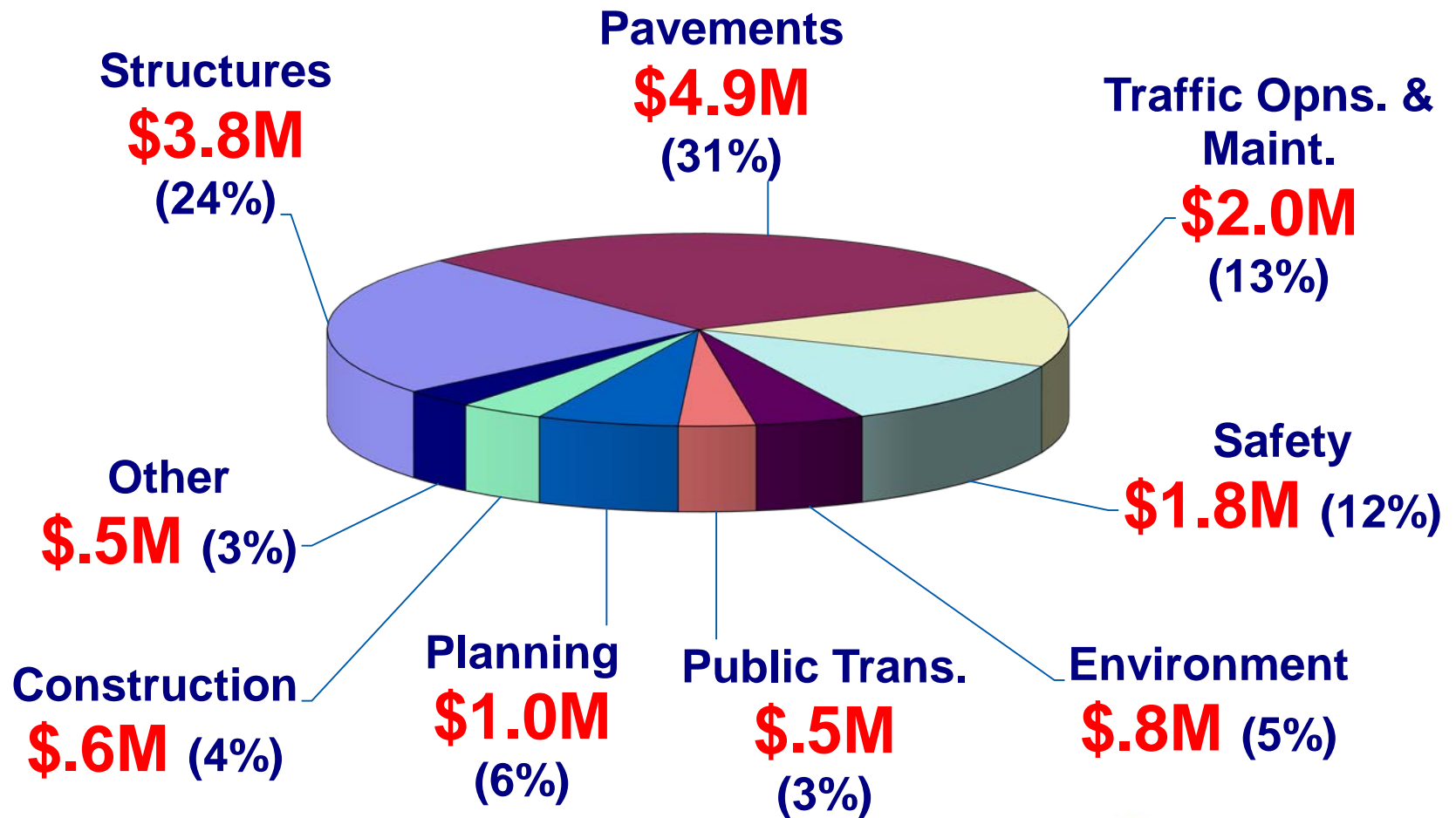
Growth of ICT Projects



Transportation Diversity!



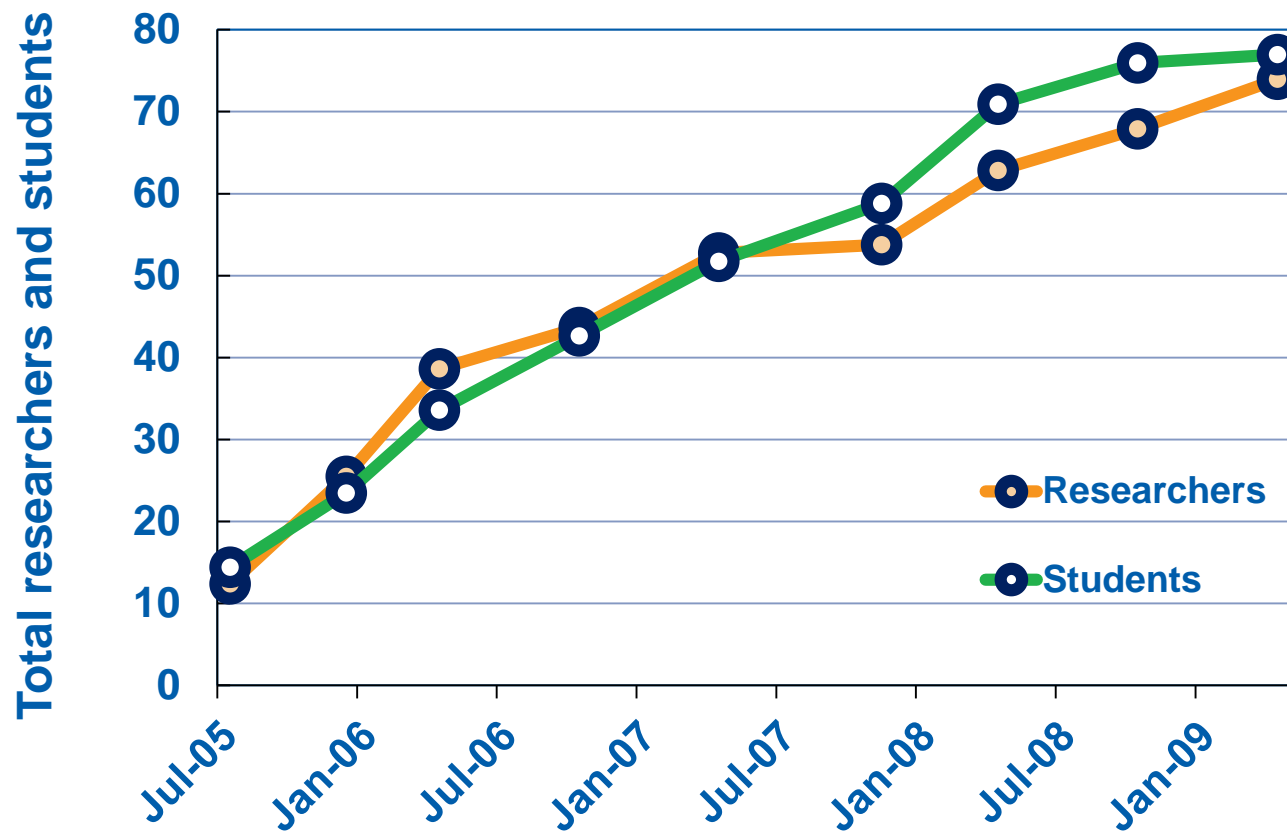
Transportation Diversity!



Research Progress/ Status

- **Total Projects Approved to Date = 115**
 - 98 Regular Projects – Selected by Exec. Committee
 - 17 Special (Short-Term) Projects
- **52 Projects Are Completed**
 - 40 Regular Projects
 - 12 Special (Short-Term) Projects
- **52 ICT Reports Published on Website**
- **63 Active ICT Projects**
- **Project Quarterly Progress on the Web**

Growth of ICT Researchers & Students



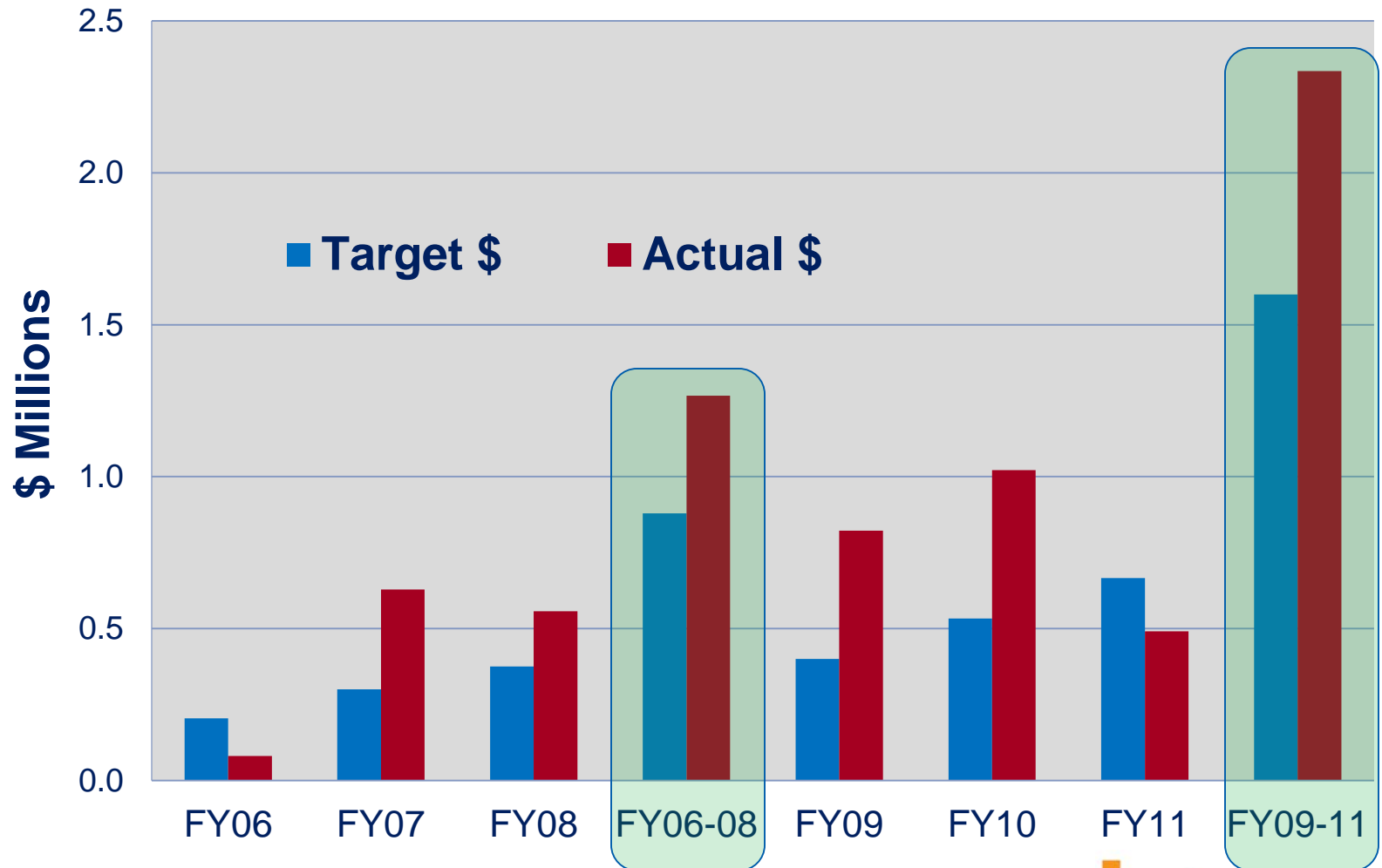
Who's Participating in ICT?

- ❑ **72 Academic Researchers (PI's/ Co-PI's)**
- ❑ **75 Graduate Students**
- ❑ **10 Universities**
- ❑ **6 Private Consulting Firms**
- ❑ **2 Federal/ Local Government Agencies**
- ❑ **1 Not-for-Profit Agency**
- ❑ **Consultants**

Outsourcing Growth

- **Initial Project List in August 2005**
IDOT-UIUC Agreement
 - 12 UIUC Projects/ \$3.3M
 - **0 Outsourced Projects**
- **103 Project Additions (12/05 - 12/09)**
 - 67 UIUC Projects/ \$10.6M
 - **32 Outsourced Projects/ \$4.3M**
 - 4 Projects to be Advertised (RFP)/ \$.7M

Target vs. Actual Outsourcing by Fiscal Year



Served by a Top Facility - ATREL



Communications

- ❑ Quarterly Newsletter
- ❑ Progress Report
- ❑ Website

ICT eNewsletter, Summer 2008



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ICT eNewsletter, Summer 2008

If you cannot view this newsletter, please click [here](#).

The Illinois Center for Transportation presents the Summer 2008 edition of its newsletter. Please click on the headings for more information about any news item.

The ICT is an innovative partnership between the University of Illinois at Urbana-Champaign (UIUC) and the Illinois Department of Transportation (IDOT).

IDOT and ICT Sign New \$15M Funding Agreement

The Illinois Department of Transportation (IDOT) plans to invest more than \$15 million over the next three years to continue the innovative transportation research conducted by the Illinois Center for Transportation (ICT) at the University of Illinois at Urbana-Champaign. This new agreement comes as ICT continues to conduct groundbreaking transportation research in a variety of focus areas. The new Intergovernmental Agreement (IGA) between IDOT and ICT, effective July 1, 2008, provides a 70 percent funding increase over the first three-year agreement between the parties that created ICT in the summer of 2005.

published: 07/23/2008

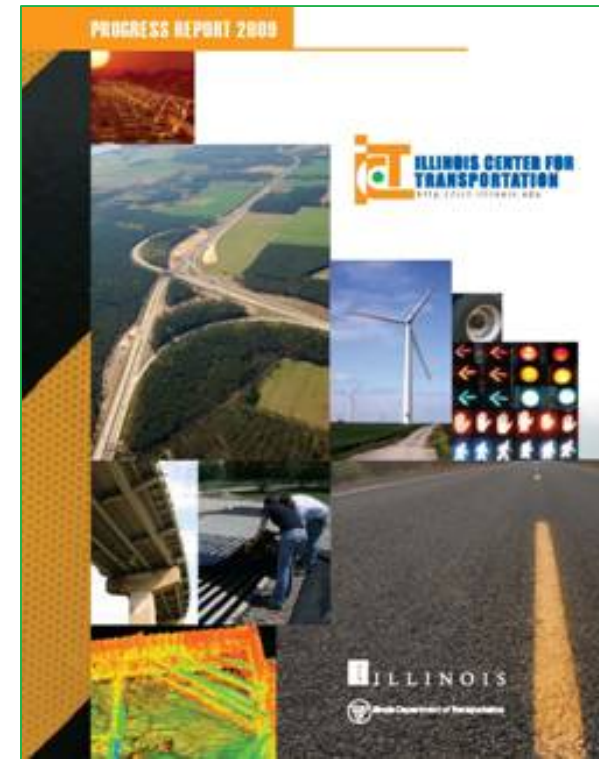
Call for ICT Research Ideas - Due August 1

The ICT Executive Committee will meet this fall and consider funding new research ideas/ projects. If you would like to propose a new ICT research project for consideration this fall, please click the link above for access to instructions and the Proposed Research Idea form which is due by August 1.

published: 07/29/2008

Update on the Status of ICT Projects

To date, ICT has completed 20 research projects with another 62 projects ongoing. This includes 17 projects to start in 2008 as part of the new agreement. ICT recently advertised requests for proposals for seven research projects. These proposals were due July 16 and are currently being



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SEARCH

PROJECTS

PROJECT STATUS PUBLICATIONS

PROJECT SPOTLIGHT

New Design for CRCP Pavements



A continuously reinforced concrete pavement (CRCP) is constructed without man-made transverse contraction or expansion joints and contains spliced longitudinal reinforcing steel bars. Illinois has used CRCP since the mid-1950s. However, this type of pavement has been known to develop transverse cracks. An ICT study developed a new CRCP design process based on mechanistic-empirical principles and recent findings.

[View All Projects](#) [Read More](#)

NEWS/EVENTS

ICT Executive Committee Approves Seven New Research Ideas

Al-Qadi Reappointed to ASCE T&D Board of Governors

Barry Dempsey to Receive Horonjeff Award at TRB

Chi Epsilon Awards Honorary Membership to Marshall Thompson

UIUC/ICT Plans Big Presence at TRB

IDOT Updates Pavement Design Procedures

[News Archive](#)

CALENDAR

December 9, 2009
Illinois Bituminous Paving Conference

February 23, 2010
Transportation and Highway Engineering (T.H.E.) Conference

ILLINOIS UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Illinois Department of Transportation

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PROJECTS

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PUBLICATIONS

Pub. No.	Proj. No.	Title	Authors	Date
ICT-08-025	ICT R27-15	REGIONAL WAREHOUSE TRIP PRODUCTION ANALYSIS, Chicago Metro Area, September, 2008	Jon B. DeVries and Sofia V. Dermisi	Oct-08
FHWA-ICT-08-021	ICT-R27-23	Evaluation of HMA Overlays in Illinois	Angela S. Wolters, Todd E. Hoerner, and Kurt D. Smith	Sep-08
FHWA-ICT-08-022	ICT R39-2	Nondestructive Pavement Analysis Using ILLI-PAVE Artificial Neural Network Models	Onur Pekcan, Erol Tutumluer, Marshall Thompson	Sep-08
FHWA-ICT-08-023	ICT R55	Tack Coat Optimization for HMA Overlays: Laboratory Testing	Imad L. Al-Qadi, Samuel H. Carpenter, Zhen Leng, Hasan Ozer, James S. Trepanier	Sep-08
ICT-08-024	ICT R43	Evaluation of Video Detection Systems, Volume 1 - Effects of Configuration Changes in the Performance of Video Detection Systems	Juan C. Medina, Rahim F. Benekohal, Madhav Chitturi	Sep-08
FHWA-ICT-08-017	ICT-R39	EXTENDED LIFE HOT MIX ASPHALT PAVEMENT (ELHMAP) TEST SECTIONS AT ATREL	S.H. Carpenter	Jul-08
FHWA-ICT-08-018	ICT-R27-16	Truckers' Park/Rest Facility Study	Peter Beltemacchi, Laurence Rohrer, Jac Selinsky, Terry Manning	Jul-08
FHWA-ICT-08-019	ICT-R27-7	Carbon Monoxide Screen for Signalized Intersections COSIM, Version 3.0	Scott Peters	Jul-08



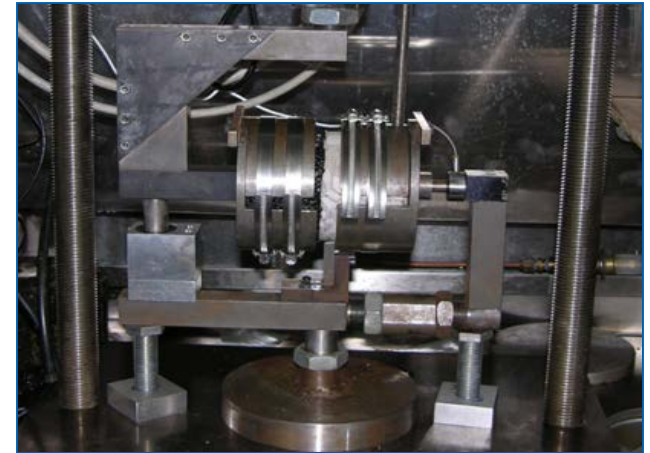
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Examples of Current and Recently Completed ICT Projects

- **Green Technology:** Pavement Recycling
- **Traffic/ Engineering Safety:** Nighttime Construction
- **Secure Bridges:** Scour Assessment
- **Structures and Rapid Response:** DeKalb Bridge
- **Renewal Energy:** Wind Energy
- **Society:** Planning for Aging Population
- **Forecasting:** Truck Travel Activities
- **Training Initiatives:** Documentation of Contract Quantities

Evaluation/ Optimization of Tack Coat & Bond of HMA Overlays of PCC

- The effectiveness of tack coat application between existing PCC pavement and HMA overlay was quantified through lab testing and accelerated pavement testing (APT).
- **Outcome:** Optimized tack coat type and application rate.
- **Status:** Two reports are available on ICT website; IDOT intends to use the recommendations in their specs.



Determination of Usable Residual Asphalt Binder in RAP

- Characterization of the amount of binder contribution from RAP materials during the mixing process
- **Outcome:** Validation of current mix design procedure and impact of various levels of RAP on HMA design and performance
- **Status:** Final reports on the ICT website.



Nighttime Construction: Evaluating Lighting Glare

- Levels of glare/ performance of various lighting arrangements were analyzed and compared.

Outcome: Recommendations on lighting arrangements in work zones that reduce and control glare zones.

Status: Final report is on the ICT website and outcome implemented by IDOT.



Validation of Extended Life HMA Pavement Designs

- Verified structural analysis for pavement structure and provided test data for dynamic modulus, E^* , and fatigue for current IDOT mixes; and validated the fatigue endurance limit (FEL).
- **Outcome:** New fatigue equations for rubblization and full depth HMA designs.
- **Status:** Final report on ICT website.



Development of a Thin, Quiet, Long-Lasting, High Friction Surface Layer for Economical Use in Illinois

- Developing various newly cost effective and durable surface mixtures.
- **Outcome:** A cost-effective mixes for a new generation of surface layers (durable, high friction, and low noise).
- **Status:** In Progress.



Documentation of Contract Quantities Update

- **Went well last year & expect better this year!**
- **Offered 13 classes last year with 417 attendants**
- **Instructor is ICT Staff**
- **Website and Database Upgrades**
- **Registration went live October 12**
- **Hundreds already registered**
- **First class was on November 17**

Acknowledgements

The Illinois Center for Transportation (ICT) is an innovative partnership between the Illinois Department of Transportation (IDOT) and the University of Illinois at Urbana-Champaign (UIUC). FHWA support is greatly appreciated.

<http://www.ict.uiuc.edu>



Thanks Eric for All You Have Done!

