



Illinois Fire Service Institute FY 2005

Annual Report For activities completed 1 July 2004 – 30 June 2005









In FY 2005, the Illinois Fire Service Institute (IFSI) delivered the following: 50,686 Enrollments 528,947 Student Hours 1,033 Illinois Fire Departments plus 173 other response organizations 1,399 Classes 19,567 Class Hours 378 Class Locations Attended by 1st Responders from 98 Illinois Counties

During the past 4 years a sustained period o					
	FY98-01 Annual Average	FY 98-01 Total	FY 02-05 Annual Average	FY 02-05 Total	% Increase FY02-05 over FY98-01
Enrollments	20,786	83,145	43,584	174,337	110 %
Student Instructional Hours	259,752	1,039,795	477,699	1,910,795	84%
Total Funding	\$2.7 mil	\$10.8 mil	\$5.9 mil	\$23.5 mil	116 %

In FY 2005, development of the Illinois Terrorism Task Force (ITTF) and events of 9/11/01 have combined with new innovations in outreach, the development of a robust training relationship with the City of Chicago Fire Department, continued work with the Illinois fire service leadership to implement a strategic approach to address critical issues, and the growth of research and cross-campus academic relationships as fundamental themes to fulfill IFSI's statutory mission as the Illinois State Fire Academy. In addition, IFSI has made substantial investment in management and support staff and information systems to provide sustained, efficient support to the Institute's statewide operations at an exponentially higher level than it was just five years ago.

Significant IFSI accomplishments in FY 2005

Homeland Security Training and Policy Support. IFSI has continued to play a leadership role in the development and implementation of the unprecedented State of Illinois homeland security training program through the Illinois Terrorism Task Force (ITTF), serving as the co-chair of the Training Committee and as a standing member of the ITTF policy advisory body to the Governor on Homeland Security matters. In FY05, IFSI began the development of seventeen HAZMAT, incident command and technical rescue courses to be submitted to the Department of Homeland Security for "institutionalization" as approved national courses. In FY 05, IFSI conducted 778 homeland security courses to 22,952 Illinois fire, law enforcement, emergency management and public health responders providing 232,245 student instructional hours (SIH). These courses have provided critical homeland security training in three core areas:

- Baseline training for more than 90 statewide-deployable HAZMAT, technical rescue, and law enforcement special response teams.
- National Incident Management System (NIMS) training for local officials and first responders, and for the creation of interdisciplinary Incident Management Assistance Teams (IMAT).
- Supporting more than 600 State Instructors who conducted 280 HAZMAT and terrorism courses for 4,953 responders statewide in FY 05.

In FY 05, the ITTF approved a Training Committee study that recommended the construction of three different training props in 18 regional sites based upon IFSI prototypes. Construction will be completed in winter 2005-6 and available for statewide team training in the Spring 2006.



Rope Rescue Training

Technician-Level Decontamination Training

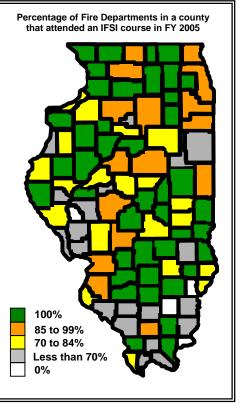
Vertical Shaft Rescue

Expanded Outreach to Illinois Fire Service. In fulfillment of its statutory mission to serve every firefighter in Illinois, IFSI strives to reach every fire department in Illinois. In FY 05, firefighters from 88% of the fire departments and fire protection districts in Illinois attended IFSI-sponsored courses and in 42 counties 100% of the departments had at least one firefighter attend at least one IFSI course. IFSI significantly expanded its regional presence with more than 400 part-time field staff instructors statewide and by hiring full-time regional representatives for Western and Southern Illinois, in addition to expanding its regional representation in the Collar counties and Metro East St Louis areas.

Strategic partnerships are a critical part of IFSI outreach:



Cornerstone Program. The Cornerstone Program is designed to provide essential hands-on skill training at no cost to departments across the state. In FY05 it included both a \$300,000 grant from the Office of the State Fire Marshal (OSFM) and an additional grant from the Illinois Propane Education and Research Council (IPERC) to deliver live LP burn training. Through the Cornerstone Program, more than 10,000 firefighters from 827 departments attended 350 courses in 172 locations across Illinois



at no cost to either the department or firefighter; of this number, more than 3,000 firefighters attended 75 IPERC-sponsored LP burn training courses.

Down and Dirty Training Program. In partnership with the Illinois Firefighters Association (IFA), IFSI distributed to every fire department and district in Illinois <u>Engine and Pump Operations</u>, the second CD set in our "Down and Dirty" Firefighter skill training program. A companion CD on <u>Rural Water and Tender Operations</u> will be distributed in 2006. IFA and IFSI are working on a 5-year plan for additional annual CD projects.

National Fire Academy. As the Illinois State partner with the National Fire Academy (NFA), IFSI offers NFA courses in-state and facilitates firefighters attending NFA resident courses in Emmitsburg, MD. In FY 05, more than 1,500 firefighters attended 50 courses representing more than 57,000 SIH that were provided or supported by the National Fire Academy.

Illinois Terrorism Task Force. The ITTF grant funding provided to develop and deliver the training programs to support the State Homeland Security Strategy has the added benefit of updating and assisting in the delivery of a common curriculum in HAZMAT response and incident command to all Illinois first responders.

Manufactures' Support. In FY 05, tool manufactures like Hurst, Amkus, Genesis (EMC), Holmatro, Milwaukee, Stanley and TNT, plus equipment and apparatus manufactures such as Alexis, Darley, Globe, MSA and Scott all provided in-kind support in the form of tools and equipment that substantially reduce the cost of providing training while ensuring that the latest technology was available to the students.

Illinois State Library. IFSI operates the only member library of the State Library system dedicated to fire and emergency responders. In FY 05, the library loaned 3,583 items and responded to 3,282 research requests and continued to apply for and receive grant funding from the State Library system. IFSI operates a robust web site that provides the portal for course registration, news, student and instructor support.

University of Illinois. For the past six years, IFSI has invested significantly in On-Line course delivery. In 2000, the University of Illinois On-Line provided a substantial grant to help IFSI develop the nation's first year-long On-Line Firefighter II Certification program. In FY 05, IFSI graduated its 300th firefighter from this program and on-line classes are run continuously. In addition, on-line courses are now available at the Awareness level to all Illinois firefighters in HAZMAT, Technical Rescue and Emergency Response to Terrorism: Basic Concepts. During FY 05, IFSI conducted 25 on-line courses for 343 students who completed 14,622 student instructional hours.

Creation of a Robust Training Relationship with the City of Chicago Fire Department.

In FY05 IFSI continued to enhance its training relationship with the City of Chicago and Chicago Fire Department. In response to the tragic events of October 2003 involving a high rise building fire at the Cook County Building where 13 occupants were trapped of whom six died, the newly appointed Chicago Fire Commissioner requested IFSI assistance in the development and implementation of a



new High Rise Fire Incident Command Order for the Department. In October 2004, the Order was complete and IFSI began what the Fire Commissioner described as an "unprecedented partnership" to provide an intensive, hands-on training program to train 4,000 firefighters from every Chicago Fire Company and Battalion. On 6 December 2004, the 29th floor of the LaSalle Bank in downtown Chicago caught fire. Nearly half of all fire apparatus in the city and hundreds of Chicago firefighters

responded. Before the fire was out, more than 60,000 ft² were fully involved in fire and more than 800 occupants were protected / evacuated with only a few dozen minor injuries. The training program was credited with helping to save both firefighter and civilian lives. IFSI had already conducted similar department-wide courses in firefighter rescue and wide area rope-assisted search techniques. In addition, in FY 05 IFSI re-instituted a program to provide live-burn training for every Chicago Fire Department Recruit class at the burn facility in Champaign. All newly-promoted Lieutenants, Captains and Battalion Chiefs now attend a series of IFSI officer courses including Management, Instructor, Tactics and Strategy, and Leadership Transition taught at the Chicago Fire Academy. IFSI senior leadership continues to work with the Fire Commissioner's office to support senior staff professional development. In addition, in FY 05 IFSI worked with the City of Chicago Office of Emergency Management and Communications (OEMC) to tailor and deliver a 1-day interdisciplinary Unified Command course for more than 500 senior staff and commanders from all City response offices and agencies. In FY 05, 6,283 Chicago responders and leaders attended IFSI training.

Illinois Fire Service Leadership and Strategic Planning. As a member of the Illinois Fire Services Association (IFSA), IFSI works with the leadership of the other ten statewide fire service organizations and the Illinois State Legislative Fire Caucus members in an annual strategic planning process to identify critical issues, construct consensus solutions and develop a strategic implementation plan. In FY 05, a high priority issue continued to be expanding the Illinois Fire Prevention Fund (FPF), which is the only source of state funding for IFSI. As a result in FY05, State statutory funding for IFSI through the FPF increased 17.87% from \$1.75 million in FY 04 to \$2.06 million in FY 05 and is \$2.31 million in FY 2006. In FY05, annual grant funding for the ongoing Cornerstone program was restored to \$300,000 and will be increased to \$500,000 in FY06. Homeland Security grant funding continued to exceed \$2 million annually.

Expanded Research and Cross-campus Academic Relationships. While being a non-traditional academic outreach activity, IFSI has significantly increased its cross-campus, interdisciplinary collaboration with traditional academic units at the Urbana-Champaign campus.



In FY 05, IFSI implemented a program to fulfill its statutory responsibilities to "Provide action-oriented research to support fire training and education programs." For 20 years, IFSI has conducted leading edge human factors-based heat stress research on firefighters. Dr. Steve Petruzzello (Dept of Kinesiology, U of I) and Dr. Denise Smith (Skidmore College) are both faculty researchers who have conducted hands-on research studies with firefighters conducting fire fighting work under real heat conditions. Their work has been published in refereed scientific journals and they have made numerous presentations at national and international scientific and fire service conferences and in FY05 their work helped to shape the NIST-funded <u>National Fire</u> Service Research Agenda.

Building upon this effort, IFSI hired Dr Gavin Horn (Mechanical Engineering, U of I) as a research scientist to develop other joint, cross-campus, interdisciplinary research programs between IFSI and other campus researchers. In FY 05, he developed and implemented a program that focuses on:

- Firefighter Health & Wellness
- Incident command technology and responder accountability development
- Firefighter tool design and concept testing

Working with other campus researchers, he secured funding for a collaborative research project with Electrical Engineering Department and National Center for Supercomputing Applications (NCSA) to develop next generation radio frequency identification (RFID) systems for personnel and equipment tracking on the fire ground and disaster incident scenes.

IFSI also supported numerous campus academic activities, to include lectures in the School of Architecture, the Department of Psychology, and the European Union Center. IFSI also sponsored senior projects in the Department of English and College of Engineering.

IFSI helped to create the University of Illinois Homeland Security Research Center (IHSRC), which is a virtual clearinghouse for homeland security research information on-campus. The IHSRC sponsored a conference that brought together UIUC researchers and Illinois Emergency Management Agency Nuclear Safety staff to define ways to provide real time earthquake and weather data. IHSRC staff worked with numerous campus faculty to develop and submit research proposals to the Department of Homeland Security, National Science Foundation and the National Institutes of Health.

Organizing the Institute to Manage the Exponential Growth. The

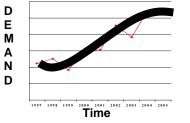
exponential growth IFSI has experienced over the past 4 years has created the classic set of "S-Curve" management dilemmas. The chart at the right traces student enrollments since FY1997. Courses, instructional hours and funding have presented similar models. Within this curve are three separate S-Curves:

- 1. Basic Firefighting Skill training, regional outreach and on-line services
- 2. Chicago Fire Department Training
- 3. Homeland Security Training

Within each of these S-Curves, the expansion has demanded that IFSI examine and resolve a comprehensive range of growth-based issues, such as:

- Defining unique customer requirements
- Finding adequate instructors
- Curriculum development
- Training and support facilities
- Development of unique training props
- Financial and inventory management
- Quality control and standardization
- Support staff requirements
- Partnership development
- Use of technology
- Equipment maintenance and replacement
- Management oversight at-a-distance

In response, IFSI has invested substantially in people, systems and facilities. IFSI must now coordinate the delivery by more than a 400 part-time instructors of more than 1,200 courses annually in every corner of Illinois. In order to support these demands, IFSI has implemented a regional management strategy, which includes establishment of a fulltime office in Chicago headed by an IFSI Associate Director and permanent staff representation in Metro East, Western, Central and Southern Illinois. IFSI has developed and placed into service a progression of in-house database management information systems. The latest of these is "Sparkey," which is seeking to integrate registration, course management, staff support and financial management into a single integrated system that can interact with the University's Banner financial system. Student registration and instructor course support are now available on-line. IFSI has invested in the prototype development of training props and added both classroom and course storage support space. To ensure curriculum quality control, IFSI has created a curriculum development team that includes both education and functional expertise and has laid out a field staff instructor development and mentoring plan. The business office has been expanded to include a dedicated accounts and database management staff. IFSI has a dedicated inventory management staff and is seeking to automate inventory management. IFSI is addressing its additional facility needs through its capital plans, which include a new Library and Research building on the current campus site and in the long-term a live-burn and hands-on municipal and industrial fire and rescue training center in South Farms. In FY 06 IFSI will undertake an analysis of a fourth S-Curve development for a more robust industrial fire and rescue training program.



Other FY2005 Accomplishments

- Women in the Fire Service. IFSI conducted the first two day-long, hands-on training programs that brought together 126 women firefighters and officers for hands-on training.
- IFSI conducted the 81st annual Fire College. This is America's oldest continuous such fire training event, with more than 1,000 firefighters attending.
- IFSI conducted its 10th annual Winter Fire School in a 2-day program with 444 attendees.
- Annual Fire Explorer and Cadet Jamboree. IFSI conducted the second annual event with more than 200 attendees from as far away as Florida.
- IFSI continued to assist the Federal Emergency Management Agency (FEMA) to conduct Assistance to Firefighter Grant workshops throughout Illinois and participated in the US Fire Administration (USFA) peer grant review process. In 2005, USFA awarded 277 Illinois fire departments and fire protection districts grants totaling \$25.4 mil.
- IFSI acquired a refurbished snorkel fire apparatus from Tinley Park in exchange for training programs.
- In partnership with the ITTF, Mutual Aid Box Alarm System (MABAS) and the Combined Agency Response Team (CART), IFSI hosted the second Statewide Deployable Technical Rescue Team Validation that certified 9 additional teams for statewide response.
- Since its inception in 2004, the Unified Command course has provided National Incident Management (NIMS) compliant training to 7,765 local and state emergency response officials representing 892 agencies and communities.
- IFSI hosted the first National Fire Academy 7-day All-Hazards Incident Management Team training course to train the initial members of the State's Incident Management Assistance Teams. This is an ITTF program designed to provide rapidly deployable unified command staff in a major catastrophic event. 15 of the attendees deployed in support of Hurricane Katrina relief operations in Sept-Oct 05.
- IFSI initiated a partnership with the Illinois Department of Natural Resources (IDNR) and the Office of the State Fire Marshal (OSFM) to develop and conduct both Conservation Reserve Program (controlled burn) training and wildland firefighting ("red card") training for Illinois firefighters under IDNR grant funding.
- IFSI conducted an additional 6-week Certified Firefighter II Academy representing some 8,000 SIH, in order to meet increased demand from fire departments.
- IFSI Industrial training courses were established with Eli Lilly and Abbott Labs.
- International Programs. IFSI provided lectures and demonstrations on homeland security issues as part of the International Programs and Studies (IPS) Chinese Officials programs. IFSI partnered with the Graduate School of Library and Information Science (GSLIS) to host the first International Librarians Summer Training Program and the IFSI Director served on the European Union Center Advisory Board.
- IFSI Head Librarian Lian Ruan received the Sally Tseng's Professional Development Award from the Chinese American Librarians Association on her nation-wide survey project "In Search of Excellence: Chinese American Librarians in the 21st Century."
- IFSI partnered with the Illinois Chapter of the International Association of Arson Investigators (IAAI) to develop a prototype, low-cost, mobile fire origin and cause live burn training simulator.
- Fire Factor In partnership with Campus Housing, and the Cities of Champaign and Urbana, IFSI hosted the first hands-on fire safety and prevention program for college students.







IFSI Goals and Strategies

The Illinois Fire Service Institute (IFSI) operates under statutory authority as the Illinois State Fire Academy and under Gubernatorial Executive Order as a member of the Illinois Terrorism Task Force (ITTF). Under both of these authorities, IFSI provides training, education, and information to Illinois public and private first responders and communities. IFSI also conducts research activities in fire service life safety, operational and equipment needs, and helps to guide campus inquiry into homeland security research issues.

IFSI has developed and implemented Vision 2010 to serve as a comprehensive strategic roadmap for the fulfillment of its statutory and state executive order-directed missions. Vision 2010 has been developed with substantial input from IFSI fulltime faculty and staff, academic-hourly field staff instructors, the statutory IFSI Advisory Committee representing all major fire service organizations statewide, the Superintendent of the National Fire Academy and the Illinois Terrorism Task Force. The central goal of Vision 2010 is identified as:

"Helping Firefighters Do Their Work Through Training, Education, Information and Research"

This goal is derived from the missions established for the Board of Trustees of the University of Illinois in the Fire Service Institute Act (P.A. 81-1147) requiring that they:

"operate the State Fire Academy, to be called the Illinois Fire Service Institute, for the purpose of instructing fire protection personnel throughout the State of Illinois, providing service to public and private fire departments in Illinois and conducting research in the methods of maintaining and improving fire protection and control services consistent with the needs of Illinois communities."



Overarching IFSI Goals and Values.

IFSI's central goal is to "help Illinois firefighters do their work through hands-on training, education, information and research." In so doing, IFSI seeks to be the finest hands-on fire service training academy for public and private firefighters and departments in the nation.

IFSI programmatic aspirations include:

- To fully fulfill its role as the statutory State Fire Academy for Illinois, and as the state spokesman and advocate for effective fire service training in State and National forums.
- To provide the finest, most relevant and realistic hands-on fire fighting curriculum, training programs and props in the nation.
- To ensure that IFSI serves the unique training needs of all firefighters and communities in Illinois, including the City of Chicago.
- To continue to provide leadership in the development and delivery of interdisciplinary training programs for the State and Nation as a member of the Illinois Terrorism Task Force (ITTF) and co-chair of the ITTF Training Committee.
- To develop the Nation's premier firefighter research program.
- To become the Midwest industrial fire academy serving private sector fire department needs in a similar way that Texas A&M serves those of the south and oil/chemical industry.
- To seek to increase the resources available to underwrite IFSI programs through increased state, grant and gift funding.

IFSI capital aspirations are to:

- To construct a library and research facility to serve Illinois first responders.
- To develop a new live-fire training facility in the new south farms area that will ensure IFSI's ability to continue to conduct live-fire training throughout the 21st Century, and provide an industrial training facility to serve the upper Midwest.
- To continue to develop, design and construct realistic hands-on training facilities and props for live-burn and non-burn fire service missions.
- With campus support, enhance the information technology backbone and infrastructure to a CAT 5+ level, enabling IFSI to connect to Illinois communities and customers more effectively and support research and simulation development.

Core values for the Institute are to:

- To develop and conduct all programs from the perspective of the actual skills required by firefighters and departments to protect their communities.
- To "take the high road," acting with integrity and equity in all matters.
- To be "inclusive," seeking to build partnerships with local, state and national emergency response organizations and the private sector to strengthen the ability of IFSI to meet its statutory obligations as the State Fire Academy.
- To seek to expand the resources available for fire service and public safety rather than to operate from a "zero-sum" perspective.

Areas of Growth and Strategic Opportunity

- New and evolving fire service missions. IFSI will continuously evaluate and update its curriculum based upon evolving National and State standards, core skills, new fire service missions, technologies, applied research and practical lessons-learned gained from continuous dialogue with operating fire departments and firefighters.
- Homeland Security Training. IFSI will develop and deliver interdisciplinary training programs as part of the State comprehensive Homeland Security Strategy. In particular, IFSI has a leadership role in the development and delivery of training programs as part of the National Response Plan in the areas of first responder HAZMAT, technical rescue, and incident management based upon the new National Incident Management System (NIMS). {NIMS training is now required of all communities and first responders in order to qualify for federal grant funding.}
- City of Chicago. IFSI will continue to work with the City of Chicago Fire Department, Office of Emergency Management and Communications, and other Chicago first response organizations to design and deliver tailored training programs and assist Chicago in the development of handson training facilities in Chicago.
- Regional Development. IFSI will continue to seek to provide a presence in every fire department in Illinois through local contact, regional representation and course delivery, and the development of regional training facility partnerships.
- Distance Learning and Library Services. IFSI will continue to expand its ability to connect with and support firefighter, fire department, and homeland security training programs at a distance through on-line courses, development and distribution of CD/DVD-based courses, and the continued expansion of library services as Illinois' only State library dedicated to emergency responders.
- **Firefighter Research.** Building upon more than 20 years of firefighter heat stress research, IFSI will seek to fulfill its statutory mission to conduct "action-oriented research" by addressing the issues articulated in Project Responder (2004) and the National Fire Service Life Safety Research Agenda (2005). This will require development of interdisciplinary, cross campus research projects that focus on pre-incubator research projects and expansion of the research into homeland security first responder issues.

- Cross-campus Academic Programs. IFSI was born 80 years ago from an idea by Professor Provine of the School of Architecture supported by the State Fire Marshal and Illinois Firemen's Association for an "annual Fire College" that would provide a professional forum for fire service and fire prevention engineering leaders. Our annual Fire College is now the oldest of its kind in the nation. IFSI is working with the College of Engineering, School of Architecture, Department of Kinesiology, ACES, Vet Med, Police Training Institute, and LAS to add lectures, provide meaningful practical experience exercises and sponsor research in subjects concerning fire protection and prevention, life safety and public service outreach. Expansion of these partnerships could have a significant and lasting impact on U of I students and Illinois citizens.
- Homeland Security Research. Unique opportunities exist to extend and develop new interdisciplinary cross-campus and multiple university consortia on critical homeland security related challenges, and to seek federal, State and private sector research sponsorship. There are several important challenges to making this effort successful:
 - o It must begin by focusing on near-term deliverables and applied research into immediate homeland security issues.
 - o It must build new collaborations and partnerships, often with non-traditional partners.
 - It is often outside existing tenure-track criteria so researchers often feel they are placed at career risk by taking on such research projects.
 - o It will require a full-time, dedicated coordination effort.
- Industrial Fire School for the Midwest Region. In fulfillment of our statutory mission to support "private fire departments," IFSI will seek to develop a hands-on industrial fire training program with unique curriculum and facilities in order to serve private sector fire department training needs throughout the Midwest region.

Capital Development Plan.

During FY2005 IFSI continued the development and implementation of a long-term capital development plan. As part of Vision 2010, IFSI envisions two capital projects. The first project is the construction of a library /Homeland Security Research Center Laboratory (HSRC-Lab), at the IFSI site as part of the South Research Park master plan. The project has completed а Chancellor's Capital Review Committee (CCRC) feasibility study.

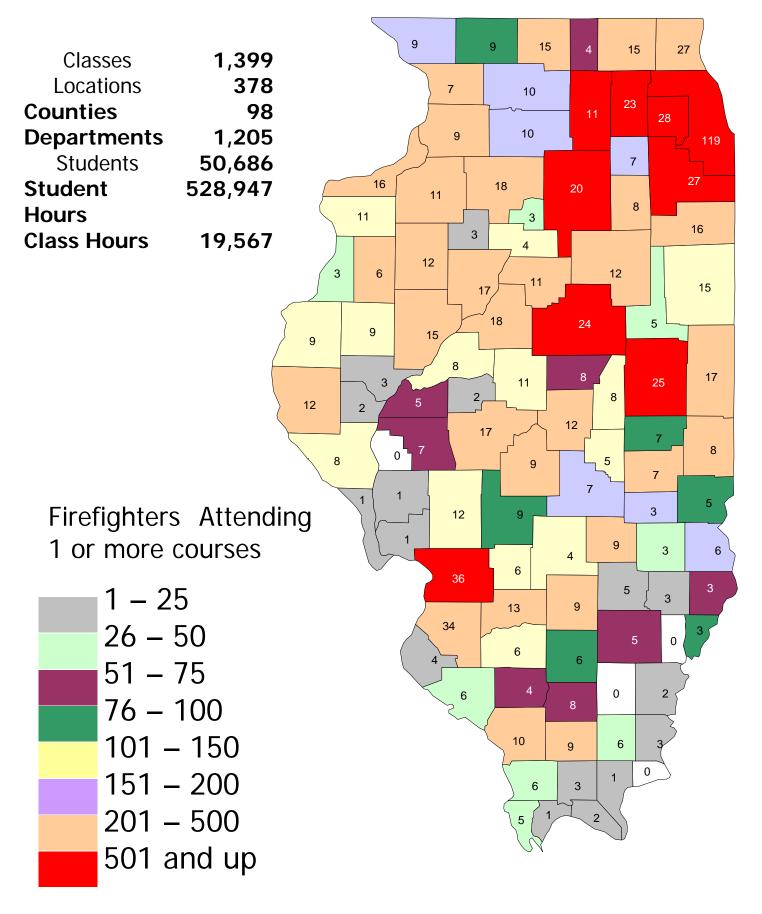


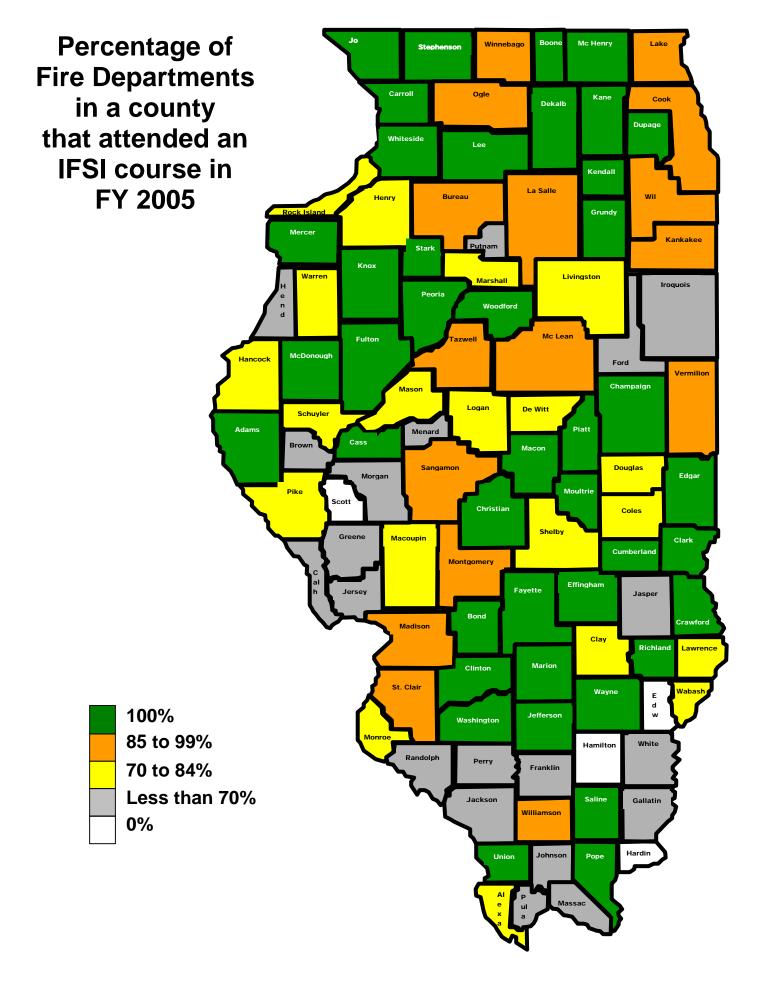
Current IFSI campus

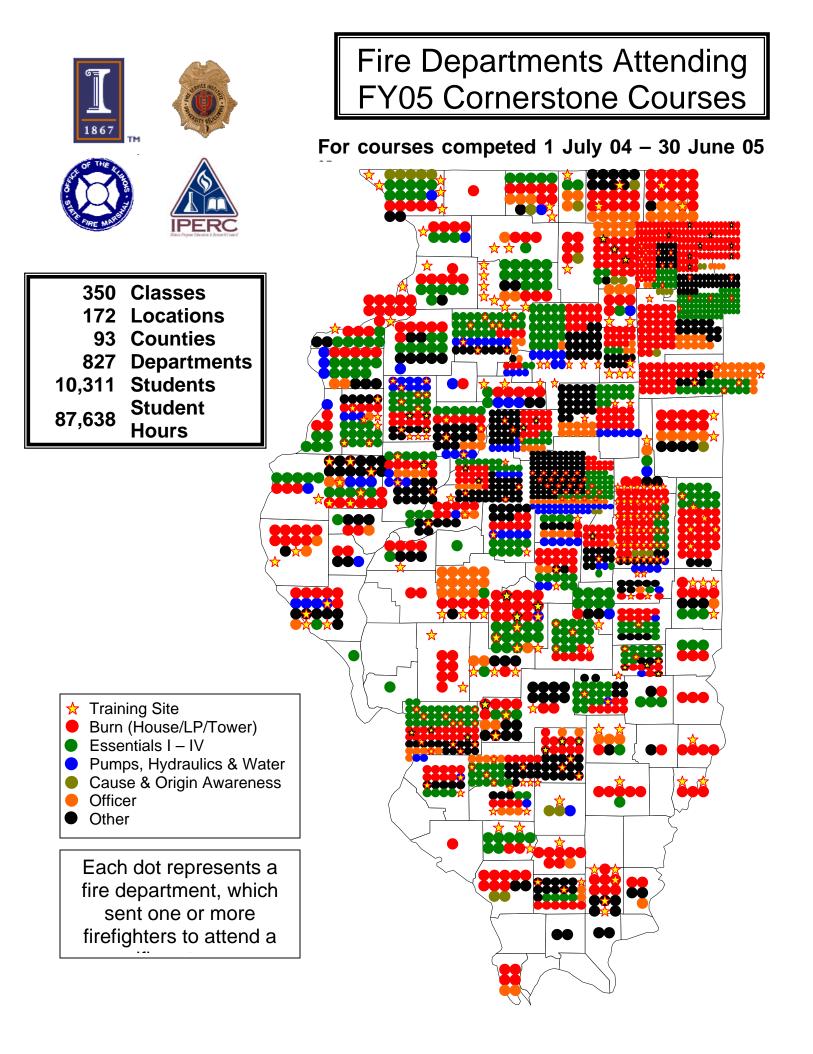
The second project is the development of a live burn training, research, municipal and industrial fire training facility in the new South Farms area. IFSI is among the nation's leading hands-on fire fighting schools. This hands-on training in realistic structures under live-fire conditions is critical to IFSI's ability to achieve its statutory missions. Existing burn structures are expected to reach the end of their usable life for live burns within 15 years. Burn training at the current IFSI facility is already limited to relatively small fires using Class A (wood and straw) and LP materials. Originally conceived of as a 30-60 acre area upon which to construct replacement burn training buildings, the advent of the national homeland security critical infrastructure protection program and demand amongst Midwest industrial and manufacturing companies for responder training for contractor and proprietary staff have created the possibility to expand the South Farms burn training center into a 100-300 acre project over the next two decades. Such a facility would of necessity be a partnership with industry, similar to that currently in place at Texas A & M. It would demand buffer zones to permit oil burn training that produces thick black smoke that is essential in some industrial firefighter training. In addition, there is a growing interest in interdisciplinary, homeland security research with the College of Engineering and the National Institute of Standards and Technology (NIST) that require expanded fire fighting, rescue and incident command technology lab facilities.

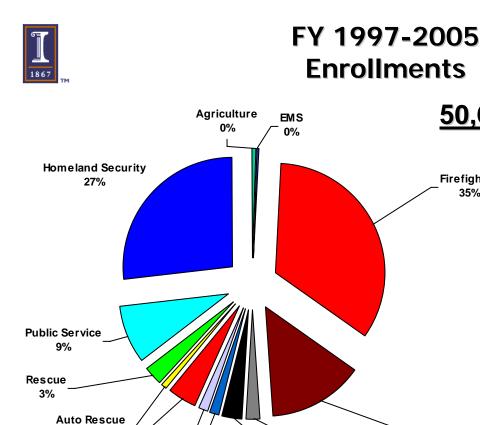
IFSI can continue to lead the nation as a firefighting school while providing new and unique opportunities for homeland security and engineering research by retaining the current facilities for non-burn fire science and rescue training and homeland security research, and developing a new burn training, research, municipal and industrial training facility in South Farms with adequate buffer space for smoke dispersal.

FY 2005 Department & Student Attendance











<u>50,686</u>

Firefighter

35%

Homeland Security

