

ICMA'S 97TH ANNUAL CONFERENCE



Milwaukee  
WISCONSIN SEP 18-21 2011

ICMA

Leaders at the Core of Better Communities

# Using Technology to Improve Effectiveness in the Built Environment

ICMA Solutions Track  
September 19, 2011



# Session Agenda

- **Overview**
  - **Christine Becker, IBTS Association Liaison**
- **Introduction to FIT – Field Inspection Technology**
  - **Mike Harvey, IBTS Director of Technology Services and Data Administration**
- **FIT in Action in the Built Environment**
  - **Greg Blount, Branch Manager, Louisiana IBTS**
- **Discussion and Wrap Up**
  - **Christine Becker**



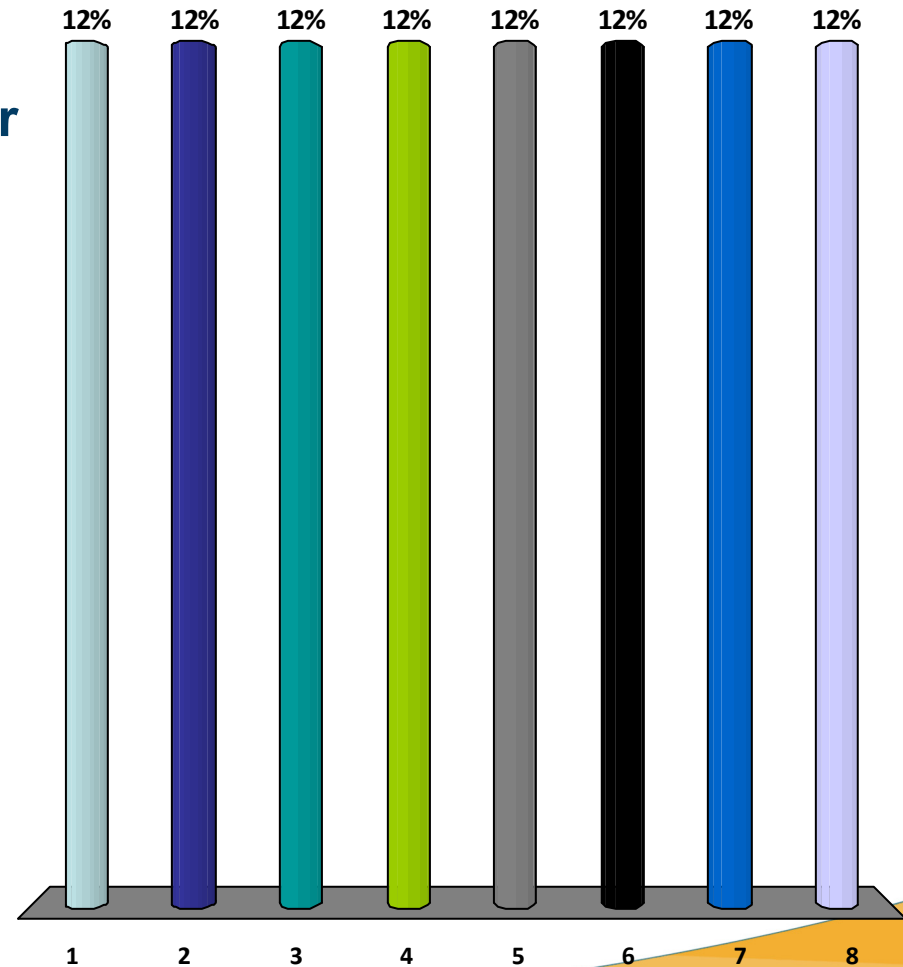
# About Institute for Building Technology and Safety (IBTS)

- **A nonprofit organization whose work is guided by a Board made up of five national associations including ICMA**
- **Established in 1999 as an outgrowth of the National Conference of States on Building Codes and Standards**
- **Provides a broad range of services to state and local government designed to accelerate progress in the built environment**
- **Serves as “government on call” to provide surge capacity/third party services to meet special needs**
- **Based in Herndon, Virginia with offices in Louisiana, Texas, and New York**
- **Staff of nearly 150**



# What is your current position?

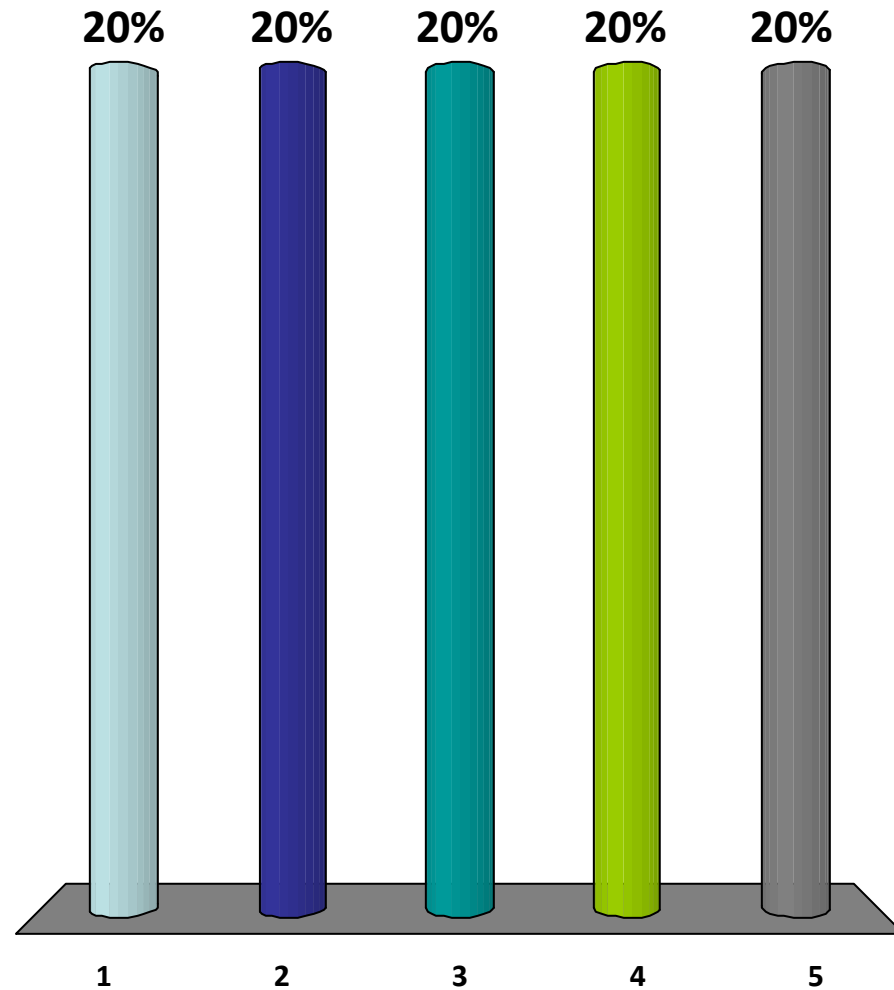
- **Local government manager/ administrator**
- **Assistant manager/ administrator**
- **Department head**
- **Chief building official**
- **Other local government position**
- **Non-profit administrator/rep**
- **For-profit administrator/ rep**





# What is the population of your local government

- Under 10,000
- 10,000-49,999
- 50,000-99,999
- 100,000-300,000
- Over 300,000





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# **INTRODUCTION TO FIT Field Inspection Technology**

**Mike Harvey**



## What is FIT?



**FIT is a methodology that supports any set of end-to-end processes, customized to manage information collection through user friendly interfaces that feed and automate complex back office processes.**

### Benefits of FIT:

- FIT will work on any supported windows based platform.
- FIT incorporates field-grade hardware which is durable and easy to handle.
- FIT works off-line in places that do not have connectivity.
- FIT features hand-writing recognition and touchscreens for ease of input of information.



## Why FIT?

- **Provides a comprehensive methodology for managing multiple related services and building reliable data bases**
- **Eliminates labor intensive manual reporting**
- **Ensures consistent and complete data**
- **Creates close connections between field and office staff**
- **Strengthens overall data collection and data management capacity**
- **Offers a more cost-effective solution than commercially available systems**
- **Can be implemented with minimal customization**





# FIT Core Capabilities

**Information Capture**



**Scheduling/Dispatch**



**Custom Forms**



**Integrated Billing**



**Online Reporting**





# Value-Added Features

Integration of Photos/Documents into Inspection Reports



Remote Printing



Bar Code Scanning



Automated Letter/Notification Generation



Team Inspection



Ultra Mobile Personal Computers (UMPCs)



Windows and MS Office Based



GPS & Route Optimization



Real Time Video Collaboration





# FIT Processes - Scheduling



The monitor displays the FIT login and registration interface. At the top left is the IBTS logo. The main content area contains the following elements:

- Text: "To log in, enter your user name and password and click on the log in button below."
- Text: "The user name and password fields are case sensitive."
- Form: "User name:" followed by a text input field.
- Text: "[Forgot your Username?](#)"
- Form: "Password:" followed by a text input field.
- Text: "[Forgot your password?](#)"
- Text: "Log in" followed by a "Log in" button.
- Text: "To get your user name and password, register using your access code."
- Text: "Register" followed by a "Register" button.

- **Secure Log In**
- **Roles-Based Access**
- **Supports multiple authentication sources, Form-Based, Windows, certificate, etc.**



# FIT Processes - Scheduling



**Scheduler**

**Schedule Property Inspection**

HomeOwner Name: **Robert Shelton**  
Address : **555 Broadway Street, Suite #23 ,VA, Herndon-22043**  
Phone Number: **571-357-9222**

[Click here for more recipient information](#)

Scheduled Date:    
Inspection Time: Start:   End:    
Inspector:

**Inspector's Schedule by Zip Code : 22043 (Eastern Standard Time)**

Inspectors	AM					PM								
	7:00	8:00	9:00	10:00	11:00	12:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00
John Brown (13.2)														
Maurice Stein (7.9)														
Greg Tuttle (3.2)														

Unavailable  Scheduled  Accepted  Reviewed  Completed

- Business logic built in to ensure compliance
- Email and/or SMS notifications to assignees for remote dispatch
- Scheduler queues supported for large scale call center operations
- Outlook Calendar integration



# FIT Processes – Inspection Forms

The image shows a tablet displaying a digital inspection form. The form is titled "U.S. DEPARTMENT OF ENERGY WEATHERIZATION ASSISTANCE PROGRAM QUALITY ASSURANCE FORM". It contains the following information:

- Grantee: NY
- Subgrantee: NY-1002
- Job #: 999
- Date of Completion: 1/3/2011
- Assessment status:  Assessment,  In Progress,  Completed
- Agency Inspector: Henry Garcia
- Client Name: Robert Shelton
- Owner/Renter:  Owner,  Renter
- City/Street: 3927 Stewart Ave, #27, New York
- Pre-1979 Home:  Yes,  No
- Housing Type:  Single Family,  Single Family(1-4),  Multi-Family 2-3 stories,  Multi-family 4 stories or more,  Mobile Home
- Primary Fuel Type:  Natural Gas,  Propane,  Electric,  Oil,  Other
- Owner Presence:  Yes,  No

Related Property Documents:

- Building Work Scope (BWS): NY-1002-BWS.TIFF eCopy Document 2.43 KB
- Building Energy Profile Report: NY-1002-BEPR.TIFF eCopy Document 2.57 KB

Inspection sections: HVAC, ATTIC, SIDEWALLS, SUBSPACE, WINDOWS/DOORS, OTHER

ON-SITE WORK ASSESSMENT: HEATING, VENTILATION, AIR CONDITIONING

1. Required Documents for on-site review:

- Statement of Completion Form
- AND Building Work Scope OR

Comments section for HVAC:

(Comments – HVAC)	YES	NO	N/A	NC
Enter Comments!	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Enter Comments!	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	



Inspection Form is pre-populated with applicant information.

Form items are arranged by inspection section (HVAC...Attic...Side walls).



# FIT Processes – Inspection Forms

**fit**

**4. Heating System Tune-Up/Filter**

**Demolition**  
Verify accuracies in the following area:

Statement of Completion Form is accurate and complete

**5. Air Conditioning Tune-Up/Filter**

SOC is accurate and complete

Verify cooling system has been cleaned and charged to correct SEER

QA Assessor Name:

Signature:

Date:

Windows taskbar: 10:55 AM



**Inspectors must complete all items in every section in order to be allowed to submit the inspection.**



# FIT Processes – Inspection Forms

fit

Grantee: NY Subgrantee: NY-1002  
Job #: 999 Date of Completion: 1/3/2011  
 Assessment  In Progress  Completed  
Agency Inspector: Henry Garcia Client Name: Robert Shelton  Owner  Renter  
City/Street: 3927 Stewart Ave, #27, New York Pre-1979 Home:  Yes  No  
Housing Type:  Single Family  Single Family(1-4)  Multi-Family 2-3 stories  Multi-family 4 stories or more  
 Mobile Home  
Primary Fuel Type:  Natural Gas  Propane  Electric  Oil  Other:  
Owner Presence:  Yes  No

**Related Property Documents:**

**Building Work Scope (BWS)**  
NY-1002-BWS.TIFF  
eCopy Document  
2.43 KB

**Building Energy Profile Report**  
NY-1002-BEPR.TIFF  
eCopy Document  
2.57 KB

HVAC ATTIC SIDEWALLS SUBSPACE WINDOWS/DOORS OTHER

QA Assessor Name: Henry Garcia

Signature:



Above the section buttons are two links to related property documents.

These are documents that have information necessary for the inspector to complete an inspection.



# FIT Processes – Inspection Forms

fit

energy related inspections/reports

- Statement of Completion Form is accurate and complete
- AND Top BAND R-value (IA)**  
**AND Photo Verification (Required)**

7. Work Meets Standards

- Statement of Completion Form is accurate and complete
- AND** If insulation specifications are different for different areas each specification should be inspected **(IA)**
- AND** Compare insulation type, thickness and R-value to the Work Scope and note conformance/deviations

QA Assessor Name:

Signature:

Date:

← SUBMIT →



Inspectors can navigate from section to section using the arrow buttons at the bottom of each section.

Signature is required to submit the form.





# FIT Processes – Inspection Forms

**fit**

**Other Measures - DHW BASELOAD, LIGHTING, REFRIGERATOR**

**(Comments - Other Measures)**

**1. Solar Water Heating System added**  
Verify:

- Insure signed statement of completion is accurate and complete
- AND** Capacity, efficiency, water temp. to Building Energy Profile Report and note conformance/deviation **(IA)**
- AND** Signed statement of completion from HVAC contractor **(IA)**
- AND** Photo Verification **(Required)**

**6. Lighting – CFLs & Hardwire Installed**  
Verify:

- Insure signed statement of completion is accurate and complete
- AND** Compare quantities, type, wattage, to Building Energy Profile Report and note conformance/deviation
- AND** Confirm lighting is operable



Each question has logic built in to guide the inspector through the process.



# FIT Processes - Reporting



Subgrantee Name	StreetAddress1	StreetAddress2	City	State
Alaska Community Development Corp	1517 Industrial Way	NULL	Palmer	AK
Alaska Housing Finance Corporation	PO Box 101020	NULL	Anchorage	AK
Municipality of Anchorage	557 E. Fireweed Ln., Suite D.	PO Box 196650	Anchorage	AK
Rural Community Action Program	P.O. Box 200908	NULL	Anchorage	AK
Alabama Council on Human Relations, Inc.	319 W Glenn Avenue	PO Box 0409	Auburn	AL
Central Alabama Regional Planning and Development Commission (CARPDC)	430 South Court Street		Montgomery	AL
Community Action Agency of Baldwin, Escambia, Clarke, Monroe, and Conecuh Counties, Inc.	26440 Pollard Road	PO Box 250	Daphne	AL
Community Action Agency of Northeast Alabama, Inc	1481 McCurdy Avenue, South	PO Box 1487	Rainsville	AL
Community Action Agency of Northwest Alabama, Inc	745 Thompson Street	NULL	Florence	AL
Community Action Agency of Talladega, Clay, Randolph, Calhoun and Cleburne Counties	136 North Court Street	PO Box 278	Talladega	AL
Community Action Committee, Inc. of Chambers-Tallapoosa-Coosa	170 South Broadnax Street		Dadeville	AL



- Entirely web-based
- Roles-based access
- GUI based view creation and customization
- Exporting capabilities to Word, Excel, PDF, etc.



## Remote Printing



**Provides immediate access to completed inspection forms for fellow workers/managers.**



**Strengthens real-time connections between field inspection and office operations.**

**Eliminates dual entry, post-inspection report preparation**



# GPS & Route Optimization

**FIT's GPS feature provides reliable location and time information in all weather and at all times and anywhere.**



← **Features**

- Provides visibility into field operations for greater control
- Produces a complete and detailed record of field activities.
- Identifies unproductive time in the field to increase overall productivity
- Records and analyzes stop characteristics for better planning
- Eliminates out-of-route mileage for fuel cost savings
- Uncovers and reduces unsafe driving to reduce insurance costs

**FIT's Route Optimization feature can determine an optimum path and re-order stops accordingly**

- Reduces daily transportation costs by 20% or more
- Saves time planning every day
- Improves the utilization of field staff
- Reduces daily carbon emissions



## **FIT Summary**

- **A comprehensive methodology for strengthening municipal services – more than a tablet or software**
- **Highly cost-effective – designed with small communities in mind**
- **Highly user-friendly – brings high-tech resources and results to low-tech users**
- **Easy to implement with minimal customization and integration with existing technology and data systems**



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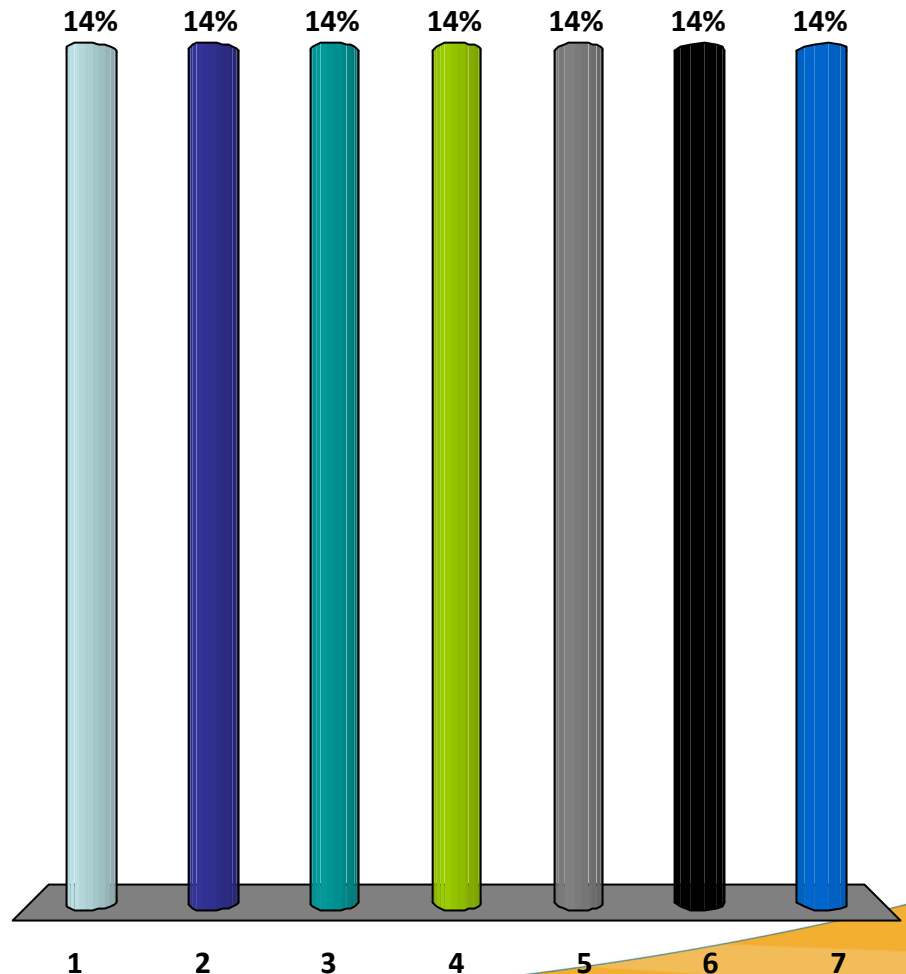
# **FIT In Action In The Built Environment**

**Greg Blount**



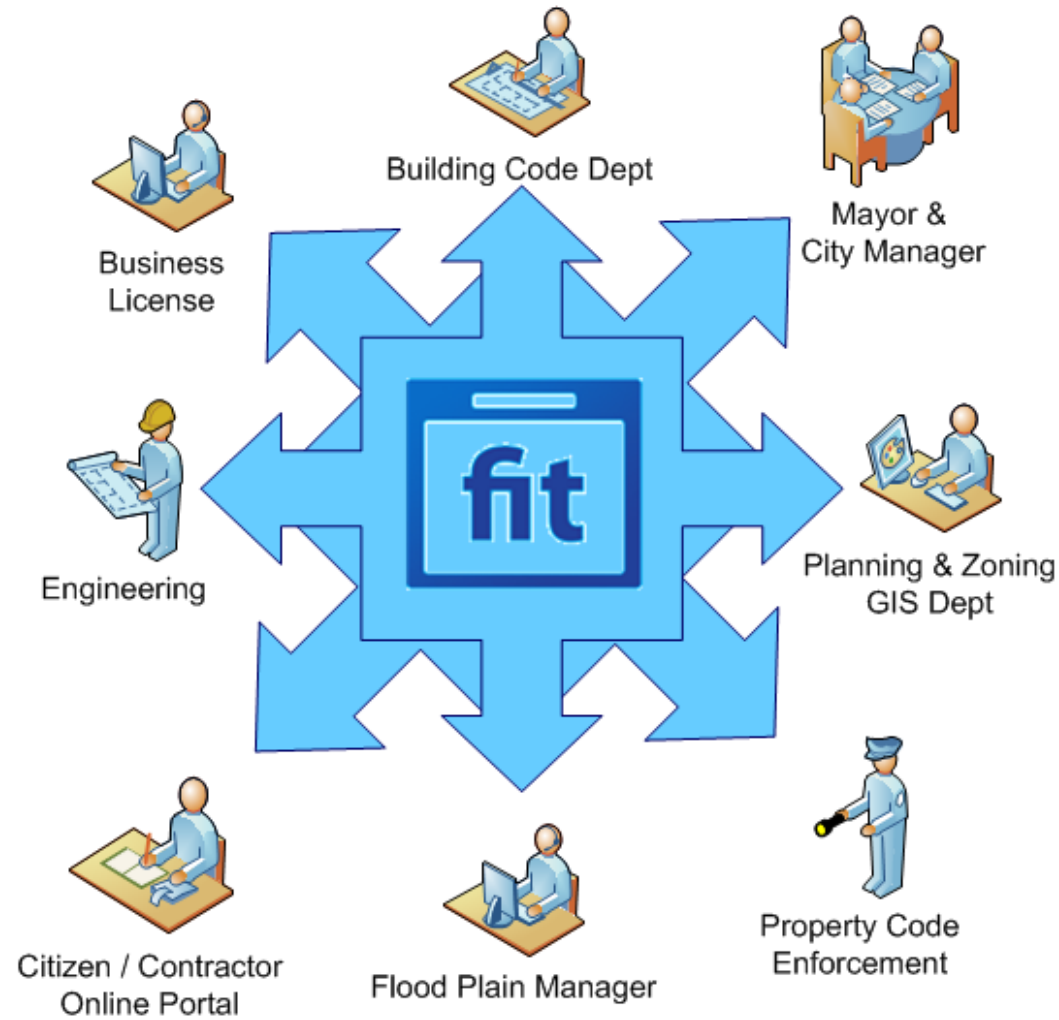
# What is your biggest challenge in building/code enforcement operations

- **Money/budget**
- **Attracting/retaining skilled staff**
- **Meeting customer expectations/schedules**
- **Collecting/maintaining data**
- **Providing service transparency**
- **Ensuring cross-department collaboration and information sharing**
- **Other**





# Cross-department Connections







# **FIT Plus Regional Collaboration**

- **Shared costs among jurisdictions**
- **Multi-certified building code officials and flood plain managers**
- **Streamlined administrative procedures**
- **Consistent regulations and processes across jurisdictional boundaries**
- **Efficient data sharing**
- **Maximum communication to keep citizens, contractors, and developers informed through technology**
- **Effective use of staff to manage building ebbs and flows**
- **A more efficient and reliable operation**



# **FIT In Action**

## **North Louisiana Collaboration**

- **26 jurisdictions working together to deliver services in the built environment**
- **Populations from 4,000 to 25,000**
- **One Certified Building Official leads the regional service delivery system**
- **Realigned processes to eliminate bottlenecks and ensure coordinated operations with code enforcement, flood zone management, and storm-water management all in one department**
- **Centralized data collection**
- **Roll out of field data collection in process**



# **FIT In Action**

## **Concordia & Tensas Flood Recovery**

- **Recorded all permit and flood plain data for new construction handled by the building department as part of improved data management in a combined department**
- **Data was readily available when floods hit the region in spring 2011**
- **Homeowners in the database secured all the required information to apply for FEMA recovery funds in 30 minutes or less compared with two days or more for homes not yet in the database**
- **Effective data management produced efficiency, economy and less frustration vs. delays, expenses, and more frustration**



## **FIT In Action - DC Housing Authority Accessibility Standards**

- **Conducting required uniform federal accessibility standards (UFAS) on DC public housing units**
- **FIT tablet facilitates data collection and management for future analysis on recurring problems identified in the inspections**
- **Provides a value-added resource to provide information to builders to ensure that accessibility standards are met on the front end**
- **Potentially provide a resource for use by other cities to ensure UFAS compliance**





## Achieving Long-term Results

- **FIT produces the best results when combined with a broad review/assessment of department operations and processes**
- **It is essential to visualize and understand the FIT concept of multiple departments using the same data for day-to-day activities**
- **The long-term goal for use of FIT is to modernize building departments by making better use of both personnel and data to ensure efficient, reliable, cost-effective public service**
- **FIT is scalable for large data collection and management and applicable in range of municipal service areas such as fire, rescue, disaster recovery, and more**



## Learn More

- Questions and discussion
- Visit [www.ibts.org](http://www.ibts.org) for more information
- Come see us in Booth #722