# CONNECT COLUMBUS

## Strategic Plan for Information Technology (2010-2015)

*Columbus has embraced technology as a driver and enabler for economic development. The focus of this plan is to leverage information technology to make Columbus a world class connected community while supporting and enhancing its opportunities for success.*

## TABLE OF CONTENTS

## I. PREAMBLE

Columbus is steadfast in building a world class community that will enhance the quality of life of its citizenry and improve its economic opportunity and welfare. Information technology (IT), more specifically broadband technology, has been identified as being a driver for such enhancements. To further the proliferation and omnipresence of broadband throughout the community, Columbus is directing its resources toward establishing itself as a world class connected community.

In its continued pursuit to become a world class community, Columbus defines the following as characteristics of the world class connected community it aspires to become:

- Multiple consumer choices for competitively priced, reliable broadband voice, video and data infrastructure and services;
- A well-connected and broadband enabled citizenry that utilizes broadband to improve its quality of life;
- A public safety network of well-connected and broadband enabled mobile first responders;
- A well-connected and broadband enabled local government focused on transparency, collaboration and civil engagement;
- A well-connected and broadband enabled education network promoting innovation through access to digital education resources and distance learning; and
- A well-connected and broadband enabled healthcare network promoting innovation through telemedicine and e-health.

While becoming a world class connected community is very much an ongoing endeavor, Columbus has already realized great progress with its 2005 Telecom Strategic Plan. Broadband alternatives for businesses and residential consumers increased, as did service provider competition, a technology leadership committee and IT Executive position were created to assist in defining and directing technology initiatives within the community, and a Tier 4 data center opened offering a business continuity and disaster recovery solution in Columbus. These successes have helped Columbus take several steps forward toward becoming a world class connected community.

Titled *Connect Columbus*, this strategic plan was developed with input from key Columbus stakeholders including City employees, educational administrators, local legislators, as well as community and business leaders. While this plan continues Columbus's mission for pervasive world class telecom infrastructure and services achievement, it focuses efforts on creating a connected community by articulating broader IT initiatives to implement technology in ways that promote innovation while supporting and enhancing Columbus's opportunities for success.

Columbus has the potential to become a world class connected community. It is home to world class talent, education and industry – all integral components of such a community. It will be through this plan as well as community innovation and collaboration that we will *Connect Columbus*.

## II. MISSION

### Opportunity through IT

Columbus serves its community through the development and pursuit of initiatives that leverage IT in ways that both support and enhance innovation and communication as well as the community's opportunities for success.

## III. VISION

### Connect Columbus

Columbus will be recognized as a world class connected community with the IT infrastructure and services to connect the Columbus community to one another, the region and the world.

## IV. GOALS

Five (5) overarching goals for the Columbus community form the foundation of this strategic plan.

- Increase broadband alternatives and adoption
- Ensure world class broadband access speeds and availability
- Improve government and public safety communications and responsiveness
- Improve the collection, storage, accessibility and availability of public information
- Leverage IT resources and solutions to strengthen, promote and engage the community

## V. Guiding Principles

- Technology is an enabler of economic development
- Establish and nurture synergies with community stakeholders
- Seek "win-win" outcomes
- Encourage use of technology "lens" during community planning activities

## SECTION 1. CURRENT STATE ANALYSIS

IT in Columbus continues to evolve and is incrementally transforming Columbus into a connected community; however, Columbus's vision for a world class connected community has yet to be fully realized. This section paints a picture in broad sweeping strokes of the current state of broadband technology in Columbus.

### 1A. SUPPLY V. DEMAND

#### WIRELINE

With the introduction of Smithville Digital to Columbus, the community now has at least nine (9) wireline telecom service providers offering residential and business service to the community. This includes: AT&T, Comcast, Cincinnati Bell, LightBound, Indiana Fiber Network, One Communications, Smithville Digital, TLS and Zayo. This competition has yielded benefits to the community through increased alternatives for consumers. Additionally, the City continues to expand the Greater Columbus Conduit System (GCCS) to enable fiber optic service to reach more Columbus consumers.

Columbus has seen a steady increase in fiber optic service options available throughout the community. While fiber-to-the-curb service (FTTC) is available for business customers through wireline telecom service providers such as Indiana Fiber Network, Smithville Digital and Zayo, a residential fiber-to-the-home (FTTH) service is not yet prevalent in Columbus.

Columbus is now home to a full-service Tier 4 data center. A data center facility the size and scope of the Data Cave in a community the size of Columbus is a rarity. Such a facility is designed to house IT systems for organizations that require disaster recovery capabilities for these systems.

#### WIRELESS

While public Wi-Fi Internet access is not yet ubiquitous in Columbus, hotspots are popping up throughout the community. Free and for fee Wi-Fi Internet hotspots are showing up in restaurants and other public gathering places in Columbus at a rate that continues to increase year over year. Broadband wireless access is not ubiquitous throughout Columbus, but is available in point-to-point configurations.

The availability of broadband service in Columbus over a cellular mobile device or computer adapter has seen a steady increase year over year in Columbus. Verizon Wireless has a significant 3G cellular broadband footprint covering much of Columbus, and AT&T's recent 3G coverage upgrade (5/2010) has made it more competitive in Columbus as well. Plans for 4G services in such as WiMAX or LTE are not known at this time.

#### BROADBAND ADOPTION

Broadband utilization and adoption in Columbus is not yet on par with world class. There are limited public computing centers available with the Public Library and Columbus Learning Center being the two primary alternatives. Columbus has a need for broadband education programs to reach those that:

- Cannot afford broadband,
- Do not have access to broadband, or
- Do not understand what a positive impact broadband can have on quality of life.

## 1B. SWOT ANALYSIS

Identifying the strengths and weakness of IT in Columbus will help put into context internal factors that give Columbus its advantages and disadvantages.

While an internal analysis focuses on the strengths and weaknesses of IT in Columbus, an external analysis focuses on those opportunities and threats that represent the macro-environmental outside factors that could affect IT with respect to Columbus's pursuit of becoming a world class connected community, both are components of a SWOT Analysis (Strengths, Weakness, Opportunities and Threats).

A SWOT Analysis is a useful tool for auditing an organization and its environment. It is of particular significance to a strategic planning process as it can aid in illustrating the position and direction of a given initiative. Table 1 provides a SWOT Analysis of Columbus in the context of its pursuit of becoming a world class connected community.

**Table 1. SWOT Analysis**

| Internal Analysis | External Analysis |
|---|---|
| *Strengths* | *Opportunities* |
| ➢ Commitment to creating a world class community | ➢ Businesses recognize IT as requirements for success |
| ➢ Visionary government and community leadership | ➢ IT solutions could aid in reducing costs |
| ➢ A competitive local market for broadband infrastructure and services | ➢ Federal stimulus money being allocated for broadband ubiquity in the US |
| ➢ The GCCS and subsequent Smithville Digital partnership | ➢ IT solutions could be leveraged to drive economic development growth |
| ➢ Synergies between City and County IT departments | ➢ Leverage IT to increase public safety |
| ➢ An educated and technology minded citizenry | ➢ Migration toward electronic medical records |
| ➢ Commitment to seeking "win-win" partnerships | ➢ The demand for broadband continues to grow |
| ➢ World class education and business resources that are committed to Columbus's success | ➢ Highly skilled and out of work IT professionals are looking for employment |
| ➢ The City has positioned itself as an enabler for, not a provider of, world class IT and services | ➢ FCC's National Broadband Plan and map to address those unserved or underserved by broadband |
| *Weaknesses* | *Threats* |
| ➢ The City needs a plan for marketing its world class IT capabilities | ➢ A change in the community's vision for and perceived value of technology |
| ➢ Broadband adoption in Columbus is not world class | ➢ FCC's position on Net Neutrality |
| ➢ Columbus lacks an online presence commensurate with its physical presence | ➢ Consumers have less expendable income due to economic recession |
| ➢ City manages IT in departmental silos versus a more centralized and aggregated approach | ➢ Uncertainty in credit markets have caused turmoil in the business community |
| ➢ Technology project funding availability | ➢ State and local budgets have been drastically cut |
| ➢ City not fully leveraging the Web as community front door and a means for civil engagement | ➢ The supply of broadband alternatives available do not match the growing demand for the same |
| ➢ Local policies lack IT perspective | ➢ Lack of broadband education and adoption |
| ➢ Local government's tendency to be reactive instead of proactive | ➢ Community growth rate may stagnate due to economic recession |
| ➢ Subject to changes in Mayor and City Council leadership | ➢ Increased expectation for government engagement and transparency |

## SECTION 2. DESIRED STATE: CONNECT COLUMBUS

As Columbus has made great progress as a direct result of implementing its 2005 Telecom Strategic Plan, the next step toward becoming a world class connected community is to pursue innovative ways of putting this infrastructure to use to create growth opportunities across all sectors of the community.

This section presents a series of initiatives that together form a plan aimed at addressing the deficiencies of the Current State (Section 1) to align Columbus's IT plans with its vision to become a world class connected community – to *Connect Columbus*. These initiatives are categorized according to three (3) key strategies. The idea is that by improving communication within city government (2A) will lead to innovation in communication between city government (2B) and the community which in turn will lead to similar advances within the community at-large and ultimately the region (2C).

Table 2 provides an illustration of how each of the proposed *Connect Columbus* initiatives discussed herein delivers results that match one (1) or more attributes Columbus has defined of the world class connected community it aspires to become (pg. 3). While these initiatives have been numbered for ease of reference, they have not been assigned priority.

### 2A. IMPROVE INFORMATION COMMUNICATIONS WITHIN LOCAL GOVERNMENT

Communications between local government departments should be optimized to maximize information availability, accessibility and security. This means improvement in not only the physical IT communications infrastructure, but also in how data is created, stored and retrieved. It also means thinking about IT as a means for making local government more efficient and effective. Improving communications within city government will create a foundation from which synergies can be built to further strengthen IT throughout the community.

This section details initiatives to enhance communications within City Government to a level commensurate with world class.

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#### DEPLOY AN OPTICAL NETWORK PLATFORM BETWEEN LOCAL GOVERNMENT LOCATIONS TO SUPPORT CURRENT AND FUTURE TELECOM NEEDS WHILE REDUCING CONNECTIVITY COSTS >>

The City has disparate telecom connectivity solutions between its locations to accommodate its voice, video and data requirements. While these infrastructures have served the City well in the past, they have become antiquated and insufficiently aligned with the City's future technology and financial objectives.

It is recommended that the City create a private fiber optic network between all local government locations by leveraging the infrastructure and partnerships realized by Greater Columbus Conduit System (GCCS). In doing so, it is estimated the City could increase its telecom bandwidth between City locations by 600 times while reducing its monthly connectivity costs by 50%.

**Table 2. Attributes v. Initiatives**

| | | *Connect Columbus* Initiatives | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Within Local Government | | | | | | | | Between Local Government, Columbus Community | | | Within Community, Region | | | | | | | |
| | | 1. City Fiber Network | 2. City Campus Phone System | 3. City Content Mgmt System | 4. City Intranet Portal | 5. Public Safety Network | 6. City Lighting, Signaling | 7. City IT Policies | 8. BC & DR Plans | 9. Digital Civic Center | 10. City Data and App Repository | 11. Civic Reporting Tool | 12. Conduit Ordinance | 13. Fiber Optic Services | 14. City IT Marketing Plan | 15. Broadband Adoption | 16. Unplug Columbus | 17. County-Wide Broadband Plan | 18. Regional Ed/IT Support | 19. Digital Sister Cities |
| World Class Community Attributes | Multiple choices for competitively priced, reliable broadband voice, video and data infrastructure and services for consumers | | | | | | | | | | | | ✓ | ✓ | ✓ | | ✓ | ✓ | | ✓ |
| | A well-connected and broadband enabled citizenry that understands the value of broadband and its impact on quality of life | | | | | | | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| | A public safety network of well-connected and broadband enabled mobile first responders | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | | | | |
| | A well-connected and broadband enabled local government focused on transparency, collaboration and civil engagement | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | | ✓ | ✓ | | ✓ |
| | A well-connected and broadband enabled education network promoting innovation through access to digital education resources and distance learning | | | | | | | | | | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |
| | A well-connected and broadband enabled healthcare network promoting innovation through telemedicine and e-health | | | | | | | | | | | | ✓ | ✓ | | | ✓ | ✓ | ✓ | ✓ |

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### DEPLOY A CAMPUS TELEPHONE SYSTEM ENABLING FEATURE RICH VOICE COMMUNICATIONS AMONG LOCAL GOVERNMENT DEPARTMENTS WHILE REDUCING TELEPHONY COSTS >>

While an existing telephone, intercom and voicemail system has served the City well in the past, it is insufficiently aligned with the City's future technology and financial objectives.

It is recommended that the City deploy a City-owned IP based telephone system. Such a system, when implemented over a private network platform between City locations, will enable creation of a campus telephone system where services such as unified messaging could be deployed to further lower costs and increase productivity. Conservative estimates show that a new campus telephone system may reduce monthly dial-tone costs by 60% when compared to the City's existing system.

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### DEPLOY AN ENTERPRISE CONTENT MANAGEMENT SYSTEM TO IMPROVE THE CREATION, MANAGEMENT, STORAGE AND RETRIEVAL OF CITY RECORDS >>

Like many municipal governments throughout the country, Columbus keeps a physical (paper) copy of all City records and other important documentation. Paper records are an inefficient and potentially precarious means for managing the City's information store. These records can be difficult to keep organized, time consuming to locate, are subject to damage or loss through natural disaster or theft and are wasteful as many of these records may never again be referenced once filed. An electronic records repository can remediate these inadequacies by offering improvements in the following areas:

- *Access* – Increases the availability of information,
- *Efficiency* – Decreases time spent locating information,
- *Security* – Enables off-site electronic storage of information for disaster recovery, and
- *Sustainability* – Reduces waste by minimizing the need for paper and space for a supporting file system.

It is recommended that the City pursue an enterprise content management system. As the Clerk-Treasurer's Office is responsible for the archival and retrieval of City records, it is recommended that implementation begin with this department.

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### CREATE A LOCAL GOVERNMENT INTRANET PORTAL TO PROMOTE THE SECURE SHARING OF CITY INFORMATION AND OPERATIONAL SYSTEMS INTERNALLY >>

While local government employees share a lot of information with one another via email and internal file servers, there is not an internal "one stop shop" focused on helping employees find information more easily and perform their jobs better. When implemented correctly, a local government Intranet portal could fulfill this business case. An Intranet portal is a web site and database (or a series thereof), hosted on an internal web server, that serves as a gateway that unifies access to an organization's information, applications/tools and services.

While the focus of an Intranet portal is productivity, the scope of an Intranet portal is ultimately defined by the needs of the organization. Components of an Intranet portal might include (but are not limited to):

- *Departments* – Department web pages, blogs, wikis, City telephone directory;
- *Employees* – Employee personnel guide and policies, employee insurance information, employee retirement/benefits tracking, time sheet submission/time clock, mileage submission, vacation requests;
- *News/Events* – News/announcements, events schedules and calendar, conference room reservations, account transfers, invoice submission; and
- *Support* – IS help desk request, maintenance request, recruiting/job listings and applications, software libraries, document libraries and training just to name a few.

In an effort to increase the productivity of its employees, it is recommended that the City create an Intranet portal for the secure sharing of City information and operational systems internally.

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### DEPLOY A COMMUNITY-WIDE PUBLIC SAFETY NETWORK TO IMPROVE THE AVAILABILITY OF PUBLIC INFORMATION TO FIRST RESPONDERS >>

Improving information communication among first responders is a high priority to the community. The police and fire departments continue to invest in IT to improve such communication incrementally, but have fallen short monetarily and technologically of implementing community-wide broadband wireless solution that meets both their short- and long-term needs. Such a solution could enable a host of features that would not only improve the accessibility of public safety information, but also enable first responder units to be more responsive and ultimately more effective. Examples of the impact a broadband wireless network could have on the community might include (but are not limited to):

- Real-time voice and video between mobile responder units, dispatch and headquarters;
- Real-time access to local, state and federal public safety information; and
- Real-time monitoring of responder units and assets.

It is recommended that the City create a community-wide public safety broadband wireless network to ensure first responders have access to all available information and tools to efficiently and effectively service the community. Such a network could also potentially serve the data mobility needs of other City departments such as City Services, City Utilities and Engineering.

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### UPGRADE CITY-FUNDED STREET LIGHTING AND SIGNALING SYSTEMS TO MORE ENERGY EFFICIENT AND INTELLIGENT SYSTEMS FOCUSED ON IMPROVING PUBLIC SAFETY AND MOBILITY >>

The City has an opportunity to reduce its carbon footprint while also improving the efficiency and effectiveness of its streetlight and signaling systems.

The potential return on investment for new energy efficient streetlights alone could establish a business case for phasing out the old system. Some conservative estimates put the lifespan of LED streetlights, for example, at three (3) to five (5) times longer while reducing energy costs by upwards of 50% compared to their sodium and mercury counterparts.

In addition to becoming more energy efficient, new street light and signaling systems have

become more intelligent. With the proper telecom infrastructure in place, these systems can be centrally managed and configured in real-time to adapt to the specific needs of the community. Examples include the ability to adjust signaling for a street closing and flashing a specific street light to direct first responders in an incident.

It is recommended that the City replace inefficient street lighting and signaling systems with more energy efficient and intelligent units in an effort to reduce cost and increase public safety.

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### CREATE IT POLICIES THAT PROTECT CITY SYSTEMS AND INFORMATION FROM MISUSE WHILE PROMOTING FLEXIBILITY, AVAILABILITY AND COMPLIANCE >>

IT at the City has been and continues to be implemented aggressively to keep pace with the ever growing expectations of the community. Unfortunately, not unlike many similar sized organizations, along the way the need to create policies to safeguard those systems has gone unfulfilled. Safeguarding City systems and information is essential to its ability to efficiently and effectively serve the community.

It is recommended that the City perform an audit of existing IT policies against the compliance standards for which it is held (e.g. Health Information Portability & Accountability Act, Americans with Disabilities Act, and Payment Card Industry) to ensure, at a minimum, compliance. Furthermore, the City should research IT policy best practices for government entities to understand if additional gaps in policy exist and remediate as necessary.

Essential IT policies might include (but are not limited to): Mobile Device, Computer Usage, Social Networking & Blogging, Data Retention/Compliance, Password, Contingency Planning, Backup & Storage, Disaster Recovery, and Remote Access Policies.

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### CREATE BUSINESS CONTINUITY AND DISASTER RECOVERY PLANS TO ENSURE THAT CITY IT SYSTEMS AND INFORMATION REMAIN PROTECTED AND AVAILABLE IN THE EVENT OF A DISASTER >>

Disasters such as the 2008 flood that struck Columbus have underscored the importance of solid and regularly tested business continuity and disaster recovery plans. The cost of creating and testing these plans pales in comparison to the potential impact a substantial loss of critical IT systems and information could have on a business in the wake of a disaster.

A business continuity plan (BCP) works out how an organization will stay in business in the event of a disaster (natural or manmade); while a disaster recovery plan (DCP) is a prioritized implementation model for systematically recovering an organization's critical IT systems after a disaster.

It is recommended that the City create a BCP and DCP to sufficiently prepare for, and potentially avoid incurring substantial losses to critical City IT systems and information as a result of, a disaster that could otherwise shutter City operations indefinitely.

## 2B. IMPROVE INFORMATION COMMUNICATIONS BETWEEN LOCAL GOVERNMENT, COLUMBUS COMMUNITY

The City of Columbus, like similar sized municipalities throughout the country, relies

primarily on the telephone and face-to-face interactions to communicate with the community. While the City has a web site that it does use to communicate some information to the community, broadly speaking, it has not yet fully embraced IT as a means for optimized communication. When correctly leveraged, IT should enable efficient delivery of information to the community and should also assist the community in having a stake in its government.

This section details initiatives to enhance communications between City Government and the Columbus community to a level commensurate with world class.

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### CREATE A LOCAL GOVERNMENT INTERNET PORTAL FOCUSED ON TWO-WAY CIVIC COMMUNICATION – DIGITAL CIVIC CENTER >>

Just as architectural features are the physical face and "front door" of Columbus, the City's web site is the digital equivalent of the same. The current site is underutilized, out of date, costly to update and maintain, and ineffective in its function. In other words, in its current state, the web site is not commensurate with Columbus's other world class attributes and not representative of a community that aspires to be a world class connected community.

Attributes of a world class City web should include, at a minimum, the following elements:

- An aesthetically pleasing layout providing a uniform experience in any web browser on any device;
- A logical design with intuitive site navigation;
- Authored in an open and flexible language that facilitates customization, maintenance and expansion;
- Aggregated pertinent content and announcements from all City departments;
- Presentation of content and applications that are accurate, up to date and aimed at informing and engaging the community;
- Opportunities for two-way communication between local government and the community including electronic commerce;
- Integration with other Columbus government, community and social networking web sites; and
- Follows ADA (Americans with Disabilities Act) design guidelines for web accessibility.

It is recommended that the City redesign its web site into the Columbus *Digital Civic Center* – a gateway portal to local government representative of Columbus's desire to be a world class connected community and focused on streamlined civic communication.

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### CREATE AN ONLINE PUBLIC DATA CATALOG TO STIMULATE THE CREATION OF COMMUNITY-CENTRIC APPLICATIONS FOCUSED IMPROVING QUALITY OF LIFE >>

In an effort to improve the transparency, efficiency, responsiveness, and accountability of local government, cities are publishing online catalogs of public data generated by their departments/agencies. The idea behind publishing this information is to encourage the community to perform its own research and analysis as well as create web and mobile applications ("apps") to better understand the services provided by the city. Examples of such applications might include: Columbus tour(s) for mobile devices, map of building permits issued in the community, and map of community-wide crime rates.

To encourage innovation through use of public data sets, cities are creating contests to reward

developers who can create the best "apps" that utilize and convey this information effectively. In some cases, the winning developers receive monetary prizes while the community benefits from an array of valuable community-centric applications.

It is recommended that the City create an online local government-generated public data catalog and encourage the creation of community-centric "apps" focused on improving quality of life and the means through which local government services the community.

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### IMPLEMENT AN ONLINE CIVIC REPORTING TOOL TO IMPROVE THE EFFICIENCY AND EFFECTIVENESS OF CIVIC OVERSIGHT >>

Columbus is a community that takes pride in its appearance and goes to great lengths to continuously preserve and improve its aesthetic value. Key participants in this effort are the citizens themselves. Whether it is a pothole, graffiti, trash, leaves, an unkempt lawn or snow removal, the community is diligent in reporting these issues to City Hall for remediation.

To improve the efficiency and effectiveness of this valuable civic oversight, it is recommended that the City create an online civic engagement tool to streamline the reporting of these issues. This application should be accessible in any Internet web browser, enable the user to submit a text and picture of an issue from a computer or mobile device and route the issue to the appropriate City department for remediation. The user should then receive a minimum of two (2) confirmation emails; one acknowledging that issue was received by the system and a second when issue has been successfully remediated. Additionally, this application should support GPS (global positioning system) tagging of reported issues (e.g. from a GPS enabled mobile device) to expedite directing solutions efficiently and effectively.

## 2C. IMPROVE INFORMATION COMMUNICATIONS WITHIN COLUMBUS COMMUNITY, REGION

Columbus is determined to create every advantage possible for its businesses, residents and visitors and has identified IT as a means for creating such advantages. With the ultimate goal of becoming a world class connected community, this section details initiatives to enhance communications within (and ultimately beyond) the Columbus community to a level commensurate with world class.

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### RECOMMEND LOCAL LEGISLATION TO CREATE A COST EFFECTIVE MEANS FOR SUSTAINABLE EXPANSION OF THE GCCS >>

Whether trenched or directional-bored, conduit placement is the most costly component of GCCS expansion. One means of reducing the cost of conduit placement is through a shared trench. A shared trench is a term used to describe the act of two or more parties sharing the cost of digging a trench and placing infrastructure in the same. A situation where a shared trench is most often used is during road construction or improvement.

To create a sustainable means for continued expansion of the GCCS, it is recommended that the City create a conduit deployment ordinance. This ordinance would, at a minimum, require construction planners and contractors to:

- Notify the TAC of any upcoming road construction or improvement projects, and
- Provide the TAC an opportunity to expand the GCCS via a shared trench should such expansion align with existing GCCS goals.

It should be noted that the conduit deployment ordinance should clarify the City's expectations and standards for GCCS materials and installation.

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### CONTINUE TO STIMULATE THE AVAILABILITY OF FIBER OPTIC SERVICES THROUGHOUT THE COMMUNITY FOR BUSINESS AND RESIDENTIAL CONSUMERS >>

Through the creation of the GCCS, the City has enjoyed great success in encouraging telecom service providers to offer fiber-to-the-curb service throughout Columbus. The City has a strong relationship with Smithville Digital which was awarded access to segments of the system as a result of RFPs issued 2006-2009. Smithville Digital's focus in Columbus has been primarily delivering fiber-to-the-curb (FTTC) service to businesses using the GCCS. Smithville Digital announced publicly in 2009 their plans to move forward with deploying fiber-to-the-home service throughout their territory and have stated that there is interest in bringing such service to Columbus.

As fiber optic services continues to be a key component of a world class telecom infrastructure, it is recommended that the City continue with the phased expansion of the GCCS in an effort to realize its stated goal of getting fiber optic services to within 1,000 feet of Columbus area businesses and extend this goal to include residential neighborhoods and homes as well.

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### MARKET COLUMBUS'S WORLD CLASS IT CAPABILITIES TO AUGMENT ECONOMIC DEVELOPMENT ATTRACTION AND RETENTION EFFORTS >>

While Columbus has taken great strides toward becoming a world class connected community, it has not yet began to fully leverage, from a marketing perspective, its telecom infrastructure and other IT capabilities to strengthen the Columbus brand. There is room for improvement in the marketing of these capabilities to not only the Columbus community, but outwardly to the rest of the world. As telecom capabilities are vital to business, visitors and residents, existing and potential alike, promoting the technological advantages Columbus has to offer will be a key advantage for continued growth in the community.

It is recommended that the City add the community's telecom infrastructure vision and capabilities to its brand marketing materials to augment economic development attraction and retention efforts.

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### INCREASE BROADBAND ADOPTION IN THE COMMUNITY THROUGH EDUCATION ON THE QUALITY OF LIFE BENEFITS OF BROADBAND >>

While it is clear that enhancing telecom infrastructure in Columbus is a key step in creating a world class connected community, it is not the only step. Equally important is educating those in the community that have yet to fully realize the potential broadband holds for improving their quality of life. Having world class telecom infrastructure in Columbus is most effective if utilized by the community at large.

It is recommended that Columbus create a plan to increase broadband adoption in Columbus to address this knowledge gap. This plan should be two-fold in its approach, focusing first on educating the community on the value of broadband and secondly expanding public access to broadband service with additional alternatives for access to public computing centers. As overcoming the challenges of broadband adoption can often times be as trying as creating the necessary telecom infrastructure itself, Columbus should strive to innovate in this area and lead by example.

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### INCREASE PUBLIC BROADBAND ACCESS OPPORTUNITIES THROUGHOUT THE COMMUNITY – UNPLUG COLUMBUS >>

As stated earlier, public Wi-Fi Internet access is an expectation of Columbus's technology savvy citizenry and visitors. For a number of years, various businesses have embraced this need and used free public Wi-Fi Internet access as means for customer attraction and retention. Unfortunately, while public Wi-Fi Internet access options are available in Columbus, they are far from ubiquitous.

In an effort to increase broadband access opportunities in Columbus, it is recommended that the City encourage local businesses, through a campaign called *Unplug Columbus,* to offer free public Wi-Fi Internet access in their public gathering areas. As many Columbus area businesses already have broadband Internet access and for the minimal cost of purchasing and setting up a Wi-Fi access point, the business community could work toward making Wi-Fi ubiquitous in Columbus by creating public Wi-Fi Internet hotspots. To help streamline participation in *Unplug Columbus*, the City could work with local telecom providers to define requirements for an *Unplug Columbus* Wi-Fi hotspot retail package that would bundle broadband access, a Wi-Fi access point, installation and signage.

The City should lead the Unplug Columbus effort by deploying free Wi-Fi Internet hotspots at key public locations throughout the community such as City buildings, parks and other public gathering places.

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### Leverage technology resources in the community to create a plan for pervasive broadband access throughout Bartholomew County >>

Today, like many counties throughout Indiana and the United States, there is not pervasive broadband Internet access available in Bartholomew County. Instead, there are very large gaps in coverage in some areas and in other areas where there is broadband coverage, the quality and/or speed of access is inadequate. As reliable high speed broadband access is integral to success of the County's education system, industry and community as a whole, and in an effort to create broadband options for unserved and underserved in Bartholomew County, action must be taken and a plan must be developed to remediate these deficiencies.

Building on the success the Technology Advisory Committee (TAC) has realized by bringing FTTC services to Columbus with the creation of the GCCS, a Bartholomew County pervasive broadband plan could borrow a page from the GCCS plan to do the same with broadband wireless Internet service throughout Bartholomew County. The essence of the GCCS plan is to lower the barriers of entry to the Columbus telecom market and encourage

telecom service providers to offer FTTC services in Columbus. This was accomplished by the City building a private city-wide underground telecom duct system that was in turn leased to and maintained by a telecom service provider selected to offer FTTC services to Columbus businesses.

Similar to the GCCS plan, a Bartholomew County pervasive broadband plan could include leasing a qualified telecom service provider access to community owned wireless towers to offer the unserved and underserved schools, businesses and communities of Bartholomew County broadband wireless Internet access.

In an effort to better serve the broadband unserved and underserved in Bartholomew County, the City and County should leverage their respective resources on the TAC and Data Board to create a detailed plan to address these deficiencies as well as identify and pursue funds to assist in the implementation of the necessary infrastructure.

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### CONTINUE SUPPORTING REGIONAL EDUCATION AND TECHNOLOGY EFFORTS TO CREATE A BETTER EDUCATED, SKILLED AND HIGHER PAID WORKFORCE >>

*Economic Opportunities by 2015* (EcO15) is a ten (10) county initiative (including Bartholomew County) in Southeastern Indiana created to enhance workforce skills for today's manufacturing, healthcare and hospitality and tourism professions. The program is focused on encouraging the requisite training to yield highly skilled workers for the new manufacturing environment in this region. The City has invested both monetarily and intellectually in the development of the Columbus Learning Center and, most recently, the Advanced Manufacturing Center for Excellence, two key components for realizing EcO15's vision in Bartholomew County.

It is recommended that the City continue supporting, through available monetary and intellectual resources, EcO15 and other regional education and technology efforts focused on the creation of a better educated, skilled and higher paid workforce through distance learning opportunities.

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### CONTINUE PURSUIT OF OPPORTUNITIES FOR INTER-COMMUNITY CONNECTIVITY AND COLLABORATION – DIGITAL SISTER CITIES >>

It is recommended that the City establish partnerships with other like-minded technology informed cities in central Indiana to create a *Digital Sister Cities* initiative. The goal of such an initiative would be to promote IT and information transfer opportunities aimed at improving quality of life in both the participating communities and the surrounding region.

Examples of *Digital Sister Cities* opportunities might include: shared BCPs and DCPs with reciprocal roles for each community, mutually beneficial telecom infrastructure builds such as conduit routes as well as IT roundtables and technical knowledge sharing.

## SECTION 3. IMPLEMENTATION OF THE PLAN

The implementation of this IT strategic plan will be a collaborative effort between City Council, Mayor, IS department and the TAC. To ensure the successful implementation of *Connect Columbus*, ownership of and accountability for each initiative in the plan must be assigned to a single point of contact.

The ownership of and responsibility for the successful implementation and management of the initiatives found herein should be assigned to an individual with experience grounded in both business and technology. Based on this individual's roles and responsibilities with respect to *Connect Columbus* as well as the background experience required of such a position, a Chief Information Officer type role would best serve the City's interests as single point of contact for and owner of the plan.

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### CREATE A CENTRALIZED IT LEADERSHIP ROLE DUALLY RESPONSIBLE FOR DEFINING AND DIRECTING IT FOR BOTH THE CITY AND THE COMMUNITY – CHIEF INFORMATION OFFICER >>

The City's internal IT operations have been largely managed in departmental silos with each department planning and implementing IT according to its own needs. Similarly, the scope of the TAC's IT planning and implementation has been limited to the community.

What have been missing, from a macro level perspective, are centralized IT leadership as well as functional and strategic oversight over both flavors of IT in Columbus, internal/departmental and external/community IT. Such a leadership gap could potentially hinder the implementation of *Connect Columbus* as this plan is dually focused on both improvements in both IT domains.

To ensure that IT throughout Columbus, within the City and into the community, is effective and aligned with Columbus's vision for a world class connected community, it is recommended that the City create a CIO role responsible for leading and directing IT for Columbus from both strategic and tactical perspectives.

A Chief Information Officer (CIO) would be charged with the following responsibilities:

- Leadership of a comprehensive vision for IT in Columbus that aligns with the City's business and economic development objectives,
- Lead and manage the implementation of a comprehensive plan to meet the City's business and economic development objectives, and
- Form and manage an organizational structure for IT operations focused on both the City and the Community.

# APPENDIX A. TECHNOLOGY ADVISORY COMMITTEE ROSTER, 2010

**Table 3. TAC Roster**

| Member | Appointment | Term Expiration | Title | Organization |
|---|---|---|---|---|
| **Kent Anderson** | Mayor Armstrong | 12/31/2011 | MPO | City of Columbus |
| **Oakel Hardy** | Mayor Armstrong | 12/31/2013 | Manager of IT | City of Columbus |
| **Chris Price** | Mayor Armstrong | 12/31/2012 | Director of Web Technologies & Business Intelligence | Cummins Inc. |
| **Audrey Tyree** | Mayor Armstrong | 12/31/2010 | Manager of Information Security and Business Continuity | Columbus Regional Hospital |
| **Mike Jamerson** | City Council | 12/31/2013 | Director of Technology | Bartholomew Consolidated School Corporation |
| **Mark McHolland** | City Council | 12/31/2011 | - | - |
| **Georgia Miller** | City Council | 12/31/2012 | Head, Division of Business, IUPUC | Indiana University-Purdue University Columbus |
| | | | | |
| *Additional Non-Voting Personnel:* | | | | |
| **Jim Hartsook** | - | - | Director of IT | Bartholomew County |
| **Brent Engle** | - | - | Community IT Executive | City of Columbus |
| **Stanley Gamso** | - | - | Legal Counsel | Lawson, Pushor, Mote & Gamso, LLC |