

**Future Work to Develop Technologies & Requirements Needed to  
Further Advance the Development of a  
State-of-the-Art Integrated & Interoperable Building Regulatory System**

Prepared by  
Alliance's Steering Committee  
with input from  
Information Technology Industry Advisory Subcommittee  
for Action by  
Members of the Alliance for Building Regulatory Reform in the Digital Age

March 31, 2004

**I. BACKGROUND**

Under funding from the National Institute of Standards and Technology (NIST), the Alliance for Building Regulatory Reform in the Digital Age developed materials and conducted in New York City on September 24, 2004, a national Summit on Streamlining the Building Regulatory Process Through Interoperability.

Among the work products that came out of the Summit was an agenda of actions that the nation's information technology, construction and building regulatory communities agreed to work together leading to the development of an integrated and interoperable building regulatory system.

Between late-September 2003 and mid-March 2004, the Alliance developed and shared with the information technology community a number of agreed upon work products that are listed below.

Under funding from NIST for this project, the Alliance concludes the first phase of this effort by providing this paper outlining future work that needs to be undertaken by the Alliance and the information technology, construction and building regulatory communities to further advance the development of "a state-of-the-art integrated and interoperable building regulatory system."

Following NIST's review of this paper, this paper will be distributed to all of the members of the Alliance for their consideration and action.

**II. OBJECTIVE**

To enable our nation's construction industry to build faster, better, safer and at less cost, further advance the development for our nation of a state-of-the-art integrated and interoperable building regulatory system.

**III. TASKS COMPLETED (August 2003 – March 31, 2004)**

In support of the above objective, the following actions were undertaken and completed between August 2003 and March 31, 2004:

1. Background materials, including a draft interoperability statement and model regulatory process maps, were prepared and distributed to Summit attendees.
2. Summit held in New York City, September 24, 2004. Opportunities and challenges, next steps, and priorities towards achieving interoperability were identified and agreed to by 55 Summit participants from information technology (IT), construction and building regulatory communities.
3. Final report on Summit written and distributed to attendees and to software/hardware industry.
4. Expanded Core Work Group of jurisdictions developed detailed descriptions of high priority use cases and provided them to hardware/software industry for action.
5. Report on Characteristics & Capabilities of Currently Available Software/GAPS.
6. Background paper on other interoperability efforts and their relevance to this project was prepared and distributed.
7. Revised Draft Interoperability Statement that was developed at Summit distributed and further modified and then incorporated into Alliance Model Procurement Requirements.
8. IT industry provided a home to work on this project by Alliance Secretariat, NCSBCS, in the NCSBCS Information Technology Industry Advisory Subcommittee (ITIAS).

#### IV. NEXT STEPS – Future Work to be Undertaken to Advance the Development of a State-of-the-Art Integrated & Interoperable Building Regulatory System

In support of the Alliance's overall work agenda and the fulfillment of the above objective, NCSBCS, as the Alliance's secretariat, gathered input from the Alliance's partners and Technology Task Force members and representatives from the information technology, construction and building regulatory communities. It was noted that the following Immediate-Term, Mid-Term and Long-Term activities should be undertaken between April 1, 2004, and December 31, 2008:

##### A. STEPS IN IMMEDIATE-TERM (April – July 31, 2004)

1. Work of the Information Technology Industry Advisory Subcommittee (ITIAS)
  - a. Expand membership of ITIAS (14 companies currently).
  - b. Review and develop interim report describing existing interoperability efforts relevant to the development of XML schema for addresses and online permit processing and tracking.
  - c. In conjunction with jurisdiction users, develop further elaborations of key use cases with specific relationships to business work processes for electronically exchanging address information and online permit processing and tracking between specific software systems.
  - d. Begin work on defining address and online permitting information XML schemas and develop "proof of concept" software demonstrations that show software interoperability using the XML schemas for the exchange scenarios identified in step c.

- e. Share outcome or status of above efforts with attendees at a second Summit on Streamlining Through Interoperability (late July 2004).
- f. Assist Alliance in planning the format, contents and speakers and in gaining funding for second Summit.
- g. Establish ITIAS web pages on Alliance portion of NCSBCS website for input from government, hardware, software, middleware and the construction communities.

## 2. Work by Jurisdictions

- a. Assist in the planning, funding, and conducting of second Summit.
- b. In conjunction with the ITIAS step c above, define detailed requirements of key use cases with specific relationships to business work processes for electronically exchanging address information and online permit processing and tracking between specific software systems.
- c. Work with ITIAS members (see ITIAS step d) to test “proof of concept” demonstration software to show software interoperability and which help establish the business need and benefits in jurisdiction work processes.
- d. Assist in the distribution and use of the Alliance’s updated Model Procurement Requirements that includes the Interoperability Statement provisions developed March 31, 2004.
- e. Finish work on draft matching grant criteria for federal funding of streamlining demonstration grants (and later larger numbers of such grants).
- f. Assist Alliance in expanding its website listing of jurisdictions that are making use of information technology in their building regulatory processes.
- g. Hold follow-up briefings on streamlining and information technology for elected officials who receive the Alliance’s report via CD-ROM.

## 3. Work by Construction Community

- a. Support the Alliance’s outreach effort to elected officials and jurisdictions streamlining their building regulatory processes through the use of interoperable hardware, software, and middleware.
- b. Participate in the planning, funding, and conducting of the second Summit.

## 4. Work by Alliance

- a. Coordinate and facilitate the above actions including obtaining funds for the second Summit.

- b. Prepare and distribute to nation's governors, mayors, county commissioners of a CD-ROM update report on the activities of the Alliance and work products developed as a result of New York City Summit including the interoperability statement, detailed high priority use cases, and guidance on how jurisdictions can use Alliance Model Procurement Requirements.
- c. Schedule and hold a second Summit. (Tentative date/location – July 30, 2004, Washington, D.C.)
  - 1) Purpose of Second Summit - Bring together stakeholders (IT/Construction/Regulatory Communities) to:
    - a) gain adoption and use of revised procurement guidelines and its interoperability statement;
    - b) receive a report from Information Technology Industry Advisory Subcommittee regarding actions they have taken to begin to develop XML schema for addresses and web-based online permit processing and tracking (provide proof of concept demonstration of interoperability); and
    - c) identify and gain consensus on and set future work agenda items to create additional technologies and requirements needed to advance a state-of-the-art integrated and interoperable building regulatory process.
  - 2) Outline of Draft Summit Agenda
    - a) Introduction and Keynote Address - What an Integrated Interoperable Building Regulatory System Would Look Like
    - b) Update on Alliance Activities and Overview of Work Products Developed in Follow-up to First Summit
    - c) Review of Updated Model Procurement Requirements with Interoperability Statement – Discussions of actions participants can take to gain use of revised requirements by state and local governments
    - d) Review Work of Information Technology Industry Advisory Subcommittee – Website/Communications & XML Schema
    - e) Discussion of Actions to support Development and Use of XML: Schema – Proof of Concept – Interoperability
    - f) Review and Discuss Additional Technologies and Requirements needed to achieve interoperability
    - g) Discussion of Next Steps for Alliance and Stakeholders to carry out the above (Time frame/Funding resources/Commitment)
    - h) Adjourn

3) Proposed Summit Outcome/Follow-up Work Products

a) Commitment of stakeholders to work together to:

- assist state and local government use of Model Procurement Requirements with interoperability statement;
- implement more widely the interoperability prototype demonstrations for address and online permit information;
- concur and assist Information Technology Industry Advisory Subcommittee in development of XML schema and identification of next schemas and use cases to develop; and
- identify funding sources and commit to work together to obtain funding.

b) Identify additional technologies and requirements and resources and time frames to develop them.

4) Prepare necessary background/support materials to conduct above Summit. These may include: updating use case information; updating building regulatory process maps, and/or updating/expansion of background paper on interoperability.

B. STEPS IN MID-TERM (August 2004 – June 30, 2005)

1. Follow-up on Output from Second Summit

a. Work by Jurisdictions:

- 1) NASCIO consider endorsement and support for Interoperability Statement incorporated within the updated Model Procurement Requirements.
- 2) Follow-up by NGA, U.S. Conference of Mayors, National Association of Counties to promote state and local jurisdictions' use of Alliance Model Procurement Guidelines.
- 3) Expansion of number of jurisdictions using information technology listed on the Alliance website.
- 4) Support model code efforts to put building codes into XML format to develop online web-based electronic plans review and field inspection system.
- 5) Plan and hold a 4<sup>th</sup> Building Smarter in the Digital Age program to promote understanding and use of Alliance work products and streamlining the building regulatory process through the use of interoperable hardware and software.

b. Work by Construction Community

- 1) Construction community supports state and local government efforts to streamline their building regulatory processes using interoperable hardware and software.

- 2) Continued support for coordination between Alliance interoperability efforts and FIATECH's AEX and Roadmapping Projects.

c. Work by Information Technology Community

- 1) Continue development and deployment of XML Schema for addresses and web-based online permit issuance and tracking.
- 2) Begin work on development of other XML Schema derived from second Summit and High Priority Use Cases developed in winter of 2003-04 by Alliance as follow-up to first Summit
- 3) Work with Alliance public sector partners to overcome barriers to jurisdictions making greater use of hardware and software in their building regulatory processes.

d. Work by Alliance – Support and help coordinate all of the above efforts.

2. Other Work by Alliance

- a. Alliance, with support from information technology, construction and building regulatory communities, obtains federal funding for demonstration streamlining implementation grants (OSTP proposal) and identifies and holds four prototype streamlining projects using interoperable hardware/software.
- b. Alliance Technology Task Force identifies work projects based upon output from second Summit and holds work sessions to complete those work projects.

C. STEPS IN LONG-TERM (July 2005 – December 2008)

1. State and local government use of Alliance Model Procurement Requirements with Interoperability Statement to obtain hardware, software and middleware for use in their building regulatory systems.
2. Federally-funded streamlining implementation matching grants made available to speed restructuring of building regulatory processes and effective use of information technology. Put in place measurement tools to record savings to government and private sector from streamlining the building regulatory process using information technology.
3. ITIAS completes development of XML Schema for other high priority use cases in building regulatory process.
4. Interoperable hardware and software for online permit processing and tracking, plans submission, plans review, licensing and inspections produced and made available to state and local governments and private sector to use.

5. Through the above efforts, increase the percentage of jurisdictions using information technology to streamline their building regulatory processes from 8% to 15% or more of the nation's jurisdictions that adopt and/or enforce building codes. In those jurisdictions using information technology in their building regulatory processes, reduce the number of days a builder must be within that regulatory process by 40%.
6. Consider holding annual summits or incorporating summit-like activities into the ongoing series of annual Alliance Building Smarter in the Digital Age conferences to keep work towards interoperability focused and on track.
7. Issue annual reports to Congress, White House, Governors, Mayors, County Commissioners regarding progress. Include accomplishments and barriers towards achieving the above goals.

## V. ACTIONS BY ALLIANCE

As noted earlier, this paper was prepared with input from all of the Alliance members, the information technology, building regulatory and construction communities.

Following a review of this paper by the National Institute of Standards and Technology, who funded the first phase of the Alliance's work on interoperability, this report will be distributed for review to all of the Alliance's partners. A series of calls will be arranged by NCSBCS in April to ascertain the Alliance partners' commitment to taking the next steps proposed in this paper.