

National Association of State Chief Information Officers (NASCIO)
Recognition Awards Submission – Citywide (In-Building) Wireless (C-IBW) (6/1/15)

1. Cover page (title, category, contact, state, project initiation and completion dates)

Title: District of Columbia, Office of the Chief Technology Officer (OCTO), DC-Net, Citywide (In-Building) Wireless (C-IBW)

Category: Information Communications Technology (ICT) Innovations

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State: Government of the District of Columbia, Office of the Chief Technology Officer (OCTO)

Project Initiation and Completion Date(s): Initiation - 10/2013; Fully Implemented and Operational – 9/2014; innovation and life-cycle management – 10/2014 forward

1Responsible Agency Senior Executive: Niquelle Allen, iDirector, DC Net, email: Niquelle.Allen@dc.gov ; Contact(s) about the project/program submission: Chris Bennett, IT Program Manager, email: Christopher.Bennett@dc.gov

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2. Executive Summary (one page)

In October of 2013 the District of Columbia and its Office of the Chief Technology Officer (OCTO) understood that mobility – via wireless – is/was the next wave of infrastructure that has become an essential utility, comparable to the interstate highway and to the Internet. To address it they wanted to take a comprehensive, data driven, and smart approach to meeting the needs of stakeholders across the District's 68.3 square miles of territory, both land and water. After deliberation the agency approved a business plan that leveraged existing investments and programs, while also taking an innovative and entrepreneurial approach. Citywide (In-Building) Wireless was born.

The Citywide Wireless aspiration is to create a virtual public and private sector effort that makes the District the best in the world for broadband wireless connectivity. With that in mind three business units were created /integrated and two strategies set:

- **Business units:**
 - ***In-Building-Wireless*** – a multi-agency program (Department of Consumer and Regulatory Affairs, Department of General Services, Office of the Chief Technology Officer, Office of Unified Communications, affected agencies) to invest capital to enhance the wireless infrastructure of government buildings to ensure end user ability to call 911
 - Citywide Information Communications Technology (ICT) infrastructure ***contract administration*** – in particular the agreements with the four major wireless carriers serving government end users
 - ***Innovation*** - creating new ways to use mobility to support District agencies, collaborating with agencies to address issues (i.e., wireless infrastructure placement and life-cycle management), and working with the public and the private sector(s) to achieve win-win-win results for wireless
- **Strategies:**
 - ***Leverage*** the District's existing capabilities and investment in its DC-Net municipal communications network
 - ***Simplify***, by creating a “single point of interface for all things wireless”
 - Internally – centrally coordinating, in partnership, the work of multiple agencies as “virtual teams” through the OCTO statutory charter to set technology standards, and
 - Externally – being a single-point-of-contact for connecting industry with the right agenc[y]/[ies] for its interest, i.e., small-cell-placement

Industry feedback is that the single interface is unique and adds value for its work.

In just over one year of operation Citywide Wireless has hit its targets. It returns \$1.05 for each \$1 of capital invested. Twenty-one (21) buildings have new in-building wireless systems. Agency requirements are being met while achieving cost reduction of 10.3% annually. Six innovations are in various stages of development. We're excited about the achievements and about the potential. We look forward to the opportunity to share the story with NASCIO.

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3. Description of the business problem and solution

Three business problems were targeted when the District created Citywide Wireless:

- 1) *Wireless end users unable to call 911 from within certain government buildings – creating a public safety risk*
- 2) *A fragmented process for addressing wireless coverage “dead spots”, and for enhancing end user ability to call 911, outside government buildings*
- 3) *Need for a cost effective way to incorporate new mobile technology, applications and innovations, into the District’s governance model and ecosystem*

To address these requirements, and to position for moving forward, Citywide (In-Building) Wireless was formed. It consists of three business units: In-Building-Wireless; Wireless Carrier Contract Administration of the agreements with the four major commercial wireless carriers; and Innovation.

Since a 10/13 production launch Citywide Wireless has:

- **Developed a wireless standard and deployed twenty-one (21) in-building systems** based on those specifications - while providing a positive return-on-investment (\$2.2MM return on \$2.0MM investment)
- **Launched a data driven initiative**, in collaboration with the private sector, to identify and **to eliminate “dead spots” across the District**, and
- **Enabled an efficient and cost effective program, positioned to take advantage of new technologies** like First NET and the “Internet of Everything[/Things]”, by using the capabilities of the DC-Net fiber optic and multiprotocol label switching (MPLS) network that connects hundreds of government buildings

This approach allows more with less. The image below shows a high-level deployment of the Citywide (In-Building) Wireless / DC-Net / commercial wireless carrier ecosystem.



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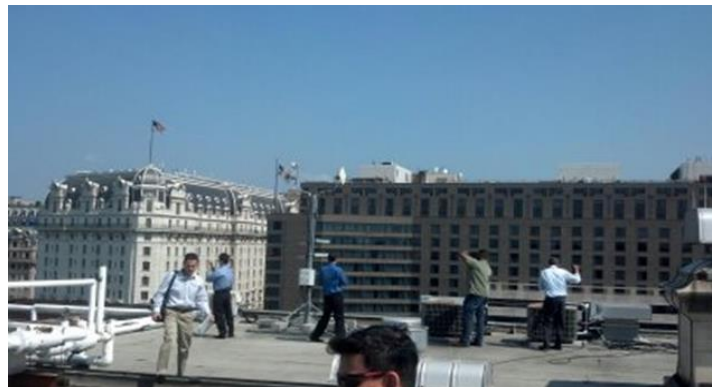
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4. Significance to the improvements of the operation of government

The significance of the Citywide Wireless improvements are numerous, with some apparent now and others emerging. They may be summarized as:

- **Public Safety & Homeland Security**: the in-building system standard sets a robust level of wireless signal reliability in government sites to help ensure that people can call 911 from their mobile phone inside the building, and in concert the District’s partnership with the four major wireless carriers (through its citywide wireless contracts with each) – combines with wireless analytics to provide a process for identifying dead spots and for enhancing the quality of wireless outside government buildings too
- **Government Efficiency & Innovation**: Citywide Wireless has shown that it can deploy in-building systems at about 50% of the capital costs of the private sector, by building upon the DC-Net platform. In concert the contract administration business unit, supporting over 16,000 devices, supports the acquisition of wireless capabilities for agency missions while delivering an average annual cost reduction of 10.3%. Funding, freed by the efficiencies, is used for additional services and for innovative solutions (*see Section 5, bullet-point three, below*)
- **Services Delivery Platform**: Citywide Wireless allows the District’s five, Deputy Mayor lead, operating clusters to push access to their services out to where stakeholders can access them across the entire City
- **Future Proofing**: the expanding Citywide Wireless broadband umbrella positions the District to leverage and / or to offer “Internet of Everything” / “Internet of Things” based services where appropriate – cost effectively and efficiently

[photo shows interdepartmental team surveying donor antenna of a District government building, a part of the process used in our data driven deployments]



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5. Benefits of the project (financial and non-financial)

We find that ultimately the project / program benefits can be measured financially, either directly or indirectly. Some financial measures are known today. For others we are using data to baseline today and will measure the quantitative impact going forward.

Benefits of the OCTO Citywide Wireless Service(s), powered by DC-Net, include but are not limited to:

- Financial: \$1.05 return on capital for each \$1 invested – providing a good investment of taxpayer funds for citizens, employees, visitors and other stakeholders that access the wireless services
- Financial: data driven and smarter “right sized” wireless system deployments – averaging \$143,000 / system compared to \$314,000 / system based on research data

[photo shows operations portal through which wireless signal testing, site project build, wireless analytics data, and ongoing life-cycle management information are kept, as a part of the process used in our data driven deployments]



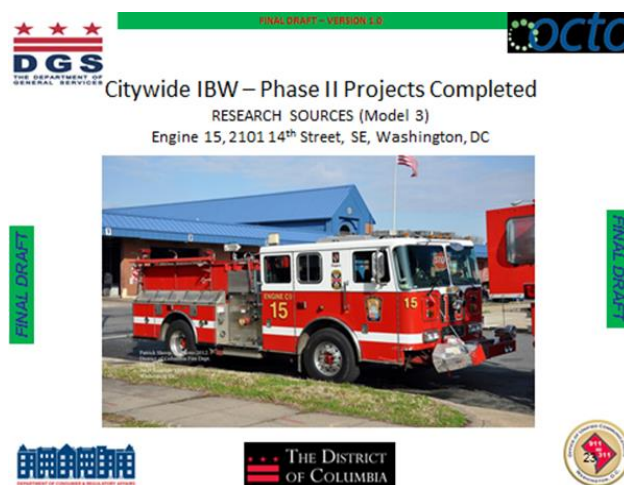
- Financial / Non-Financial: a magnet for government-to-government and public-private partnerships that offer additional funding, innovation and service opportunities (at this time the District has six (6) innovation projects in process for Citywide Wireless, with four (4) including direct funding and enhancement to the

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City's wireless health, one (1) buttressing public safety for mass transit, and one (1) that combines a data driven service for all wireless end users while also helping to identify and to eliminate any “dead spots” across the 68.3 square miles of land and water in the jurisdiction

[photo shows one of the Fire Stations at which an in-building-system was deployed, and complemented by private sector broadband wireless]

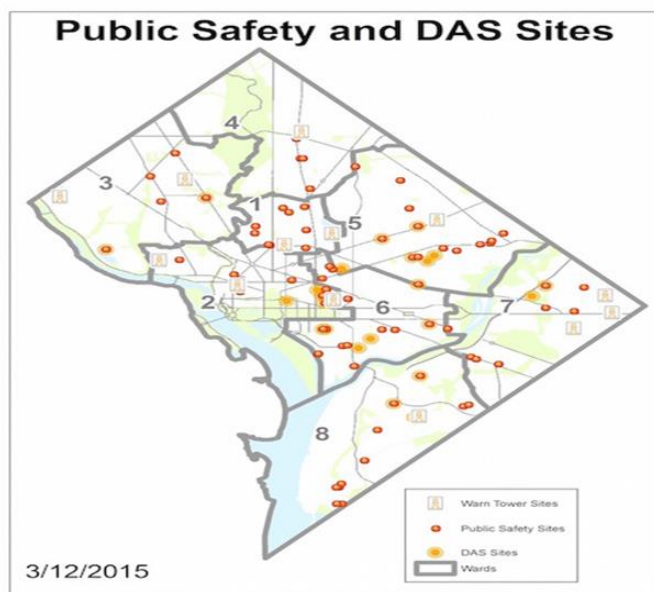


- Non-financial: eventually eliminating the “digital divide” to smooth the “Pathway to the Middle Class” actions and policies of policymakers

[photo shows the placement of in-building-wireless systems, in each of the eight (8) geographic wards of the District, as one above ground indicator of the services being overlaid on the DC-Net fiber-optic and MPLS network deployed via conduit, switches and software]

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- Non-financial: furthering the public interest in Economic Development, Education, Government Operations, Health & Human Services, Homeland Security & Public Safety, and other areas of interest positively affected by robust wireless – such as quality of life

[photo shows the White House and surrounding parks, located within the District of Columbia and affected by the scope of OCTO Citywide Wireless, powered by DC-Net]



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