Guide to More Effective and Efficient Building Regulatory Processes Through Information Technology

U.S. Department of Housing and Urban Development
Office of Policy Development and Research

PD&R

GUIDE TO MORE EFFECTIVE AND EFFICIENT BUILDING REGULATORY PROCESSES THROUGH INFORMATION TECHNOLOGY

August, 2006

Dear Colleague:

This Guide has been produced to provide your state or community with a tool to enhance public safety and improve the effectiveness and efficiency of your oversight of construction.

State and local elected officials and the heads of agencies that provide services to our citizens face major challenges today; challenges that will determine both the vitality and safety or our communities.

Successful government leaders have to be able to effectively balance a series of competing forces. These include increased demands from both the public and the business community for: more timely and less costly public services; the ability of their jurisdiction to retain and attract new businesses to be economically competitive in regional (and increasingly in the global) marketplace; enhanced public safety and rapid recovery from both man-made and natural disasters; affordable housing (including providing housing for an aging population) and lastly demands to do all of this with diminishing financial resources.

Nowhere do these forces come together more strongly than within programs state and local governments administer that regulate the design, construction and/or renovation of buildings: residential, commercial, institutional, industrial and governmental structures. Consider the following:

- The construction industry is responsible for 20% of our gross domestic product.

- Buildings comprise over 60% of our wealth, are the site of 90% of our economic activity, and consume 40% of our energy.

- Regulations governing the design and construction of buildings contribute up to 20% of the cost of construction.

- A single day's delay caused by the regulatory process can add an additional $100,000 to the cost of a mid-rise building.

- Companies like Boeing, Intel, and Toyota have made decisions as to where to locate large production facilities based upon the degree of efficiency of building regulatory systems.

- "Because the Building Department is the single most important agency in the development process, its management and operations needs to be as efficient as possible." (1999 Report on Housing in New York City by Salama, Schill and Stark)

To help state and local governments address these issues, many national associations, including the National Governors Association, Council of State Governments, National Association of Counties, U.S. Conference of Mayors, and the National League of Cities, have assembled and distributed to their members examples of strategies, programs and other practices that have been successful. Among such best practices are those involving the streamlining of the building regulatory process through the effective use of information technology. Such efforts have been documented by the Alliance for Building Regulatory Reform in the Digital Age to reduce the regulatory cost of construction by up to 60%.
For example:

- Oregon through "Building Permits.Oregon.gov" has developed and is phasing in a pilot e-permitting web site for contractors. The industry estimates that e-permits could save annually 10% of construction permitting costs.

- Florida is putting in place a centralized state-wide online permit issuing system to be accessed by citizens when their local jurisdiction's building department has been damaged by a disaster.

- Los Angeles reviewed and streamlined their building regulatory process and applied information technology to its operations saving millions of dollars for the city and its customers by:

    - Reducing waiting time for permits from 2-3 hours to 7 minutes;

    - Reducing plan check times from 10 weeks to 10 days;

    - Reducing wait times for inspections from 4-5 days to less than 24 hours;

    - Providing code administrators with accurate up to the minute resource management data including tracking mechanism for permits, plans and inspections, while

    - Handling an 88% increase in construction volume with only a 1.5% increase in staff.

- North Middleton, Pennsylvania, applied IT to the permit, inspection scheduling and inspection processes and cut the time to perform these functions by 80%, thereby increasing customer satisfaction and saving staff time and resources.

This Guide draws upon successful best practices of state and local governments to provide elected officials and their building codes administration and enforcement agencies with examples that will help your jurisdiction:

1) Assess the need for streamlining the building codes administration and enforcement processes and procedures in your community.

2) Assess the potential use of information technology to improve services; and

3) Provide necessary steps to help ensure the successful implementation and effective use of information technology.

This Guide also will help your state or locality connect with counterparts elsewhere in the country who can share their streamlining experiences with you. We urge your review and careful consideration of this publication as you continue your efforts to keep your community vital and your public safe.

Sincerely,

Ted Kulongoski,
Governor State of Oregon

Janet Taylor,
Mayor, Salem, Oregon

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Guide to More Effective and Efficient Building Regulatory Processes Through Information Technology

Prepared for

U.S. Department of Housing and Urban Development
Office of Policy Development and Research
under
Purchase Order S6C5AAC0040 And Cooperative Agreement H21488CA

Prepared by

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September, 2006

ACKNOWLEDGEMENTS

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CHAPTER 1. Introduction

A. Why Streamline?

Demands on elected officials and on the government agencies they oversee have increased significantly over the past decade. Both the public and private sectors are demanding that governments provide services more effectively, efficiently and at a lower cost. Moreover, they are demanding that their state or community be able to provide more affordable housing, stimulate economic competitiveness and urban revitalization, and be able to better prepare for, respond to, and rapidly recover from natural and man-made disasters.

New construction and renovation of existing buildings are vital components of our nation's economy and are critical to ensuring the welfare and safety of the American public. In this time of heightened security and increased construction, building departments are faced with a growing workload and daunting new challenges of meeting the raised expectations of the public and the construction industry for timely and effective service.

Faced with such pressures and often with diminishing budgets and staff shortages, building departments have increasingly evaluated and, where necessary, restructured their programs to make effective use of information technology tools to improve both the timeliness and quality of their services. These tools have included online permitting, electronic plan submittals, plans tracking and review, GIS (Geographic Information Systems), licensing of contractors, and scheduling and conducting field inspections.

B. What is Streamlining?

Streamlining means identifying and removing barriers to effective and efficient delivery of services to the public. Streamlining modifies or restructures the day-to-day operations of an agency. This is to eliminate, or significantly reduce areas of duplicative work, overlapping and conflicting rules, regulations, processes and procedures that might be confusing or that add unnecessary time and cost to the delivery of services to the community. Streamlining looks at both public purpose and process of agencies. For building departments, the objective is more effective and efficient administration and enforcement of the building codes and standards adopted. Streamlining is not regulatory abandonment.

C. Examples of Barriers That Have Led Jurisdictions to Streamline

In the July 2005 issue of "Cityscape" (Volume 8, Number 1) on "Regulatory Barriers to Affordable Housing," the U.S. Department of Housing and Urban Development's Office of Policy Development and Research documented a wide range of building regulatory, zoning and land use practices that created barriers to affordable housing by unnecessarily increasing the cost of single-family and multi-family housing in the United States. The report also shared examples of successful strategies being applied by jurisdictions to remove such barriers, including several that are covered in this guide.

How do you know if your state, county, city or town has such barriers and a regulatory system that should be evaluated for streamlining? Here are a few examples of barriers that had to be overcome by some states and localities that later streamlined their regulatory systems:

- **Business Leaves Town: San Jose, California, and other Jurisdictions in Silicon Valley**

  In the early 1990's, jurisdictions in the San Jose/Silicon Valley region were surprised when several large information technology firms moved their operations to Austin, Texas. Leadership flew to Austin to learn why. One of the major factors contributing to attracting firms to Austin was a streamlined building codes administration and enforcement program that reduced the amount of time (and cost) for processing permits, gaining plan reviews and conducting inspections. From that exploratory trip, the San Jose region formed the Joint Venture-Silicon Valley Network to streamline regulatory processes and retain industry and jobs in 1993.

- **The City Stops Growing and Renovation Comes to a Halt: San Diego, California**

  In the mid-1990's, San Diego was experiencing 18 to 24 month time frames for building permits, plan reviews and inspections for medium-sized commercial properties. Construction nearly came to a complete halt. Elected officials and the building department worked together to come up with a restructured codes administration and enforcement program to provide a one-stop permit center to fast-track projects and provide builders with online access to check their projects through the codes administration and enforcement process.

- **Builders Raise Concern about the Cost of Time Delays Resulting from the Regulatory Process: Fairfax County, Virginia**

  In the late 1990's, builders brought to the Building Official's attention and documented the fact that a one day delay in construction (unnecessarily caused by the regulatory process) cost the builder of a mid-rise office building $100,000. As a result, Fairfax County performed a self-evaluation of their regulatory processes and laid out a long-term plan to streamline.

- **Portion of Housing Costs Attributable to Regulatory Delays Rises, Pricing Public Servants Out of Homeownership in the Community in which They Work: Numerous Communities**

  This problem has been documented well in several studies produced by the U.S. Department of Housing and Urban Development, including the 2005 report "Why Not in Our Community? Removing Barriers to Affordable Housing." Streamlining initiatives to help resolve this problem have ranged from online permitting processes to centralized one-stop permit and plan processing centers.

- **Jurisdictions Can't Keep Up with Workload and Customer Service Needs and Expectations Are Not Being Met: State of Oregon and Metro Portland Area**

During the past two decades, the greater Portland region has been one of the fastest growing regions in the nation. To keep from being overwhelmed with increased construction volume, in the mid 1990's, jurisdictions in the Portland metropolitan area began to acquire information technology and look at streamlining their processes to address the above concerns.

In 1999, construction industry customers and stakeholders backed state legislation to standardize permitting processes, application forms, fee methodologies and the application of code throughout the 32-jurisdiction Portland metro area. This was accomplished by establishing a state Building Codes Division field office to facilitate the standardization process. Working together for the first time, jurisdictions were exposed to and shared a number of ideas, solutions and streamlining initiatives that standardized for the region, contributed to enhanced customer service, better relations with stakeholders, and in 2005, a regional e-permitting pilot program for the Portland metro area offering permits for multiple jurisdictions.

Initial successes plus streamlining assistance from outside organizations and other jurisdictions helped launch a statewide initiative. "*We are pushing hundreds of projects throughout state government to streamline business regulatory processes. E-permitting is an important part of this effort and shows our commitment to industry to make Oregon an even better place to do business.*" (Oregon Governor Ted Kulongoski)

In addition to the above examples, Chapter 8, "Lessons from Katrina, Rita, Wilma and Other Disasters," provides examples of benefits of streamlining a jurisdictions codes administration and enforcement processes prior to a man-made or natural disaster.

D. What Savings Are Being Achieved Through Streamlining and Using IT?

Examples of Savings Achieved Through Streamlining and Effective Use of IT

Over the past five years, the U.S. Department of Housing and Urban Development, National Association of Home Builders, American Institute of Architects, National Governors Association, National Association of Counties, U.S. Conference of Mayors, and other partners in the Alliance for Building Regulatory Reform in the Digital Age have provided examples of reductions in the regulatory cost of construction that are being achieved through the re-evaluation of an existing codes administration and enforcement process by a jurisdiction and, where necessary, the restructuring and applying information technology to the process.

In 2005, with funding from an Alliance partner, the Institute for Building Technology and Safety, the Alliance and the National Conference of States on Building Codes and Standards (NCSBCS) undertook a survey and compiled a report on "The Costs and Savings from the Application of Information Technology to Building Codes Administration and Enforcement Processes." Some of the savings

referenced in the report that have been documented by state and local jurisdictions of all sizes from across the nation, including:

- **Chula Vista, California:** The city was able to cut in half the amount of time it takes to process building permits, plan reviews and inspections in their city.

- **Louisville, Kentucky:** Accommodated the expansion of building regulatory program to a county-wide program and did so while at the same time reducing permit application time by 50%, reducing licensing application time by 75%, and inspection times by 50%.

- **Clackamas County, Oregon:** In one year, the online permit process saved the county $40,000 over the costs of that system and reduced staff by 2 people.

- **Richmond Heights, Ohio:** A 40% saving was achieved in staff time to perform permitting and inspection functions.

- **Cobleskill, New York:** A vacation community, it saved owners trips into town to obtain permits by issuing them online.

- **San Antonio, Texas:** Reengineered its building and land use regulatory processes and put in place an online permitting process, fee payment system and inspection scheduling enabling the city to better handle increased construction loads and reducing customer costs including travel time to physically visit the city building department to file for a permt. By May 2006, San Antonio was issuing 44% of all permits online and 42 % of all inspections were being scheduled online.

The following is how two of these communities achieved their savings:

In the mid 1990's, Chula Vista, California, became one of the fastest growing cities in the country. The unprecedented growth created an increasing workload on the building department. The plan review process for building permits required applicants to submit plans to the building department. They were then routed to planning, fire, and engineering departments for review. When applicants requested a status of their plan submittal at the building counter, there was no way of knowing the status of each department's plan review. To alleviate this problem, the building department championed the purchase and implementation of a permit tracking system. After working with the other departments involved in the plan review process and the IT department, a system was purchased and implemented that allowed online entry of plan check status. Customer service improved since all involved in the process had plan review status at their disposal. Since then, the process has been enhanced to provide plan check status by fax and/or voice message via a phone call to the city's interactive voice response (IVR) system.

Since 1991, the City of Louisville and Jefferson County governments have been improving services and cost effectiveness through shared technology. In 2003, the two governments merged and implemented a GIS-based system that is virtually paperless. Applications are now proceessed quicker online, field staffs now work from home and use wireless computers to document their inspections creating a real time system of permit inspection data. As a result, over the last 15 years, the permit application times have been decreased by approximately 50%, the licensing application times have decreased by approximately 75%, and the inspection times have decreased by 50%, all while there was an increase in the number of permits/licenses issued and inspections performed and less staff involved in the same.

In addition to these recently documented savings, other savings being achieved include:

- **Silicon Valley Network:** In addition to putting online permit issuing processes in place in 12 of the network's 27 communities, the network's streamlining work group on uniform building code provisions reduced the number of diverse amendments to the building codes used among those jurisdictions from 400 down to 3, significantly lowering the level of complexity for the construction industry within the region.

CHAPTER 2. Assessing the Need

"You [the construction and building regulatory community] *are probably the most important industry in your state.*

If all you do is put IT on a bad regulatory system — all you will do is spend a lot of money on making a bad system worse."

The above quotes where given by Aldona Valicenti, Kentucky Chief Information Officer and President of the National Association of State Chief Information Officers (NASCIO), addressing building officials and construction industry attendees at the second National Forum on Building Smarter in the Digital Age in October 2001. (Pictured above right).

Jurisdictions benefit by encouraging and supporting assessments of the effectiveness and efficiency of their existing building codes and enforcement programs. This chapter provides examples of such assessments.

A. The Value of Performing an Assessment

Management process expert Dr. Stephen Covey's principle of "begin with the end in mind" most certainly applies to the application of information technology to any business process in government or in the private sector. This is precisely the advice that NASCIO President Aldona Valicenti gave to building officials and construction industry representatives when they gathered in October 2001 for the second in a series of national forums designed to look at streamlining the building regulatory process through the effective use of information technology.

The application of IT in both public and private sectors has been replete with horror stories of thousands and even millions of dollars spent on hardware and software to apply to a business process only to have the resulting system not work as planned, have to be scrapped and start all over or worse yet, even cause a business to fail.

Successful streamlining initiatives, including those that do not include the use of information technology, all have one thing in common: the jurisdiction or agency undertaking that process "began with the end in mind." These successful endeavors all asked the same basic question: "What problem(s) are we really trying to address here?" Then, a candid and accurate assessment of the current problem and process structure they were trying to address was performed.

The end result does not always involve a major restructuring of the codes administration and enforcement programs, or the acquisition of information technology. Instead, such reviews may identify problems that are best addressed by providing better training for employees, physical relocation of offices within a building to provide better customer service, or better public information that might include a website.

The result of an honest self-evaluation, on the other hand, may document the need to undertake a restructuring. Consider the following examples of successful first steps towards streamlining.

B. Assessment Experiences

Past self-assessment strategies used by jurisdictions that have streamlined their building regulatory processes have come from either the client community or internally from the elected officials and/or administrative agency heads.

Client Initiated Self-Assessment

Joint Venture Partnership (1992-1995): The Joint Venture-Silicon Valley network began their self-assessment of the existing construction permitting process almost immediately after a survey group returned from their exploratory trip to Austin, Texas, to assess why that city was attracting South Bay area firms to relocate to there.

The Joint Venture led by elected officials and the business community in the Silicon Valley area brought in business process engineers from their information technology firms to survey their colleagues as to what the major time delays in the regulatory side of the construction process were, whether it was to build new manufacturing facilities or renovate existing plants.

The result of that assessment was a long list of regulatory delays in the zoning, land use, and building code administration permitting processes. This assessment was shared with elected officials from 24 jurisdictions in the Silicon Valley area and work groups were formed with the cities to address the assessment findings. Among the projects undertaken were:

- An electronic environmental clearinghouse

- Streamlining of the building permit process

- Improved regulation of the development process

The Philadelphia Building Industry Association Study *"If We Fix It, They Will Come"*: In October 2004, the Building Industry Association released a report on a six-month study under this title that looked at barriers to increasing the economic revitalization of the city. It offered recommended actions to "streamline the development review process and modernize the city's zoning code." A series of best practices were assembled from other jurisdictions, including the use of information technology in the building codes administration and enforcement processes. The study and report were endorsed by a basic group of key stakeholders that included 10,000 Friends of Pennsylvania, AIA Chapter of Philadelphia, Philadelphia Association of Community Development Corporations, and Philadelphia District Council of the Urban Land Institute.

The City in coordination with its construction industry is now in its second year of implementing recommendations contained in that study. Among recommended actions that have been completed are:

- the production of a comprehensive road map for developers to follow of City permitting processes

- a new online electronic zoning map of Philadelphia

- monthly meetings for large scale developers with several city agencies at the same time to go over construction and land use related issues.

Updated information on Philadelphia Building Industry Association can be obtained from PBIA's website: www.biaofphiladelphia.com.

Jurisdiction Initiated Self-Assessment

Oregon Streamlining Effort (1999-2001): In the summer of 1996, Oregon's chief building regulatory official served on a national steering committee to identify model processes to help state and local governments streamline their building codes administration and enforcement programs. In serving on that project, that official took home with him not only several model streamlining processes that might work in his state, but also a commitment to undertake a self-assessment of his existing building codes administration and enforcement process.

This official initiated a three-year process that started with reaching out to the building code agency's customers (stakeholders); working with them to map the state's existing building regulatory process; and meeting with them to identify both the weaknesses and the strengths of the state's existing building codes administration and enforcement programs.

Here are the steps:

- Map existing process. Measure the time taken for permit issuance, plan reviews and inspections.

- Gather input from customers and stakeholders on areas in which the state program is working well, less well, or not working either in terms of effective enforcement of adopted codes or in meeting customer service expectations and/or needs.

- Share with agency head and appropriate elected officials. Develop a process to use input to develop a streamlining initiative.

- Invite major stakeholders to a workshop to discuss your existing system and identify ways in which the program might be improved.

- Produce a report on outcome of above efforts and plan to take output from sessions and recommended actions to improve state program. The plan might identify costs and potential funding sources for improvements, structural changes, changes in statutes, rules, regulations, processes or procedures to make improvements.

From the above initiatives, between 2000 and today, the state developed and carried out a major streamlining initiative which included:

- A series of regional streamlining workshops for stakeholders and state and local building departments.

- Identified and established a funding mechanism for easy-to-achieve streamlining initiatives.

- Identified and began political process to draft state legislation to make longer term and major streamlining changes including: regional online permit processing, regional code enforcement and support, support to local building departments for plan reviews of complex structures, and statewide plan approvals for prototype commercial structures.

- Implemented in greater Portland region an online permit issuing system currently used by 6 jurisdictions (Beaverton, Portland, Hillsboro, Milwaukie, and Clackamas and Washington Counties).

- Developed and issued in August 2006 an extensive report roadmapping the benefits of and steps to achieve a: "One-stop E-permitting: A statewide regulatory streamlining initiative." A copy of the report and updated information on Oregon's streamlining initiative can be obtained by going to the Oregon Department of Consumer and Business Services Building Codes Division website at: www.oregon-epermitting.info.

Fairfax County, Virginia: In March of 2000, Fairfax County co-hosted a stakeholder forum on Streamlining the Building Regulatory Process Using IT. The event brought together nearly 80 representatives of federal, state and local governments; information technology firms; education and research institutions; and code development organizations. Also in attendance were developers, architects, engineers, builders and contractors. The event was the first step in a major multi-agency re-automation project aimed at moving multiple stand-alone systems to a single platform that enhances multi-agency access and participation in the affected processes. Goals for this ongoing project include:

- Enhancing customer service by streamlining the permitting, plan review, inspection, and complaints management processes.

- Conducting as much business as possible via the Internet.

- Replacing 24-year-old system that cannot easily be modified or enhanced to meet needs of the county and customers.

- Creating a virtual one-stop shop consisting of multiple review agencies.

- Meeting the increasing demands of customers to make the permitting process simpler to understand, more convenient to use, more efficient, and more predictable.

- Enabling staff to be project oriented rather than process oriented.

- Empowering customers by providing access to building related information and the permit process via the Internet.

- Increasing flexibility of the county to respond to code, policy and process changes.

- Eliminating duplicate data entry and storage in separate systems.

- Providing supervisors greater flexibility in re-distributing workload.

- Increasing code compliance and the safety of structures – encourage citizens reluctant to obtain required permits and inspections because of the "hassle factor" to do so.

As a predecessor to the re-automation effort, the Office of Land Development Services conducted a substantial process mapping exercise in the spring of 2001. The mapping effort included a stakeholder workshop and successfully identified improvements to be made prior to re-automation. It also provided a process map for inclusion in the county's subsequent request for proposal.

Milpitas, California: A member of the Silicon Valley Joint Venture, the City of Milpitas, California, participated in many of the early streamlining projects including codes consolidation efforts and online permitting reforms undertaken with other jurisdictions in the Joint Venture.

In addition, the jurisdiction under the leadership of its mayor and chief building official undertook a candid assessment of the building department's performance in serving their clients. Their findings indicated that despite the application of information technology to a number of their building regulatory processes, customers were not receiving services in as timely a manner as needed to keep construction delays and costs at an absolute minimum.

With support of City Council, major corporate clients and consultants, the building department established a "Partnership to Achieve Goals." The Partnership members, included the building official and representatives from business and the construction industry. That group later held formal input sessions with stakeholders and city employees and established:

- Cooperative working relationship agreements between developer/owners and city, design professionals and the city, and between the inspector and contractor.

- A service philosophy for the building department and streamlined services including permit issuance, plan check and inspections.

C. Guide to Doing Self-Assessment – A Self-Assessment Checklist

The U.S. Department of Housing and Urban Development in their January 2002 report prepared by the National Institute of Building Sciences, "Electronic Permitting Systems: A Primer and How Building Departments Can Implement Them" provided the following basic recommendations as a guide to a jurisdiction's assessment of whether or not their codes administration and enforcement program could benefit from streamlining:

- **Workflow.** Do plans and permit applications enter and proceed through the system efficiently? Are there places they seem to vanish and reappear? Are customers submitting high quality plans or are they often rejected? Are inadequate submissions returned early or late in the process? Are all plan reviewers on a coordinated schedule for each submission or not?

- **Workload.** Does the system slow down because it is overloaded or inefficient? Are there any projections or plans to respond to future growth or decline?

- **Personnel Issues.** Is staff adequate to do the job? Does everyone have the skills and training to provide quality and timely services? Are staff members without computer skills willing to learn new technology? Are specialists in one trade willing to expand their expertise?

- **Organizational Issues.** Are building department divisions willing to work as a team? Should different government departments be consolidated into one department? Is there collaboration between the building department, the utilities, zoning and planning board, and other pertinent agencies? Where is there duplication of effort?

- **Operating Budgets.** Is the building department self-financing or subject to a budget from local or state government? How can it finance an electronic permitting system (or other IT applications)?

- **Technical Expertise.** Does the building department or its local government have an information technology team to rely on for developing (or acquiring) a system or RFP, collaborating with vendors during design and implementation, and managing or maintaining the system?

- **Existing Technology.** Does the building department or local government already have computer network resources capable of supporting an electronic permitting (or other IT) systems? Can it be upgraded if necessary? Must a new computer system be built? (Will the hardware and software acquired be interoperable with other databases used in that agency or in related agencies?)

- **Cross-Departmental Communications and Coordination.** What outside departments must building department collaborate with (e.g. zoning and planning, health, fire safety, municipal (state) services, utilities, finance and revenue, community development, emergency management, homeland security)? Is there effective cooperation among them or does it need to be improved? How can communications be enhanced? How well do cross-departmental communications and coordination work under disaster preparedness, response and recovery situations? Are there ingrained political or turf issues that need resolving? Where must political and bureaucratic (administrative) leadership come from?

- **Customers and Citizens.** What do they think? What services do they want? Do they understand why there is a building department and why it requires plan reviews, permits, and inspections? Where do they see the problems? What solutions do they suggest?

- **Building a Task Force.** All the stakeholders in streamlining and the development, selection, purchase, and implementation of an electronic permitting system (or other IT) should participate in a streamlining task force. (See Chapter 3.)

D. Responding to Self-Assessment Results

As noted at the opening of this chapter there are two outcomes of undertaking a self-assessment of a jurisdiction's codes administration and enforcement program:

- If the existing program is "better than sliced bread," be thankful and only consider looking at best practices and other streamlining models from other jurisdictions that might enhance the program.

- If, on the other hand, the assessment has identified significant customer dissatisfaction with the timeliness and quality of services the department provides, then you need to consider pursuing the next steps towards streamlining identified in Chapters 3-7 of this Guide. Those chapters describe a series of steps necessary to effectively implement a streamlining process. They are:

  Step 1 – Getting Started (Chapter 3)
  Step 2 – Identifying Resources (Chapter 4)
  Step 3 – Preparing the Building Regulatory Process for Change (Chapter 5)
  Step 4 – Hardware/Software Procurement (Chapter 6)
  Step 5 – Putting It All in Place (Chapter 7)

CHAPTER 3. Step 1 – Getting Started

In your community, who are the stakeholders of your building codes program, and how do you get them involved? This chapter answers these questions by providing examples of successful stakeholder processes.

A. Identifying and Working with Stakeholders/Clients

In your state or locality, who are the stakeholders in your building codes administration and enforcement program?

The "self-evaluation" checklist from the 2002 HUD "Electronic Permitting Systems Primer" offered a partial list of stakeholders who should be included in undertaking a streamlining effort. Each of the jurisdictions whose streamlining efforts have been described in the opening chapters of the guide have had their own list of stakeholders that they involved in their process.

Your stakeholders may vary from these lists, but in general for most states or localities, the stakeholders come from the following groups:

- Elected Officials

- Building Department Personnel and Personnel from Sister Agencies

- Building Design and Construction Community

- Business Community

- Citizens/Neighborhood Groups

- Media (Bring on board at an appropriate time).

Elected Officials: Too often, the elected officials in a state or locality are overlooked as stakeholders in regulatory streamlining initiatives. The most successful streamlining efforts, including those highlighted in this guide, do not make that mistake.

Mayors, city or county council members, legislators, and in a number of state initiatives, state governors, are the place where the business community and the public go when they have a complaint about the services that their jurisdiction provides them. Therefore, including these officials in the list of stakeholders is critical first to draw from them the feedback they are getting from the users of an agency's services and in many cases to provide them with accurate information regarding the actual status of those services.

Secondly, elected officials are important stakeholders because sooner or later, making improvements in a building regulatory process and either the restructuring of existing government agencies and the funding of information technology for those programs will involve some action by the chief executive officer of the jurisdiction (governor, mayor, county commissioner) and/or the elected representatives (state legislator, city or county council member, alderman, etc.).

If streamlining is to produce positive and long lasting results then it is critical for elected officials to truly understand the importance of their building codes administration and enforcement program in their jurisdiction and support the adequate funding, staffing and operation of their department. Leaving elected officials "out of the loop" has doomed more than one otherwise promising effort to make codes administration and enforcement programs more effective and efficient.

Lastly, as noted in Chapter 8, when a disaster occurs, the elected officials in your community will look to the building codes administration and enforcement program to have done its job in assuring that buildings in the community indeed were code compliant, and that the building department does an effective job in fulfilling both its disaster response and recovery responsibilities.

Building Department Personnel and Personnel from Sister Agencies: In the past twenty years, re-engineering of both public and private sector entities has become a much more common place occurrence. New management, new owners and new elected officials frequently restructure the work place. Where such efforts frequently falter is to fully involve and gain the buy-in of the rank and file workers whose jobs are affected by such changes in the streamlining or re-engineering process.

From the clerk at the front desk who takes in permit applications to the plans reviewer and the field inspector, streamlining and the application of information technology needs to make their job more effective and efficient. While for some employees this will demand growth and perhaps a learning of new skills or changing of job function, gaining their buy-in up front in the streamlining process goes a long way to help assure that the changes that are put in place do indeed create a more efficient program.

Therefore, it is critical for a streamlining effort to be successful for the employees involved in the affected agency and in sister agencies, to be considered and treated as stakeholders in the process.

Construction Community: The construction community architects, engineers, contractors, and even building product suppliers are the people who interact day-to-day with the building department more than anyone else. As such, they are often thought of as being THE STAKEHOLDER in any restructuring or streamlining of the way a building codes agency administers its program.

This group, as will be noted later, also is key to a successful streamlining initiative because quite frequently they are the only ones in a community who understand and can map out what the entire construction regulatory process looks like – including the interconnections between the building codes administration and enforcement program and the related regulatory agencies that impact construction – planning, zoning, public utilities, water, sewer, fire, historic preservation, housing, emergency management, etc.

Business Community: The business community, especially large employers whose firms may be expanding or considering renovation of existing properties, are also a key stakeholder in any effort to streamline and improve a building codes administration and enforcement program.

In several successful streamlining initiatives, most notably the Silicon Valley Joint Venture and in Oregon, the business community has either been the initiator of streamlining or has played the role of being a critical catalyst in bringing about needed change.

This after all is the group, in addition to homeowners, who actually pays the building permit fees involved in covering the costs of most codes administration and enforcement programs. This group, representing the largest employers in a community, also can make or break the future of a community by choosing to relocate their company elsewhere due to excessive delays and inefficiencies in the regulation of construction.

As covered in Chapter 8, the business community benefits greatly from an effective and efficient building codes administration and enforcement program when disasters strike. If the community has adopted and is truly enforcing a current edition of a model building code then buildings built or renovated to that code have a better chance of surviving that disaster with the least amount of damage possible – facilitating business continuity. In addition, the business community benefits from an effective and efficiently administered codes program being able to do damage assessments and during the recovery phase issue permits more rapidly than would otherwise be the case.

Citizens/Neighborhood Groups: This group, often not well organized, still has an important role to play at the table in any streamlining process. Permits, plan reviews and inspections for new homes and for remodeling/renovation need to be as simple and straight forward as possible for this group of often vocal stakeholders in a community. It also is important to include citizen groups involved in stakeholder groups as the jurisdiction looks at enhancing the ability of its building codes administration and enforcement program to help the community better prepare for, respond to and recover from natural and man-made disasters.

The Media: Yes, the media. While this group may not actually be at the table as a member of a task force or committee on streamlining, here is a group often not seen as a stakeholder, but one that can have a major impact for good or ill in a regulatory restructuring in a building codes agency. This group can help a jurisdiction get its message out and help build support for streamlining and during a time of a disaster, can help convey critical life safety information from the building department.

B. Identifying Champions

"Nothing Great Was Ever Accomplished Without Enthusiasm." (Ralph Waldo Emerson)

Streamlining the administrative structure, processes, programs and services of a building codes agency is seen by many as one of the least glamorous tasks a person would ever want to undertake. But given the critical role that construction and buildings play within a state and its localities, there is no doubt that there are some stakeholders who put great importance on having as effective and efficient building regulatory process as possible. A successful process should have several champions, at least one from outside government and wherever possible, one elected or administrative official who works for the state or locality.

Champions are critical to successful streamlining processes for two reasons:

1. The process of evaluating and, where necessary, restructuring a government agency and any subsequent acquisition and use of information technology is a multi-year event. As such, this process needs someone who is seen by the community as a leader and spokesperson for change. That person or persons will be a major help as it takes time to evolve, gain momentum and show the benefits of change.

In this regard, the multi-year nature of streamlining also argues for having at least one champion from outside government as streamlining often covers more than one administration in a state or local government. Having a non-government figure as a champion can provide continuity and keep the momentum going to put in place the needed increased efficiencies in government that might otherwise dissipate or disappear with changes in the chief elected officer in a jurisdiction.

2. Balancing the private sectors interest in streamlining with that of a champion from the public sector also helps keep such an initiative moving forward. Some streamlining initiatives have faltered when it appeared that the sole supporter for such change was the business community or developers working in that jurisdiction.

C. Assembling a Task Force or Committee for Streamlining

As noted earlier, most successful streamlining initiatives have involved the assembling of a group representing the key stakeholders in the community into a Task Force or Work or Advisory Committee to help oversee and move the streamlining process forward.

The HUD "Electronic Permitting Systems Primer" describes it this way:

A broad-based group representing key stakeholders "can provide the credibility, leadership and political clout necessary for self-evaluation, analysis, problem solving, institutional change and to promote any needed technological solution. Kansas City, Missouri, strongly recommends the investment in consultants and facilitators to help build and maintain a task force from beginning to end."

This may be difficult to sustain over the long haul of a multi-year process, but some jurisdictions have found it beneficial to start with a very active stakeholder task force and then as the streamlining progresses and clear "wins" are seen by the community in implementing the agreed upon changes, either reduce the size of the group or the frequency of meetings to avoid burn-out.

D. Gaining Buy-in Especially from Reluctant Others

1. Breaking the Ice

So your community has identified and attracted to your project both champions and representatives from the major stakeholder groups involved in the construction process in your jurisdiction.

What happens, however, when key stakeholders are absent from the table? How do you gain their buy-in? Initial outreach to key stakeholders in Oregon brought to the table: several large businesses including INTEL, the state associations representing architects and engineers, contractors, labor unions, the Association of Oregon Counties, League of Oregon Cities, the Oregon Building Industry Association (home builders), Oregon Building Officials Association, Oregon Remodelers Association and several other groups.

Not everyone came to the table willingly. Several groups were very skeptical of the State Building Codes Division's motives for this "streamlining" initiative. Was this an effort to expand state authority over local

governments? Was it an effort to justify an unneeded increase in building permit fees? Would any effort lead to any state agency ever really taking a serious look at itself and restructuring?

The Building Codes Division in Oregon chose to address these concerns head-on. It did so by bringing in an outside facilitator in the spring of 1998 and running a one and a half day workshop for all of the above groups to candidly share their views on the areas of the state's existing building codes administration and enforcement program – the good, the bad and the ugly.

The session was not easy, and it was at times cathartic. For example, on the first day of the program some stakeholders were so angry over past experiences with the state that they prepared to leave the meeting. The outside facilitator, skilled in negotiation processes, and armed with a commitment from the state building code official to "listen and not react" and to "work things out" with all stakeholders kept the meeting moving.

By the morning of the second day, the group agreed to a framework for cooperation and formed a coalition of organizations committed to developing a regulatory streamlining agenda for the state. The division sponsored more workshops in Bend, Eugene and Portland to gather additional input, and to share streamlining practices that had worked well in other parts of the nation.

In 2001 this group of stakeholders evolved into the Oregon's Construction Industry Policy Advisory Group that worked with the governor and the state legislature to draft and gain adoption of four bills that streamlined various aspects of building codes administration and enforcement within the state. (See Chapter 5.)

2. Making and Honoring Commitments – Milpitas Model

The experience in gaining stakeholder buy-in, in Milpitas, California, was relatively easy for all parties concerned. Already a member of the Silicon Valley Joint Venture partnership, the business community and city of Milpitas had a growing cooperative working relationship and basis to build a deeper level of mutual commitment and trust towards improving the building code administration and enforcement program in that community.

Pressures of rapid growth in both commercial and residential construction and limited staffing to perform permitting, plans review and inspection functions as rapidly as the construction community needed, the city brought in several business process experts to assemble two stakeholder work teams for the city under the theme "Partnerships to Achieve Goals."

As an example, the electronics industry is fast paced. New technology is introduced approximately every six months. These changes often require new production systems, which in turn require facility changes. The time window to make such changes is very small. Cooperation for the local municipality is imperative in order to meet the imposed deadlines.

A delay in production can prove not only very costly to the company involved, but also to the community and the employees that are part of the production team. Here are the Goals Statement, Service Philosophy, Streamlining Processses and other key materials developed by the Milpitas "Partnership to Achieve Goals."
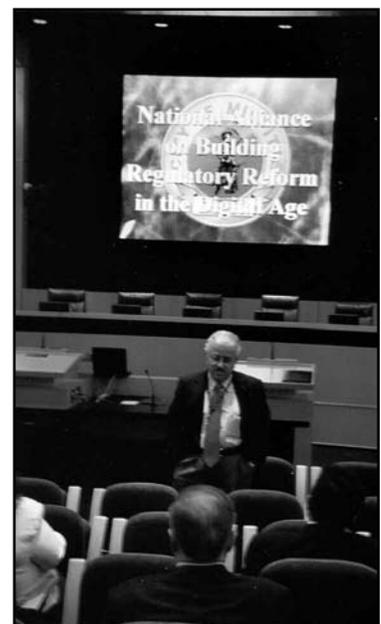
Partnership to Achieve Goals

The city and its consultants brought together stakeholders to identify with the building department, areas where building code administration and enforcement activities needed improvement. From that effort the following "Service Philosophy" was drafted and a set of streamlined services standards were agreed to for Plan Check, Permit Issuance, Building Inspections and Building Occupancy.

Milpitas, CA

Service Philosophy

"In maintaining the vision, values and goals of the City of Milpitas, certain policies have been established in order to better serve the business and residential community and reduce the time spent processing plan checks, permits and inspections.

These policies were developed with the advice of industry and applicants and with the aim to balance the responsibility of the Building Inspection Division and the needs of the business and residential community.

Some major tenant improvement projects require very aggressive schedules for plan check completion and permit issuance. Municipalities need to recognize the needs of industry and respond accordingly.

Residential construction, both new and remodels, also must maintain certain construction schedules, which, if not met, may create an economic impact on the contractor or the owner. Although building departments may not resolve all problems, it is important that every effort be made to ensure a simple and fast plan check process and a timely and equitable inspection process."

Milpitas, CA

Streamlining Processes

Streamlined Services Plan Check
- Standard plan check is based on chronology 1-6 weeks
- Fast Track – Paid by applicant, reduces time by 50%
- Express – Conducted at counter for certain types of plans

Streamlined Services Permit Issuance
- Standard – Issued at plan check completion
- Temporary – Issued over the counter within 24 hours of plan check submittal – limitations - no structural work, no exterior work or hazardous occupancies
- Foundation Only – If approved by Building, Planning, Public Works and Fire

Streamlined Services Building Inspections
- Standard – Standard inspections
- Courtesy – Temporary permit issued – limited to underslab plumbing; others at discretion of chief building official
- After Hours – Standard permit issued and conditions for requests

Streamlined Building Occupancy
- Standard – Final inspection complete
- Temporary – Final inspection incomplete but certain special conditions met
- Partial – Portion of building only – life safety complete, fire department clearance, and other conditions met

Moving beyond the creation of these reforms, the city formed partnership agreements with three key stakeholder groups: developer/owners, design professionals and construction managers.

Milpitas, CA

The City Adopted the Following Partnership Statement

The Milpitas Partnering Effort - The City of Milpitas and its customers joined together in order to better communicate each other's needs. Discussions included areas of plan check processing, permit issuance and field inspections. Through mutual cooperation, policies and procedures were developed that address concerns of both sides.

General - Partnering is an excellent way to understand the needs of the customers, whether in the electronics industry, the roofing industry, small residential contractors or any other group that uses the services of the building department. It is important for building officials to establish partnering systems. The results can be mutually beneficial to both sides.

The City of Milpitas enjoys a good working relationship with its customers. The partnering process established an important communications link, in addition to developing an improved service to the community.

Milpitas, CA

Common Elements in the Cooperative Working Relationships for the Above Three Groups Were:

- A definition of what Cooperative Working Relationships entail.

- A partnership vision of what the relationship between the construction community and the city looked like before and after the implementation of the partnership relation.

- A definition of successful partnerships.

- The construction community's critical need.

- The city's critical need.

- A list of other construction community needs.

- A list of what the city will provide to meet those needs.

- A list of the city's needs.

- A list of what the construction community will provide to meet those needs.

- Pitfalls in partnerships as seen by both groups.

- Benefits to the construction community of the partnership.

- Benefits to the city of the partnership.

- Ongoing suggestions for keeping the partnership alive and strong.

The above having been established, the construction community assisted the city of Milpitas in gaining adequate funding to put in place the agency's restructuring, education and training of personnel and acquisition of information technology to meet the streamlined services goals agreed to by the partnership.

E. First Tasks of the Stakeholders Committee:
Identifying the Barriers, Processes in Need of Improvement and Possible Re-engineering/Streamlining

1. Input from Self-Assessment and Stakeholders Task Force - Applying it to Your Process Map

So you have identified stakeholders and gained their buy-in and participation on a committee or task force to work with your jurisdiction. What's next? The next step is to share with that work group the results of the self-evaluation of your existing codes administration and enforcement process and a map of your existing process to oversee the design and construction of buildings.

The self-evaluation information is fairly straight forward. The map of your jurisdiction's regulatory system and the processes, approvals that a home builder or commercial developer has to go through to

acquire a piece of land and design and construct a home or other building on that land is generally more complex. In fact, very few jurisdictions have stepped back and tried to draw a map of all the steps and agencies that are involved in going from acquiring a piece of land to issuing a certificate of occupancy on a new structure.

2. The Importance of a Complete Mapping of the Regulatory Process Impacting Construction

In the 1990's and early 2000's, a number of jurisdictions undertaking streamlining initiatives found that they did not have such diagrams and that the only people who could help them readily construct such a map were the developers who regularly had to go through those processes. One community in Maryland was amazed at the four-foot by six-foot chart that was assembled of their process. In sharing it with their community one staff member joked that at the start of the regulatory process maze someone should have posted a sign saying, "Abandon Hope, All Ye Who Enter Here."

Other jurisdictions have only mapped out pieces of their regulatory process - those related to the responsibilities of a single agency in a community such as the building department or department of environmental quality. While these maps are useful (and important to subsequent applications of information technology to the program), they do not convey the true picture of the real world through which a homeowner or building contractor must negotiate and thus offer an incomplete basis upon which regulatory streamlining decisions can be made. Such a map offers a community a glimpse into other potential areas for regulatory streamlining. It also documents the inter-relationship of the data being gathered under one regulatory function, showing the potential for eliminating overlapping (and conflicting) data gathering and entry and how data gathered under one function may be useful to other agencies in that jurisdiction. (More information on this issue is provided in the section on interoperability on page 45).

A Sample Map for Residential Construction

What does such a process map look like? To aid jurisdictions with understanding the inter-relationship between the regulatory authority of different agencies in a local community that impact the construction of a single family home, in 1999, the National Conference of States on Building Codes and Standards, with input from home builders, state and local building code agencies, prepared a set of charts found in the appendix of this report (Cindy Wants to Build a House.) These charts show what it takes for an individual to move from the concept stage for a new home to occupying the completed structure. Your jurisdiction may find this a useful guide to start mapping your processes.

Sample Business Process Maps

In streamlining a building regulatory process, especially if it is in preparation for possible subsequent application of information technology to one or more regulatory process, more complex business process maps need to be generated within a jurisdiction. A sampling of several generic business process maps that were prepared with Federal funding in 2003 by the Alliance for New York City, NY are found on the Alliance's new website: www.natlpartnerstreamline.org.

3. Prioritizing Based on Need and Other Critical Factors – Identify and Going After "Low-Hanging Fruit" to Build Momentum and Build Upon Success

The next step is for your stakeholder task force to take the self-assessment detailed list of strengths and weaknesses of the existing building regulatory program and the map of the process in your community and begin a dialogue regarding the barriers that have been identified and in what priority order might the jurisdiction want to address those barriers?

How To Prioritize

Communities and states all over the nation that have undertaken successful streamlining initiatives have done so using a different range of priorities – priorities based upon the unique conditions and needs of their locality or state.

Criteria that have been used in the past have included:

- The degree of complexity of the identified barrier(s). (Where financial resources are limited, fund the least expensive barriers to reduce or remove first and then go back for additional funding to address the remaining barriers.)

- The cost of reducing or eliminating the barrier is unacceptable and must be immediately addressed. (Examples include the pending loss of a major employer or the unacceptable potentially slow recovery from a natural disaster.)

- The costs to the community and to stakeholders of not removing a specific barrier (like the loss of a major employer.)

- Start with the easiest items to change, "the low-hanging fruit." Eliminate those barriers first and then move onto the more complex items.

Each of the above is a viable strategy, especially if there are major time sensitive deadlines or limits on funding resources available to a jurisdiction to carryout regulatory barrier removal and process streamlining, including the acquisition of information technology.

Overall, however, jurisdictions not under immediate time pressures have found the last of the above four strategies to be the most effective "go-after the low-hanging fruit and then build upon success." The Silicon Valley Joint Venture, City of Los Angeles, State of Oregon and Fairfax County, Virginia, streamlining initiatives all followed this approach.

Here are the benefits that these jurisdictions have cited:

- Enables jurisdiction to show immediate progress.

- Enables jurisdiction to bring on board more reluctant stakeholders as they see successes.

- Enables the streamlining process to have time to build support for regulatory change and to build greater stakeholder and public support for tackling more complex and potentially more expensive streamlining projects.

Before these priorities can be finalized, however, potential funding sources should be identified.

CHAPTER 4. Step 2 – Identifying Resources

Your jurisdiction has identified its need to streamline, the barriers to overcome, and the stakeholders to support the undertaking of this effort. How to you go about funding this endeavor? This chapter covers that critical step.
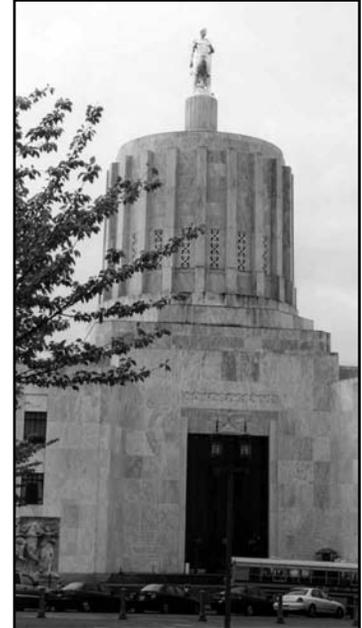
A. Resource Lessons Learned from Other Jurisdictions

For day-to-day operations, there are two major funding sources for building departments:

1. General Revenue Funds from the jurisdiction's overall budget as authorized by the city or county council or by the state legislature, and

2. Dedicated Funds derived from the building department's sale of licenses and permits and plan review and inspection fees.

Most jurisdictions fund the operations of their building codes administration and enforcement programs under one of these two revenue sources. Some, however, fund their building departments through a mix of these two revenue streams.

Regardless of which approach is used, the building department's entire budget is subject to annual or bi-annual legislative oversight with appropriations being authorized for spending even the funds that are in the dedicated fund account which came from fees raised by the building department.

One of the greatest challenges facing building departments in recent years is assuring that the funding provided to the department from any one of the above processes, is adequate to cover the cost of providing effective and efficient codes administration and enforcement services to the community.

In general, the construction community has been supportive of dedicated funding of building departments, provided:

- Those funds stay within the building codes agency and are not "raided" by elected officials or by other agencies of the jurisdiction and they go toward assuring timely permitting, plan review, and inspection processes and other related services.

- When building departments come up against the need to assess their performance and determine that reorganization of the current codes administration and enforcement program and/or the adding of information technology is needed to support that program, the construction community and other stakeholders can be valuable allies of the building department to make sure that adequate funds are made (and kept) available.

The best way to assure this occurs has been for building departments to include these end users of the department's services on the stakeholders' task forces or committees that were identified in Chapters 2 and 3.

B. Funding Sources for Streamlining and Hardware/Software Acquisition

When a community or state has made the decision to spend resources to make their codes administration and enforcement program more effective and efficient, they need to look at every funding source that is available to cover the costs associated with the needed improvements.

Funding sources used in the past include the following:

General Funds: General funds authorized from all of the revenues of the jurisdiction have been used by a number of communities to cover the costs of streamlining and/or the application of information technology. In most cases, general funds for the codes administration program covered relatively small cost items, such as basic software for online permit issuance, plans tracking and scheduling inspections. Usually this came as a new line item in the building code agency's annual operating budget.

Several jurisdictions, including Los Angeles, California and Fairfax County, Virginia, included their information technology acquisition costs within the jurisdiction's overall IT budget.

Special Fees, Surcharge: As noted earlier, in many communities, especially in those where the construction community lobbied for or participated in stakeholder work groups (Chapters 2 and 3), funding for streamlining, re-engineering of a building codes agency and subsequent acquisition and implementation of information technology in the program has been paid for out of funds raised by a special surcharge placed on construction permit fees, plans review and inspection fees. Where such funding approaches have been most successful, they have included restrictions or guarantees that these funds raised by the special surcharge cannot go for any other functions within the agency or the jurisdiction.

This "guarantee" has made the special fee approach the most popular and commonly used approach to funding IT development or acquisition, installation and use.

Authorization to Use Dedicated Fees Already Gathered: In several states and localities, legislative bodies have authorized accumulated dedicated fees in the building codes agency to go for streamlining processes and subsequent either development or acquisition of information technology for one or more codes administration and enforcement processes.

In 2005, the Minnesota State Legislature authorized funds for a governor initiated restructuring of the state building codes agency (including its relocation to another state agency) through which a number of codes enforcement functions and construction regulations were taken from diverse state agencies and given a single home in the Department of Labor and Industry.

Grants from Foundations (e.g. Silicon Valley's access to funds from several local foundations): During the startup phase of the Joint Venture Silicon Valley Network, financial support came from several local foundations. This funding covered organizational meetings for a number of the Joint Venture initiatives including the Regulatory Streamlining Case Study, Silicon Valley Uniform Building Code Program, and Electronic Environmental Clearinghouse.

Funds to Support Disaster Praparation, Response and Recovery: In addition to the above traditional funding sources, Chapter 8 describes two additional funding sources for streamlining as it relates to the role of the building department in strengthening the communities ability to better prepare for, respond to and recover from natural and man-made disasters.

C. Next Steps

Your jurisdiction has identified the need to make changes to remove barriers to a more effective and efficient codes administration and enforcement program, identified and assembled stakeholders and champions to further identify and support needed changes, and tentatively identified possible funding sources for change.

What's next? How do you move beyond these preliminary steps in the streamlining process to actually undertake the heavy lifting of change and matching funding sources to the final restructuring and, if needed, the application of information technology to your program?

The following additional steps need to be undertaken before actual changes are initiated:

1. Finalize the needed changes and prioritize them.

2. Determine whether or not information technology should be developed or acquired to make needed improvements in your program.

3. Based upon your review of the applicablity of IT to your situation, take the following actions:

   A) If IT does not contribute to needed improvements, then finalize and fund what actions will bring about those improvements.

B) If yes, IT does contribute to needed improvements then:

 a)   Sort out which kinds of IT (hardware/software) are needed and does the data it processes need to be shared with other software or other agencies in your jurisdiction?

 b)   What hardware/software is currently available to meet that need or what software needs to be developed internally to address that need?

 c)   What are the total costs of either acquiring or developing that hardware/software including: costs of training personnel to use it, upgrading existing hardware to use it, and maintaining the software and hardware over time?

 d)   What is the payback time (return on investment) for the acquisition of information technology?

 e)   Establish a realistic timetable and budget for information technology. Include within that budget realistic costs for undertaking any needed re-engineering of your existing regulatory system that must be done including the timeframes for that work to be completed. (Timeframes often range from one to three years.)

  Also include a mechanism to determine if software should be generated internally within the jurisdiction or can be acquired from an outside vendor.   The timeframes involved in development or acquisition and deployment timeframes (see Chapter 6).

 f)   What external resources are available to help you make the above decisions?

The remainder of this Guide addresses all of the above items, as follows:

- Chapter 5 covers the finalizing and prioritizing of needed changes and determining whether or not information technology should be developed or acquired to make needed improvements.

- Chapter 6 covers all of the steps needed to successfully undertake the development or purchase of information technology to best suit your needs.

- Chapter 7 summarizes all of these steps and offers sample lessons learned from jurisdictions that have successfully completed these processes.

- Chapter 8 summarizes lessons learned from recent natural and man-made disasters and the role which streamlined codes administration and enforcement programs can play in better protecting communities.

- Chapter 9 connects you with outside resources, including building departments that have successfully undertaken regulatory streamlining and application of information technology to their codes administration and enforcement processes.

CHAPTER 5. Step 3 – Preparing the Building Regulatory Process for Change

This chapter provides examples of steps taken by jurisdictions to prepare their programs for streamlining.

A. Don't Throw Tech at the Problem

"Don't Pave the Cowpath." (Stephen Garnier, IT Project Manager, Fairfax County Inspections Database Online Project)

The above quote from Fairfax County IT Project Manager, Stephen Garnier, echoes former Kentucky CIO and NASCIO President Aldona Valicenti's caution at the opening of Chapter 3. Having come through a long process with stakeholders to identify needed improvements in an agency's codes administration and enforcement process, building department heads and elected officials need to resist the natural temptation of just throwing money at the problems by either developing software or acquiring it to "speed up" codes administration and enforcement processes. Is the process ready to apply IT to it? Does IT really address the problem that needs to be solved?

As noted in Chapter 2, the answer to a jurisdiction's problems may not lie in acquiring and using information technology. The solution may lie in a number of different actions, including:

- Reorganization of the agency

- Elimination of outdated local code provisions

- Centralization of various codes and codes administration and enforcement processes

- Special training for permit processing, plans reviewers or inspection personnel, or more adequate funding for the building department

The answer also may lie in a phased and gradual application of information technology following a restructuring of the existing codes administration and enforcement processes.

Typical is that of the following jurisdiction.

Salem, Oregon: The City of Salem wanted to promote the values of accountability and predictability of its building codes services to all of their clients. Yet faced with a backlog of permits and plan reviews for commercial and residential construction, the city took a serious look at its staffing, workload and other aspects of its business process for all types of construction.

Feedback gained from that effort, coupled with the participation of Salem's city Building Official in the State of Oregon's streamlining initiatives, brought the city to a conclusion their new permit tracking software was just a tool and by itself couldn't streamline their processes. So Salem took initiative to enhance the effectiveness and efficiency of their services. The city began work on their processes to eliminate redundancies and required a higher level of accountability on applicants and city staff while guaranteeing a greater level of predictability in service. While IT at a later date (2005-2006) did fit into that effort, it was felt that the most effective approach to streamlining was first to develop effective and

efficient processes and then customize the software to fit the processes. The City considered these changes fundamental in their streamlining efforts:

1. Initiating a cultural change regarding employees' attitudes towards efficiency in delivering service and using information technology.

2. Reviewing revenues, workloads and staffing to match service levels with service paid for.

3. Developing a guaranteed 10-day turn-around on plan reviews for single family dwellings.

4. Developed a comprehensive phase permitting process for commercial projects which included all city departments.

5. Amending the city ordinance to allow for "enhanced and expedited" services for an optional customized permitting process.

6. Mapping out all their processes and examining all points of service delivery with the goal of predictable outcomes for their customers.

7. Creating an in-house IT position to work with staff and stakeholders for the purpose of utilizing IT systems for more effective and efficient services.

Following the above guidelines, by October 2006 Salem will participate on a prototype basis in the State of Oregon's online permitting system. By the end of 2006, Salem plans to offer IVR services for scheduling inspections and is studying actions that need to be taken to accept plans and do plan reviews over the Internet by 2008-09.

How Do You Know If IT Will Help? Will IT Help Now or Later in the Process?

At some point in their streamlining efforts, jurisdictions that have been successful in making needed improvements, with or without IT, have asked themselves the following screening questions:

Will this IT application:

• Enhance customer confidence?

• Improve both effectiveness and the efficiency of our program?

• Be readily used by both employees and clients?

— If yes, with what training, cost and time?

— If no, will training help? Can we afford the training?

• Meet a realistic payback period?

(For guidelines on what other jurisdictions experienced with payback periods, see the Final Report NCSBCS/Alliance Survey on Costs and Savings from the Application of Information Technology to Building Codes Administration and Enforcement Processes on the Alliance website at http://www.natlpartnerstreamline.org.)

• Does it have other benefits for other agencies in our government?

Or will this application:

• Impose new unforeseen burdens on those using the process? (Watch out for the "law of unintended consequences.")

• Be resisted by current customers and employees who use it?

• Add levels of complexity to a relatively simple process?

The answers you get to these questions will determine your next step. Before going ahead, make sure that you have looked at all sides of the problem and asked questions that may have been considered heretical in your jurisdiction. Also have you looked at or talked to other jurisdictions on their experiences with overcoming similar problems?

B. Barbecue the Sacred Cows

Too often jurisdictions stop the process when they get one negative answer to the above screening questions. The question that is not asked is why will IT be resisted? Why would it create levels of complexity? Why do these other previously unforeseen consequences arise?

Quite often the answer that comes from pushing these questions further is that in performing the analysis of what needs to be improved, the jurisdiction and the stakeholders may have been afraid to "look outside the box," seriously question the assumptions that they made about the restrictions placed upon them as to either the resources that are available to them to apply to streamlining or the structure of the agencies within their jurisdiction.

An example is the assumption that the building department must remain separate from

zoning and land use or that plumbing codes must remain in the health department and not be moved over to the building department along with electrical, mechanical, building and energy and accessibility codes for the jurisdiction.

Don't be afraid to ask basic questions that for years were considered taboo. Asking those questions may just lead to more effective and efficient resolutions of not only the problems of the building department but of sister agencies as well.

C. Examine Other Jurisdiction's Streamlining Approaches and IT

As you answer the above questions, chances are your jurisdiction is not in a unique situation. Other jurisdictions have been down this path before you and fortunately through federal grants and the work of national associations, a library of successful streamlining approaches and information technology applications has been assembled and are available on websites. (See Chapter 9 for a list.)

Of even more help to you is a listing on the Alliance website of jurisdictions that have streamlined using information technology and a contact person in that jurisdiction with whom you can communicate to ask questions and learn from their experience.

The Alliance and its new National Partnership to Streamline Government are currently compiling other model and best practices materials from successful state or local streamlining initiatives for posting to the Alliance website. These materials will include the generic building regulatory processing maps prepared by the Alliance for New York City in 2003 and the process maps that several cities have produced in the past. Among the process maps being assembled are those from San Jose, CA; Fairfax County, VA; San Antonio, TX and Denver, CO.

D. Successful Strategies, Restructuring and Other Actions Taken by Jurisdictions

1. Identify and Gather the Low-Hanging Fruit

Start with low cost/minimal effort projects that have maximum benefit and then build momentum and support to proceed to tackle more complex issues.

Oregon Streamlining Initiative: After the statewide streamlining seminars took place in 1998, the state supported efforts by localities to undertake several simple streamlining models. Such models were relatively easy to undertake with minimum cost to the communities and each addressed a major customer concern. These included:

•   Deschutes County developed uniform permit applications and established agreements between the Bend building department and those in small jurisdictions within the county. The agreement allowed a building official from Bend to staff a town's one-person building department while that community's lone code official took a vacation, was on sick leave or out for a training session.

- The 1999 state legislation created the Building Codes Division's Tri-County Service Center to establish a regional permitting program for minor electrical and plumbing installations, standard permitting forms and process, standard fee methodologies, a dispute resolution process and a process to ensure the consistent application of code in the Portland tri-county area. The region permitting program boosted compliance and was so successful that it was expanded statewide within a year. The state launched the first online permitting service for its "Minor Label Program" in December 2004.

- With the passage of Senate Bill 713 in 2003, the above effort was combined with a pilot project in the metro Portland area through which contractors can apply and pay for multiple trade permits from multiple jurisdictions on one convenient website. Launched on May 25, 2005, in the first three months of operation over 500 online permits were issued through this program representing $53,000 in permit revenue.

- A bill passed by the state legislature in 2005 enabled the State Building Codes Division to research the expansion of its current BuildingPermits.Oregon.gov system from the Portland tri-county area to a statewide system. (The 2003 Oregon bill "Model State Streamlining Enabling Legislation," and the 2005 bill, House Bill 3097-E-permitting, are available on the Alliance website.)

   Issued in August, 2006, the above 120 page report, "One-stop E-permitting: A Statewide Regulatory Streamlining Initiative," provides extensive information on Oregon's stakeholder approach towards streamlining and the development of a statewide e-permitting system. The report can be downloaded by going to: www.oregon-permitting.info.

- In preparation for implementing a statewide system, Oregon in the spring of 2006 began preparing maps of each of the existing state permitting processes.

City of Los Angeles, California: In 2000 the City of Los Angeles, California, took a page from the Silicon Valley Joint Venture project and assembled stakeholders to provide input to the city on areas in the city's building codes administration and enforcement program that caused costly delays in the construction process. Those areas included permit application, plan review, and field inspection times and complaint handling.

The city reviewed its internal organizational structure and staffing and recognized that the hiring and use of more combination inspectors and shifting of manpower resources from hand processing of permits to electronic online processing could have immediate positive benefits to their customers. With a combination of general funds and a surcharge on building permits, the city acquired funding to develop an in-house software package that provided for online permit applications and permit processing. As that system came online and proved useful, the city expanded its IT network to include an online call-in system to schedule inspections, online plans tracking and reporting system for clients, and the use of handheld devices for field inspections.

2. Build a Strong Stakeholder Support Group and Work Off the Agenda They Develop

Milpitas, California: As described in Chapter 3, Milpitas approached the upgrade and expansion of their use of information technology in their codes administration and enforcement program by establishing their "Partnership to Achieve Goals" stakeholder groups. That body identified a series of streamlining initiatives and applications of information technology to the city's existing building code program and then prioritized their implementation.

The project started with the hiring of more combination inspectors, the restructuring of the permit input system into both a physical one-stop shop and an online one-stop permit process through the city's web portal. As these projects came online, the city added online plan submittal and plans tracking and reporting processes.

Overland Park, Kansas: Between the late 1970's and early 2000, this suburb of Kansas City doubled its population and had to address the building codes administration and enforcement problems associated with rapid growth. In the 1990's, the city formed a series of focus groups and conducted surveys to draw from stakeholders' problem areas and potential solutions.

An early adopter of information technology in some of their codes administration and enforcement processes, the city used stakeholder community input to recognize that those systems could be significantly improved if there was greater integration of services between the building department and the zoning and land use agency.

The city merged those two agencies and analyzed and streamlined their business processes eliminating areas of overlap and duplication of effort and enabling simultaneous review of building plans for different building code areas. Combination inspectors were trained and put in the field. The city studied other successful jurisdiction information technology applications, including those in Phoenix and Scottsdale, Arizona, and issued an RFP to upgrade and integrate existing and disparate information technology systems to add other online services for the city.

In 1999, the first portions of the new system came online with standardized records keeping, an upgraded online permit issuing and tracking process, and GIS. In 2003, with stakeholder support, electronic field inspections were added.

(The HUD 2002 report on Electronic Permitting Systems cited earlier, documents Overland Park, Kansas, successful stakeholder guided restructuring and application of information technology.)

E. Cost Savings and Benefits of Using IT

In addition to the above examples, a useful resource to your committee is the 2005 NCSBCS/Alliance Final Report on the NCSBCS/Alliance Survey on Cost and Savings from the Application of Information Technology to Building Codes Administration and Enforcement Processes. This report notes that IT need not be expensive to use and that some jurisdictions are recovering their return on investment for IT in less than one year's time. The report provides detailed costs and savings for over 40 jurisdictions of all sizes. Moreover, the report summarizes benefits that jurisdictions derive from using information technology in one or more of their building code administration and enforcement processes. The report includes contact

information for a number of jurisdictions that are willing to share their experience with you.

Among the most frequently cited benefits from using IT are:

- Enhanced working relationship with customers (builders, contractors, public).

- Ability to offer services 24/7/365.

- Sharing of critical data with other agencies.

- Ability to better prepare for, respond to, and recover from disasters.

For example, the City of Richmond, Virginia, reported that having access to a Geographic Information System (GIS) is important to a widespread recovery effort in the aftermath of a hurricane or flood. GIS can be used to electronically record the location of damaged buildings and the value of the damage. The information can then be transferred electronically to FEMA and to the state. GIS speeds up the accumulation and transfer of needed information. It also reduces the work involved in accumulating the data. GIS proved of great value to the City of Norfolk, Virginia, during recovery after Hurricane Isabel.

Chapter 8 contains further examples of the benefits of using IT in disaster preparedness, response and recovery.

CHAPTER 6. Step 4 – Hardware/Software Procurement

When your jurisdiction, working with your stakeholders and contacting other communities, has determined that information technology can indeed help you improve the effectiveness and efficiency of your building codes administration and enforcement program, new decisions are necessary.

- How do you proceed from here? What are some of the barriers to applying IT to a building code program that you should be aware of? What resources are available to help you overcome them?

- What steps do you need to take to develop details of the regulatory process so that IT can be applied to it?

- Do you develop the software internally or do you acquire it from an outside vendor?

- How do you procure software?

- Are there model procurement materials that can help you through this maze?

This chapter answers these questions and provides you with tools to guide you through what may be for your agency, new and uncharted waters.

Building officials, construction and information technology industry officials participating in two national summits on streamlining (2003, New York City; 2004, Fairfax County, Virginia) identified the following as some of the barriers that jurisdictions and the IT community have had to overcome to apply information technology to codes administration and enforcement processes:

- Lack of adequate information on available software.

- Lack of adequate funding for software procurement.

- Lack of information on return on investment.

- Fear of innovation – traditional mindsets.

- Lack of a roadmap to help jurisdictions avoid poor experience of other communities.

- Layering of policies, regulations and legislation make it difficult to streamline processes prior to applying IT.

- Clearer procurement procedures.

- Governments need to control the data and not the software vendor.

• Lack of interoperability of hardware and software *(Interoperability is the ability of data entered under one database to migrate and be understood and used by another.)*

Over the past five years, a concerted national effort has been underway to address each of the above barriers. The items below are the outcome of those efforts and take you through the steps needed to successfully apply IT to your program.

A. Develop Software Requirements – Basic Decisions

• Which codes administration and enforcement processes can benefit from the application of information technology?

• How do you determine your software needs?

• Do you acquire it from an outside vendor that already sells such software to jurisdictions or do you have the software developed internally?

• What actions do you need to take to document your process in detail so that software can be either acquired or written to be successfully applied to that system?

• If you buy an existing off-the-shelf software package how do you make certain the costs of putting it in place do not become a problem?

• Are we buying a single package or a suite of products?

• Is the software for just the building codes department or will it be used by multiple agencies?

As noted at the opening of this chapter, not only have others gone through this before you, but a systematic effort has been made to capture their experience and make it available to other communities. To start, how do you determine your needs and whether or not software can be purchased from existing vendors or needs to be developed?

Drawn from the HUD 2002 publication, "Electronic Permitting Systems: A Primer" here are some basic points as to how to determine your software needs:

• Determine if you are applying software to a single system in one agency or will it be used by multiple systems in one or more agency in your jurisdiction.

• Building departments working within their state or local government first need to determine if the issue that is being addressed through the application of software is to cover only one particular system within their own agency or cover multiple systems and perhaps multiple agencies.

- For example, some jurisdictions have acquired permit-issuing software just for their building codes agency and for issuing residential building permits. Others have acquired such software for issuing building permits for all types of construction and still others have coordinated their software acquisition to include permit issuing software not only for the building department but for other agencies such as zoning and land use, water and sewage departments as well.

- *"With present technology, an information technology system tailored to the building department may provide the most robust functional solution while a multiple agency system may provide the most efficient approach from the standpoint of overall management, consistence and quality of government services."* (Stephen Garnier, IT Project Manager, Fairfax County Inspections Database Online Project)

- Both approaches may take on one of two basic forms, either as a system-based or an a la carte selection of component tools (such as online permit processing) or a pre-packaged suite of coordinated tools that comprise a complete system (online permit processing plus, plans submission and tacking software, inspection scheduling and field inspection software and hardware such as lap top computers or PDA's). There are pros and cons to each configuration option. The component-based system may allow for the most flexibility in performance of individual tasks and functions with the ability to add newer technologies as needed. On the other hand, the pre-packaged suite option may provide the most efficient integration and seamless compatibility between tools and functions.

Regardless of the scope of system implementation or basic system architecture, proper management of software system design and procurement process is the key to successful implementation.

This takes us back to our opening chapters on stakeholders. Here is where having the stakeholders involved in your IT process is critical. To be successful, there must be clear communications between the jurisdiction and its stakeholders and documentation of the decision making process. This will provide you the best fit between needs, solutions, and the successful implementation and use by the stakeholders and the city of the software and hardware that are selected to address the problem.

If your jurisdiction has an IT officer, they should be available to assist you through this and the next phases.

B. Overview of Procurement Process

For those who have never gone through the procurement process, what are the steps in preparing an RFP? What are the pitfalls? Is there a model procurement document to follow as a guide?

RFI – Request for Information

Prior to developing and issuing a Request for Proposal, a number of jurisdictions have found it useful to develop and issue a Request for Information (RFI) which is sent out to the software community seeking their comment and input on the structure of, and perhaps the feasibility of an effort by the jurisdiction to acquire software to apply it to one or more code administration and enforcement functions.

This tool is especially useful where the jurisdiction is perhaps uncertain as to which technical approach it may take towards applying IT to a codes administration process or where there is a high degree of complexity involved in the software application – such as serving multiple governmental agencies.

Prepare detailed maps of the existing administration or regulatory processes that either internal software developers or outside vendors can use to either write new software or determine whether or not off the shelf software can be applied to meet the jurisdiction's needs.

RFP – Request for Proposal

Requests for Proposal for information technology require careful preparation. More than one jurisdiction has been badly burned by unclear language regarding the scope and architecture concerns that must be addressed and who, at the end of the contract, "owns the jurisdiction's data."

Here are some guidelines drawn in part from HUD 2002 publication on "Electronic Permitting Systems: A Primer."

Components of an RFP

A good RFP must have the following five topics covered within it:

1. **A Statement of Goals** –This clearly defines the problem that the application of the software being acquired is supposed to solve and how it is to operate. "A mission statement will go a long way toward developing a common understanding of what is being sought among all stakeholders in the system development process for any building department."

2. **Definition of the Terms** – This section provides the vendor with a clear understanding of technical and administrative terms used by the jurisdiction and by the information technology industry. Such a section has proven to be invaluable in avoiding misunderstandings that frequently arise when one party or the other has a different meaning for a term contained in the contract. "Common words (frequently) take on uncommon meanings," and "a glossary of terms can establish and help maintain common understandings." (Sample glossaries are found both in the HUD Primer and also in the NCSBCS/Alliance Model Procurement Requirements covered later in this chapter.)

3. **Current Practices and Expected Change** – This section is critical to the procurement for it describes in detail the current practices of the building department against which IT is being applied and the exact changes that the jurisdiction is seeking will come as the result of that IT application.

4. **Technical and Functional Requirements** – Jurisdictions have had successful procurements with either brief or very detailed lists of technical and functional requirements in their RFPs. The Alliance Model Procurement Requirement was assembled as an amalgam of several different procurement documents but largely is based upon a recent IT procurement document produced by Fairfax County, Virginia.

5. **Detailed System Requirements** – Generally considered optional in such procurements, this section has proved helpful to a number of jurisdictions to provide an additional level of detail to those provided under the previous item. The HUD Primer notes, "San Jose, California, developed highly detailed specifications for Special Process Requirements. Altogether 470 requirements were organized by subordinate functional requirement categories within each of 10 broad permit processes within its building regulatory system."

C. Alliance Model Procurement Requirements and Interoperability Standard

Recognizing that preparing and conducting an RFP for software and hardware for a building codes agency may be new to a lot of jurisdictions, the Alliance in 2003 developed Model Procurement Requirements that contains each of the above sections and many "experienced based" clauses. These clauses help a jurisdiction get exactly what they have required from the software and also help assure that once the software has been acquired that the data that goes into the software remains the property of the jurisdiction and does not become the property of the software firm. The model has been endorsed for use by the National Association of State Chief Information Officers (NASCIO).

The model describes in greater detail the following steps a jurisdiction can take to acquire software to help streamline their codes administration and enforcement process:

- Sample Cover Page to a Procurement

- Functional and Technical Requirements including:

    — Purpose and Scope

    — Background

    — Strategic Information on the Technology Direction of the Jurisdiction

    — Tasks to Be Performed (Work Plan, Systems Life Cycle, etc.)

    — Software Considerations

    — Integration with Other Systems

    — Data Conversion/Migration

    — Acceptance Tests

    — Documentation

    — Nonproprietary Training

    — Implementation Assistance

    — Disaster Recovery Methods and Procedures

    — Commercial Off-the-Shelf Software Considerations

    — Hardware Considerations

- Procurement Requirements

- Administrative Requirements

- Pricing Schedule

To address the lack of interoperability of the hardware and software that has been available in the past, the Model Procurement Requirements include a draft statement on interoperability. Also the Model Procurement Requirements will be upgraded to incorporate a new standard that will demonstrate whether or not the software being acquired is interoperable. (The Model Procurement Requirements are available at http://www.Natlpartnerstreamline.org.)

D. Lack of Adequate Information on Available Software

What is available out there now? Is there a reliable source our jurisdiction can go to for candid and accurate assessments of different software?

Long a major barrier for communities considering using information technology, NCSBCS, with federal funding from the Department of Energy and National Institute of Standards and Technology, has placed on the NCSBCS website two listings that jurisdictions can consult. These listings are now also available and are being maintained on the above new Alliance website.

The first listing provides information and links to software vendors who produce products for different building code administration and enforcement functions. You can access this listing by going to *Building Regulatory Software Listing* at www.natlpartnerstreamline.org.

Of even greater use is a second listing of jurisdictions that have acquired information technology. Each listed jurisdiction has the software used for various code administration/enforcement functions along with a contact with email address and phone number to gain their candid assessment of the quality and use experience of that software in their codes administration and enforcement program. You can access this listing by going to the same site and clicking on *Listings of Jurisdictions Using Technology*.

Additional contact information and cost data on software use is available in the Final Report on the Alliance Survey on Cost and Savings from the Application of Information Technology to Building Codes Administration and Enforcement Processes cited earlier in the Guide.

In May 2004, the American Institute of Architects funded a survey for the Alliance identifying jurisdictions using online plan submittal, tracking and plan review. The survey summary is also available at www.natlpartnerstreamline.org.

E. Evaluating RFP Submissions and Selecting Vendor(s) and Other Lessons Learned from Jurisdiction Procurement Efforts

Effective evaluation of RFP submissions and selection and work with vendors are the next steps in the process of successfully applying IT to help improve codes administration and enforcement processes. The above task is significantly helped by having access to the past experience of other building departments and to their candid evaluation (rather than relying on the list of satisfied clients that vendors may provide you).

In reaching out to other jurisdictions, your selection team should generate a list of questions to ask about how the vendor(s) they used performed against their RFP and contract and were there any significant problems (or surprises) in: cost, staffing, technical competence, the software's performance or the implementation schedule of the system.

Having such input from others often helps you generate key questions to ask your final group of bidders during their formal presentation and demonstration of their software. It also may give you guidance on language that you may want to put into your final contract document with that vendor. A number of jurisdictions recommended that the vendor clearly identify how many other building departments the vendor is in the process of installing software along with their plan for ensuring that qualified staff will be available for your project. A key personnel clause in the contract may be one strategy to ensure qualified personnel remain assigned to the project.

Other Guidance

In selecting a vendor watch out for some of the following:

- **Over Extension** – Is the software firm over extended? Is it trying to serve too many clients or does it have too many very large projects and clients to assure you that the resources that they have dedicated to your project will be there throughout the installation and testing and initial operation of your system?

- **Recent Acquisitions** – Has the vendor recently acquired other vendors and is in the process of absorbing their products and clients and converting them to their systems?

- **Experience with Jurisdictions and Projects of Comparable Size and Complexity** – Are you something new to them or do they have a proven and positive track record with working successfully with jurisdictions of your size and projects of your complexity?

- **Make Sure You Retain Ownership of Your Data!** – This cannot be emphasized enough and is a question you should ask those jurisdictions that you contact. When it came time to either issue another RFP for maintaining the software services they had acquired from an initial vendor were they able to seek bids from other software firms or did the current vendor assert that the city's data now belong to their firm?

- **Is the Vendor's Software Interoperable?** – The availability in late 2006 of a standard against which software can be judged to be interoperable will greatly facilitate in the future the ability of jurisdictions to shop around for the best vendor based on quality and cost of service.

The Alliance Building Regulatory System Standard Version 1.0 was field tested in July 2005 against software products of three major software vendors. The outcome of that field test was that, with minor modifications, the software tested was compatible with Version 1.0 and thus interoperable. Interoperability means that data using one of those software packages will migrate to any other software package that is compatible with Version 1.0 of the Building Regulatory System Standard.

CHAPTER 7. Step 5 – Putting It All In Place

This chapter summarizes the steps you need to take after you have issued and awarded the RFP to provide information technology for your jurisdiction.

A. Post – Award Issues

Once you have selected your vendor or decided to generate the software in-house, it is useful to address the following post-award issues.

If you haven't already done so, you will want to consider including members of your RFP selection team as members of your implementation team. You will also want to make sure you share with your stakeholders' committee information on the outcome of your procurement, who the vendor is, time frames, and any recommendations that came to you from other jurisdictions.

Your RFP will need to include setting up a long work session with your vendor after the contract has been signed and before the actual implementation starts to make sure everyone is up to speed on the product they are to deliver, the timetable and payment schedule for work that has been successfully completed.

B. Putting the System in Place

There are several key steps involved in putting the system in place. The HUD Primer notes the following:

Implementation Team

"The building department should establish an implementation team that works directly with the vendor to either customize the system or make the software operational within the existing system. Included will be representatives from each building department division, IT services, and other participating agency(ies). This team is critical to the success of the implementation. The individuals must be allocated for all the necessary time to focus on implementation and to work with the vendor as needed. When decisions must be made beyond their authority, lines of command should be established and ready to respond."

Customization Process

"There is a period of customization that synchronizes the system process with those of the building department or visa versa. It develops, sets up or integrates:

— graphic designs of forms and documents;

— connections to all pertinent staff, divisions and departments;

— codes and regulations specific to the jurisdiction;

— workflow and project tracking links;

— other details."

Implementation

There are eight overlapping and interdependent steps that comprise the entire process of systems implementation. These are:

1. Database migration is a critical procedure that makes data from an existing database accessible in the newer one that replaces it.

2. Hardware acquisition and installation.

3. Software installation only happens when all necessary hardware is in place and connected. The software may be loaded in the network or on workstations, depending on the system and the terms of the contract.

4. Systems integration is required when numerous independent software tools are combined for use on the building department's computer systems. Some tools must also be adjusted to work with each other such as setting up reporting tools to work with a project tracking system.

5. Testing of system to assure all hardware and software are working together properly before the system goes into operation.

6. Training of staff is one of the most critical aspects of this process. The most successful efforts have included adequate funding for the training of the staff to use the software and hardware that supports the building department program. (This should be in your RFP.)

7. "Offline" demonstration. This must be done before going live with the software system. Adequate time must be provided for these efforts to work out any weaknesses in the system.

8. "Going Live" should only occur when the system is operating and is ready for full operation.

Maintenance

Maintenance is generally part of your overall RFP and your basic contract with your vendor. A service contract is critical in that it defines who is responsible for maintenance of the system. Often it is a mix of vendor and building department responsibilities. Routine maintenance includes daily or weekly backup of data, fixing bugs, and general tasks to make sure the network, software and workstations are operating correctly.

Upgrades

This includes automatic upgrades that are provided under certain service contracts.

C. Training of Clients

This is a frequently missed item, one that leads a number of jurisdictions wondering why the system that they worked so hard to put in place isn't being utilized. This is where the stakeholders' committee can be of major help, suggesting meetings or conferences where demonstrations and training on the new software system can be provided by the jurisdiction and/or by the vendor.

D. Measuring Costs/Benefits/Savings

The Alliance Cost Savings Survey substantiated the fact that few jurisdictions keep track of all three of these items. Of the three, documenting benefits and savings in particular will be helpful in communications with your stakeholders – elected officials, the construction community and the voters.

E. Honoring Commitments and Reporting Failures as Well as Successes

This goes back to your stakeholders. They need to be kept in the loop. Often they are paying for the software system you are putting in place, and they need to know that you are honoring your commitments to them throughout the implementation and early operations phases of this effort. This means reporting to them not only the successes but also the failures when they occur and how they may impact their expectations or use of the information technology.

F. Pass It Along – Sharing Your Experience/Best Practices with Others

Lastly, please share your experiences not only with your colleagues in neighboring states or localities but across the nation as well. Forwarding your information to the Alliance for Building Regulatory Reform in the Digital Age/National Partnership to Streamline Government and being listed on the jurisdiction contact list for others to give you a call is a great way to help enhance the state of effective and efficient building codes administration and enforcement in this nation.

To share your experience please contact the Alliance/National Partnership at 703-568-2323 or email rcwible@comcast.net.

CHAPTER 8. Lessons From Katrina, Rita, Wilma and Other Disasters – The Need For Effective and Efficient Codes Administration and Enforcement Programs

SUMMARY

Chapters 1-7 of this Guide provide background information on the benefits to communities from streamlining the building regulatory system and, where appropriate, applying information technology to those processes. The Guide also has provided a step-by-step approach towards conducting streamlining.

From 2001 onwards, natural disasters and terrorist attacks in this nation (and overseas) have dramatically demonstrated the important role that effective and efficient administration and enforcement of modern building codes and standards has on helping our country better prepare for, respond to and recover from such events.

This chapter covers some of the lessons learned from recent natural disasters and offers building officials, elected officials and their fellow stakeholders in the construction process additional examples of ways in which a streamlined building regulatory process can better protect their community.

LESSONS LEARNED

A. Katrina & Rita – Lessons from New Orleans and the Gulf Coast

The costliest Atlantic Hurricane in U.S. history ($82 billion), Katrina took over 1,850 lives in the Gulf Coast, flooded over 80% of the city of New Orleans, displaced over one million citizens and totally devastated towns along the Mississippi Gulf Coast and the coastal parishes of Louisiana.

The aftermath of the August 29, 2005, event sent shock waves not only through the devastated communities, but served as a wake-up call to the rest of the country as to what the tremendous impact of a large scale disaster (man-made and natural) can be both to an entire region and to the nation's economy.

Close on Katrina's heels, on September 24, 2005, Hurricane Rita struck western Louisiana parishes and Texas's eastern Gulf Coast communities, devastating communities, taking 10 lives and doing another $10 billion in damage.

In many ways Katrina and Rita, to use the language of homeland security, were WMD (weapons of mass destruction) events. These hurricanes brought about a major long- term evacuation of over a million Americans and deprived a portion of our population of the use of their land, infrastructure, jobs and housing for what will be a considerable period of time (yet to be determined). While no terrorists were involved, the impact was much the same as a terrorist event.

Lessons Learned from Katrina & Rita were not only for the Gulf Coast but for the nation as a whole. These included:

1. Large Scale Disasters Can Happen

Prior to Katrina, most Americans, including those living in the Gulf Region, believed that when disasters happen the impact is largely within a several city or, at most, several county area.

Katrina demonstrated that truly large scale disasters do happen; disasters so large that they can overwhelm all existing government planning, training and preparations not just of cities, counties or a single state, but of multiple states and an entire region.

Moreover, Katrina demonstrated that such events can be so large that no existing set of mutual aid agreements or even the Emergency Management Assistance Compact (EMAC) can adequately address all disaster response, damage assessment, and recovery/rebuilding issues.

For example, how do you go about building a quarter million homes?

2. Large Scale Events Damage/Destroy Not Only Physical Infrastructure (Buildings, Bridges, Highways, Rail) But Can Permanently Remove People Who Are Needed to Both Rebuild and Oversee Rebuilding

When Katrina struck and when the levees around New Orleans subsequently failed, communities lost more than buildings, bridges and roads, they lost the qualified first responders and building department staff and construction personnel vital to disaster response and recovery.

In New Orleans, for example, nearly all of the clerical workers left the city. Only half of the building department staff was able to retain their jobs after loss of revenues forced the city into major layoffs. Moreover, many towns in the counties and parishes struck by the storm that had building departments not only lost the buildings that housed those agencies but the construction businesses lost nearly all of their construction equipment, including the heavy earthmoving machinery needed for response and recovery.

Where do you go for first responders knowledgeable about your kind of construction and topography when your first responders are among the victims?

Where do you get the best qualified contractors, and how do you get and then house qualified construction workers?

How to you identify and keep out the unqualified opportunists who descend upon a disaster area?

Building officials from across the nation volunteered and spent time in New Orleans and in Gulf Coast communities doing damage assessments and helping with some reconstruction permit processing. While their assistance was greatly appreciated, they were hampered in their work by an inability to take advantage of information technology tools, such as laptops and PDAs, to conduct damage assessment inspections.

The benefit of IT during the post-disaster phase was demonstrated in New Orleans when the building department was provided with 24 ruggedized laptop computers and software to conduct damage assessment inspections that transferred the data directly to FEMA forms for claims processing. By using these IT tools, FEMA and the city was able to complete 127,000 residential damage assessments within 30 days.

3. Adequately Enforced Updated Model Building Codes Can Reduce Property Loss and Save Lives

This is an old lesson, learned the hard way by many communities. After Hurricane Andrew struck Florida in 1992, the state began work on a uniform statewide building code with enhanced hurricane provisions for coastal communities. The 2004 and 2005 hurricanes, such as Charley and Wilma, in Florida demonstrated how much better buildings performed to this updated statewide code.

Louisiana and Mississippi are beginning to apply this lesson to their recovery. While few structures were able to withstand the full force of 28 foot storm surges in the coastal communities of Mississippi and in the coastal parishes of Louisiana, unnecessary levels of damage occurred in homes and other structures outside the storm surge areas due to either a lack of building codes or construction to building codes which did not recognize the conditions that were experienced, especially connections between the home's frame and its foundation.

Improper location of backup generators even in communities with building codes led to untold misery for residents of high-rise and other structures trapped on upper floors without electricity for elevators, air conditioning or refrigeration.

After Katrina and Rita, the state of Louisiana passed a new mandatory statewide building code and the Gulf counties of Mississippi are putting a mandatory building code in place. Both states are now considering appropriate support systems for new local building departments.

B. Wilma – Lessons from Broward County, Florida

Wilma was the 22nd named storm and 4th Category 5 hurricane of the 2005 hurricane season. This hurricane had the lowest barometric pressure ever recorded for an Atlantic hurricane and did $16.8 billion in damage in the United States after it came ashore on Florida's southwestern tip on October 24, 2005.

Wilma was the worst storm to hit Broward County in 55 years as it exited Florida. The hurricane did over $1 billion in damage, cut power for 98% of the county, destroyed 5,500 homes and 1,515 mobile homes and cost the county government over $28 million in insurance deductibles for property losses alone.

While technically a much less intense hurricane by the time it crossed over the tip of Florida to strike Broward County on the Atlantic Coast, Wilma fully tested the changes that had been put in place in the county's building codes administration and enforcement system over the past five years.

The county continued to see that buildings built in recent years to the provisions of the upgraded Florida statewide building code performed well during the hurricane with most property losses of older structures.

Drawing upon lessons learned from earlier storms and Wilma, the county put in place an expedited licensing process for contractors and an expedited damage assessment and building inspection process that was aided by building officials from neighboring jurisdictions not impacted by the storm.

C. Blue Cascades III – Lessons from the Pacific Northwest Region Seismic Disaster Exercise
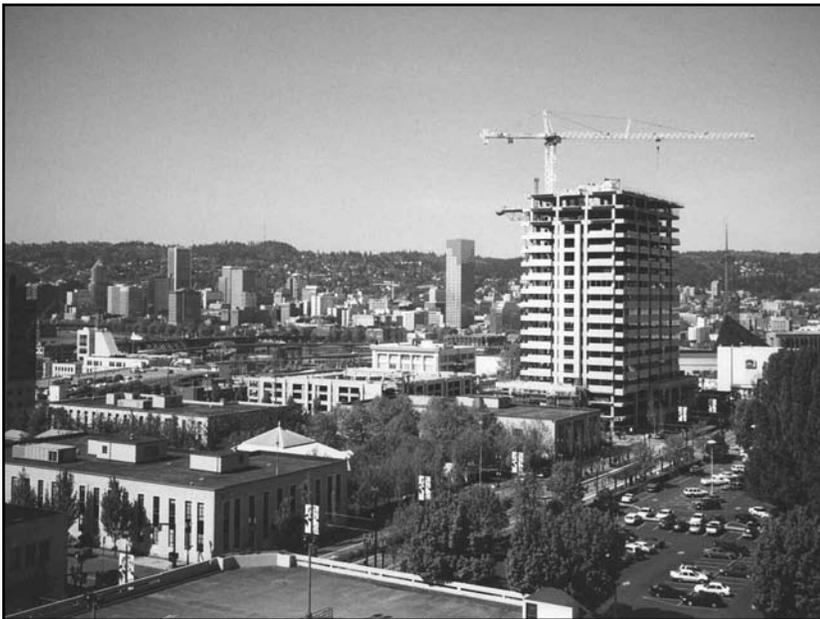
As demonstrated by Hurricanes Katrina and Rita, large scale disasters can bring about massive losses of life and property and paralyze the economic viability of regions of our nation.

The public and private sector in the Pacific Northwest, including the states of Alaska, Washington, Oregon, Idaho and Montana and the Canadian provinces of British Columbia, Alberta and the Yukon Territory, have been working since the mid-1990's within the structure of the Pacific NorthWest Economic Region (PNWER) to promote the economic growth and viability of their region.

In the wake of the events of September 11, 2001, PNWER identified, designed and has conducted a series of exercises to explore regional preparedness and response to common disasters. In June 2002, Blue Cascades I was held in Portland, Oregon. It focused on a terrorist attack on the power system infrastructure. In September 2004, Blue Cascades II (held in Seattle) explored preparedness and response to an attack on the region's cyber infrastructure.

With support from the Department of Homeland Security and the Pacific NorthWest Economic Region, the March 2006 Blue Cascades III exercise brought over 300 representatives from public utilities, major employers, health care, emergency managers, and other government officials and personnel from five states and three provinces and the national governments of Canada and the United States to discuss the impact on the region and consider an action agenda for strengthening the region's response to, recovery and reconstruction from a Level 9 earthquake along the Pacific Northwest Subduction Zone.

The Blue Cascades III program focused on long-term disruptions of critical infrastructure within the region as well as on large losses of life and property from collapsing bridges, highways, buildings, and fires from ruptured gas lines caused by both the quake, its subsequent after shocks and tsunamis.

Among the major objectives of the Blue Cascades III exercise were:

- Illuminate reconstruction and business continuity challenges.

- Increase understanding of interdependency issues.

- Validate mutual value of public-private sector cross-function and multi-discipline coordination to deal with the large scale and prolonged duration event.

- Highlight the extent of existing cooperation and increase the level of collaboration and explore the development of plans for setting restoration priorities.

- Highlight the existing extent of cooperation and understanding of roles, responsibilities, and authorities of local, county, state, federal jurisdictions and private sector organizations during such an event.

- Highlight existing laws (regulations) and gaps that may impede restoration or recovery efforts.

- Assemble input on these items to begin to develop an action agenda to strengthen regional disaster resilience.

The exercise documented that while many segments of the public and private sector had developed plans for responding to and recovering from the Level 9 earthquake, because of the interdependencies and complexity of that event, those plans required greater coordination and detail to make them successful. This was found to be especially true of recovery plans.

Blue Cascades III also provided a template for successful regional disaster preparedness initiatives in other parts of the country. The exercise firmly documented the critical role that the construction and building regulatory community plays in disaster preparedness, response, and recovery and generated a list of actions that should be taken to strengthen the ability of that community to successfully fulfill their role.

Lessons Learned from Blue Cascades III:

The Blue Cascades III exercise documented that even in a region where disaster plans already existed for handling a large scale earthquake event, those plans were relatively uncoordinated and were often based upon assumptions of the existence of infrastructure that in reality would be severely damaged, disrupted or even destroyed, making the plans impractical.

With over 85% of the nation's infrastructure being designed, built and managed by the private sector and nearly all of that construction regulated by local, county, and state governments, Blue Cascades III documented the critical and too often overlooked role that the construction community, both the private sector construction firms and government regulators play in disaster preparedness, planning, response and recovery.

The exercise participants in particular noted the following needs in this regard:

1. Recognize and Support Critical Role of Building Departments
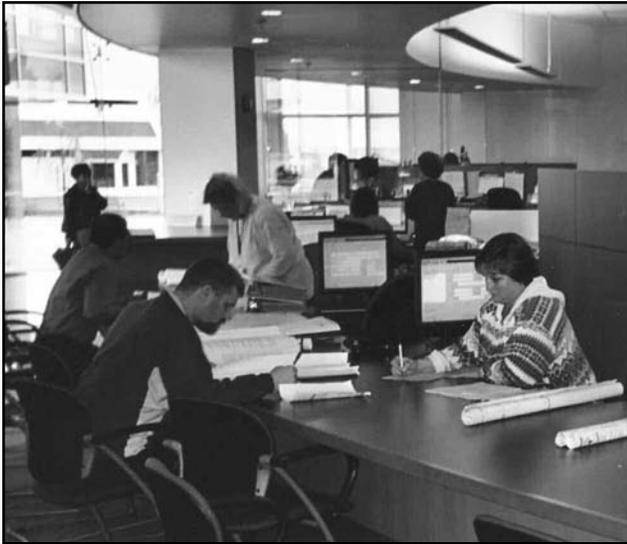
Building departments play a critical role in disaster preparedness, planning, response and recovery and must be adequately staffed and funded to perform these duties. These departments are depended upon to oversee the design and construction of buildings to modern building codes that contain provisions to make all structures able to withstand most natural disaster events.

When the disaster hits, the building departments must be supported by qualified private sector and other resources (including information technology) to rapidly and effectively conduct damage assessment inspections, building demolitions, and fast-track permitting and plan reviews to speed recovery in the region.

As was noted throughout the Blue Cascades III exercise, and as was demonstrated by Katrina, getting businesses, both large and small, within a community back up and running after a disaster is of vital importance to the economic well being of the region. The U. S. Department of Commerce reports that over 80% of all small businesses will fail if they are kept out of business for three weeks.

Nothing gets put back in place without the building department doing damage assessment inspections, authorizing utility reconnections, doing plan reviews for more complex renovations or reconstructions and issuing permits and doing field inspections of reconstruction.

2. Create Regional Pool of Qualified Inspection Personnel and Contractors

As with Katrina, Blue Cascades III demonstrated that in a large-scale disaster a region's existing first responders are often victims and that the true first responders will have to come in from outside the affected region. Blue Cascades III participants discussed the need to establish a mechanism to reach outside the immediate region to identify other qualified construction design, plan review and inspection personnel and building contractors, subcontractors, construction supervisors and architects and engineers who have been pre-certified by state and local governments to provide services and equipment necessary for debris removal, building demolition, building repairs and reconstruction. In this latter area it was noted that many of the local governments and public utilities have contracts with the same firms to provide such services making it impossible for those firms to serve all clients during a disaster.

3. Prior to Disaster, Identify and Reduce or Eliminate Conflicting Regulations/Procedures that Slow Response/Recovery

Attendees also identified the need, prior to the disaster, for state and local governments to have worked together with the construction industry to identify areas of regulatory overlap and duplication that slow down and add unnecessary costs to building rehabilitation and reconstruction. Moreover, each level of

government must identify those statutes, rules, regulations, processes and procedures that, under a disaster of the magnitude of Blue Cascades III, should be either streamlined or suspended to afford rapid reconstruction of safe, durable and affordable housing, commercial and other structures. (This is not regulatory abandonment but bringing common sense to recovery and reconstruction.)

4. Plan Now for Reconstruction of Housing – Both Temporary and Permanent

The participants also identified the need after the disaster for communities to modify zoning and land use requirements to facilitate rapid reconstruction of affordable housing for the affected communities. (This is especially true in events where there have been large losses of single and multifamily housing, such as in Katrina/Rita.)

5. Interoperable Databases and Communications Systems

As with the World Trade Center and Pentagon disasters, the Level 9 seismic event exercise demonstrated the need to integrate many data and communication systems used by building department personnel and the construction community with the interoperable communications systems of first responders and emergency managers. In addition, the integration and interoperability of these systems must be linked with those of the public utilities so that key data/information can be shared regarding damage assessments in the immediate hours after the disaster event and during the recovery phase when power and gas lines are turned back on.

The above list of needs identified in the Blue Cascades III exercise are common to all parts of our nation--the Gulf as it recovers from Katrina and Rita; the Los Angeles Basin as it continues to prepare for its own major seismic event; the Atlantic coastal states as they prepare for the next hurricane season; the Midwest as they prepare for tornadoes and a major seismic event of their own; and the entire nation as we continue our efforts to prepare for, respond to and recover from a future terrorist event (WMD), etc.

ROLE THAT STREAMLINING AND EFFECTIVE APPLICATION OF INFORMATION TECHNOLOGY CAN PLAY IN ADDRESSING THESE LESSONS

The lessons learned from the hurricanes of 2005 and the disaster exercises in the Pacific Northwest document the critical role that building departments play in both assuring adequate preparations for and rapid recovery from future disasters.

As noted in the opening chapters of this Guide, making building departments as effective and efficient as possible in their ability to adopt and enforce modern building codes that contain technical provisions relevant to the potential disasters within a geographic region can be substantially supported through regulatory streamlining, and where appropriate, the application of information technology.

Drawing upon actions taken by states and localities in wake of the hurricanes of 2004 and 2005 and disaster exercises such as Blue Cascades III, here are some substantive benefits jurisdictions are deriving from streamlining and using IT.

1. **Streamlining to Support Well Staffed, Funded, Trained Building Departments and Effective and Efficient Code Enforcement**

Several communities in the Pacific Northwest and the Gulf Region are using information contained in this Guide and in an 8-page version of this Guide developed by the Alliance for elected officials to educate the leadership in their communities about the benefit of forming stakeholder groups to identify regulatory barriers and take steps to streamline the codes administration and enforcement processes.

A well structured, staffed, trained and funded building department can significantly enhance the effectiveness of code enforcement in their community and has repeatedly proven to be the first line of defense against the impact of natural (or manmade) disasters.

Among the jurisdictions sharing an early draft of this Guide or the 8-page version with their elected officials are San Antonio, TX; Fairfax County, VA; Broward County, FL; Salem, OR; Denver, CO; Richmond, VA; Pittsburgh, PA; States of California, Florida, Oregon, Pennsylvania and Wisconsin.

2. **Incorporating GIS Into Building Department Databases**

The incorporation of Graphic Information Systems (GIS) into building department databases has been around for nearly 20 years, providing jurisdictions a layered map look at their communities.

In the area of disaster preparedness, response and recovery, communities in hurricane prone areas have added to their GIS database FEMA Flood Plain elevation data and storm surge information.

Charlotte County, Florida, where Hurricane Charley came ashore in 2004, has applied GIS mapping to their building department database. A field test site for the application of a draft version of this Guide, Charlotte County is now expanding its use of IT from GIS, permit submittals and processing to field inspections using handheld devices that can also be used for damage assessment inspections after future storms.

3. **Greater Uniformity in Codes and Codes Administration and Enforcement Processes Expedites Availability and Use of Code Enforcement and Construction From Outside the Disaster Region**

When your building department staff and community first responders are among the victims of a major disaster (man-made or natural), so too is your construction industry – architects, engineers, contractors and subcontractors and their equipment and personnel. Emergency management and elected officials need to recognize that reality, and have a mechanism to address the impact. That mechanism could include pre-identified, pre-qualified (licensed or certified) professionals and their support equipment from other neighboring states or regions who can readily be brought into the disaster area to provide response and recovery services supplementing what is left of existing resources.

To make such a system practical, effective and efficient, it is important for there to be greater uniformity in the construction codes and administrative and enforcement processes and procedures. This should occur both for the public-private as well as purely public sector activities. A robust system would exist not only within a state but between states that will be sharing such manpower and equipment resources either under mutual aid agreements or the EMAC.

Common use of same editions of model building codes, common permit application systems, uniform training to the Applied Technology Council Report, ATC-20, and other damage assessment tools between states and within geographic regions, can sharply reduce the "learning curve" that sometimes delays the ability of outside personnel to be put in place doing damage assessments or field inspections by as much as two weeks while they are being trained.

4. Damage Assessments and Recovery Can Be Expedited Through Effective Use of Information Technology on Day-To-Day Basis (Not Just in Response to Disasters)

The speed with which damage assessments and recovery can be expedited after a major disaster not only can be increased through greater code uniformity and pre-identification and certification of building officials and qualified private sector resources to be brought in from outside the affected region, but through the effective application and use of information technology tools in conducting damage assessments and later in conducting field inspections of reconstruction.

As noted earlier, the city of New Orleans was able to conduct and complete 127,000 residential damage assessment inspections and have the data from those inspections immediately migrate into FEMA claims forms, thanks to a major software firm and computer company providing the building department with damage assessment software and ruggedized lap tops. The city's loss of power was not a negative factor in the use of such equipment as field inspection data was uploaded by satellite connection to an area where power was available and the data was loaded into reports.

In retrospect, the city noted that this system could have been even more efficiently run had building inspection personnel been using such hardware and software on a day-to-day basis prior to Katrina. This would have eliminated the learning curve factor. The common usage of interoperable software and hardware for damage assessment and day-to-day field inspections by other building departments within a region also would have speed up recovery after Katrina.

The New Orleans experience, coupled with the lessons from the Blue Cascades III exercise was shared by the Alliance with building officials in the Los Angeles area and in the states of Pennsylvania, Oregon and Washington. Several of these groups have started a dialogue concerning ways to link existing electronic field inspection devices and software to provide coordinated damage assessment and field inspection services under mutual aid agreements in the wake of even a small scale disaster event.

5. Online Permitting, Online Plans Submission, Tracking and Review, and Remote Field Inspections Can Speed Recovery

Florida's hurricanes, seismic events up and down the West Coast and tornadoes in the Midwest have several states looking at and considering developing back-up uniform online permit processes, online plan submittals, tracking and reviews and uniform field inspection systems for local building departments to access when they have been knocked off line by a natural disaster.

As noted earlier, Florida and Oregon are well on the way to putting in place some portions of the above systems. Dialogues regarding this approach are being initiated in Pennsylvania, Washington and Wisconsin. It is hoped that the new statewide building code system now going in place in Louisiana will be able to take advantage of such technologies.

The general nature of these systems is to have uniform online permit processes and later plan submittal, tracking and review systems that when a disaster strikes can be provided either by neighboring jurisdictions to the affected communities or by the state building codes agency from one or more locations.

For example, Florida is considering providing such online services to local communities from state offices in Tallahassee and Jacksonville.

6. Online Licensed Contractor Databases

Some attendees at Blue Cascades III exercise asked the question, how do you keep unqualified and unscrupulous contractors and subcontractors from outside of the state or region from coming in after a disaster event and ripping off the consumers?

South Carolina had this experience after Hurricane Hugo and Florida after Andrew. Other states have likewise had problems with fly-by-night rip-off artists after floods, tornadoes and earthquakes.

On a small scale, some states, such as Florida, Oregon and Virginia, are effectively addressing this problem by providing an online state certified contractor database from their state building codes agency to local building departments. Homeowners and building owners are cautioned after a disaster through the news media and the jurisdiction's website to make certain that the crew they hire to perform damage repairs or reconstruction have obtained a building permit for such work and hold a current valid license in their respective trade from the state.

While that addresses small scale disasters, events such as Katrina and the large number of hurricanes that crisscrossed the state of Florida in 2004 and 2005 it does not begin to address the problem of out of state contractors unless the impacted state has either already recognized licensed contractors from neighboring states (as Florida does) or until some form of regional database of qualified licensed contractors and subcontractors is developed.

7. Prior to Disasters, Identify and Reduce or Eliminate Areas of Conflict/Overlap in All Regulations that Impact Recovery

One of the challenges following Katrina was the problem of the disposal of disaster debris. A single regulation that required all waste/debris hauled across Parish lines to have an accompanying certificate

denoting that the debris had been treated for termites, put to a halt for some time the removal of millions of tons of debris from affected communities to state-approved disposal sites.

While governors have emergency powers to suspend such statutes, rules, regulations, processes and procedures to expedite disaster response and initial recovery, such powers are limited in their duration. Moreover, the time to determine which rules, regulations, etc., to suspend is not during a disaster when everything is chaotic.

Discussion of the above Katrina experience during the Blue Cascades III exercise lead to one of the recommendations in the exercise's final report that prior to a disaster event (rather than right in the middle of the disaster), state and local officials should sit down and predetermine in the event of different types of disasters which state and local laws and regulations should be suspended and for how long (or up to what stage in the recovery process).

At issue, however, is that it is not just state and local laws that can unnecessarily slow down response and recovery after a disaster, but there are federal statutes, rules, regulations, processes and procedures that likewise can negatively impact communities.

In this regard, information technology plays another potentially important role by making it possible to assemble and identify prior to a disaster event all of the relevant statutes and regulations that should be examined.

While as yet no such pre-planning has been undertaken on a statewide, let along on a national, basis, the Alliance and new National Partnership to Streamline Government are holding discussions with several states and with federal agencies about conducting workshops to try and address this issue.

As a user of this Guide, you may wish at a minimum to at least initiate a dialogue within your state or community on this issue and ask some of the following basic questions regarding regulatory and administrative barriers that hamper effective and timely recovery/reconstruction from disasters:

- What statutes ordinances, rules, regulations, processes and procedures are now in place that could impact disaster response and recovery?

- Which of the above statutes, ordinances, rules, regulations, processes and procedures should be kept in place to protect health, welfare and life safety during disaster response and recovery?

- Which regulations, processes and procedures can be suspended for a reasonable period of time (perhaps 12-18 months) to stimulate and speed safe rebuilding?

- Which local and state regulations (and federal) overlap or conflict, causing unnecessary delays not only during disaster response and recovery but in day-to-day operations and do not contribute to the public's health, life safety or welfare and should be considered for streamlining? (This latter question is not about regulatory abandonment but rational regulation given emergency recovery circumstances and day-to-day business.)

8. **Greater Regional Coordination and Partnership Between Jurisdictions and Their Private Sector Construction Community**

Greater coordination between the public and private sectors is vital to more effective disaster planning, training, mitigation, response and recovery.

The Infrastructure Security Partnership (TISP), a public-private partnership comprised of associations, organizations and governmental agencies involved in construction, released a valuable "Guide for an Action Plan to Develop Regional Disaster Resilience" in February 2006. The Regional Disaster Resilience Guide provides a step-by-step tool for helping communities reach out and connect the resources of their construction community to better plan for, respond to and recover from disasters. A copy of this Guide can be downloaded by visiting the TISP website at www.tisp.org.

FUNDING SOURCES FOR STREAMLINING AND IT AS IT RELATES TO DISASTER MANAGEMENT, RESPONSE AND RECOVERY

Chapter 4 of this Guide addressed Identifying Resources to support streamlining and the application and use of information technology. The entire area of disaster management, response and recovery and the role of the building official add two new sources for jurisdictions to consider.

Those sources are the grants available from the U.S. Department of Homeland Security to state and local governments for protection from terrorism and all-hazard events and the creative use by some communities of U.S. Department of Housing and Urban Development Community Development Block Grants to support the adoption and effective enforcement of model building codes and standards to protect communities from future disasters.

Funding in the HUD Community Development Block Grant program is formula based. Those funds can be to support some of the streamlining needs not only for disaster preparedness response and recovery but also for strengthening economic development in the jurisdiction. Communities eligible for the program must be over 50,000 in population or be principal cities in a metro area or urban counties with populations of over 200,000. Building department streamlining can fit within the overall documented community needs that fit the CDBG grant criteria (visit HUD website for details). Working the building department program within the overall CDBG block grant needs and HUD criteria requires the building department and its stakeholders to approach the elected officials within the community to promote the benefits of including streamlining within the community's proposal.

U.S. Department of Homeland Security offers a number of grants to jurisdictions of all sizes, though most are administered through state homeland security offices. The two grants are: State and Local Domestic Preparedness Technical Assistance Grants (designed to provide direct technical assistance to state and local governments "to improve their ability to prevent, respond to and recover from threats of terrorism involving weapons of mass destruction - WMD") and Urban Areas Security Initiative ("to enhance local emergency prevention and response agencies abilities to prepare for and respond to threats or incidents of terrorism involving WMD"). While these are narrower in scope than the HUD CDBG program, the needs described in this chapter as regards natural disasters equally apply to the communities ability to prepare for, respond to and recover from a WMD event.

In addition to the above resources, the Alliance/National Partnership to Streamline Government has been working with several federal agencies to identify and initiate a series of grants to state and local governments to support regulatory streamlining and the use of information technology. Information on this initiative is available on the Alliance/National Partnership website at www.natlpartnerstreamline.org.

Chapter 9 provides additional information on streamlining materials and resources that are available to communities from Alliance partners, including HUD, the National Association of Home Builders, the National Association of Counties and the Alliance/National Partnership to Streamline Government.

CHAPTER 9. Available Resources

Thank you for taking the time to review this Guide. Listed below is a summary and contact information for resources to provide you with further guidance on regulatory streamlining and the use of information technology in the building codes administration and enforcement process.

HUD and the Alliance close this Guide by thanking these organizations, agencies and companies listed at the end of this chapter for their contribution to this publication and for the assistance that they will provide to those of you who contact them or make use of the publications or databases they have allowed us to list here.

U.S. Department of Housing and Urban Development

Website:

HUD USER: www.huduser.org

Other Services of HUD USER include: listserves, special interest and bi-monthly Publications (best practices and significant studies from other sources), access to public use databases, and a hotline (800-245-2691) for help with accessing the Information you need.

Publications:

"Why Not in Our Community? Removing Barriers to Affordable Housing", 2005

"Regulatory Barriers to Affordable Housing," Volume 8 Number 1 of "Cityscape - A Journal of Policy Development and Research,"   July, 2005

"Electronic Permitting Systems: A Primer and How Building Departments Can Implement Them," 2002

"Making Housing Affordable: Breaking Down Regulatory Barriers - A Self-Assessment Guide for States," 1994

The Alliance for Building Regulatory Reform in the Digital Age / National Partnership to Streamline Government

Website:

www.natlpartnerstreamline.org

The Alliance website will give you access to all of the Alliance work products listed in this Guide, including the online listing of jurisdictions using information technology and software available for use. The Model Procurement Requirements can be downloaded from this site.

Publications/CDROMs:

"The Elected Officials Guide to Effective and Efficient Building Regulatory Processes Through Regulatory Sreamlining and Use of Information Technology. August 2006

"Final Report, NCSBCS/Alliance Survey on Savings from the Application of Information Technology to Building Codes Administration and Enforcement Processes," May 20, 2005.

"Introduction to Building Codes and Guide to Effective and Efficient Codes Administration," NCSBCS, 2004

CDROM - Fourth Report from the Alliance for Building Regulatory Reform in the Digital Age, July 2006 – "Enhancing Public Safety, Economic Competitiveness and Disaster Resilience Through Effective and Efficient Codes Adminstration and Information Technology."

National Association of Home Builders

Website:

www.nahb.org

Affordable Housing Task Force Members of
Alliance for Building Regulatory Reform in the Digital Age:

John Biechman, National Fire Protection Association
Dana Bres, U. S. Department of Housing and Urban Development
Jean Boulin, U. S. Department of Energy
Claude Cooper, Association of Major City/County Building Officials
Diane Duff, National Governors Association, Economic Development and Commerce
     Committee Staff Director
Ken Ford, National Association of Home Builders
James Hanna, State of Maryland
Martin Harris, National Association of Counties
Baxter Hill, U. S. Department of Agriculture, Rural Housing Service
Richard Kuchnicki, International Code Council
Eugene Lowe, U.S. Conference of Mayors
Cassandra Matthews, National Association of Counties
Michelle McDonough, Fannie Mae
Amal Sinha, City of San Jose, CA
Paul Weech, Fannie Mae
Robert Wible, Alliance
Sophie Zager, Fairfax County, VA

2005 Members & Affiliate Partners of the Alliance for Building Regulatory Reform in the Digital Age

American Institute of Architects
Associated General Contractors of America
Association of Major City/County Building Officials
Building Owners & Managers Association International
Civil Engineering Research Foundation (CERF)
Commonwealth of Pennsylvania
Commonwealth of Virginia
Council of State Community Development Agencies
Design Build Institute of America
Fannie Mae
Federal Emergency Management Agency
Habitat for Humanity International
Industrialized Buildings Commission
Institute for Building Technology and Safety
International Alliance for Interoperability
National Association of Counties
National Association of Home Builders
National Conference of States on Building Codes and Standards
National Fire Protection Association
National Governors Association
National Institute of Building Sciences
National Institute of Standards and Technology (NIST)
U. S. Conference of Mayors
U. S. Department of Agriculture
U. S. Department of Energy
U.S. Department of Housing and Urban Development (HUD) &
     Partnership for Advancing Technology in Housing (PATH) &
     America's Affordable Communities Initiative - Bringing Homes Within
     Reach Through Regulatory Reform
U. S. General Services Administration

Alliance Affiliate Partners:

American Subcontractors Association
Arizona State University Del E Webb School of Construction's
     Housing Research Institute
Carnegie Mellon University
City of Milpitas, California
City of San Jose, California
ComCARE Alliance
Council for Excellence in Government
Council of State Governments
Fairfax County, Virginia
FIATECH

Harvard University's Joint Center for Housing Studies
Massachusetts Institute of Technology
National Association of State Chief Information Officers
National Association of State Facilities Administrators
National Science Foundation
New York City
Stanford University Center for Integrated Facility Engineering
State of California
State of Maryland
State of Oregon
State of Washington
Virginia Tech Center for Housing Research

Jurisdictions Making Contributions to this Guide Through Models, Best Practices, Reviews & Comments

States Contributing to HUD Guide
California
Florida
Georgia
Iowa
Kentucky
Louisiana
Maryland
Michigan
Minnesota
New Jersey
New York
Ohio
Oregon
Pennsylvania
Rhode Island
Tennessee
Texas
Washington
Wisconsin

Local Jurisdictions Contributing to HUD Guide
Akron, OH
Atlanta, GA
Bend, OR
Birmingham, AL
Broward County, FL
Charlotte County, FL
Chicago, IL
Chula Vista, CA

Clackamas County, OR
Cobleskill, NY
Columbus, OH
Denver, CO
Deschutes County, OR
Fairfax County, VA
Garden Grove, CA
Kansas City, MO
Lafayette Parish, LA
Lake County, IL
Los Angeles City, CA
Louisville City & Jefferson County, KY
Milpitas, CA
Mountain View, CA
New Orleans, LA
New York City, NY
Orlando, FL
Orange County, CA
Overland Park, KS
Philadelphia, PA
Pittsburgh, PA
Portland, OR
Richmond, VA
Richmond Heights, OH
Salem, OR
San Antonio, TX
San Diego, CA
San Jose, CA
Santa Clara County, CA
Seattle, WA
Wilmington, DE

Chart:

Cindy Wants to Build a House:

The following chart was developed by the National Conference of States on Building Codes and Standards for its national Streamlining the Building Regulatory Process Project in 1999. The chart documents all of the steps and regulatory programs that must be gone through from the conceptualization of building a house, through its construction to the issuance of its certificate of occupancy. The chart is generic and reflects the process generally found in most communities which have adopted zoning, land use and construction codes and standards.

Cindy Wants to Build a House

Board 1
©1999 by NCSBCS, Inc.

Plan Fails — **Correct Deficiency or…** → **Pursue Compliance on Board 6**

Plan Passes

Start Here for Zoning.
Proceed to Site and Grading (Board 3)
If There Are No Zoning Issues.

Historic Site or District? — **No** — **Advance to Zoning & Land Use**

Yes

Geology	Historic District	Historical Review Board	Archaeology

Plan Fails — **Correct Deficiency or…** → **Pursue Compliance on Board 6**

Plan Passes

Zoning & Land Use

Public Sewer & Water Capacity	Fire District	Landscaping	Easements & Deed Restrictions	Subdivision Approval
Private Septic Systems	Traffic Impact	Stormwater Management	Roads & Maintenance	Local Considerations

Plan Fails — **Correct Deficiency or…** → **Pursue Compliance on Board 6**

Plan Passes

Go to Environmental Regulations (Board 2)

Start Here for Environmental Compliance.
Proceed to Site and Grading (Board 3)
If There Are No Environmental issues

Board 2
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Water Quality	Tidal Wetlands	Nontidal Wetlands	Flood Plain
Stormwater Management	Wetlands Buffers	Soil & Sediment	Septic & Well

Plant & Animal Issues

Forest Stand Delineation	Forest Conservation	Re-forestation	Endangered Plants	Endangered Animals

Land Renewal Concerns

Brownfields Mitigation	Underground Tanks

Product Approval

Recycled Materials	Environmentally Friendly Construction

Hazard Mitigation

Natural Disasters	Discharge (Air or Water)	Seismic Site

Environmental Assessment Completed — **Problems** — **Correct Deficiency or…** → **Pursue Compliance on Board 6**

No Compliance Problems

Go to Site & Grading (Board 3)

Board 3
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Start Here for Site & Grading.
Proceed Building Approval (Board 4)
If There Are No Site Issues.

Storm Drainage	Domestic Water Pressure	Sanitary Sewer/ Capacity	Fire Department	Schools

Roads	Traffic	Recreation	Landscaping

Pay Impact Fees

OSHA Compliance

Product Approval

Materials	Erosion Control/ Fill

Demolition (If Applicable)

Site and Grading Assessment Completed.

Problems

Correct Deficiency or…

Pursue Compliance on Board 6

No Compliance Problems

Go to Site & Grading (Board 4)

Board 4
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Start Here for the Building Construction Approval Process.

Historic Site or District? No Advance to Building Permit Application & Plan Review

Yes

Geology	Archaeology	Historic Distict
National Register	Eligible for Historic District	Eligible for National Register

Plan Fails Correct Deficiency or… Pursue Compliance on Board 6

Plan Passes

Building Permit Application and Plan Reviews

Plan Fails Correct Deficiency or… Pursue Compliance on Board 6

Plan Passes

Pay All Required Taxes and Fees

Building Permit Issued

Contractor Calls for Code Inspections (Rough-In)

Structural	Electrical	Mechanical	Plumbing
Fire Protection	Health Considerations Septic System/Well	Local Issues/ Disaster Mitigation	Flood Plain/ Building Elevation

If Inspections Pass, Finish Construction

Inspections Fail Correct Deficiency or… Pursue Compliance on Board 6

Continue to Final Code Inspection (Board 5)

71

Board 5
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Building Permit Application
and Plan Review Process
(continued from Board 4)

Contractor Calls for
Code Inspections
(Final)

Structural | Electrical | Mechanical | Plumbing

Fire Protection | Health Considerations/Septic System/Well | Local Issues/Disaster Mitigation

Inspections Fails → Correct Deficiency or… → Pursue Compliance on Board 6

Inspections Pass

Accessibility Compliance
Energy Compliance
Product Approval
OSHA Compliance

Compliance Problems → Correct Deficiency or… → Pursue Compliance on Board 6

No Compliance Problems

Use & Occupancy
(Final Stage)

Accessibility Compliance | Utility Compliance | Health Considerations/Septic System/Well | Landscaping

Compliance Problems → Correct Deficiency or… → Pursue Compliance on Board 6

No Compliance Problems

Obtain Home Warranty

Obtain Certificate of Occupancy

Cindy's House is Built!

Board 6
©1999 by NCSBCS, Inc.

What Is Your Compliance Issue?

Rejected Construction Plan

Correct Plan & Resubmint (return to previous board and advance) or…

Pursue Appeals Process

File Application for Variance

Board Solicits Public Comment

Hearing is Held

Variance is Denied | Variance is Approved

Sorry! No House.

Consider Other Action

Return to Your Previous Board and Advance!

Regulatory Noncompliance

Correct Noncompliance (return to previous board and advance) OR…

Pursue Agency-Specific Appeals Process

If Appeal Succeeds, Return to Your Previous Board and Advance!

Appeal Fails

Make Modifications and Pay Fees

Contractor Re-Submits Permit Application

Permit Fails | Permit Passes

Sorry! No House.

Consider Other Action

Return to Your Previous Board and Advance!

Failed Inspection

Correct Errors & Resubmit (return to previous board and adcvance) OR…

Pursue Agency-Specific Appeals Process

If Appeal Succeeds, Return to Your Previous Board and Advance!

Appeal Fails

Make Modification and Pay Fees

Contractor Schedules New Inspection

Inspection Fails | Inspection Passes

Sorry! No House.

Consider Other Action

Return to Your Previous Board and Advance!