



REBUILDING A MORE RESILIENT LOUISIANA:

A Hurricane Katrina Case Study



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Hurricane Katrina Case Study

When Hurricane Katrina ravaged the Gulf Coast of the United States in 2005, it caused unfathomable damage: 1,836 lives lost, 300,000 homes destroyed, \$146 billion of damage and \$250 billion in economic loss.

Largely rural and with a poverty rate of 15.8% according to 2000 Census data, the citizens of Louisiana lost almost everything. According to the Congressional research report, *Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas*, of the people displaced:

...about half lived in New Orleans. Due to the city's social and economic composition, the storm impacted heavily on the poor and African Americans. CRS estimates that one-fifth of those displaced by the storm were likely to have been poor, and 30% had incomes that were below 1½ times the poverty line. African Americans are estimated to have accounted for approximately 44% of the storm victims. An estimated 88,000 elderly persons (age 65 and older), many with strong community ties, may have been displaced, along with 183,000 children, many of whom were just starting the school year when the storm struck.

Hurricane Katrina: Social-Demographic Characteristics of Impacted Areas

Although the storm was unprecedented, a significant factor in the amount of damage could be placed on the fact that at the time of the storm, Louisiana did not have statewide building codes that addressed the need for severe weather resistance. Indeed, researchers at Louisiana State University found that if stronger building codes had been in place, wind damages from Hurricane Katrina would have been reduced by an astounding 80% .

Ten years after the storm, Louisiana scored 82 out of 100 in the Insurance Institute for Business & Home Safety's Rate the States: An Assessment of Residential Building Code and Enforcement Systems for Life Safety and Property Protection in Hurricane-Prone Regions. In 2005, the State had a score of four out of 100. The positive transformation brought about by the devastation of Katrina was almost shocking.



How did Louisiana Manage Such a Significant Improvement in Such a Short Period of Time?



The insurance industry and government officials with the Louisiana Department of Public Safety Services (DPS) realized that part of the state's recovery from Hurricanes Katrina and Rita had to involve the implementation of uniform building codes. These were the first statewide building, energy, mechanical, electrical and plumbing codes adopted in Louisiana, and the first building codes of any type for many parts of the state.



Yet getting from legislation to reality was a challenge. Jurisdictional building departments were faced with significant increases in building permit activity and limited staffing capacity, and were also challenged with implementing and complying with these newly adopted building codes, as well as meeting the new requirements for certified building department personnel, as required by Act 12 and the Louisiana State Uniform Construction Code.

In order to meet the need, 369 certified building officials were required (1 for each jurisdiction), along with hundreds of certified residential/commercial inspectors and certified plan reviewers. Many jurisdictions didn't have or understand building codes and most departments had to be built from the ground up. At the time, there were only 22 building officials in Louisiana.

What did they need? State-level legislation and institutions. Building code development and maintenance. Local implementation. Knowledge-sharing and measurement.

It became obvious that outside help would be required, and in 2006, the State of Louisiana contracted the Institute for Building Technology and Safety (IBTS) to mobilize immediately to lessen the burden on the eleven parishes and incorporated jurisdictions within each parish that were most affected by the hurricanes through:



For the long term, Louisiana needed to come back from the disaster to be safer, healthier and stronger, with a built environment more able to withstand the forces of nature. The goal was to assist local governments in responding to the needs of homeowners and building contractors, while meeting an overarching need to help re-energize local economies and lead communities to recovery.

It was Imperative that Each Building Department Became Self-Sustainable

It wasn't enough to simply rebuild Louisiana. Building code development and maintenance, local implementation and knowledge sharing and measurement were key components of the task at hand.

The recovery project encompassed seven key activity areas.



Project Management Plan

The overall goals of the project were analyzed with each task and factored local circumstances, project risks and considerations to be addressed. The Project Management Plan addressed critical issues including coordination between project stakeholders, staffing and resource needs, financial management, strategies to accomplish specific activities, provisions for quality control of ongoing work, procedures for issue tracking and resolution, and schedules of activity to ensure timeliness and effectiveness. Upon DPS's acceptance, IBTS began meeting with parishes and municipalities and evaluating their needs. The Master Plan was reviewed monthly and revised as needed throughout the contract to ensure the project was on target to meet the needs and demands of DPS, parishes, and municipalities.

Project Management

Experienced managers and subject matter experts were provided to building department operations throughout Louisiana. A fast, comprehensive Project Management Plan was needed as part of an effective and coordinated approach.





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Provide Personnel

IBTS staff augmentation was instrumental in recovery and rebuilding efforts within the 11 parishes most affected by the 2005 hurricanes. Following the initial damage assessments and subsequent examinations of the magnitude of the destruction, IBTS served the State by providing staffing and technical resources to aid in the recovery of communities and implementation of the new building codes.

Staff included project managers, task managers, building inspectors, plan reviewers, administrators, permit technicians, and trainers. Personnel were deployed to each jurisdiction based on the needs assessment, while regular monitoring enabled adjustments to staffing allocation based on changing needs.

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Trusted Advisor

Classroom-style training was developed to help educate the mixed audiences of inspectors, building officials, permit technicians and administrative assistants. The subjects were geared to introducing individuals to referenced training tools and requirements for certification, and consisted of extensive building code technical training.

Hundreds of formal and informal training and education sessions were conducted with department personnel in a multi-pronged outreach approach that helped us to apply and transfer our technical knowledge, while serving the contractors and homeowners with integrity and professionalism.



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Field Inspections, Data Collection and Architectural Plan Review

Various types and levels of technical services were provided, depending on the needs of local jurisdictions, including:



Inspections:

Each month, IBTS conducted more than 1,000 on-site code compliance inspections, wrote inspection reports, and provided guidance and direction to the builders and contractors on methods and guidelines to ensure code-compliant construction.



Permit Assistance:

Permit technicians processed hundreds of building permit applications on behalf of Louisiana parishes. IBTS personnel interfaced with the local personnel and the permit applicants, ensuring applications were complete and fees were collected and recorded.



Plan Reviews:

Hundreds of plan reviews were conducted each month for determination of code compliance, meeting with the designers and contractors on non-compliance issues, and worked with the permit applicants to ensure plans were corrected and approved.



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Document and Data Management

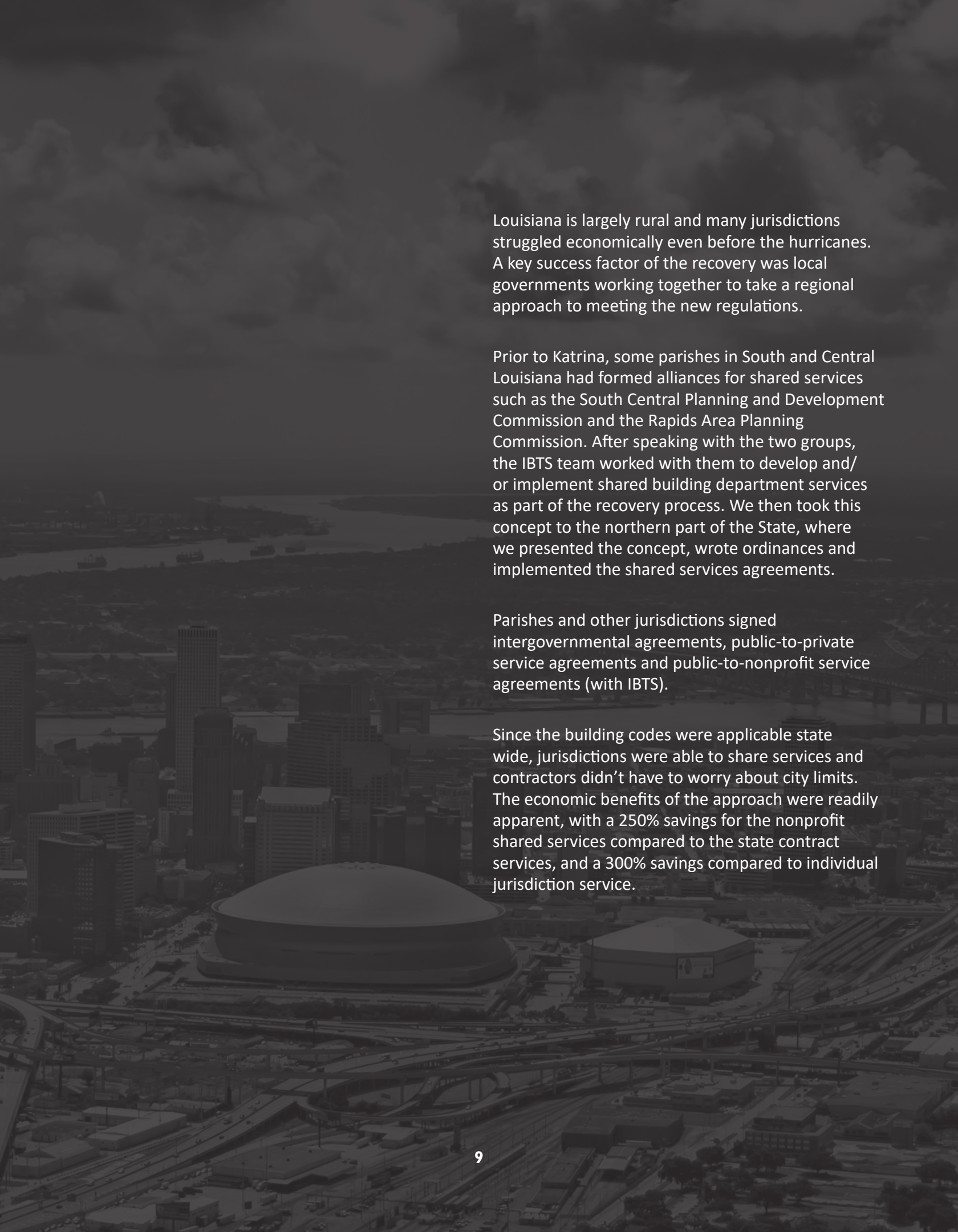
As an important component in support of the larger project goals and objectives, IBTS collected volumes of data on a daily basis, working with the jurisdictions to develop data collection processes and implement maintenance procedures. Higher-level project information was also maintained for regular reporting to the State. As a result, many parishes were able to implement web-based building department systems so all inspection data, permitting information, and correspondence could be maintained and managed efficiently.



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Reporting

In order to effectively direct the technical resources procured by the State to assist local government offices, IBTS analyzed real-time data on construction activity, permit issuance, plan reviews, inspections, and human resource availability, and provided recommendations to officials on resource needs and allocations.



Louisiana is largely rural and many jurisdictions struggled economically even before the hurricanes. A key success factor of the recovery was local governments working together to take a regional approach to meeting the new regulations.

Prior to Katrina, some parishes in South and Central Louisiana had formed alliances for shared services such as the South Central Planning and Development Commission and the Rapids Area Planning Commission. After speaking with the two groups, the IBTS team worked with them to develop and/or implement shared building department services as part of the recovery process. We then took this concept to the northern part of the State, where we presented the concept, wrote ordinances and implemented the shared services agreements.

Parishes and other jurisdictions signed intergovernmental agreements, public-to-private service agreements and public-to-nonprofit service agreements (with IBTS).

Since the building codes were applicable state wide, jurisdictions were able to share services and contractors didn't have to worry about city limits. The economic benefits of the approach were readily apparent, with a 250% savings for the nonprofit shared services compared to the state contract services, and a 300% savings compared to individual jurisdiction service.

Building Resilient



Implementation Type	Population Served	Grant Money Available	Implementation Cost per Person
State Contract	364,421	\$4,837,682	\$13.27
Individual Jurisdiction	119,293	\$1,316,756	\$11.04
Shared Services by Jurisdictions	1,272,043	\$6,794,678	\$5.34
Shared Services by Nonprofit	348,977	\$1,164,121	\$3.34

IBTS project report data.

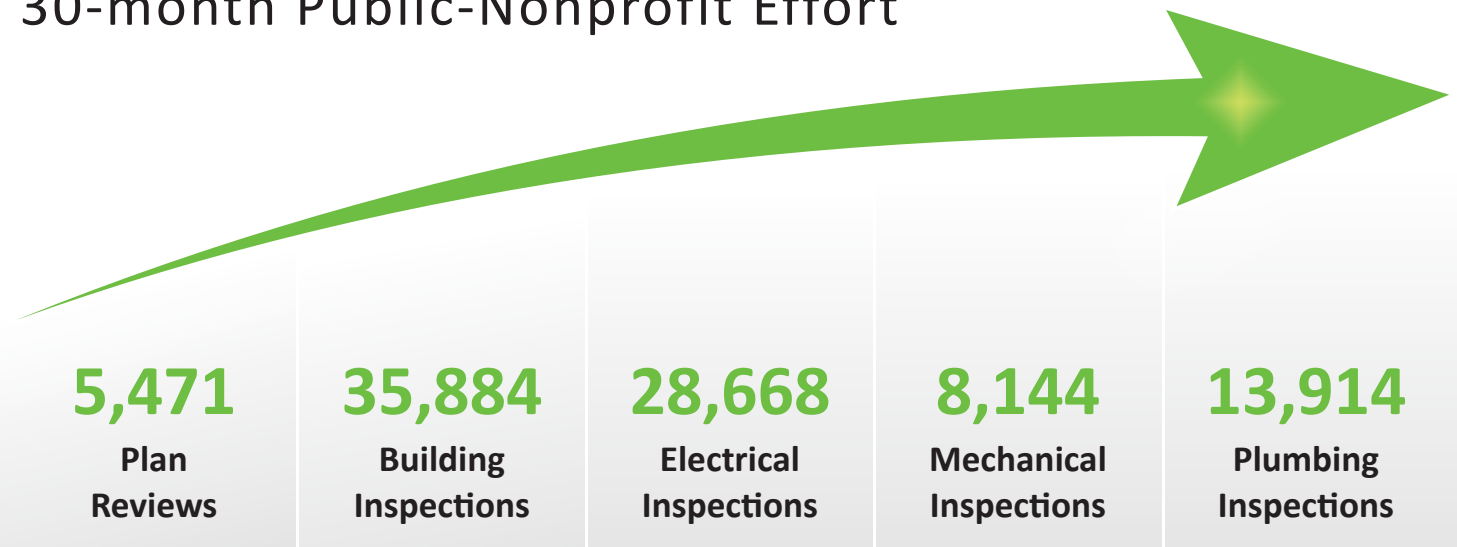


Thousands Served

Under this model, some jurisdictions were also able to obtain Community Rating System resulting in a 3% reduction in residential insurance premiums, and a 7% reduction in commercial premiums. In one jurisdiction, reduced flood insurance rates resulted in \$85,000 of savings over 2,000 policies.

In total, the 30-month public-nonprofit effort with IBTS resulted in:

30-month Public-Nonprofit Effort



IBTS presentation to International City/County Management Association (ICMA) 2013

Best of all, homes built to the new code were 65% less likely to sustain damage during hurricanes, according to a study by the Louisiana State University Hurricane Center. The State no longer appears on USA Today's Top Ten list of storm damage between 2011 and 2015. Louisiana has gained another point on the Insurance Institute for Business & Home Safety's Rate the States and stands at 83 for 2018—79 points higher than pre-Katrina.

No jurisdiction is perfect, and protecting communities from unprecedented severe weather events is a complex and long-term process, especially when it comes to low-income areas and persons at increased risk. IBTS is proud of the role we played in bringing Louisiana back from near-annihilation, helping the State not only recover, but put in place sustainable plans for regulatory reform and long-term resilience.

Citations

<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

<https://gnocdc.s3.amazonaws.com/reports/crsrept.pdf>

<https://disastersafety.org/wp-content/uploads/The-Value-and-Impact-of-Building-Codes-by-Ellen-Vaughn-Jim-Turner.pdf>

<http://disastersafety.org/wp-content/uploads/2015/07/rating-the-states-2015-public.pdf>

<http://www.norbord.com/na/blog/severe-weather-leads-to-construction-code-changes>

IBTS project report data

Case Study Participants

The following individuals were interviewed as part of the development of this case study:

Greg Blount
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Valrae Negley
Building Official

Lucinda Veerbeek
Inspections Manager





We are building resilient communities by reducing risk, enhancing public safety, providing quality assurance measures and improvements to quality of life.

- Established to provide the highest quality professional services
- 501(c)(3) nonprofit organization



Our Corporate Mission:

Deliver quality services to meet the challenges of governance at all levels while enhancing public safety, economic development, and the general welfare of the communities, agencies and cities.

IBTS's work is guided by a Board of Directors made up of government officials appointed by five of the most highly respected state and local governmental associations, including the Council of State Governments (CSG), International City/County Management Association (ICMA), National Association of Counties (NACo), National Governors Association Center for Best Practices (NGA Center), and National League of Cities (NLC).



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