FINAL REPORT

TOPEKA CITY & SHAWNEE COUNTY

LOCAL COMMUNITY TECHNOLOGY PLANNING PILOT PROJECT

AUGUST 20, 2014

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Executive Summary

Strong, vital and sustainable communities are places where:

- People desire to live,
- Entrepreneurs prefer to start a new business,
- Young people want to return, and
- Businesses are profitable.

Broadband communications is important to all of these objectives. Specifically the ability to access and effectively utilize broadband communications is essential to connect all members of the community to the information they need, when they need it, and at any location they happen to be at.

Topeka and Shawnee County have begun a stakeholder process to position the region to maximize opportunities offered through 21st Century information technology. Specifically this "Community Technology Plan" provides a series of intentional actions to "advance the region's economic and community development as well as quality of life through improving countywide access and utilization of sufficient, reliable and affordable broadband infrastructure". It is recognized this goal will best be achieved through inclusive partnerships with broadband service providers and existing organizations such as GO Topeka, ICC, Heartland Visioning, Libraries, Chamber of Commerce, School Districts, Higher Education, City Government, County Government and others.

The action plan is straightforward. Begin with collecting data on current broadband needs, assessing feasible broadband investment options and understanding the potential impact of broadband for the local economy. The community will establish a sustainable leadership structure under which the necessary partners can implement actions needed to advance 21st Century digital opportunities important to the community. This leadership structure will include the establishment of up to three dedicated action teams to lead local efforts to achieve defined tactics such as 1) promoting 21st Century Work Skills and Digital Entrepreneurship; 2) Closing the Digital Divide where it exists; and 3) Enhancing Digital Literacy.

To support the implementation of their technology plan, the following insights and recommendations should be considered as leadership in Topeka and Shawnee County take their next steps towards a more connected future:

- Ownership and leadership commitment is critical.
- Continue to nurture and secure participation of essential partners.
- Be pragmatic and strategic to maximize achievement with limited resources.
- Recognize and work proactively with economic realities.
- Utilize the plan implementation tools provided where appropriate.

I. Background

The Kansas Department of Commerce's Statewide Broadband Initiative (KSBI) is a federally funded effort to assess and improve availability of broadband services throughout the State. In addition to developing an interactive broadband map and associated tools, KSBI broadband planning activities include developing several local community technology planning pilot projects. A key goal of these pilot projects is to provide focused resources, tools and local stakeholder engagement that foster a disciplined approach to planning in support of their economic development. To that end, KSBI engaged the services of CostQuest Associates and their subcontractor, VisionTech360, to establish the local pilot projects and their development of a Technology Planning document, each of which focus on various elements impacting local economic development, as well as serve as a roadmap for other Kansas communities to build upon.

Shawnee County and its largest City Topeka aspire to be recognized as a 21st Century connected community. Modern high speed broadband infrastructure connects people to information; government services to constituents; businesses to markets; entrepreneurs to opportunities; and area residents to education, health care, public safety, cultural and other assets important to participating in a quality life. Stated somewhat differently, broadband is critical infrastructure for an economically prosperous, inclusive and vital community economy.

Shawnee County and the City of Topeka were selected as one of four technology planning pilot communities by the Kansas Department of Commerce. The Topeka / Shawnee County planning effort was formally launched in early April 2014. The primary purpose of the pilot initiative is to define and support realistic innovative actions likely to improve economic development through the expanded use of broadband.

Topeka benefits from several important assets including established and diverse local leadership; a good working history between the County and the City; and a solid footing with respect to already deployed broadband infrastructure, especially within the boundaries of Topeka. However, once outside of Topeka, the broadband capabilities available are substantially less. Also even where broadband is available, it is not always affordable to Shawnee County residents and businesses.

II. Purpose and Outline of this Final Report

Following the formal launch of the Topeka / Shawnee County planning process, the local leadership worked diligently to engage the broader community. The result is a practical, realistic path that will better position Topeka and Shawnee County to be successful in leveraging modern broadband communications to attract people and the investment critical to the area's economic future. A high level overview of the resulting plan is provided in the next section of this report. The sections that follow briefly highlight the process utilized in developing the plan and key insights gained that will be important to the successful implementation.

III. High Level Overview of the Topeka / Shawnee County Plan

A. Goal Statement for Topeka and Shawnee County

Advance the region's economic and community development; as well as quality of life through improving countywide access and utilization of sufficient, reliable and affordable broadband infrastructure.

B. Summary of Specific Tactics and Initiatives Identified in Final Topeka and Shawnee County Plan

1. Assess Broadband Needs and Opportunities

Identify broadband capabilities required to meet current and future business, residential and organizational needs, as well as the business case for expanded broadband investment required to fill gaps where they may exist. Specific initiatives include:

- Deploy Bandwidth Assessment Tool.
- Document Anchor Institution Needs.
- Advanced Broadband Feasibility Study.
- Provider Consultation.

2. Launch a Sustainable Organizational Structure

Establish a sustainable organizational structure to lead the engagement and coordination of stakeholder interests to advance broadband availability, adoption and application throughout Topeka and Shawnee County. This will include the establishment of targeted action teams to manage specific tactical approaches such as that which follow in this plan. Specific initiatives include:

- Implement Leadership Team Structure Coordinated Under Heartland Visioning.
- Prepare Budget and Resource Plan.

3. Establish Action Teams To Lead Targeted Initiatives

The Broadband Committee organized under Heartland Visioning will define mission and responsibilities as well as recruit appropriate membership for up to three targeted action teams. These action teams will be on-going efforts over the next several years with the specific tasks to be defined by the members recruited. Each action team is to be led by an individual or individual(s) with a particular stake in the successful accomplishment of each initiative. Specific Action Team initiatives are:

- Establish Action Team to Promote 21st Century Workforce Skills and Digital Entrepreneurship.
- Establish Action Team to Close the Digital Divide.
- Establish Action Team to Expand Digital Literacy.

C. The Detailed Plan

Details for each specific initiative including detailed tasks and a timeline for implementation were developed for each of the above “Tactics”. The full final plan for Topeka and Shawnee County is included with this final report as Appendix A.

IV. The Bottom Line: Potential Economic Impact of Successful Implementation of the Topeka / Shawnee County Community Technology Plan

Access to advanced broadband infrastructure and the innovative use of that infrastructure are the cornerstone of the modern economy. Communities with available and affordable broadband are better positioned to:

- Attract and retain population,
- Expand and recruit new business and industry,
- Nurture business and governmental innovation, and
- Offer quality well paying jobs.

As a part of the state Community Technology Pilot Project sponsored by the Kansas Department of Commerce, the consultants were tasked with building a model to assess how widely available and well-utilized advanced broadband infrastructure would likely impact jobs, the generation of economic value, and labor income. The following is a short summary of modeled results for Shawnee County and Topeka. A full economic impact report, including methodology utilized in obtaining these results, and the major data sources utilized, is attached as Appendix B.

The deployment and use of advanced broadband can have a transformational impact on the Topeka City and broader Shawnee County economy. However, broadband communications is not a panacea and able to result in economic growth without other factors such as an economic and demographic structure that is consistent with successful economic development and growth. Based on a modeled analysis of local economic and demographic data:

- Shawnee County ranks 5th among 105 Kansas Counties in its current competitive position to benefit from deployment and use of an Advanced Broadband Network.
- Countywide total employment growth associated with the transformational potential a Gigabit capable network range from a low of 9,800 to a high of 29,000 jobs over a ten-year period.
- Estimated growth in total Shawnee County economic value ranges from a low of $1.2 Billion to a high of $3.7 Billion
- Estimated growth in total Shawnee County labor income ranges from a low of $363 Million to a high of $1.1 Billion

The transformational potential of advanced broadband deployment depends on adoption rates, particularly among residential customers, but also among business and public institution customers. Overall drivers of the transformational economic development capacity include:

- Successful retention/attraction of youth and entrepreneurial talent.
- Adoption and application of broadband by businesses of all sizes.
- Stimulation of “home-source” activity (new entrepreneurial start-ups and work at home business development).

- Continued advances in educational delivery and life-long learning that leverages the advanced broadband capability deployed throughout the community.
- Transformational application of broadband to improve health care access and community amenities more broadly.

The successful deployment and use of advanced broadband in the Topeka area is projected to increase local annual economic growth by 0.8 to 2.2 percent.

V. The Advanced Broadband Study – Analysis of the Business Case for High-Speed Broadband

High-Speed and Gigabit speed broadband connections are now being used, to certain economic advantage, by consumers and businesses in Kansas City and other select cities. Is Fiber-to-the-home a possibility in Topeka? If not, why? How do the economics play-out for a provider of fiber to every home and business in a city? The Kansas Department of Commerce commissioned CostQuest Associates to conduct an Advanced Broadband Study which serves to answer these questions and others.

At its core, the Advanced Broadband Study is a window into the business case for an advanced network deployment across the city.

While Topeka does not have the relative density of Wichita and Kansas City, and does not share the same demographics as Overland Park, it does have a core employers (e.g. the State government, Washburn University, larger manufacturing) and a vibrant retail economy. Income is relatively high and Topeka has a well-educated population. These are factors that contribute to Topeka being a viable high-speed broadband community.

The Advanced Broadband Study indicates that Topeka could support a network that serves every home and business across the City. The results from the Advanced Broadband Study can be used to tell a compelling story to broadband providers and to help support leverage what the City has to bring an advanced network to homes and businesses. The leverage that the city might have includes things such as right-of-way, city assets/equipment, permitting and franchising. The report can also help the City to manage architecture issues and other matters that may serve to expedite build-out. The Executive Summary of the Advanced Broadband Study can be found in Appendix C.

VI. The Topeka and Shawnee County Community Technology Plan Rests On the Foundation Of An Inclusive Stakeholder Engagement Process

A plan is of limited value if there is not the local ownership and broad stakeholder buy-in needed to implement what is developed. The Topeka and Shawnee County leadership team has done an excellent job reaching out and engaging stakeholders over the last four months as the plan was developed. Specifically:

A. Leadership is the Cornerstone of Stakeholder Engagement

Without strong local leadership, a community has very limited options to influence its economic future. Fortunately, Topeka and the broader Shawnee County have a wealth of leadership. As noted above, the initial impetus for launching a community technology planning process in Shawnee County came from the Intergovernmental Cooperation Council. That organization has a strong history of bringing together diverse jurisdictions including both the County and City to pursue shared priorities. However, the leadership team for the community technology planning process quickly expanded into a more inclusive workgroup engaging a broader set of stakeholders such as GO Topeka, Topeka City, Shawnee County Government, Local School Districts, Health Care, Washburn University, Heartland Visioning, Public Housing, and others.

A fundamental decision of the group in the development of its final plan is that Heartland Visioning will provide the umbrella leadership for the initial launching of a sustainable initiative. Heartland Visioning was selected by the community to provide initial ownership for the plan in part because of the complementary mission, and in part because its managing board is inclusive of most major stakeholder organizations in the community. As the "Action Teams" are launched, additional stakeholders will be brought into the leadership as needed.

B. Understanding Through Stakeholder Research

An initial planning task was to engage a diverse group of stakeholders in two different ways. The first was through organized focus groups. Concurrently with the community launch, small groups including representatives from the provider industry, higher education, health care, business, local government, public housing and young entrepreneurs were organized into 90-minute focus group sessions. The focus groups provided an early understanding of the major issues and aspirations for broadband specific to each interest group area. In addition to focus groups, individual interviews were conducted to further refine our understanding. These perspectives along with a meeting with work team members informed the first draft of the Topeka and Shawnee County broadband development plan. The inclusive consideration of diverse Topeka area stakeholders in the planning process helps to provide a strong foundation for future implementation.

C. Stakeholder Engagement Facilitated Through Customized Planning Web-Space

A customized web-space (dashboard) has been created specifically to support the Topeka and Shawnee County plan development and future implementation. This dashboard tool includes maps built from data collected through the Kansas Broadband Development Initiative and organized to help local leaders understand their current broadband landscape (Appendix D).

Also, drafts of the Topeka and Shawnee County plan were posted to the Topeka and Shawnee County plan review web-space. Utilizing this web space the leadership team was able to access and review each version of the plan as it was updated. Both a full plan and an executive summary of each new version of the plan were posted for review.

This process provided functional efficiencies and expanded outreach for stakeholder engagement and plan review.

D. Proactive Effort to Reach Out to And Seek Input from Local Providers

Success of the Topeka and Shawnee County Community Technology Plan can be greatly facilitated through the productive engagement of area providers. In early July 2014, a meeting was held with local providers to review the draft plan and invite their engagement with other stakeholders in the community as the plan moves towards implementation. The meeting was well attended and provided a stepping stone to move forward with future communication and where appropriate collaboration in achieving desired objectives.

E. Multi-Media Technologies Created to Promote Awareness and Engagement

The consulting team created a customized three-minute video as one more media to highlight the major elements of the Topeka and Shawnee County Plan. Community leadership supported development with a review of the draft script and providing suggestions of locally focused images to be utilized in the final product. Local leadership reviewed the product in development and provided additional edits. The final product is posted on the community Dashboard web page. The video can be linked to partner web sites and a link advertised in local media as one additional outreach strategy. The video illustrates an important point that even though the plan is in place, stakeholder engagement should continue building buy-in for future implementation.

VII. Training Delivered To Topeka and Shawnee County on Tools to Support Planning For Local Economic Development

A. Customized Plan Implementation Dashboard

A customized dashboard tool is available for use by Topeka and Shawnee County leadership to monitor progress and provide accountability for those assigned to tasks to make sure implementation stays on track. It also includes features such as a shared contact directory, file management system, and event calendar to help manage the collaborative work of stakeholders in implementing the plan. A more detailed description of these dashboard features is described in Appendix E.

Training in the use and updating of the Dashboard was conducted with a designated person from the community's leadership team. Two types of site credentials were provided to the community:

1. Group Member – This is a shared account and meant to be used by multiple users such as the leadership team members and other key stakeholders.
2. Group Editor – This is an individual account and designed to be used by a single user who will perform editing functions for the community's content. Additional Group Editor accounts can be added.

The training was conducted as a one-to-one web meeting focusing on how to access, edit and create new content for the following Dashboard features:

- Calendar – Events relevant to the Technology Plan
- Files – Digital documents supporting or produced by the design and implementation of the Technology Plan
- Contacts – Directory of people relevant to the Technology Plan
- Tasks** – Three interactive views of the task hierarchy
- Plan** – Narrative of Technology Plan infused with supporting data tables.

** - Note: the Plan content is integrated with the Task content; however both can be viewed, created and edited separately.

A series of mini-screencasts were created demonstrating how each feature is used, which are posted in the help section of the Dashboard. This is content that only Group Editors can access.

The Topeka / Shawnee County Dashboard is located at
http://kansasdashboard.org/shawnee

B. Bandwidth Assessment Tool

The Broadband Marketplace that consists of the Bandwidth Assessment Tool (BAT) and Provider Portal is uniquely designed to assist the community stakeholders in identifying broadband needs as well as business opportunities for providers in the area. A more

detailed description of the Bandwidth Assessment Tool features are described in Appendix F.

By targeting the use of the BAT in identified demographics or areas in the county that the leadership team identifies as having potential unmet demand, the team can use the resulting assessment data to highlight broadband demand for planning purposes and to engage service providers.

The Bandwidth Assessment Tool was introduced to the leadership team via a webinar that outlined the purpose of the tool and provided a walkthrough of the survey and assessment process. The webinar and slide deck were made available on the Dashboard under the Topeka and Shawnee County *Resources and Tools section for future reference*. A follow-up call was held with the leadership team to discuss the type of support materials that would be helpful in their outreach effort. An informational and marketing outreach kit was customized for the Kansas Technology Planning Pilot Community Program to assist in the introducing and promotion of the tool. In addition the following support materials were created, and made available for download on the tool site, based on feedback from the leadership team.

- Help tips for Business and Residential Survey.
- Bandwidth Assessment Tool Glossary of Terms (which includes terms commonly used in the Broadband Industry)

VIII. Insights and Recommendations to Support Future Implementation

A. Ownership and Leadership Commitment Is Critical

The community has worked hard to create a realistic and effective economic development plan including a role for broadband. The Topeka and Shawnee County leadership team is in particular to be commended for its intentional priority in identifying a specific organization Heartland Visioning to accept the ownership responsibility for keeping the plan implementation moving forward. Validating and sustaining this ownership with the continued active participation of the broad group of stakeholders that created the plan will be absolutely critical to the success of the plan. If the plan is left to the responsibility of a single organization it cannot succeed.

B. Continue to Nurture and Secure Participation of Essential Partners

Closely related to the first point, intentional effort is needed to maintain and expand the partnerships that developed the Topeka and Shawnee County Plan. There were in the past and continue to be a number of organizations within the community that are actively engaged in both visioning and pursuing strategic actions to leverage high speed broadband connectivity to achieve their mission. Among the most important gains the community has achieved in the planning process is developing an umbrella organizational approach that helps to coordinate and unify these efforts. When key sectors such as local government, health care, K-12 education, higher education, business, civic organizations, public safety and others work together with local providers to find solutions to common challenges, much more is possible than any one organization working alone. With this in mind, it is important that the leadership team continue to give high priority to stakeholder outreach and engagement.

C. Be Pragmatic and Strategic to Maximize Achievement With Limited Resources

Topeka and Shawnee County have created an ambitious plan. In particular three major initiatives to be led by individual action teams. The plan calls for all three-action teams to be formed and that each develop a work plan by the end of 2014. However, in setting those timelines, practical priorities will need to be established so as not to overtax available resources. It is best to start with actions where there is a high chance of success and build on those successes.

D. Recognize and Work Proactively With Economic Realities

The economic impact study emphasizes the degree of potential economic growth that can be achieved depends on success in promoting transformation uses of broadband and higher rates of adoption across multiple customer groups. The cost model documents that as the rate of adoption and innovative use increases that increases the profitability of deploying more advanced infrastructure in the community. It is important for Topeka and Shawnee

County leadership to keep in mind these economic realities and proactively pursue actions that will improve those economics where possible.

E. Utilize the Plan Implementation Tools Provided Where Appropriate

As noted above this project has developed several unique tools to support the implementation of the Shawnee and Topeka community technology plan. The dashboard is available to support accountability for the local action teams as they define specific initiatives, tasks and timelines. The Bandwidth Assessment Tool is an on-going resource available to help educate businesses and residents on the bandwidth they require and match them with providers who can fulfill unmet needs. The movie describing key elements of the plan can be shared through partner web sites and advertised in local media as a tool to continue to engage the public and sustain partnerships.

Appendices

Appendix A: Final Topeka / Shawnee County Community Technology Plan

Goals and Tactics

Goals

Advance the region's economic and community development as well as quality of life through improving countywide access and utilization of sufficient, reliable and affordable broadband infrastructure.

Tactics

Assess Broadband Needs and Opportunities

> Identify broadband capabilities required to meet current and future business, residential and organizational needs, as well as the business case for expanded broadband investment required to fulfill gaps where they may exist.
>
> Start Date: 2 June 2014
> End Date: 31 October 2014

Launch a Sustainable Organizational Structure

> Establish a sustainable organizational structure to lead the engagement and coordination of stakeholder interests to advance broadband availability, adoption and application throughout Topeka and Shawnee County. This will include the establishment of targeted action teams to manage specific tactical approaches such as those, which follow in this plan.
>
> Start Date: 19 May 2014
> End Date: 31 October 2014

Establish Action Teams To Lead Targeted Initiatives

> The Broadband Committee organized under Heartland Visioning will define mission and responsibilities as well as recruit appropriate membership for up to three targeted action teams. These action teams will be on-going efforts over the next several years with the specific tasks to be defined by the members recruited. An individual or individual(s) will lead each action team with a particular stake in the successful accomplishment of each initiative.
>
> Start Date: 1 September 2014
> End Date: 31 December 2014

Action Plan

The Shawnee County and Topeka community technology "action plan" is sequenced with "near-term" Tactics to be accomplished by no later than October 2014 and Tactics that are envisioned as ongoing over the next two or three years.

Near-Term Tactics (to be completed by October 2014)

- Assess Broadband Needs and Opportunities
- Launch a Sustainable Organizational Structure

The two "near-term" tactics are actions intended to lay the groundwork for Shawnee County and Topeka to work efficiently and effectively to achieve broadband development goals. By October 2014, the community will have assembled evidence-based information to more clearly define aspects of broadband availability, access, speed, adoption and application needed to support the area's aspirations for economic and community development and quality of life. In addition a sustainable organizational structure will be in place to implement on-going broadband related tactics and initiatives that are priorities for the community. This organizational structure will have the buy-in and participation from major stakeholders in the community and serve to both coordinate and lead the community's on-going efforts to advance broadband for local economic and community development and the improve the region's of quality of life.

On-going Tactics

The "near-term" efforts lay the groundwork to appropriately target and implement strategic actions that will advance broadband related goals. The local organizational structure to be launched within the next several months will include a multiple action teams, each assigned to lead the implementation of on-going tactics such as:

- Promote a 21st Century Business Economy.
- Close the Digital Divide.
- Expand Digital Literacy.

Other or different "action teams" may be formed as needed by the community.

Shawnee County and Topeka stakeholders desire the community to possess a business and community culture recognized as entrepreneurial, innovative and vital, with digital technologies a prominent component. The vision in particular includes a community that attracts and retains young talented creative entrepreneurs. Consequently the quality of life and a community rich in creativity and the arts is a center focus for the 21st Century economy.

The digital vision for Shawnee County and Topeka also includes a commitment to be inclusive of the entire community. This includes a focus on making sure businesses and residents have affordable access to appropriate digital technologies and the knowledge of how to effectively utilize that information. This means all individuals throughout the county not only have access to the digital devices that are meaningful to their needs and the bandwidth required; but also knowledge of how to access and effectively utilize available

information. Area schools continue to move forward with innovative applications of broadband connecting students to schools and other educational resources at home. The County's and City's vision for broadband include support of initiatives such as these to make sure all young people have the knowledge, devices and bandwidth required to participate. There is recognition that digital literacy initiatives must be targeted to the needs of different demographic groups. For example, approaches that are appropriate to reach young people are different than for seniors.

The list below summarizes several specific initiatives that can be implemented to achieve each of the five identified tactics. In a subsequent section below each initiative is then expanded in terms of a set of realistic tasks (along with timing, accountabilities, and possible resources required).

Assess Broadband Needs and Opportunities

Deploy Broadband Assessment Tool

This initiative to launch, promote and support the use of the Broadband Assessment Tool (BAT) in Shawnee County will inform local leadership about broadband needs in the community and effectively engage and support current and potential service providers. More importantly the tool will help match customers with a need for additional broadband service with providers who can meet that need. A short-term goal of obtaining between 150 and 200 completed business and organizational questionnaires by September 30, 2014.

- Promotes awareness...with focus on business sector.
- Builds fact case on local business broadband needs.
- Informs local downstream initiatives.
- Engages provider community.

Start Date: 07/27/14
End Date: 10/31/14

Document Anchor Institution Needs

This initiative will collect information from area education, health care and governmental entities to assess broadband needs emphasizing connections to the broader community and future plans. This includes a review of existing studies and IT plans for school districts, higher education, hospitals, libraries, and local government where available. This will be accomplished through inclusion of representatives from major anchor institutions on the newly formed broadband advisory team and tracking technology planning within each sector.

- Promotes awareness...with focus on education, health care and governmental organizations.
- Builds fact case on local business broadband needs.
- Informs local downstream initiatives.
- Engages provider community.

Start Date: 06/02/14
End Date: 10/31/14

Advanced Broadband Feasibility Study

The consulting team will provide the City of Topeka an independent analysis of the estimated cost of advanced broadband infrastructure deployment, factors that impact that cost by neighborhood, and the potential business case for expanded investment in the area. An additional analysis will model the potential economic impacts of broadband technology deployment in Topeka and Shawnee County.

- Informs local leadership on costs and potential.
- Identifies parts of Topeka where deployment of additional advanced broadband is most feasible.
- Prepares leadership for constructive dialogue with providers.

Start Date: 06/16/14
End Date: 08/31/14

Provider Consultation

This initiative will constructively engage service providers in the work at hand and begin (or advance) what should prove to be a fruitful interaction for all involved. Provider consultation should be considered an on-going initiative and will be incorporated within the newly established organizational structure.

- Promotes/facilitates provider engagement.
- Demonstrates local awareness of issues important to providers.
- Provides opportunity to understand provider perspective.
- Sets stage for constructive dialogue downstream.

Start Date: 06/16/14
End Date: 10/31/14

Launch a Sustainable Organizational Structure

Implement Leadership Team Structure

Heartland Visioning will adopt the broadband planning initiative as an interest group. This broadband group will coordinate and lead the implementation of the Topeka and Shawnee County Community Technology Plan. Heartland Visioning will provide support to the leadership of this group by providing space on its website to share information on the work of the group with the community and helping the group broaden participation through promotion and suggesting stakeholders and partner so that it is as inclusive as possible. The Broadband Interest Group to be organized under Heartland Visioning will include diverse representation that is consistent with the demographic make-up of the community. The Broadband Interest Group will be responsible for the start-up of targeted local initiatives including the establishment of appropriate "action teams". An early task will be to identify resource needs and how those resources will be obtained.

- Provides a forum for appropriate stakeholder collaboration.
- Creates leadership needed to move relevant initiatives forward.
- Establishes necessary accountability.
- Establishes a structure to secure and manage needed resources.

Start Date: 05/25/14
End Date: 10/31/14

Prepare Budget and Resource Plan

This initiative will develop an annual budget (if needed) and other resources that may be required for the sustainable operation of the leadership function described above. Potential sources of identified resources and the timing of when those resources are needed will be identified.

- Articulates a reasonable plan for resource needs.
- Identifies staffing needs and potential sources.
- Provides a basis for raising in-kind or financial contributions if needed.
- Supports sustainable operation.

Start Date: 07/14/14
End Date: 10/31/14

Establish Action Teams To Lead Targeted Initiatives

Establish Action Team to Promote 21st Century Workforce Skills and Digital Entrepreneurship

This on-going initiative would ensure existing workforce development programs, area school district curriculum and higher education all include an alignment with the 21st Century Workforce Skills needed by area businesses. This initiative would provide new career choices for area students, thus increasing student enrollment, retaining young people and growing the local population base. Business and economic development in Shawnee County and Topeka will have access to the workforce necessary to be successful in the digital innovation economy. This initiative will also advance digital entrepreneurship within the region that builds on successful entrepreneurial training efforts and targeted efforts such as the Maker /Co-Worker Space Project.

- Improves local business profitability.
- Retains, expands and attracts business and jobs.
- Improves income potential for area families.
- Engages families and businesses.
- Creates an environment of entrepreneurship and innovation.

Start Date: 09/01/14
End Date: 12/31/14

Establish Action Team to Close the Digital Divide

This on-going initiative would expand access and adoption for lower income residents. Especially initiatives that target younger and older adults. Address the more limited bandwidth challenges of rural Shawnee County. This initiative will consider options to support the successful implementation of one-to-one educational outreach led by area School Districts as well and other on-going efforts by local government and organizations to make connections to people where they live and work.

- Supports successful implementation of School District one-to-one initiatives.
- Improves efficiency in the delivery of local government services.
- Improves career and professional development opportunities for area youth.
- Expands opportunities to work from home.
- Creates a more inclusive and informed community.

Start Date: 09/01/14
End Date: 12/31/14

Establish Action Team to Expand Digital Literacy

This initiative would build on and expand existing digital literacy and digital inclusion programs in the area. This could include improving coordination among local government, library services and area non-profits. It would implement research to better define the nature and extent of the problem. Also strengthen the delivery of digital literacy and digital inclusion efforts throughout the County.

- Supports the effective access to information throughout the community.
- Includes digital literacy goals with area visioning processes.
- Enables businesses to better participate in the 21st Century economy.
- Supports the successful implementation of education, health care, local government and other initiatives that rely on a digitally literate community.
- Improves the efficiency of area digital literacy programs and outreach.

Start Date: 09/01/14
End Date: 12/31/14

Tasks, Timeline and Resources

The following is a set of high-level tasks for each identified initiative including possible resources required to accomplish those tasks.

<u>Assess Broadband Needs and Opportunities > Deploy Broadband Assessment Tool</u>

Target Lists

Identify existing e-mail lists and local outreach channels that can be utilized to distribute questionnaire to businesses and residents. The consultants will provide orientation training via web meeting to outreach channels.

Start Date: 07/28/14
End Date: 08/31/14

Awareness Materials

Local leadership with help of consultants will develop marketing materials to create community awareness of the needs assessment and benefit. The purpose of the training is to encourage local participation.

Start Date: 07/28/14
End Date: 08/31/14

Awareness Outreach

Work through local networks such as GO Topeka, Schools, local government and others to educate leaders of local business and civic organizations on why documenting unmet needs is important.

Start Date: 07/28/14
End Date: 08/31/14

Deploy Questionnaire

Deploy BAT questionnaire to business and residents utilizing mailing lists, organizational web sites and other as appropriate. The Questionnaire should be available to the community at least through October 2014.

Start Date: 07/28/14
End Date: 10/31/14

Local Support

Consultants to work with local leadership to have available materials, on-line FAQ's, term dictionary and other tools as needed to help those taking questionnaire to be comfortable in providing answers.

Start Date: 07/28/14
End Date: 08/29/14

Assess Broadband Needs and Opportunities > Provider Consultation

Provider Meeting

Open invitational meeting with area providers to identify business case issues from their perspective. The initial approach could include distributing this on-line version of the plan to the provider community leadership and a dedicated conference call to gain provider input on the business case challenges for expanded investment as needed. To the extent infrastructure investment is an important implementation issue for the community, this should be considered an on-going dialog to be led through the leadership group.

Start Date: 06/16/14
End Date: 07/18/14

Establish Action Teams To Lead Targeted Initiatives > Establish Action Team to Expand Digital Literacy

Recruit Leadership

The Broadband Committee organized under Heartland Visioning is charged with the task of identifying and recruiting leadership for this action team.

Start Date: 09/01/14
End Date: 11/21/15

Create Work Plan

The initial charge for the newly formed action team is to create a one-year work plan including identifying potential partners, resource needs and actionable timelines for specific tasks. The work plan will be integrated as a specific element to the overall Shawnee County Community Technology Plan utilizing the dashboard plan development and monitoring system.

Start Date: 09/01/14
End Date: 12/31/14

Launch a Sustainable Organizational Structure > Implement Leadership Team Structure

Leadership Structure

Develop appropriate leadership structure for the first year of operation including the convening organization, staffing needs, action teams and high-level work plan. Heartland Visioning will take on this initial role of organizing, staffing and managing the areas collaborative efforts to advance broadband objectives identified in this plan. The Heartland Visioning will form an inclusive Broadband Committee that includes all major stakeholder representation. Attention to including the diversity of demographics in the community will be considered as this Committee is formed.

Start Date: 06/16/14
End Date: 09/15/14

Web Platform

The consulting team will work with the Topeka and Shawnee County Work Team in the establishment of a web- based platform or adopt an existing platform to facilitate sharing across organizations engaged in technology planning. The current Topeka and Shawnee County Dashboard is the foundational tool for this task. Meetings are planned with selected leadership to introduce project management features such as contact database, file management, task tracking and other features that can facilitate collaboration among stakeholders in an emerging leadership

organization. This tool is available to the community at a minimum through October 31 and potentially beyond depending on community interest and funding.

Start Date: 05/26/14
End Date: 10/31/14

Membership

The Broadband Work Group will identify and recruit membership for the Broadband Committee and the action teams.

Start Date: 07/14/14
End Date: 09/15/14

Work Plan

Develop initial work plan and potential members for each of three action teams noted in this plan. Implement a schedule of on-going meetings and activities as appropriate to better coordinate technology planning across the county.

Start Date: 07/14/14
End Date: 10/31/14

Assess Broadband Needs and Opportunities > Document Anchor Institution Needs

City and County (Including Public Libraries)

City and County IT Plan. Document what are current and future needs for broadband. This shall be accomplished by distributing the Broadband Assessment tool to the appropriate IT leadership in each public institution and reviewing available IT plans where available. Identify Work Team members (one for city and one for county) able to help in obtaining existing IT plans and creating awareness among the relevant IT leadership to encourage them to complete the Broadband Assessment Tool for as many locations as feasible. Or suggest alternative data gathering approaches.

Start Date: 06/16/14
End Date: 10/31/14

K-12

K -12 District IT Plans. Document what are current and future needs for broadband. This shall be accomplished by distributing the Broadband Assessment tool to the appropriate IT leadership in each public institution and reviewing available IT plans where available. Identify Work Team members able to help in obtaining existing IT plans and creating awareness among the relevant IT leadership to encourage them to complete the Broadband Assessment Tool for as many locations as feasible. Or suggest alternative data gathering approaches.

Start Date: 06/16/14
End Date: 10/31/14

Higher Education

Higher Education IT Plans. Document what are current and future needs for broadband. This shall be accomplished by distributing the Broadband Assessment tool to the appropriate IT leadership in each public institution and reviewing available IT plans where available. Identify Work Team members able to help in obtaining existing IT plans and creating awareness among the relevant IT leadership to encourage them to complete the Broadband Assessment Tool for as many locations as feasible. Or suggest alternative data gathering approaches.

Start Date: 06/16/14
End Date: 10/31/14

Health Care

Health Care IT Plans. Document what are current and future needs for broadband. This shall be accomplished by distributing the Broadband Assessment tool to the appropriate IT leadership in each public institution and reviewing available IT plans where available. Identify Work Team members able to help in obtaining existing IT plans and creating awareness among the relevant IT leadership to encourage them to complete the Broadband Assessment Tool for as many locations as feasible. Or suggest alternative data gathering approaches.

Start Date: 06/16/14
End Date: 10/31/14

Launch a Sustainable Organizational Structure > Prepare Budget and Resource Plan

Budget

Create a one-year budget and resource plan for on-going operation of the leadership function and action teams.

Start Down: 08/01/14
End Down: 10/31/14

Consensus

Reach out as appropriate to gain approval of needed in-kind and other operational resources required for a one-year leadership function.

Start Down: 08/01/14
End Down: 10/31/14

Establish Action Teams To Lead Targeted Initiatives > Establish Action Team to Promote 21st Century Workforce Skills and Digital Entrepreneurship

Recruit Leadership

The Broadband Committee organized under Heartland Visioning is charged with the task of identifying and recruiting leadership for this action team.

Start Down: 09/01/14
End Down: 11/21/14

Create Work Plan

The initial charge for the newly formed action team is to create a one-year work plan including the identification of potential partners, resource needs and actionable timelines for specific tasks. The work plan will be integrated as a specific element to the overall Shawnee County Community Technology Plan utilizing the dashboard plan development and monitoring system.

Start Down: 09/01/14
End Down: 12/31/14

Assess Broadband Needs and Opportunities > Advanced Broadband Feasibility Study

Advanced Broadband Cost and Business Case Study

The consulting team will deliver an independent analysis of the estimated cost of deploying advanced infrastructure throughout Topeka city limits. The analysis will include a look at specific demographic and other factors that influence the "take rate" (proportion of customers subscribing) and how the combination of cost and demand would impact the business case for fiber to premises deployment. A web meeting opportunity with the consulting team to review the more detailed study results and the implications. The web meeting is scheduled for the week of August 25..

Start Down: 06/23/14
End Down: 08/31/14

Impact Study

The consulting team will also provide Topeka and Shawnee County with an analysis of the economic impact associated with broadband investment utilizing different growth and impact scenarios. The analysis will consider impact on jobs, economic value and labor income in the county that is directly attributable to broadband investment in Shawnee County. The study will be completed by no later than August with summary results incorporated into this plan.

Start Down: 06/23/14
End Down: 08/25/14

Establish Action Teams To Lead Targeted Initiatives > Establish Action Team to Close the Digital Divide

Recruit Leadership

The Broadband Committee organized under Heartland Visioning is charged with the task of identifying and recruiting leadership for this action team.

Start Down: 09/01/14
End Down: 11/21/14

Create Work Plan

The initial charge for the newly formed action team is to create a one-year work plan including identifying potential partners, resource needs and actionable timelines for specific tasks. The work plan will be integrated as a specific element to the overall Shawnee County Community Technology Plan utilizing the dashboard plan development and monitoring system.

Start Down: 09/01/14
End Down: 12/31/14

Appendix B: Topeka / Shawnee County Economic Impact Study Results

The Bottom Line

The deployment and use of advanced broadband can have a transformational impact on the Topeka City and broader Shawnee County economy. However, broadband communications is not a panacea. Economic growth requires other factors such as an economic and demographic structure that is consistent with successful economic development. Based on a modeled analysis of local economic and demographic data:

- Shawnee County ranks 5th among 105 Kansas Counties in its current competitive position to benefit from deployment and utilization of an Advanced Broadband Network.
- Countywide total employment growth associated with the transformational potential a Gigabit capable network range from a low of 9,800 to a high of 29,000 jobs over a ten-year period.
- Estimated growth in total Shawnee County economic value ranges from a low of $1.2 Billion to a high of $3.7 Billion.
- Estimated growth in total Shawnee County labor income ranges from a low of $363 Million to a high of $1.1 Billion.

The transformational potential of advanced broadband deployment depends on adoption rates, particularly among residential customers, but also among business and public institution customers more generally. Overall drivers of the transformational economic development capacity include:

- Successful retention/attraction of youth and entrepreneurial talent.
- Adoption and application of broadband by businesses of all sizes.
- Stimulation of "home-source" activity (new entrepreneurial start-ups and work at home business development).
- Continued advances in educational delivery and life-long learning leveraging the advanced broadband capability throughout the community.
- Transformational application of broadband to improve health care access and community amenities more broadly.

The successful deployment and use of advanced broadband in the Topeka area is projected to increase local annual economic growth by 0.8 to 2.2 percent.

Introduction to Impact Study

Access to advanced broadband infrastructure and the innovative use of that infrastructure are the cornerstone of the modern economy. Communities with available and affordable broadband are better positioned to:

- Attract and retain population,
- Expand and recruit new business and industry,
- Nurture business and governmental innovation, and
- Offer quality well paying jobs.

This study models three scenarios of economic growth to assess how a widely available and well-utilized advanced broadband infrastructure would likely impact jobs, economic value and labor income within Shawnee County.

Critical Importance of Information Technology Access

Approximately 75 percent of all current local jobs in Shawnee County utilize computers, smart-phones, on-line processing of customer information, databases, web searches or related information technologies.

Estimated Shawnee County Jobs, Economic Value and Labor Income Dependent on Information Technology Access by Sector, 2011

	Employment	**Economic Value**	**Labor Income**
Ag and Natural Resources	824	$102,478,277	$5,721,607
Utilities/Transport/Warehousing	2,731	$990,830,941	$252,086,488
Construction	3,567	$573,099,516	$190,208,944
Manufacturing	4,459	$2,063,109,997	$270,396,252
Wholesale Trade	2,438	$559,872,781	$228,023,046
Retail and Consumer Services	10,606	$700,012,050	$277,115,528
Information Services	1,305	$329,571,077	$74,317,056
Banking, Insurance and Real Estate	9,222	$2,373,531,644	$468,946,642
Technical and Professional Services	7,405	$770,994,734	$303,104,605
Management and Admin Services	7,206	$569,294,934	$285,086,937
Public and Private Education	2,770	$145,712,937	$110,004,892
Health Care	13,681	$1,517,962,618	$761,671,948
Arts, Entertainment and Community Services	2,997	$142,902,485	$77,379,026
Hospitality Services	4,618	$260,503,029	$80,802,390
Government (except education)	15,045	$1,001,219,538	$742,636,162
Total	88,050	$11,998,618,281	$4,121,779,917

Information, finance, real estate, insurance, professional, technical, management, education and health services together account for nearly half of all Topeka area jobs dependent on information technology access. Of particular importance, these service industries all are intensive information technology users including the frequent use of large databases, streaming video, interactive video and other complex applications.

Broadband Impact Potential Index

Broadband deployment does not guarantee economic impact. The potential for a community to successfully gain new jobs and economic growth from broadband depends on many factors. These factors include such things as recent demographic trends, local economic structure, quality of life measures, cost of deploying infrastructure and others. Several critical metrics that determine the strengths and weaknesses that impact the Topeka area's potential to attract, retain and grow local economic activity are listed in Appendix B.2. These metrics were used to create a Broadband Impact Potential Index (BIPI) for Shawnee County.

A Broadband Impact Potential Index (BIPI) is calculated for each Kansas County. The larger the index value the greater the potential for new broadband investments to quickly create new economic growth. This index provides a baseline to assess the area's current starting position for realistic quick returns from new broadband investment. In particular, the BIPI provides a measure of Shawnee County's comparative advantage relative other Kansas Counties.

Calculated Broadband Impact Potential Index
by Number of Kansas Counties and Average Population Size

BIPI Value	**Number of Counties**	**Average County Population Size**
LT .50	27	3,532
.50 to .75	50	8,934
.76 to 1.0	18	30,343
GT 1.0	10	176,484

Shawnee County BIPI Value = 1.39

Shawnee County BIPI Rank Among:	**Rank**
Five Kansas Counties With Population Greater than 100,000 People	5th
Seventeen Northeastern Region Kansas Counties (Outside Kansas City Metropolitan Area)	2nd
All Kansas Counties (Tied with Riley County)	5th

Shawnee County ranks 5th among 5 Kansas Counties with greater than 100,000 population and is tied for 5th overall in the state with respect to broadband impact potential. Most notably, the City of Topeka starts from a position of strength in current local broadband access with significant options available throughout the city. Broadband availability is more

limited in the surrounding rural County. The community has a particular strength as a Center of and a strong presence in key growth sectors such as health, finance and professional services. The strong current competitive positioning is consistent with a projection that Topeka City specifically, and Shawnee County more generally can be successful in further attracting, retaining and expanding local jobs enabled through a robust advanced broadband network.

Estimated 10 Year Shawnee County Economic Growth Impact

The deployment of "advanced broadband" by itself does not guarantee expanded local economic growth. However, as noted, the City of Topeka and the broader Shawnee County are strongly positioned to benefit. This economic growth impact model provides estimates of a projected ten-year total Shawnee County economic growth for a low, moderate and high impact scenario. The three scenarios differ with respect to assumptions of advanced broadband infrastructure adoption among different customer segments. The definitions and assumptions for each Scenario appear as Appendix B.1.

Baseline Scenario

Projected Shawnee County economic growth (between 2015 and 2025) assuming no major local action to promote additional broadband investment and use are implemented.

	Employment	Economic Value	Labor Income
Baseline Scenario	8,835 New Jobs	$1,277,934,033	$439,077,327

Accelerated Broadband Investment and Usage Scenarios

The additional Shawnee County economic growth (between 2015 and 2025) is modeled for three accelerated scenarios. Each impact scenarios uses different assumptions of success in stimulating broadband investment and use.

	Employment	Economic Value	Labor Income
Scenario 1: Low Impact	9,803 New Jobs	$1,220,618,456	$363,480,493
Scenario 2: Moderate Impact	19,606 New Jobs	$2,441,236,912	$726,960,986
Scenario 3: High Impact	29,409 New Jobs	$3,661,855,367	$1,090,441,478

The low impact scenario assumes more limited adoption of advanced broadband within the community. The high impact scenario assumes the greatest level of adoption and a more transformational economic change that would occur within the community. The above table provides a summary of the modeled impact for each of the three accelerated growth

scenarios. The method of calculating economic impacts and detailed tables of intermediate results are provided as Appendix B.3.

Transformational Community Capacity Benefits

At first glance, the modeled impact of advanced infrastructure deployment and use on employment, economic value and labor income growth may appear high. The reason, however, is that advanced broadband, especially for early adopting communities can be transformational. Or in short, beyond the direct benefit for innovative business development and operation, the availability of advanced infrastructure provides a broader set of benefits that make a community attractive to both people and investment. In addition, it enables work to be accomplished in new innovative ways. That is the availability and progressive use of advanced broadband does not just result in an increase in current broadband demand, it results in an upward shift of the entire demand function for broadband. Examples of community transformational capacity benefits are described briefly below.

Retaining and Attracting Youth and Entrepreneurial Talent

The U.S. cities that have pioneered advanced broadband networks have seen new population and workers, particularly in high-tech, bandwidth intensive fields, relocating to those cities. And those new residents and businesses have had the impact of creating new dynamism and development in local economies.

Where affordable bandwidth is not a restriction at home, at work or anywhere an individual happens to be in the community, innovation and entrepreneurship are promoted. Entrepreneurs have the necessary connectivity to start businesses from home or in businesses affordable business spaces. Work is not tied to a particular location but can be accomplished anywhere within the community. Information is easily accessible making virtual work and virtual learning more possible. Most important a culture of digital entrepreneurship is created with people working and interacting digitally in visible ways throughout the community. Bandwidth is not a barrier to experimentation with new digital processes.

The City of Topeka and Shawnee County already are promoting the community to youth and entrepreneurial businesses through efforts of GO Topeka, Washburn University and others. At the present time, the percent of Shawnee County workforce in the critical 18 to 44 year old age group is slightly lower than the Kansas average. The expansion of advanced broadband infrastructure availability and use within the community could strengthen the area as an important driver to retain and attract critical youth and entrepreneurial talent.

Telecommuting and Home Source Enterprises

Innovative home-based enterprises of many types are empowered when access to an affordable and adequate advanced broadband connection is available in all residential neighborhoods and small business facilities throughout the city.

Since 1980, the share of Americans telecommuting every day has increased from 2.3 percent to 4.4 percent in 2012. The U.S. Census Bureau, reports that 9.4 of people now work

from home at least one day a week, up from 7 percent in 1994. The growth in telecommuting is increasing most rapidly in more urbanized areas. Contrary to anecdotal opinion, telecommuting is not primarily a phenomenon associated with work in remote rural areas or as a means to avoid heavy traffic commutes. The factors most closely correlated with telecommuting are population with higher levels of education and professional service occupations. Characteristics more often associated with urban centers. These same individuals and occupations are among the most likely to be early adopters of advanced broadband services.

The term "home-sourcing" refers to an important economic growth opportunity for the Topeka area. With the growth of the Internet, a large number of jobs, (for example in the customer service industry), have moved overseas. Communities with universal availability of advanced broadband to residential locations are positioned to capture these job opportunities locally rather than export functions outside the area with people working from home.

Home sourcing offers a transformational economic development opportunity enabled by advanced broadband to residential neighborhoods and small business locations. Significantly, home sourcing creates job opportunities for workers that may otherwise be excluded from the workforce (the elderly, disabled, and parents of young children can work as agents from a home office). Jet Blue Airlines is one of the best known, and perhaps most successful, home-sourcing case studies. The New York-based airline has relied exclusively on home-based agents in its virtual reservation center in Salt Lake City, Utah since the company was launched in 2000. The company employs 1,500 home-based agents, the majority (70 percent) of which are part-time, stay-at-home moms.

Education and Training

Advanced broadband is critical to modern education. In turn, quality education is a fundamental consideration of businesses looking to relocate or expand in the Topeka area as well as individuals considering there preferred place of residence. Education is no longer just for early life stages. Modern education is life-long learning that occurs in schools, on university campuses, on technical college campuses as well at home and in businesses. Communities that are prepared to support the educational and training needs are better positioned to attract investment.

Shawnee County School Districts already have substantial bandwidth to schools, which facilitates these advances in the classroom. The City of Topeka recently passed a multi-year bond issue that will fund efforts to extend learning beyond the classroom to a 'one-to-one" educational experience that reaches deeply into the community. Extension of affordable advanced broadband to all homes in the community would mean that such educational opportunities would be available when and where the student needs to learn, not just in the classroom. Indeed, as robust networks to the schools expand resources in the classroom, equally robust home connectivity becomes even more important to continue learning. This is particularly true with the growing popularity of one-to-one computer programs, cloud computing, electronic textbooks, and flipped classrooms.

A recent report by the New Media Consortium (NMC) assesses six technologies and their anticipated entrance into mainstream use for teaching. Near- term (immediate) technologies include cloud computing and mobile learning. Over the next two to three years, NMC anticipates growing use of learning analytics and open content. And over a "far-term" (four-to five-year horizon), NMC anticipates an increased use of 3D printing and virtual and remote laboratories. While these technologies are applied directly in the K-12 setting, they will be more successful if applied outside the boundaries of the school.

Electronic textbooks are becoming increasingly common and will likewise require high-speed Internet access at home to access their content. Without adequate broadband at home, students will be unable to access the textbooks required for learning. The "flipped classroom" concept is increasingly important in modern education. Specifically, students are required to view videos, podcasts and electronic content prior to class at home. As a result the face-to-face time with teachers and peers is more productively focused on problem solving and deeper learning.

While these examples focus on traditional K-12 and university based education, the same principles and needs apply to needs for on-going lifelong training and learning from a larger group of workforce development sources. With deployment and use of advanced broadband systems, Topeka and the larger Shawnee County area will be more competitive in attracting people and business investment because of an expanded capacity to support these educational innovations outside of the classroom.

Health Care and Community Amenities

Topeka is a center for health care for Shawnee County as well as for surrounding counties. Health Care employs 12 percent of the Shawnee County workforce compared with only 8 percent statewide in Kansas. The availability of quality, affordable health care is a critical factor for businesses deciding where to locate or expand as well as individual making choices of a place to live. Health care is particularly critical for seniors and decisions of places to retire. As the baby boom generation continues to age, communities compete to attract the substantial economic spending that these retirees bring to the local economy.

Information technology in combination with high bandwidth telecommunications is fundamental to the practice of modern medicine. More than 90 percent of Health care occupations rely the use of information technology and high-speed bandwidth access for day-to-day work functions. Examples of medical applications that utilize broadband communications include but are not limited to: imaging, managing patient information, on-going professional education, scheduling, remote diagnostics, tele-psychiatry, tele-pharmacy, alerts and triage for incoming emergencies and others.

Home telehealth holds particular promise for remote monitoring of chronic conditions. Nearly half of Americans (45 percent or 130 million people) suffer from at least one chronic condition, such as arthritis, asthma, cancer, depression, diabetes, heart disease, and obesity. Health care costs can be reduced and patient care improved when digital connections can be efficiently accomplished between doctors and their patients at home. With home telehealth information, caregivers have access to real time patient information to properly diagnose and treat patients without a face- to-face visit. These applications not only

improve overall medical care efficiencies but also allow seniors and patients with severe disabilities to remain in their homes longer. With adequate bandwidth, innovative practices connecting providers to patients in their place of work, at school and other venues can be more feasibly accomplished.

Advanced broadband networks provide community members with access to a wide range of amenities that are important to quality of life. Examples include simply the ability to obtain and use information at anytime and any-place within the community. Local residents as well as visitors can find the services and products they desire. Smart transportation systems enabled by high-speed broadband are more possible. Community alert systems help keep community members safe from disasters and provide a rapid response to emergencies. Government services are more accessible and democracy improved as community members have access to information needed. These are just several examples.

Appendix B.1: Scenario Definitions and Assumptions

The economic impact associated with each of the three impact scenarios is driven largely by assumptions of the rate of subscription to various levels of broadband capacity for major customer segments in the community. The assumptions used for each scenario are described in this Appendix.

The Baseline Scenario for Shawnee County Assumes

1. The Shawnee County economy grows at approximately the same average rate as the NE Kansas projected annual growth rate for the next 10 years;
2. Broadband availability and use in Shawnee County over the next ten years will be typical of what is expected for NE Kansas without any proactive efforts to accelerate local broadband investment and usage.
3. Broadband take rate by download speed (assumed percentage of businesses accessing broadband at each speed tier) for the Baseline Scenario is as follows:

Broadband Take Rate by Bandwidth Speed Assumption by the Year 2020
(only download speeds are represented)

	3 to 10 Mbps	**10 to 50 Mbps**	**> 50 Mbps**	**> 100 Mbps**
Small Business	20%	50%	25%	0%
Large Business	0%	15%	60%	25%
Home-Based Business	30%	50%	20%	0%
Residents	40%	40%	10%	0%
Public Institutions	0%	20%	40%	35%

The Baseline Scenario provides a benchmark against which to compare modeled economic impact associated with new economic growth that may be stimulated as Topeka and

Shawnee County gain a further comparative advantage of higher bandwidth capabilities over a ten-year period.

The Low Impact Scenario for Shawnee County Assumes

1. The Shawnee County economy grows 5% faster than the ten-year economic growth by sector project for Northeast Kansas.
2. Private providers will differentiate broadband availability and use in Shawnee County from competing areas as a result of proactive local efforts and expanded investment.
3. Broadband Take Rate by Download Speed (assumed percentage of businesses accessing broadband at each speed tier) for the Low Impact Scenario is as follows:

Broadband Take Rate by Bandwidth Speed Assumption by the Year 2020
(only download speeds are represented)

	3 to 10 Mbps	**10 to 50 Mbps**	**> 50 Mbps**	**> 100 Mbps**
Small Business	10%	30%	35%	20%
Large Business	0%	10%	40%	50%
Home-Based Business	10%	30%	35%	20%
Residents	25%	25%	25%	20%
Public Institutions	0%	0%	50%	50%

The Moderate Impact Scenario for Shawnee County Assumes

1. The Shawnee County economy grows 10% faster than the projected 10-year economic growth by sector for Northeast Kansas.
2. Private providers will differentiate broadband availability and use in Shawnee County from competing areas as a result of proactive local efforts and expanded investment.
3. Broadband take rate by download speed (assumed percentage of businesses accessing broadband at each speed tier) for the Moderate Impact scenario is as follows:

Broadband Take Rate by Bandwidth Speed Assumption by the Year 2020
(only download speeds are represented)

	3 to 10 Mbps	**10 to 50 Mbps**	**> 50 Mbps**	**> 100 Mbps**
Small Business	0%	10%	60%	30%
Large Business	0%	0%	40%	60%
Home-Based Business	0%	10%	60%	30%
Residents	0%	20%	50%	30%
Public Institutions	0%	0%	40%	60%

The High Impact Scenario for Shawnee County Assumes

1. The Shawnee County economy grows 15% faster than the projected 10-year economic growth by sector for NE Kansas.
2. Private providers will differentiate broadband availability and use in Shawnee County from competing areas as a result of proactive local efforts and expanded investment.
3. Broadband take rate by download speed (assumed percentage of businesses accessing broadband at each speed tier) for the High Impact scenario is as follows:

Broadband Take Rate by Bandwidth Speed Assumption by the Year 2020
(only download speeds are represented)

	3 to 10 Mbps	**10 to 50 Mbps**	**> 50 Mbps**	**> 100 Mbps**
Small Business	0%	5%	30%	65%
Large Business	0%	0%	20%	80%
Home-Based Business	0%	5%	30%	65%
Residents	0%	15%	25%	60%
Public Institutions	0%	0%	10%	90%

Appendix B.2: Broadband Potential Index Calculation

Outlined below are set of local factors that impact the potential for economic development through broadband. For context this data is presented as a comparison of Shawnee County with the overall Kansas average for each displayed metric.

SWOT - Demand Side

Factor	Shawnee	Kansas	Ratio
Percent of Population Change 2000 to 2010	4.53146	5.77263	0.78
Percent of Population 18 to 44 Years	33.4287	35.4893	0.94
Median Household Income	47701	50594	0.94
Percent with College Degree or More (over 25 years of age)	28.76	29.72	0.97
Percent Employed in STEM Occupations	8.89007	9.7656	0.91
Percent Employed in Emerging Occupations	6.99082	7.68779	0.91
Percent of Professional, Scientific, and Technical Employment	6.88964	6.5716	1.05
Percent of Health Care Employment	12.0663	8.335	1.45
Percent of Educational Services Employment (Public and Private)	2.72674	8.18983	0.33
Percent of Arts, Entertainment, and Recreation Employment	6.34329	5.63679	1.13
Percent of Census Tracts with Subscription Rate 81% or Greater	12.1629	24.7564	0.49
Median Value of Owner-Occupied Housing Units	117,300	125,500	0.94
Mean Travel Time to Work	17.90	18.90	0.95
Has a Higher Education Institution	1	1	1.00

SWOT - Supply Side

Factor	Shawnee	Kansas	Ratio
Population Density	327.07	34.9	9.37
Percent of Population with at Least 1 Wired Provider at 10Mbps or Greater Coverage	92.75	88.06	1.05
Percent of Population with at Least 1 Mobile Wireless Provider at 10Mbps or Greater Coverage	100.00	96.99	1.03
Percent of Population with access to a broadband connection greater than 3Mbps download speed	93.00%	90.51%	1.03
Percent of Population with access to a broadband	90.12	73.03	1.23
connection greater than 50Mbps download speed			
Broadband Impact Potential Index			1.39

Appendix B.3: Summary of Methodology

Introduction to Data and Modeling Tool

A leading proprietary economic data and analysis tool IMPLAN (https://implan.com) is the primary modeling platform used for this study. The IMPLAN model is widely utilized many applications in government and the private sector to assess the economic impact of infrastructure and other changes in local economies. IMPLAN's 2012 Kansas County data files were utilized for this study. This data set is the most comprehensive data set available with undisclosed and consistent values for employment, economic value and labor income by detailed industrial sector at the county level. Notably this data set includes farm as well as non-farm economic data and employment includes self- employed and business providers within each sector.

Shawnee County Economic Structure

For purposes of this study it is assumed the economic structure continues to be similar today in 2014 as it was in 2012. The detailed industry data was grouped into 15 major economic sectors. The 2012 values for employment, total economic value and labor income for each major sector are displayed by the table below.

	Employment	Economic Value	Labor Income
Ag and Natural Resources	1,445	$179,786,450	$10,037,907
Utilities/Transport/Warehousing	3,901	$1,415,472,773	$360,123,554
Construction	5,246	$842,793,406	$279,719,036
Manufacturing	6,558	$3,033,985,289	$397,641,547
Wholesale Trade	3,295	$756,584,839	$308,139,252
Retail and Consumer Services	13,258	$875,015,063	$346,394,410
Information Services	1,812	$457,737,607	$103,218,134
Banking, Insurance and Real Estate	10,600	$2,728,197,292	$539,019,129
Technical and Professional Services	8,137	$847,246,960	$333,081,984
Management and Admin Services	7,919	$625,598,829	$313,282,348
Public and Private Education	3,221	$169,433,648	$127,912,665
Health Care	14,251	$1,581,211,060	$793,408,279
Arts, Entertainment and Community Services	7,492	$357,256,212	$193,447,565
Hospitality Services	7,827	$441,530,558	$136,953,204
Government (except education)	23,146	$1,540,337,751	$1,142,517,172
Total	118,108	$15,852,187,737	$5,384,896,186

Calculating Growth Factors

As an intermediate step in shaping the data, a growth factor was calculated for each of the four scenarios (Baseline, Low Impact, Moderate Impact and High Impact) specific to each major economic sector. The growth factor for the Baseline Scenario is estimated as follows:

- Baseline Growth Factor for Sector X = percent of occupations within Sector X identified to rely on use of information technologies in daily job function, multiplied times the projected Northeastern Kansas Projection Region ten year growth rate for all jobs in Sector X.

- Percent of occupations within each sector that rely on use of information technologies for daily job functions are estimated using base occupational data provided by O_Net On-line (http://www.onetonline.org).
- The projected baseline economic growth by major economic sector in Northeastern Kansas Projection Region is assembled by the Kansas Labor Information Center (http://klic.dol.ks.gov/gsipub/index.asp?docid=442)

The resulting growth factors for counties located in Northeastern Kansas are displayed in the following table.

	Baseline	**Low**	**Moderate**	**Rapid**
Ag and Natural Resources	0.0969	0.1469	0.1969	0.2469
Utilities/Transport/Warehousing	0.105	0.155	0.205	0.255
Construction	0.0952	0.1452	0.1952	0.2452
Manufacturing	0.0748	0.1248	0.1748	0.2248
Wholesale Trade	0.0296	0.0796	0.1296	0.1796
Retail and Consumer Services	0	0.05	0.1	0.15
Information Services	0	0.05	0.1	0.15
Banking, Insurance and Real Estate	0.0522	0.1022	0.1522	0.2022
Technical and Professional Services	0.2093	0.2593	0.3093	0.3593
Management and Admin Services	0.1183	0.1683	0.2183	0.2683
Public and Private Education	0.1204	0.1704	0.2204	0.2704
Health Care	0.2112	0.2612	0.3112	0.3612
Arts, Entertainment and Community Services	0.024	0.074	0.124	0.174
Hospitality Services	0.0354	0.0854	0.1354	0.1854
Government (except education)	0.0065	0.0565	0.1065	0.1565

Estimating 10 Year Economic Growth by Scenario

An estimate of the total ten-year economic growth attributed to broadband is calculated as a multiple of total Shawnee County employment, economic value or labor income multiplied by the corresponding growth factor for each scenario. The results for each scenario appear in the table below.

Baseline Scenario	Employment	Economic Value	Labor Income
Ag and Natural Resources	140	$17,421,307	$972,673
Utilities/Transport/Warehousing	410	$148,624,641	$37,812,973
Construction	499	$80,233,932	$26,629,252
Manufacturing	491	$226,942,100	$29,743,588
Wholesale Trade	98	$22,394,911	$9,120,922
Retail and Consumer Services	0	$0	$0
Information Services	0	$0	$0
Banking, Insurance and Real Estate	553	$142,411,899	$28,136,799
Technical and Professional Services	1,703	$177,328,789	$69,714,059
Management and Admin Services	937	$74,008,341	$37,061,302
Public and Private Education	388	$20,399,811	$15,400,685
Health Care	3,010	$333,951,776	$167,567,829
Arts, Entertainment and Community Services	180	$8,574,149	$4,642,742
Hospitality Services	277	$15,630,182	$4,848,143
Government (except education)	150	$10,012,195	$7,426,362
Total	8,835	$1,277,934,033	$439,077,328

Low Impact Scenario	Employment	Economic Value	Labor Income
Ag and Natural Resources	212	$26,410,630	$1,474,569
Utilities/Transport/Warehousing	605	$219,398,280	$55,819,151
Construction	762	$122,373,603	$40,615,204
Manufacturing	818	$378,641,364	$49,625,665
Wholesale Trade	262	$60,224,153	$24,527,884
Retail and Consumer Services	663	$43,750,753	$17,319,721
Information Services	91	$22,886,880	$5,160,907
Banking, Insurance and Real Estate	1,083	$278,821,763	$55,087,755
Technical and Professional Services	2,110	$219,691,137	$86,368,158
Management and Admin Services	1,333	$105,288,283	$52,725,419
Public and Private Education	549	$28,871,494	$21,796,318
Health Care	3,722	$413,012,329	$207,238,242
Arts, Entertainment and Community Services	554	$26,436,960	$14,315,120
Hospitality Services	668	$37,706,710	$11,695,804
Government (except education)	1,308	$87,029,083	$64,552,220
Total	14,741	$2,070,543,420	$708,322,137

Moderate Impact Scenario	Employment	Economic Value	Labor Income
Ag and Natural Resources	285	$35,399,952	$1,976,464
Utilities/Transport/Warehousing	800	$290,171,918	$73,825,329
Construction	1,024	$164,513,273	$54,601,156
Manufacturing	1,146	$530,340,629	$69,507,742
Wholesale Trade	427	$98,053,395	$39,934,847
Retail and Consumer Services	1,326	$87,501,506	$34,639,441
Information Services	181	$45,773,761	$10,321,813
Banking, Insurance and Real Estate	1,613	$415,231,628	$82,038,711
Technical and Professional Services	2,517	$262,053,485	$103,022,258
Management and Admin Services	1,729	$136,568,224	$68,389,537
Public and Private Education	710	$37,343,176	$28,191,951
Health Care	4,435	$492,072,882	$246,908,656
Arts, Entertainment and Community Services	929	$44,299,770	$23,987,498
Hospitality Services	1,060	$59,783,238	$18,543,464
Government (except education)	2,465	$164,045,970	$121,678,079
Total	20,646	$2,863,152,807	$977,566,946

High Impact Scenario	Employment	Economic Value	Labor Income
Ag and Natural Resources	357	$44,389,275	$2,478,359
Utilities/Transport/Warehousing	995	$360,945,557	$91,831,506
Construction	1,286	$206,652,943	$68,587,108
Manufacturing	1,474	$682,039,893	$89,389,820
Wholesale Trade	592	$135,882,637	$55,341,810
Retail and Consumer Services	1,989	$131,252,259	$51,959,162
Information Services	272	$68,660,641	$15,482,720
Banking, Insurance and Real Estate	2,143	$551,641,492	$108,989,668
Technical and Professional Services	2,924	$304,415,833	$119,676,357
Management and Admin Services	2,125	$167,848,166	$84,053,654
Public and Private Education	871	$45,814,858	$34,587,585
Health Care	5,147	$571,133,435	$286,579,070
Arts, Entertainment and Community Services	1,304	$62,162,581	$33,659,876
Hospitality Services	1,451	$81,859,765	$25,391,124
Government (except education)	3,622	$241,062,858	$178,803,937
Total	26,551	$3,655,762,194	$1,246,811,756

Estimating Net Economic Benefits by Scenario

Net economic benefits are calculated by subtracting baseline 10-year outcomes for outcomes estimated for each of the three advanced broadband scenarios.

	Employment	Economic Value	Labor Income
Scenario 1: Low Impact	5,905 New Jobs	$792,609,387	$269,244,809
Scenario 2: Moderate Impact	11,811 New Jobs	$1,585,218,774	$538,489,619
Scenario 3: High Impact	17,716 New Jobs	$2,377,828,161	$807,734,428

Estimating Indirect and Induced Impacts by Scenario

The IMPLAN model generates economic multipliers specific to each major economic sector. These multipliers represent the additional job, economic value and labor income creation that will result from new economic activity directly associated with the availability and use of advanced broadband in Shawnee County. Results are displayed below.

	Employment	Economic Value	Labor Income
Scenario 1: Low Impact	3,898 New Jobs	$428,009,069	$94,235,683
Scenario 2: Moderate Impact	7,795 New Jobs	$856,018,138	$188,471,367
Scenario 3: High Impact	11,693 New Jobs	$1,284,027,207	$282,707,050

Estimating Net Total Impacts by Scenario

The Net Total Impacts are estimated as the sum of direct, indirect and induced impacts of advanced broadband deployment and use.

	Employment	Economic Value	Labor Income
Scenario 1: Low Impact	9,803 New Jobs	$1,220,618,456	$363,480,493
Scenario 2: Moderate Impact	19,606 New Jobs	$2,441,236,911	$726,960,985
Scenario 3: High Impact	29,409 New Jobs	$3,661,855,367	$1,090,441,478

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Appendix C: The Advanced Broadband Study – Analysis of the Business Case for High-Speed Broadband in Topeka

Overview

CostQuest Associates presents this Executive Summary of the business case for High-Speed Broadband deployment across Topeka. The purpose of this summary is to present a full fiber deployment (FTTp) scenario for all residential, business and anchor institution locations across the City. The Advanced Broadband Model and resulting report includes a financial model and business case for build out of Gigabit-speed broadband deployment in Topeka. The questions that are answered with this analysis include:

- Is it economically feasible to build and maintain fiber to the home and business throughout the community?
- How do the economics of this deployment work for each neighborhood/area in Topeka?
- What is the upfront investment to build the network?

The results are, in fact, a feasibility study that can be used to support policy making and economic development work for the community.

The model assumes a 10-year business case that includes all aspects of deploying and maintaining an advanced broadband network across the community. This includes capital deployment costs, ongoing operations and maintenance costs and all other costs related to a growing broadband business. The model uses the most advanced geospatial and network modeling available today. The modeling approach is the same used by the FCC and many national and local broadband providers.

Summary of Approach

The methodology used to model broadband deployment across the City is data-driven and based on the same geospatial and economic modeling used by the FCC and the telecommunications industry. This Gigabit City Model drives the results of the study.

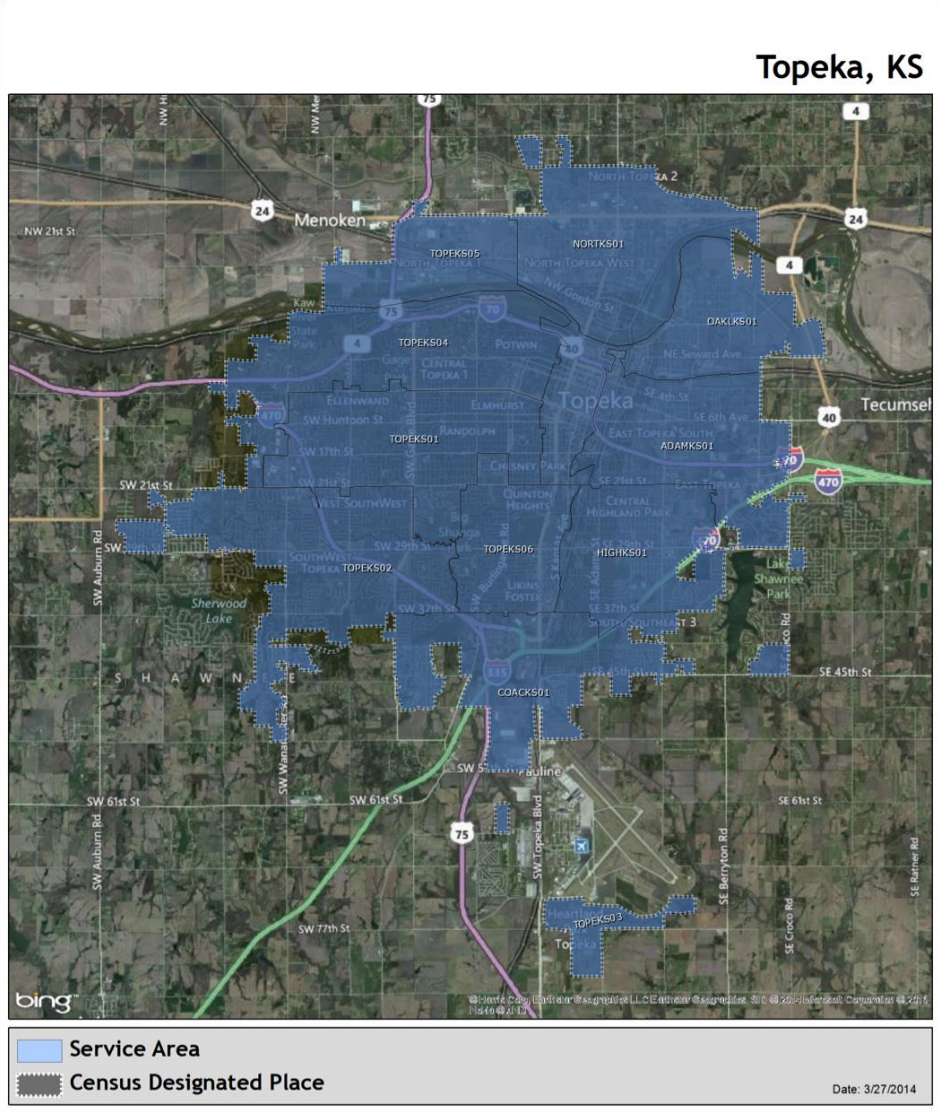
- The Gigabit Broadband Model estimates the costs and potential profitability and ultimately the viability of the network.
- The underlying geospatial/mapping model determines an efficient routing and architecture of the network.
- The underlying cost model's use of an extensive demand and demographic database provides the ability to understand potential take rates, costs, and the revenue flows related to the network plan to understand the economics of each "fiber-hood".
- The Study looks at deployment costs, the costs to maintain the network, and the expected revenue.

Key Assumptions and Inputs

Inputs and assumptions were selected through extensive research about broadband demand, service rates, network costs and engineering parameters. Inputs such as "take rate" – the number of consumers that adopt the new service – have a significant impact on

the business case for a broadband provider. The parameters of this model can be changed to reflect the reality of the local market.

Geographic Area



The geographic area modeled for the network deployment includes only those areas within the city limits, defined as a Census Designated Place. A process was also developed to aggregate neighborhoods together into common fiber service areas – or "fiber-hoods". This allows the financial analysis to be done on a neighborhood-by-neighborhood basis.

Summary of Results – Topeka

The results of the financial modeling are driven by a core set of assumptions on take rate, engineering parameters, costs inputs and revenue models. The results indicate that Topeka can support a city-wide fiber network that passes each home and business.

Demand/Subscribers

Total Locations:	70,246	Housing Units:	59,670	Business Locations:	10,576
Assumed Take Rate:	39.6%	Assumes a market-wide average take rate levelized over 10 years. Take rates vary across rate plans/services and locations types such as residential and businesses.			
Total Subscribers:	23,740	Residential:	18,710	Business/Orgs:	5,030

Initial Investment (Capital Deployment Costs with Capital associated with growth)

Total Initial Investment (upfront and success based capital costs) to Deploy Network:	$62,155,367

Summary of Business Case (levelized multi-year run rate)

Total Annual Costs:	$18,589,733	Annual Capital Costs:	$7,269,791	Annual Operational Costs:	$11,319,942
Annual Revenue:	$20,593,682	Annual Contribution Margin:	$2,003,949		
Total 10-Year Net Present Value of Business:	$12,982,047				

Subscriber Statistics

Per Active Subscriber Statistics	Capital Per Line	$3,169.00
	Net Non-Recurring Cost ("Customer Turn Up") per Line TOTAL	(93.62)
	Total Monthly Revenue Run Rate	$87.50
	Total Monthly Cost per Line Run Rate	(78.98)
	Monthly Capital Costs per line	(30.89)
	Monthly Operating Expenses Per Line	(48.09)
	Levelized Monthly Contribution per Line Run Rate	8.51

Potential Uses of the Results

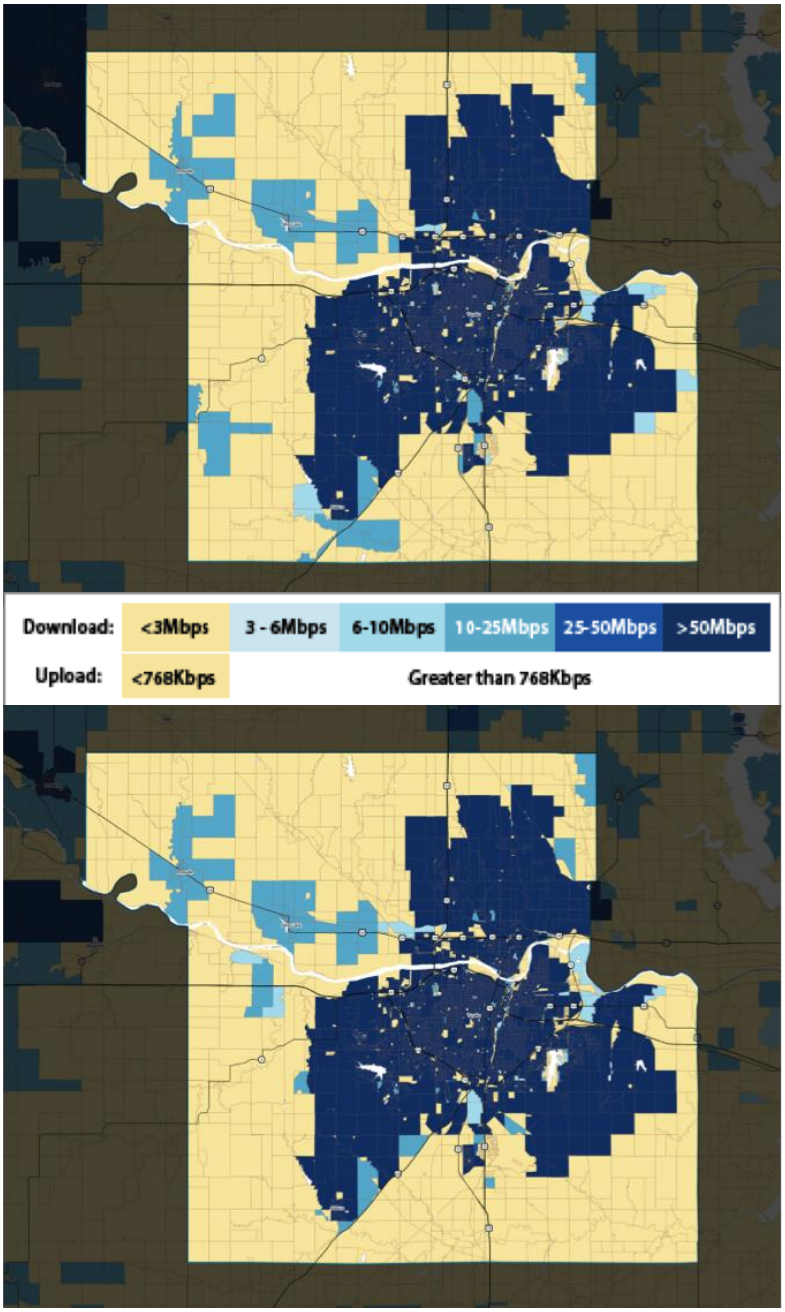
The Advanced Broadband Report can help to support the following:

- Help community stakeholders develop an understanding of the economic feasibility of a gigabit speed network – City-wide or otherwise.
- To support advocacy to policy makers and stakeholders on the value of such a network.
- To manage procurement of a private partner to deploy or manage the network and business.
- Manage leverage that the city might have, such as Right-of-way, city assets/equipment, permitting and franchising.
- To manage architecture issues and other matters that may serve to expedite build-out.
- Neighborhood demographics, demand and economic data will help to effectively manage deployment and adoption.
- Can be used to advise applications for grant, loan, and subsidy programs.

Appendix D: Examples of Shawnee County Broadband Coverage and Subscription Maps

Maps are available online at http://kansasdashboard.org/console. All coverage data comes from the National Broadband Map (www.broadbandmap.gov/); all subscription data comes from the FCC's Form 477 (http://transition.fcc.gov/wcb/iatd/comp.html).

Wired Coverage



The top map shows the wired coverage for Shawnee County in December 2011.

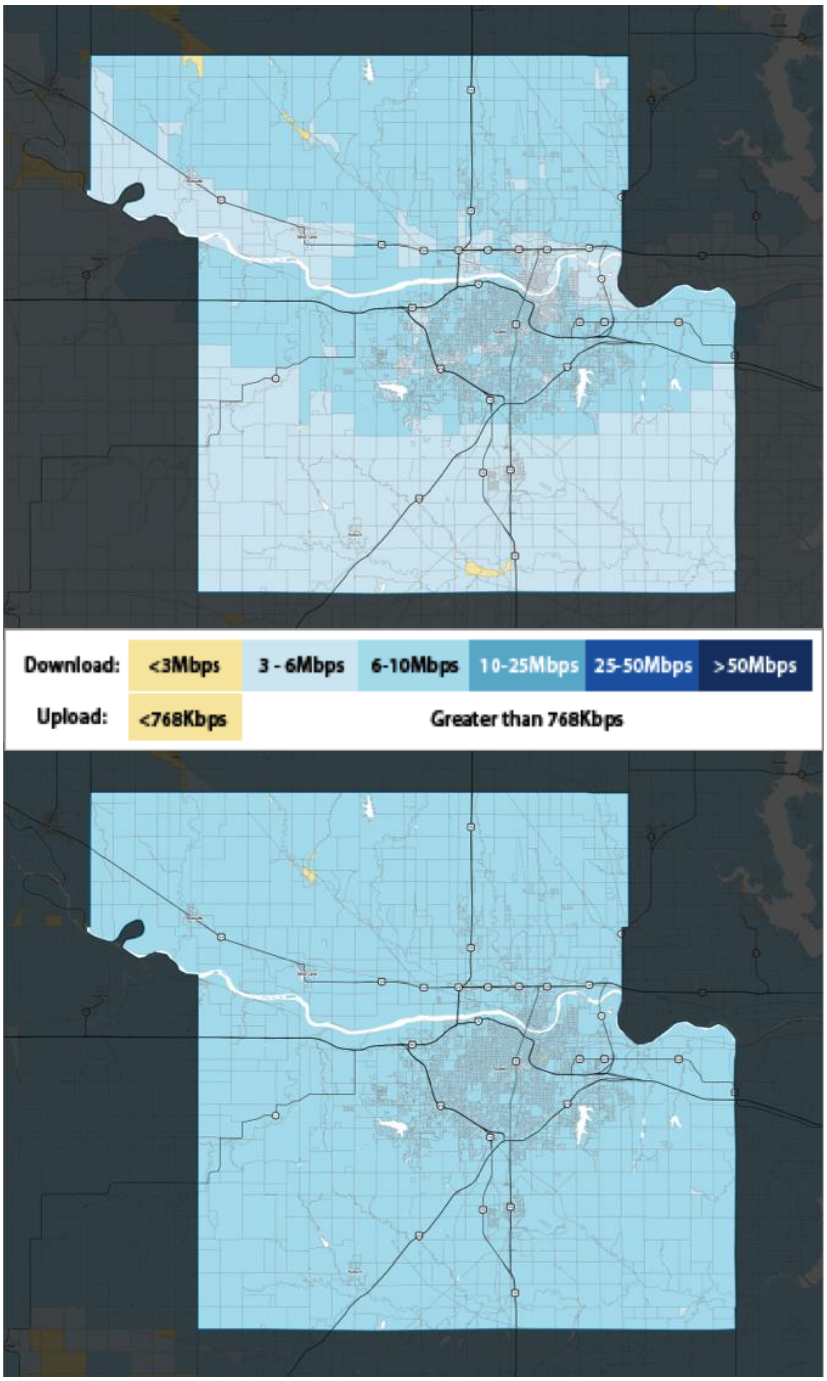
The bottom map shows wired coverage in December 2013.

Between the maps is the legend.

All data is depicted at the census block level.

These maps reveal modest changes in coverage over the period; surprisingly there appears to be overall a reduction in the outlying areas served by wireline speed 3M to 10M. This could be a reflection of improvements in the accuracy of reported data.

Fixed Wireless Coverage



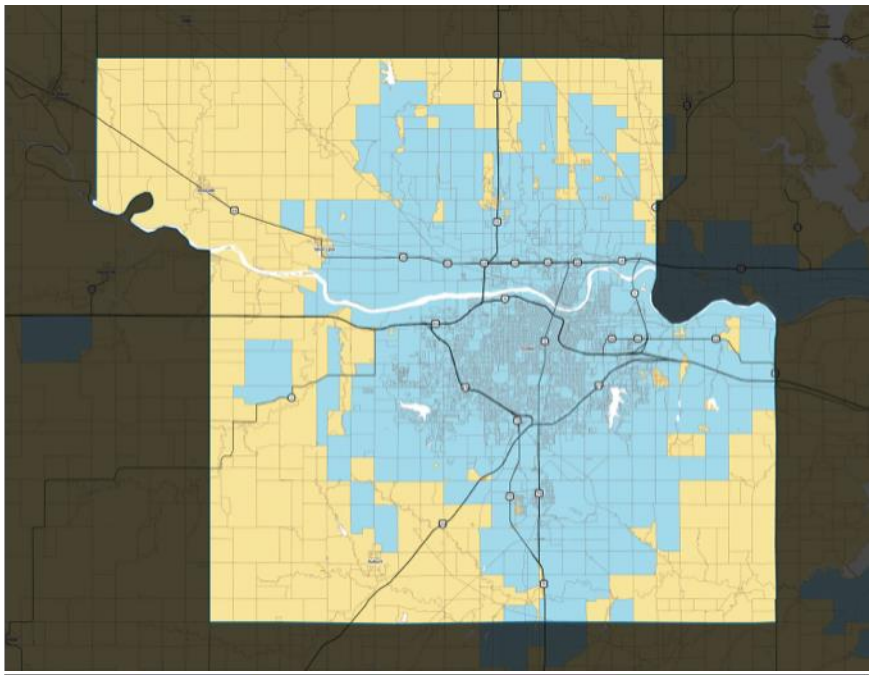
The top map shows the fixed wireless coverage for Shawnee County in December 2011.

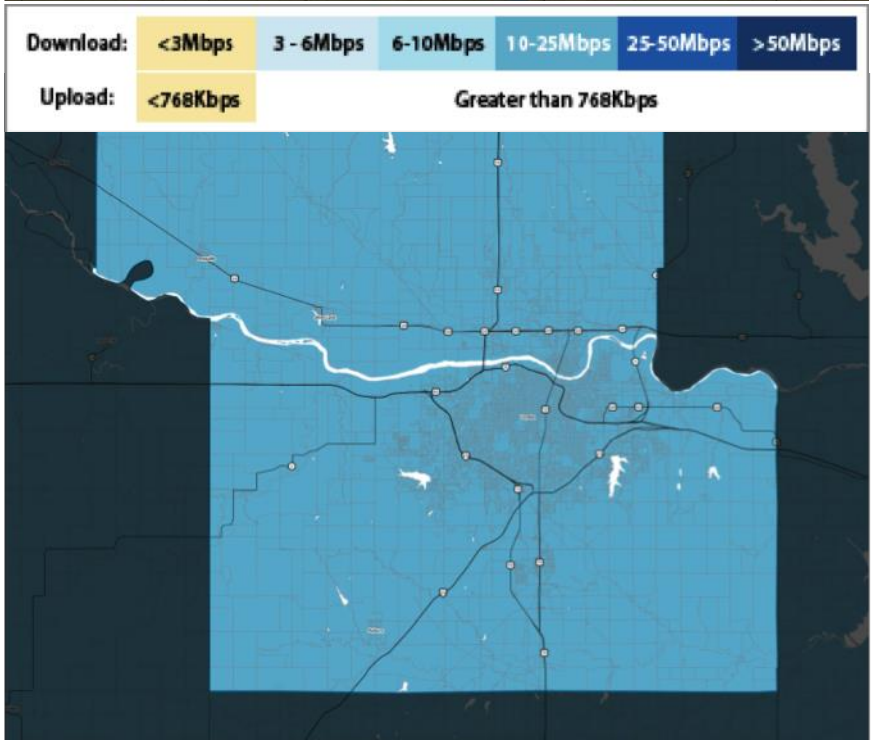
The bottom map shows fixed wireless coverage in December 2013.

Between the maps is the legend.

Comparison of the maps indicates improvements in the available speeds (from 3-6M to 6-10M) in the south part of the county.

Mobile Wireless Coverage





The top map shows the mobile wireless coverage for Shawnee County in December 2011.

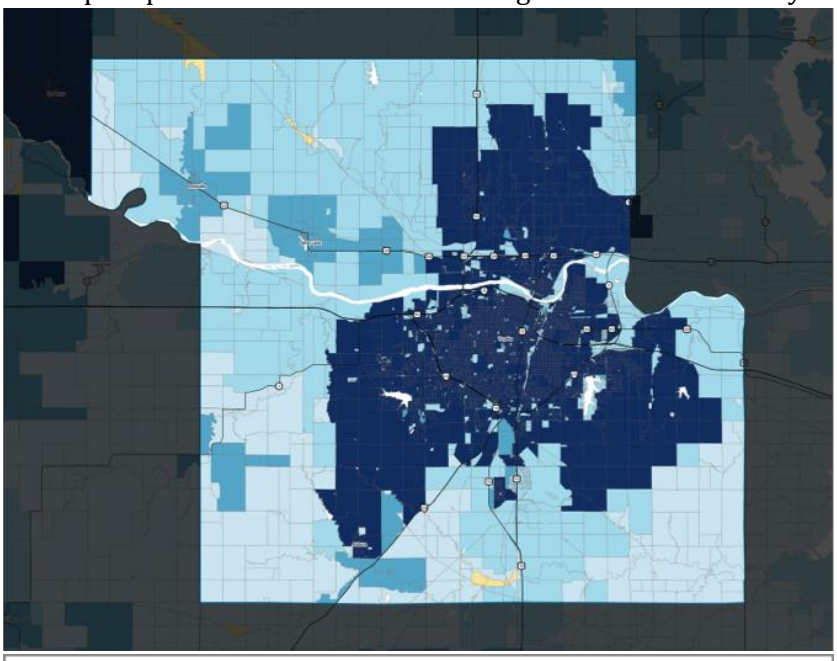
The bottom map shows mobile wireless coverage in December 2013.

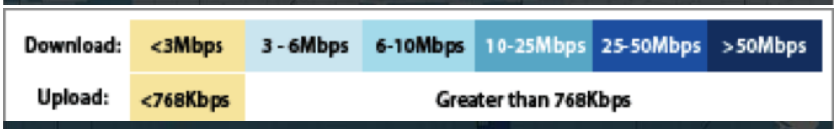
Between the maps is the legend.

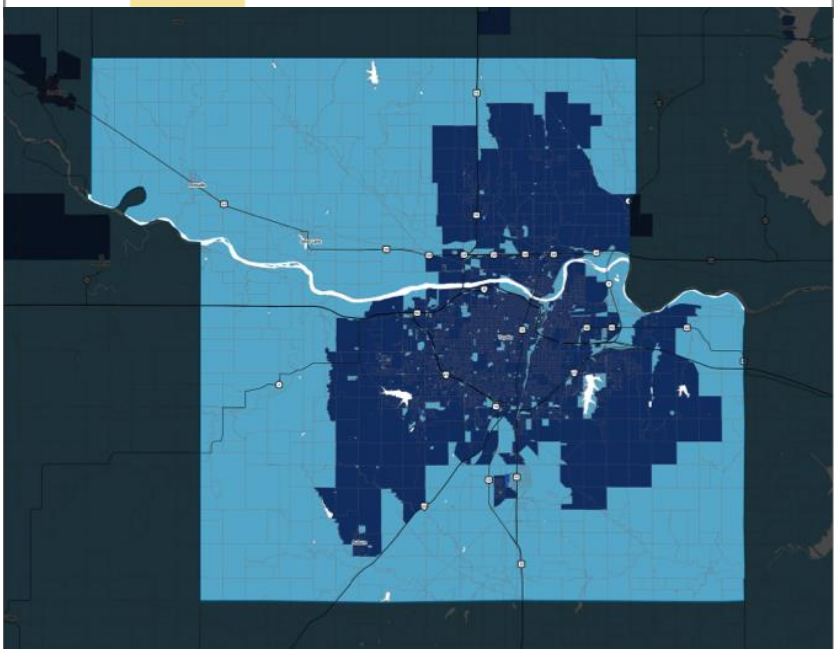
The improvement in mobile wireless coverage is clearly visible between these vintages.

Combine Coverage (Wired and Wireless)

The top map shows the combined coverage for Shawnee County in December 2011.







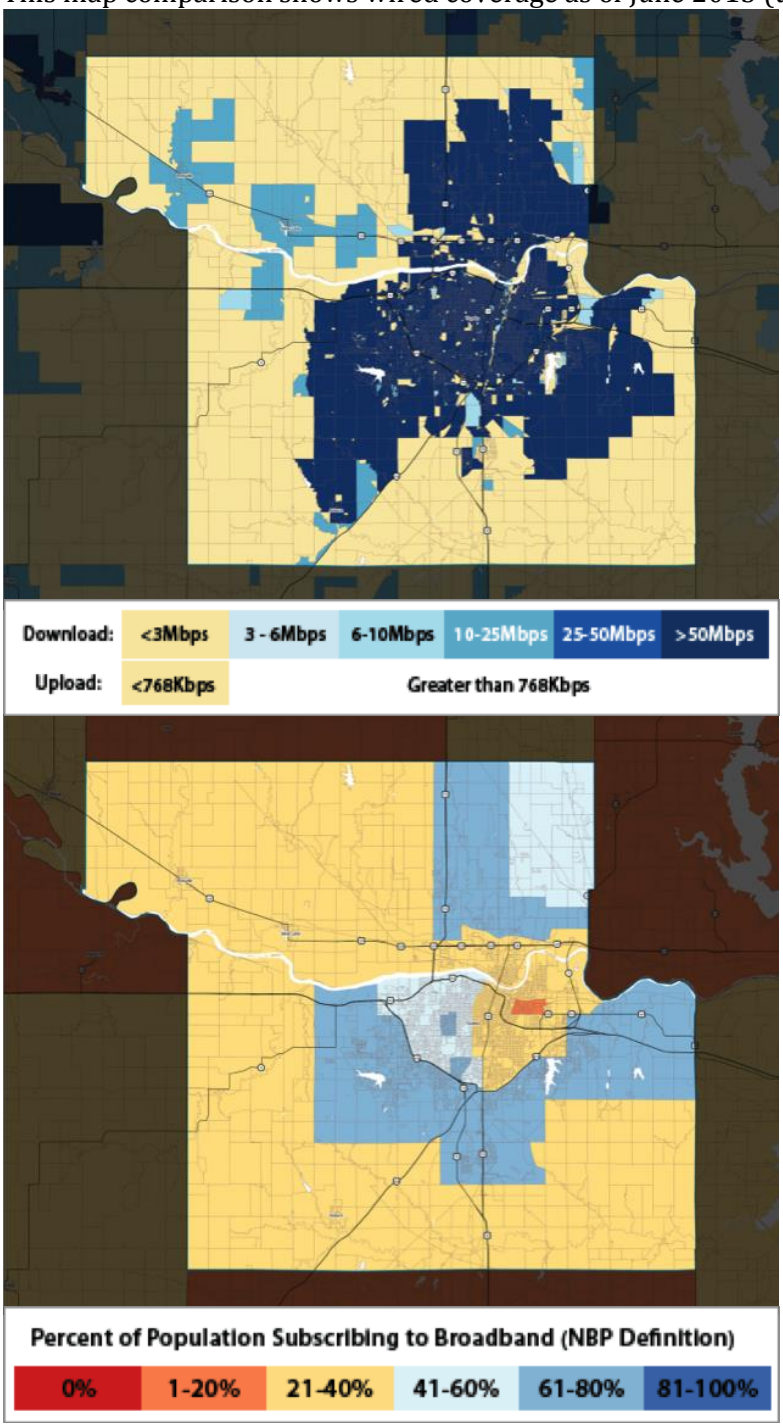
The bottom map shows combined coverage in December 2013.

Between the maps is the legend.

The combined coverage in the county has improved between Dec 2011 and Dec 2013. Previous maps comparisons (above) suggest most of this improvement is driven be fixed and mobile wireless deployment.

Subscription & Wired Coverage

This map comparison shows wired coverage as of June 2013 (top map) and subscription rates as of June 2013.



The wired map (top) depicts the coverage at the census block level.

The subscription map (bottom) depicts subscription rates at the census tract level.

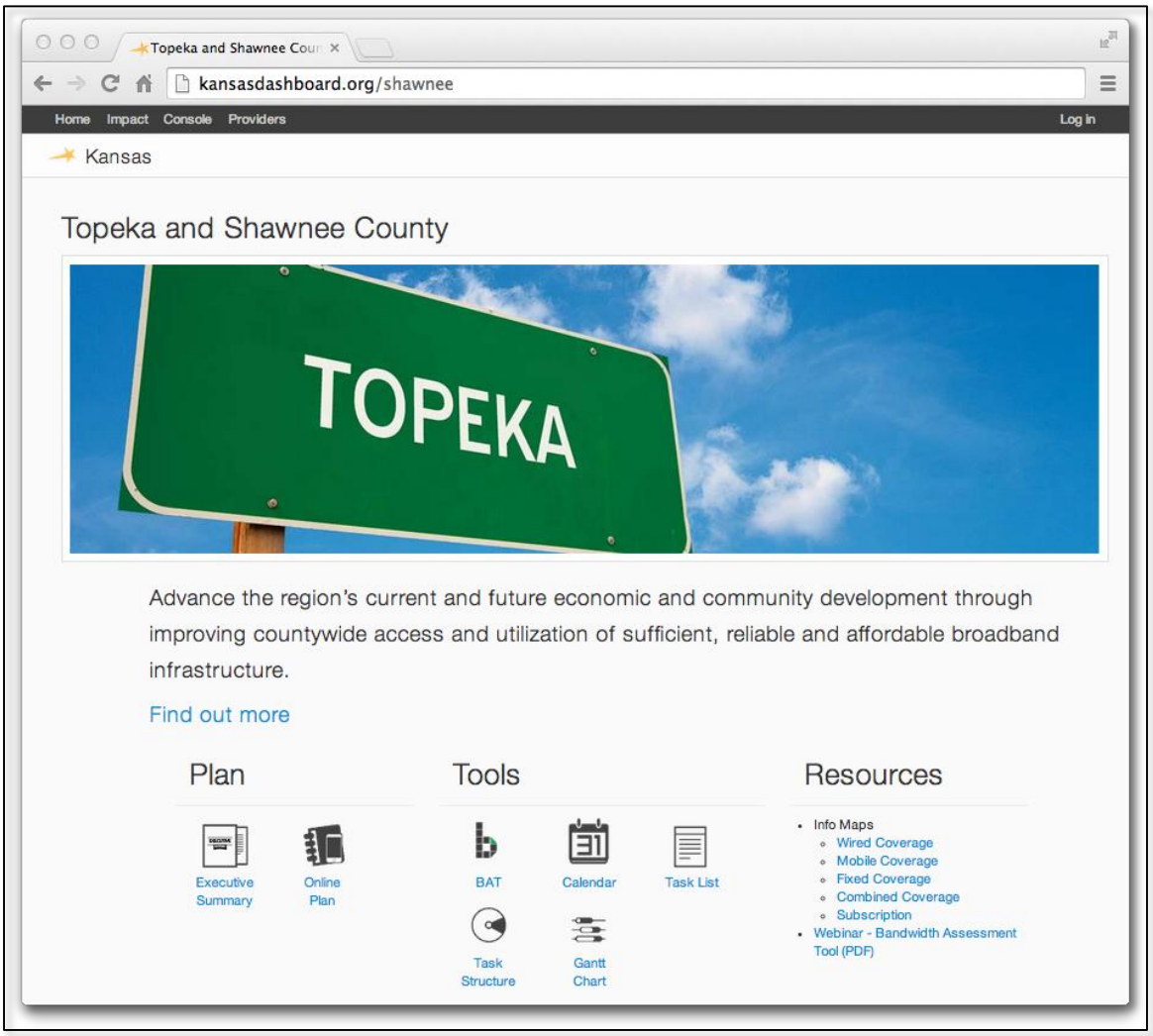
The legends for both maps are directly beneath each.

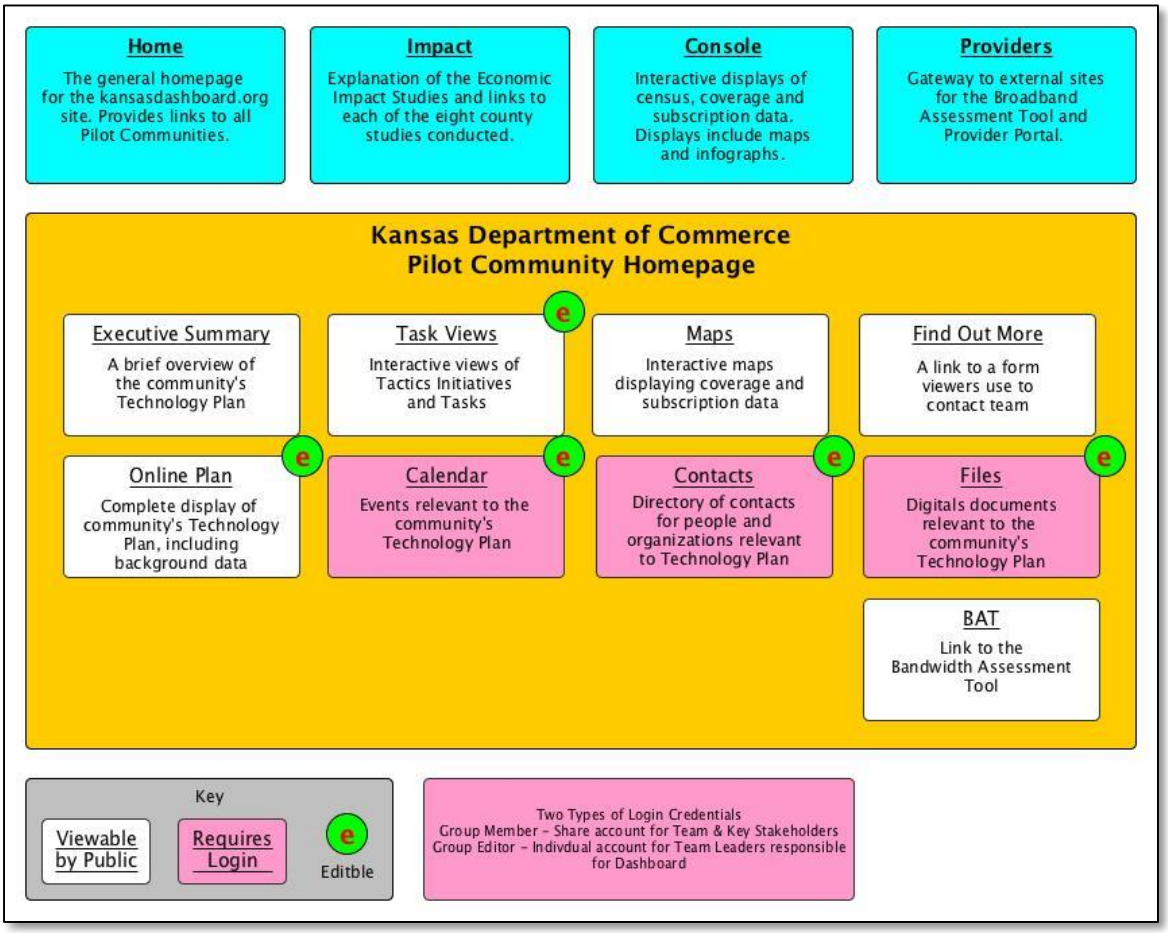
Appendix E: Topeka / Shawnee County Plan Implementation Dashboard Overview

The Topeka / Shawnee County Technology Plan is loaded on a web-based dashboard designed to support the management and implementation of the plan. The Topeka / Shawnee Dashboard is located at: http://kansasdashboard.org/shawnee

Below are two images:

1. A screen shot of the Topeka / Shawnee Homepage and
2. A diagram of the dashboard content.





The Topeka / Shawnee Homepage is housed in the Kansasdashboard.org site, which supports multiple pilot community technology planning efforts.

In the diagram, the yellow block represents the Topeka / Shawnee Homepage and the blue blocks above represent global links for the overall Kansas Dashboard. Global links include:

- Home - The general homepage for the kansasdashboard.org site. Provides links to all Pilot Communities.
- Impact - Explanation of the Economic Impact Studies and links to each of the eight county studies conducted.
- Console - Interactive displays of census, coverage and subscription data. Displays include maps and infographs.
- Providers - Gateway to external sites for the Broadband Assessment Tool and Provider Portal.

Inside the yellow pilot community block, there are white boxes that represent publicly viewable content and pink boxes that represent content that requires a login to view. Boxes with a green circle indicate content areas that can be managed by the Group Editor.

Appendix F: Topeka / Shawnee County Bandwidth Assessment Tool Overview

Broadband is now an essential commodity as opposed to a 'nice to have' value added service. However, two challenging dynamics have surfaced with the advancement of commercial-level broadband.

- Businesses large and small struggle to clearly understand and articulate their broadband service requirements…especially as they look to future demand.
- Matching supply and demand is more and more complicated as more businesses seek out more providers – and as providers continue to expand their broadband service options.

CostQuest developed the Broadband Marketplace to address these challenges.

The Broadband Marketplace consists of two online tools. The first tool is called the Bandwidth Assessment Tool. This tool allows consumers (businesses, organizations, and residential consumers) to assess their broadband needs and see what providers serve their location. The second tool, called the Provider Portal, is for Broadband Providers (ISP's). This is a mapping tool that allows service providers to see where demand is and potentially respond to consumers requesting service.

The Bandwidth Assessment Tool

The Bandwidth Assessment Tool is available online at:

https://apps.costquest.com/bat/home.

It is a straightforward three-phase process that collects information from the user, employs that information in its bandwidth assessment process, and develops a report on user bandwidth requirements.

- Questionnaire: The first phase consists of a questionnaire which will ask the user about the location of the service and broadband use.
- Assessment Report: Once the questionnaire is completed, the Assessment Report takes into account the location, use, capacity, and future need metrics and provides an accurate and real-world assessment of the bandwidth necessary, including a recommended speed. The report also details the providers that serve that location at the assessed speed.
- Connecting Supply and Demand: Once the bandwidth needs have been assessed and reported, the consumer has the option of requesting that providers respond to their request for service.

The Provider Portal

The Provider Portal can be accessed by Providers online at:

https://apps.costquest.com/pp/ks

The portal allows Internet Service Providers (ISPs) the option to engage with the tool and monitor demand. As demand is registered, with users' consent, the ISPs will contact the business or consumers to explore how their service can meet requirements. The real time connecting of supply and demand supported by the tool's associated bandwidth assessment information provides a significant benefit to both sides of this important discussion. ISPs can monitor demand as it is registered online through the Bandwidth Assessment Tool and connect with prospective customers.

The Provider Portal has also proven useful to local stakeholders that want to monitor outreach efforts for identified community sectors, neighborhoods, and community anchor institutions that have completed a Bandwidth Assessment Survey.

Who Can Benefit From These Tools?

Economic development specialists can use the Bandwidth Assessment Tool (BAT) when meeting with existing or prospective business interests to help them better understand their current and future broadband needs and explore how their location-specific requirements can be met by Internet Service Providers within the local community.

Businesses can use the BAT to determine their broadband needs, current and future, and determine which Internet Service Providers in their area can meet that need.

Residential consumers, especially those with high-end needs related to operating a small business from their home, those involved in remote learning environments, those making use of remote healthcare offerings, etc., can use the BAT to estimate their bandwidth needs with more confidence. They can then use this information to make an informed decision when shopping for an Internet provider.

Broadband advocates can use the BAT to highlight the need for broadband in their communities. By creating a "survey group", and asking residents and businesses in their community to complete the BAT survey under the identified group name, the advocate(s) can get aggregated broadband need results and use that information to bring attention to broadband demand.

Internet Service Providers can use the Provider Portal to connect with potential customers and be informed about current and future bandwidth needs in the areas they serve or to inform potential built-out into new areas.