

## **CURRY COUNTY TELECOMMUNICATIONS STRATEGIC PLAN**



Antenna East of 101 – Photo from Cape Blanco Airport

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Curry County

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"This 'telephone' has too many shortcomings to be seriously considered as a means of communication. The device is inherently of no value to us."

*Western Union internal memo, 1876*

"There are those who look at things the way they are, and ask why... I dream of things that never were, and ask why not?"

*Robert Francis Kennedy, 1925 - 1968*

# CURRY COUNTY TELECOMMUNICATIONS STRATEGIC PLAN

## Executive Summary

Telecommunications is the central nervous system of the American economy. It has revolutionized virtually every aspect of our lives and every industry, from education and health care to banking and finance. To remain competitive in the world Curry County businesses, institutions and residents must have available to them the most advanced telecommunications technologies and services AND the knowledge of how to use them.

We present this Telecommunications Strategic Plan to Curry County with the understanding the work has just begun and that we need to continue our efforts together. Fostering development of a 21<sup>st</sup> century knowledge-based economy means building on our existing strengths while adding additional diversification to the economy. Successful implementation of the recommendations depends on continuing community participation, cooperation and collaboration.

Economic diversification is the cornerstone of a healthy, growing 21<sup>st</sup> century information age county. By taking full advantage of telecommunications, Curry County is poised with the opportunity to become a world-class destination for a wide variety of businesses, healthcare, retirees and tourism.

Curry and surrounding counties are examples of what has been termed “the rural challenge”. There is a growing awareness of the barrier to economic and quality of life growth presented through the lack of access to advanced telecommunications services (i.e., broadband). There is a growing understanding of the role of telecommunications and what it takes to foster the changes necessary to meet growing demands of the region.

Changes in the area’s economy and demographics are such that now we can bring market opportunities to the attention of other providers and private sector investors. One needs look no farther than the recent Charter announcement for an example. While it took the better part of a couple of years of behind the scenes negotiations and encouragement, the result we expect by late 2007 is nothing less than removing the cork from the bottle that has been containing the genie of economic development hoped for by many in the county.

Additionally, we need to continue to drive the discussion on route redundancy to a new level of awareness. Collaboration with other regional players is required. This is underway and growing.

Education and workforce preparation is underway and deserves to be bolstered and supported by the community to meet increasing demands of the 21<sup>st</sup> century digital economy. This includes tourism and new ways to use technology.

Across the county we see “IT using” on a fairly regular basis with impacts on daily tasks. “IT using” includes use of email and web browsing to raise the quality and lower the costs of gathering market intelligence and communicating with suppliers and customers.

There is considerable opportunity to further expand the use of IT in the county, to integrate it more fully into daily operations and lives. “It enhancing” includes developing and integrating more complex “e-business” applications, such as Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP), that can enable whole new business processes and

models, such as automated online supply chain management and online sales into geographically distant markets. This is the next level of IT use and the level at which we see the greatest benefits to an economy.

Successful integration into the 21<sup>st</sup> century economy depends on ubiquitous broadband along with widespread knowledge of how to take full advantage of the resource. Thus the criticality of the role played by the workforce development agencies and education in providing 21<sup>st</sup> digital age education and continuous learning opportunities.

Three broad goals are recommended (Activities, Tasks and Responsible Party are spelled out in the body of the report).

### **Goal 1 –Curry County’s Telecommunication Services Match 21<sup>st</sup> Century Demands**

#### **Strategy**

***Encourage and support the continued growth of the Curry County telecommunications infrastructure so that employees can be as efficient as possible, healthcare providers can provide the highest levels of care for patients, businesses and all organizations can be competitive as they see fit in the global economy, and residents can have every access to education, information and services.***

- Activity 1.1 Establish a Standing Information Technology Advisory Committee
- Activity 1.2 Support and Facilitate Availability of Broadband
- Activity 1.3 Support and Facilitate Availability of Quality Cellular Phone Service
- Activity 1.4 Establish ordinances for broadband conduit construction
- Activity 1.5 Support and Facilitate Regional Route Redundancy
- Activity 1.6 Establish a regional exchange point
- Activity 1.7 Identify funding to support continued planning efforts

### **Goal 2 -- Curry County’s Workforce Is 21st Century Ready**

#### **Strategy**

***Ensure that all Curry County workers have the opportunity to equip themselves with the necessary tools to succeed in their careers and in whatever field they choose in this new and dynamic global digital economy. Encourage entrepreneurship, provide for life-long learning and promote growth of existing businesses. Build on existing programs and relationships.***

- Activity 2.1 Ensure development of a 21<sup>st</sup> Century Workforce
- Activity 2.2 Promote and Support Small Business Growth
- Activity 2.3 Develop Programs to Ensure Adequate Supply of Trades Workforce
- Activity 2.4 Evaluate the Potential for Community Development Resource Centers

### **Goal 3 -- Curry County Is A Full Participant in the 21<sup>st</sup> Century Economy**

#### **Strategy**

*A knowledge-based digital economy will be a significant component of the 21st century economy and serve as an added dimension for promoting economic opportunities in Curry County.*

- Activity 3.1 Promote Curry County's Telecommunication Assets
- Activity 3.2 Include 21<sup>st</sup> Century Factors In Economic Development Policy
- Activity 3.3 Continue the Regional Approach to Economic Development
- Activity 3.4 Develop an "Independent Living" Pilot Project
- Activity 3.5 Promote Increased Telework/Telecommuting Opportunities
- Activity 3.6 Promote expanded use of telehealth/telemedicine technologies

Researching and developing this set of recommendations was a great opportunity to discover the positive attributes of Curry County, especially its growing telecommunications infrastructure and service offerings. It was exciting to see the Charter announcement and to project the impact from this greatly expanded broadband capacity. More exciting is the obvious energy and dynamism of a number of the residents and their sincere interest in moving Curry County into the 21<sup>st</sup> century. Probably one of the most remarkable findings is the degree to which county residents are willing to pitch in and work together. Curry County has the potential for a great future.

Achieving the goals identified in this Telecommunications Strategic Plan will result in positive impacts to the economic climate and will also positively impact the quality of life for residents.

We may not be able to predict the future but we sure can prepare for it.

## Preface

We present this Telecommunications Strategic Plan to Curry County with the understanding the work has just begun and that we need to continue our efforts together. Fostering development of a 21<sup>st</sup> century knowledge-based economy means building on our existing strengths while adding additional diversification to the economy. Successful implementation of the recommendations depends on continuing community participation, cooperation and collaboration.

We can add diversity and resilience to our economy and share in the successes others have demonstrated are possible. Adoption of the policy elements of this Plan will provide a basis for regional collaboration and cooperation that benefits public and private sectors, encourages competitive approaches to provisioning of critical services and provides substantial support for pursuing a variety of strategies.

Please note that this is a strategic plan not an engineering plan. With this plan we seek to set in place agreed to policies to provide a coordinated approach to the emerging digital economy for which broadband is critical.

“The implication for policy makers is that **a portfolio of broadband-related policy interventions** that is reasonably balanced (i.e., also pays attention to demand-side issues such as training) is more likely to lead to positive economic outcomes than a single-minded focus on availability.”<sup>1</sup>

For these recommendations to have meaning, they must be acted upon. Throughout the development of this plan the approach taken was to actualize immediately where possible (e.g., the Charter announcement) and to build paths to actualization through building of relationships. Those relationships are a key to progress and are not readily transferable through written reports. For this reason there is a compelling interest in sustaining the many complex threads under consideration at this writing. The Consultant will continue to work with county residents and remain engaged even after the end of the contract period.

The project was funded in part with Oregon State Lottery Funds administered by the Oregon Economic & Community Development Department

## **The Importance of Telecommunications**

Telecommunications is the central nervous system of the American economy. It has revolutionized virtually every aspect of our lives and every industry, from education and health care to banking and finance. Between 1995 and 2004, advances in telecommunications and information technology were responsible for as much as 75% of U.S. labor productivity gains.

To remain competitive in the world Curry County businesses, institutions and residents must have available to them the most advanced telecommunications technologies and services AND the knowledge of how to use them. The Curry County Telecommunications Strategic Plan recommends coordination with telecommunications efforts of Del Norte County in California. The county will benefit from an integrated and regionally based cooperative strategy; including private sector interaction and legislative remedies where deemed necessary.

In Curry County this will have a positive impact on the entire community by expanding opportunities for business development, jobs, access to quality healthcare, and educational opportunities. Likewise, it will serve to leverage the reliance on traditional forms of transportation and commerce, and lessen any negative impacts the county may have due to its physical isolation.

Today we find ourselves confronting rapidly changing economic realities as well as the many existing challenges that present themselves to areas such as Curry County. Discussion of ways to move the region forward frequently turns to the impediments of not having widely available and affordable advanced telecommunications infrastructure (i.e., broadband). A recent announcement of advanced telecommunications services from Charter in the region is a good first step forward to removing this barrier to economic and quality of life improvements.

To ensure a continuing expansion of the supply of telecommunications services we need the additional participation of current and emerging telecommunications services providers. It is also in their best interests in serving the public needs (i.e., customers) to be engaged in these planning processes. By no means are we finished with our infrastructure growth. New applications are coming on line everyday and these applications require more and more bandwidth.

Of critical importance is to recognize that having the tools to enable our future as a 21<sup>st</sup> century knowledge-based economy at our disposal is only one part of the equation. A parallel effort needs to occur on the demand side of the equation. Here we must assist our residents, businesses, educators, elected officials and others in understanding how to integrate these technologies into their lives, whether for profit, for service, or for entertainment purposes. Lifelong education and workforce development absolutely must be addressed for us to succeed with these tools.

Economic diversification is the cornerstone of a healthy, growing 21<sup>st</sup> century information age county. By taking full advantage of our telecommunications infrastructure, Curry County is poised with the opportunity to become a world-class destination for a wide variety of businesses, healthcare, retirees, tourism and more. A 21<sup>st</sup> century county benefits from leveraging the communication technologies available to it, improving the quality of life and standards of living for all residents. Listed here are just a few of the ways in which we will all benefit:

- Access to world-class telecommunications services that will enable community leaders to actively recruit companies to the county.
- Family wage jobs will become the rule and not the exception due to expanded employment opportunities.
- New options will become available for businesses to establish operations in rural areas as well as providing employees with the choice of working from their homes.
- Educators and students alike will have the opportunities to develop skills and knowledge by employing telecommunication services to work with and learn from people around the world.
- Healthcare options will grow dramatically for communities and their residents in the area. Online consultations, diagnostics, and patient monitoring will be available to those requiring special assistance. Medical staff will have access to state-of-the-art training.
- Public safety, of greater concern than ever before, will operate with improved efficiency and responsiveness.
- Housing will become more affordable due to rising incomes of prospective homebuyers.

### **Broadband Matters -- Here's Why!**

Quantitative studies conclude that

“...communities in which mass-market broadband was available experience more rapid growth in employment, the number of businesses overall, and businesses in information technology (IT) intensive sectors. The assumed, and oft touted, economic impacts of broadband are both real and measurable.”<sup>2</sup>

Yet perhaps we should not be too surprised that many are not yet acquainted with the myriad benefits of broadband nor how it impacts the economy and quality of life for a region. After all this has been one of the fastest growing phenomenons of human history. Widespread availability and use of cost-effective, always-on, faster-than-dialup access to the Internet is a relatively recent phenomenon in the U.S., with the first commercial deployments appearing only in the second half of the 1990's.

The businesses, institutions, communities, and residents that leverage the Internet will thrive, and those that do not will falter. The Internet today is the major transportation network for the economy of the 21<sup>st</sup> century. Each day sees additional recognition of just how essential it has become for business and 21<sup>st</sup> century society. Too often we forget that even while its dominance grows, it is still in its infancy as the key infrastructure underlying the global economy. We need to remind ourselves that the first major commercial browser permitting easy access to the World Wide Web, Netscape, was introduced in 1995, a mere ten years ago. At that time our only access to the Internet was over slow and often unreliable dial-up modems. Now in many locations we have access to faster and more reliable broadband. Since that time of the first commercial browser, the Internet and the World Wide Web has leveled the playing field around the globe.

Measuring the economic impact of broadband is difficult, as broadband does not act on the economy by itself, but in conjunction with other IT and associated organizational changes. The

effects of broadband may be strongest in non-farm, non-manufacturing industries, where productivity improvements are typically less well captured by economic data.<sup>3</sup>

Adoption of broadband-enabled IT applications can affect the economy by changing the behaviors and productivity of both firms and individuals. Studies have focused on changes to firm behavior, finding that these generally lie on a spectrum, with the highest payoffs in enhanced productivity appearing in the firms that commit most intensively to integration of IT into new business processes. For example, a number of researchers distinguish between “IT using” and “IT enhancing” firms. The former simply adopt existing Internet applications to make current business processes more productive: for example, they use email and web browsing to raise the quality and lower the costs of gathering market intelligence and communicating with suppliers and customers. The latter develop and integrate more complex “e-business” applications, such as Customer Relationship Management (CRM) and Enterprise Resource Planning (ERP), that can enable whole new business processes and models, such as automated online supply chain management and online sales into geographically distant markets. To the extent that the availability and use of broadband fosters either type of IT adoption and usage by firms, productivity improvements and other associated economic impacts follow.<sup>4</sup>

Other studies have focused on the effects of IT on individual workers. IT tends to complement workers that perform non-routine problem solving and complex communication tasks, but substitutes for workers who perform cognitive and manual tasks that can be accomplished by following explicit rules. While both effects could be expected to increase productivity, the overall effect on employment is ambiguous and would depend on the mix of different types of jobs in the economy.<sup>5</sup>

While much of the IT productivity literature has focused on workplace usage, much of the focus of broadband policy has been on residential deployments. Broadband at home may of course be used for leisure pursuits, but it can also be expected to affect the economy both directly and indirectly. For many knowledge workers, a residential broadband connection is a prerequisite for working at home (enabling productive use of non-traditional working hours, flexible work arrangements, or remote employment), or for establishment of a home-based business, such as an individual consultancy (contributing to new business formation). Less directly, expanded broadband availability at home may raise the quality of the labor force, for example through improved access to educational opportunities via distance education programs, thus making a locale more attractive to potential employers. Similarly, home-based access may improve quality of life, for example by enabling more participation in community and civic activities, making a locale more attractive to potential residents. Somewhat more directly, home-based access may enable more effective (i.e. online) job hunting, reducing unemployment by making labor markets more efficient. It may also make workers more productive by reducing the overall time needed for them to fulfill non-work obligations, e.g. via online bill payment, shopping, telemedicine, and so forth. As with firm usage of IT, however, the overall effect of home-based broadband usage on local economic indicators is not obvious *a priori*. While online banking and shopping may make local workers more productive, it is also likely to put competitive pressure on local banks and retail stores, leading to ambiguous effects on the number of local jobs.<sup>6</sup>

“The present study [“Measuring Broadband’s Economic Impact”] has several clear implications for policy-makers. The most obvious and important implication is that broadband *does* matter to the economy. Policy makers who have been spending their time or money promoting broadband should take comfort that their efforts and investments are not in vain. Many significant public

policy reforms and programs are in place or under consideration at the federal, state, and local levels to ensure competitive availability of broadband to all U.S. citizens, stimulate ongoing investment in broadband infrastructure, and facilitate the education and training that small business and residential customers need to make effective use of broadband’s capabilities. Such policies are indeed aimed at important goals. Broadband is clearly related to economic well-being and is thus a critical component of our national communications infrastructure.”<sup>7</sup>

“The implication for policy makers is that a portfolio of broadband-related policy interventions that is reasonably balanced (i.e., also pays attention to demand-side issues such as training) is more likely to lead to positive economic outcomes than a single-minded focus on availability.”<sup>8</sup>

Appendix 2 contains in-depth description of areas impacted by broadband highlights some of the significant driving factors of the added value gained through ubiquitous broadband, why it is no longer a luxury item but now rises to the level of “critical” for daily living. These uses and benefits also point to why broadband is more than ever a matter of public AND private policy.

**Transitioning to the 21<sup>st</sup> Century Economy -- *the Digital Economy***

We are now well underway in the transition to the 21<sup>st</sup> century digital economy. This is the century of the knowledge-worker. To compete in this emerging economic reality we need to be connected and we need a population that is prepared to take advantage of the opportunities Information Technology (IT) affords. In the new global economy information and communications technology is the major driver, not just of improved quality of life, but also of economic growth. Moreover, there are strong indications that IT has the potential to continue driving growth for the foreseeable future. (see Appendix 3 for a more in depth discussion)

Each era has critical, enabling infrastructures, for example:

<i>Era</i>	<i>Infrastructure</i>
• Agriculture (pre 1880’s)	Roads, Irrigation, Canals, Ocean Navigation
• Industrial (1880’s - 1980’s)	Electric, Rail, Highways, Telephone
• Knowledge (1980’s - )	Computing, Communications

We now are in the Knowledge era. The nature of work is changing and requires a new set of skills. A knowledge-worker is:

- A problem solver versus a production worker;
- A person who uses intellectual rather than manual skills to earn a living;
- An individual who requires a high level of autonomy;
- A manipulator of symbols;
- Someone paid for quality of judgment rather than speed of work;
- A worker who uses unique processes;
- Someone who possesses un-codified knowledge, which is difficult to duplicate;
- A worker who “sources” between his ears;
- Someone who uses knowledge and information to add to deeper knowledge and information.

County leadership has a role to play by ensuring that we are taking all necessary steps to realize our potential in the 21<sup>st</sup> century knowledge-based economy. This means demonstrating leadership in fostering:

- A competitive market place for continuing growth in the provision of high-speed services that are reliable, affordable and everywhere.
- A highly educated workforce
- Participation in global markets and competition
- A high quality of life

In a connected 21<sup>st</sup> century county:

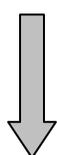
- High-speed services are reliable, affordable and everywhere.
- Parents participate more easily in their children's education.
- Public services are on-line 24x7.
- Businesses are dynamic and able to serve the needs of local and global markets.
- Work moves to where people want to live.
- Education is more personal and convenient.
- People coordinate with their doctors to practice preventive healthcare.

### **Assessment Summary**

Telecommunications is no longer just about making a phone call. We do not exist in a vacuum. What happens at the global, national and state levels have an impact on our county's telecommunications environment. We must have access to the rest of the world.

In the Assessment Report, Telecommunications Reports Parts 1 & 2 (April 19, <http://tinyurl.com/2edy66>, <http://tinyurl.com/yqb7k9> and <http://tinyurl.com/ypmbfx>), we describe a profile of the county across several dimensions. We find that Curry County in many ways mirrors the emerging provisioning and utilization of broadband found elsewhere. Yet, just as in many other areas of our nation, we are by no means at the end of the journey to providing access neither to broadband nor to benefiting from the myriad opportunities afforded by broadband. The more densely populated areas of the county have these resources. Yet many parts of the more rural areas of Curry County still have neither "reasonable access" nor "reasonably priced" broadband available to them. Perhaps of comparable concern is the challenge residents face of how to best use these powerful technologies and how to prepare our workforce for the inevitable rise of the knowledge-based economy.

On a generally used "connectedness and readiness" scale, Curry County ranks a solid number two and with distinct movement toward the third level of readiness:



1. Services are hard to get or expensive; few use the Internet regularly.
2. High-speed services are more widely available; local web sites are limited.
3. General access to high-speed services; web sites support transactions.
4. Universal access to high-speed services; the Internet has changed the way all organizations operate and is fully integrated into everyday life.

Since the issuance of those assessment reports we can add two additional updates. The first has to do with the Charter build. This has been described as “getting around the big rock”, Humbug Mountain.



Figure 1 - Humbug Mountain

As of this writing, even with a serious interruption due to vandalism, Charter remains on schedule for a completion of the plant build in the summer of 2007. By mid-June 2007 the connection testing commenced. Given the other aspects of this expansion the likelihood is that the work will be completed with new service offerings by year-end. The end result will be a Coos Bay to Crescent City GbE service capability.

The other item worth updating is the opportunity for incorporating the Cape Blanco airport and the adjacent county owned property into an economic development opportunity.



Figure 2- Cape Blanco Airport (satellite view)

This untapped resource takes on a new dimension with the realization of the Charter telecommunications expansion. Here is an example of where broadband can make a defining difference in economic development potentials. While there's much to be understood here, the potential is intriguing and deserves additional exploration.



Figure 3 - Cape Blanco Airport (landing view showing proximity to Port Orford)

## Strategic Plan

**Mission Statement** – “Curry County is connected to the 21st century... *and the world knows it!*”

Curry County is advancing rapidly into the 21<sup>st</sup> century and aggressively looking towards a high-tech future. Economic Development means three things: attracting new businesses, retaining existing business and nurturing entrepreneurial enterprises that will provide good family wage jobs. Curry’s location, climate and continually growing state of the art telecommunications make Curry County an ideal location for information technology enhanced businesses.

### **Vision Statement – 2010 and beyond**

Vision statements convey a picture of “what is to be”. What follows is one such picture of the future for Curry County residents.

Knowledgeable usage of IT and advanced telecommunication technologies spur economic development and enhance the quality of life of all county residents. Government, businesses, healthcare, not for profits and education all benefit from access to a reasonably priced, robust telecommunications infrastructure that provides maximum flexibility, growth and expandability.

The Curry County Information Technology Advisory Committee (ITAC) monitors and reports annually to the Commissioners on the status of telecommunication infrastructure and usage. The ITAC is composed of volunteers from a variety of sectors and interests in the county and serves as a liaison between countywide telecommunication stakeholders and service providers, and, through regular community forums, fosters an environment of open communication, cooperation and collaboration with the providers of communications services, ensuring that the area’s needs are being adequately communicated and serviced. On-going community forums throughout the county educate and promote the use of a variety of technologies. At these public meetings input received from attendees is compiled by the ITAC and shared at least annually with business, education, county and city government, and service providers.

Businesses thrive in Curry County due to our unique mix of traditional and technical occupations. Route redundant telecommunications infrastructure attracts high technology using firms to the area. Due to the availability and knowledge of how to use advanced telecommunications services even small businesses find it easy to compete in the global market. All businesses meet and exceed their goals for production and expansion. Family wage jobs, and even higher wage jobs, are plentiful. Residents’ income will be such that home ownership is readily attainable.

Residents go on line to obtain local, state and federal government services; they get building permits, pay traffic fines, access property information and pay their taxes. The list of services changes periodically because county and city governments, through surveys, on-line town meetings and other well-publicized

programs, seek continuing feedback from the people who live here. Economic development partners jointly are responsible for the ongoing creation and maintenance of a well-published technology profile for the county. These groups actively seek funding through a series of grants and entrepreneurial activities. These funding sources ensure sustainable access to on-line information in public areas; for example, in schools after hours, in public areas of Curry County communities.

Residents benefit from access to education from the state-of-the-art facilities in the county. All education facilities provide targeted 21<sup>st</sup> century digital economy workforce development programs. Development offices work closely with all segments of business, healthcare, not for profits and government to develop workforce goals and set priorities. Continuing interaction among education, businesses, not for profits, healthcare, government groups, and residents makes it easy to determine appropriate training programs and to establish a technically adept workforce. High schools, the community colleges, and education centers provide distance education (DE) opportunities from resources throughout Oregon, the US, and the world. Through DE students of all ages acquire advanced training or degrees where they live and where they work. That workforce is the cornerstone of the county's economy as it includes the best and the brightest of the county's young people. Family members are re-united as they return to their home county to participate and benefit from the opportunities in our growing 21<sup>st</sup> century economy. They bring their families and skills back to the area because of the unsurpassed quality of life and opportunities for career advancement.

All of the county's healthcare service providers are online and participate as members of a community medical network. Telehealth services are available throughout the county; reaching into the most remote areas of the county, extending the reach of providers for consultations, diagnostics, and emergency services. Patient education and monitoring is everywhere in the county, including in the home. Patients no longer have to drive long distances for pre-surgery education and can obtain quality information to assist them with management of their health. Through remote monitoring and patient interactions residents are afforded the opportunity to remain in their homes for longer periods of time as they age, saving tax payers significant dollars while providing a high quality of life for the residents and providing a new category of employment.

Representatives from the ITAC work with Curry County as well as with area providers to develop regional awareness and approaches for advanced telecommunications services in region.

## **Goal 1 -- Curry County's Telecommunication Services Match 21<sup>st</sup> Century Demands**

### **Strategy**

***Encourage and support the continued growth of the Curry County telecommunications infrastructure so that employees can be as efficient as possible, healthcare providers can provide the highest levels of care for patients, businesses and all organizations can be***

*competitive as they see fit in the global economy, and residents can have every access to education, information and services.*

#### Activity 1.1 Establish a Standing Information Technology Advisory Committee

Continuity and sustainability of planning activities would be well served through the establishment of a standing Information Technology Advisory Committee (ITAC). The largely volunteer group would be populated by representation from both the urban and rural areas of the county as well as from the various sectors of our economy. The ITAC would be charged with implementing, upgrading and monitoring progress of the Strategic Plan.

The ITAC will meet at least quarterly to monitor and make recommendations on countywide telecommunication and technology activities, reporting to the county commissioners on at least an annual basis. Topics would include, but are not limited to:

- Route redundancy
- Broadband services and deployment
- Cellular phone service
- Telephone service and use of lifeline opportunities
- Use of technologies in support of a 21<sup>st</sup> Century Digital Economy
- Governmental Web sites – “*online not in line*”

#### Tasks:

1.1.1 Create a standing advisory committee composed of the Economic development Director as the chairperson and 8 – 12 volunteers from throughout the county. Members are concerned with the full range of telecommunications services provisioning and usage. The committee chair will present its findings to the public and regional planning agencies on an annual basis.

- The chairperson will be responsible for managing the meetings, coordinating development of the annual report, conveying committee concerns and recommendations to the county commissioners.
- Meet at least quarterly.
- All meetings will be conducted in accordance with Oregon’s Public meeting statutes.
- The ITAC chair would convey the annual report in a public meeting.
- At a minimum the report will address the status and plans for broadband, route redundancy, cellular phone and usage of telecommunications in the county.

When: Q3 2007 - Formation and organization of the volunteer committee.

Who: Economic Development Director with backing of the County Commissioners

#### Activity 1.2 Support and Facilitate Availability of Broadband

Curry County has benefited from a recent private sector investment in advanced telecommunications technology in the region. Yet the rapidly escalating need for even more availability of bandwidth due to emerging application demands and remaining underserved areas

means our work is not done. This is especially true as one heads north of Gold Beach or away from the 101 corridor.

Tasks:

1.2.1 Establish a broadband goal stating that 100% of all county residents who want it will have access to broadband services by 2010. This non-binding leadership statement from the County Commissioners is a step toward quantifying the effort, puts in place a metric and sets a tone for continued investment and growth of the telecommunications infrastructure in the county.

The ITAC will utilize this Strategic Plan as a beginning resource to direct, monitor and promote further expansion of broadband services to meet the goal. The ITAC will determine the course of action to be pursued based on a majority vote of the committee members. These efforts will include:

- Identification of projects that accelerate broadband in rural areas.
- Seek use of broadband aggregation in areas not served
- Encourage public-private partnerships
- Identify funding sources
- Evaluation of tax credits or other incentives
- Promote provider competition
- Broadband usage education

When: On going with ITAC findings reported in the annual report to the Commissioners and to each of the broadband providers in the region. Targeted completion for the approval of the coverage goal is Q1, 2008.

Who: ITAC

Activity 1.3 Support and Facilitate Availability of Quality Cellular Phone Service

Cellular phone reception is a critical for public safety and is conducive to supporting tourism and other businesses. Today there are a number of well-traveled areas, and less well-traveled areas, in the county where cellular phone service is unavailable.

Tasks:

1.3.1 Establish a cellular services goal of 100% coverage on the major travel corridors by 2010. These routes would include the highways 101 and 199 as well other major travel corridors in the county. Cellular communication is critical for economic factors (e.g., tourism) and for emergency response. This non-binding leadership statement from the County Commissioners is a step toward quantifying the effort puts in place a metric and sets a tone for continued investment and growth of the cellular communications infrastructure in the county.

The ITAC will utilize this Strategic Plan as a beginning resource to direct, monitor and promote further expansion of cellular services to meet the goal. Efforts will include:

- Documentation of areas of “dropped” coverage
- Monitor cell tower siting
- Encourage tower “stealthing”
- Collocation on existing structures, especially on state, county or municipal structures
- Fast track permitting for structures
- Promote use of shared facilities agreements among cellular providers to reduce antenna proliferation and increase coverage.

When: On going with ITAC findings reported in the annual report to the Commissioners and to each of the cellular providers in the region. Targeted completion for the approval of the coverage goal is Q1, 2008.

Who: ITAC

#### Activity 1.4 Establish ordinances for broadband conduit construction

Work with all jurisdictions to establish a common set of ordinances for broadband conduit placement.

##### Tasks:

1.4.1 Adopt county and municipal ordinances to coordinate and require placement of conduit whenever roads are dug up or new commercial or residential site development occurs. Access to that conduit by telecommunications companies who provide broadband will be encouraged and offered at very low or no cost to the telecommunication provider.

When: Targeted completion for the ordinances goal is Q1, 2008.

Who: County Commissioners and City Councils

#### Activity 1.5 Support and Facilitate Regional Route Redundancy

Uninterrupted telecommunications through route redundancy (AKA: route diversity) is a critical requirement for 24 x 7 commercial activity, education, healthcare, access to government and public safety.

- Identify entities requiring route redundancy
- Aggregate demand and create partnerships
- Develop a detailed route redundancy engineering and business plan

1.5.1 Continue regional planning efforts to establish route redundancy. Work with regional public and private sector individuals and groups to identify routes, build partnerships, develop business plans and identify funding. Explore the alternatives highlighted in this Plan. This is a difficult and complex task that requires considerable persistence.

When: On going with ITAC findings reported in the annual report to the Commissioners and to each of the communications providers in the region. Targeted completion for route redundancy planning completion is Q2, 2009.

Who: ITAC

## Activity 1.6 Establish a regional exchange point

The best way to both reduce costs and improve network service quality is to exchange local data traffic locally. Here we define “locally” as the region of Curry, Coos, Del Norte, and Humboldt counties. This activity assumes the establishment of regional route redundancy.

### Tasks:

**1.6.1** Work with regional providers to establish a carrier neutral exchange point. Connecting local traffic locally improves the quality of those transmissions by reducing the transmission delay time, reducing the number of dropped data packets and reducing the network jitter (variable arrival time of data packets). It also reduces the need for expensive bandwidth to send that traffic to a distant location, only to have it sent back to a nearby location. In telecommunications, as in other industries, improving quality usually decreases costs, making it a win-win proposition. This task can build off the route redundancy efforts.

When: Q1, 2009 through Q1, 2010.

Who: ITAC

## Activity 1.7 Identify funding to support continued planning efforts

Telecommunication planning efforts are very complex, extremely time-consuming and of absolute criticality to Curry County. Planning and implementation activities for this topic may very well be among the highest priorities for economic development for the region. Substantial work has now occurred over the past year with significant efforts ahead. Many relationships have been built and substantial knowledge has been accrued. Continuity and sustainability of these activities is crucial. Any loss of momentum will be a set back to continued progress.

Considerable additional work remains on these topics:

- Route redundancy – next level of detailed examination of routes
- Last Mile (“first mile”) provision of broadband, especially to areas north of Gold Beach
- Competition – attracting other providers to the area
- Demand side development – education, workforce development, understanding how to fully exploit the capabilities of broadband.

### Tasks:

**1.7.1** Identify and lock in funding for these efforts for the next two years.

When: Q3, 2007

Who: Curry County Economic Development

## Goal 2 -- Curry County's Workforce Is 21st Century Ready

### Strategy

*Ensure that all Curry County workers have the opportunity to equip themselves with the necessary tools to succeed in their careers and in whatever field they choose in this new and dynamic global digital economy. Encourage entrepreneurship, provide for life-long learning and promote growth of existing businesses. Build on existing programs and relationships.*

### Activity 2.1 Ensure development of a 21<sup>st</sup> Century Workforce

During the transition from the Old Economy to the 21<sup>st</sup> century digital economy (also referred to as the New Information Economy or the Knowledge Economy), the fate of specific industrial sectors and particular companies is uncertain. However, any status report on the American economy would reveal that there is an ever-growing need for a workforce that is skilled, knowledgeable, and adaptable to a rapidly changing global landscape. 21st century workforce preparation requires strong academics, thinking, reasoning, and teamwork skills, and proficiency in using technology. Lifelong learning is now also the "new normal".

### Tasks:

2.1.1 Deliver a coordinated 21st Century Literacy Readiness campaign with outreach to all county youth -- develop where none exist and strengthen where they do exist.

- Foster an understanding of the importance of increasing the acquisition of critical IT skills and knowledge needed to succeed in today's workplace. Include: classroom speakers, field/trips/business tours, career interest interviews, job shadows, mock employment interviews, mentors, career fairs/career days and other similar activities.
- Promote and provide digital economy career pathway information and resources for adults and youth.
- Use information available from the Oregon Labor Market Information System (<http://www.qualityinfo.org>) as a tool to understand IT-related occupation opportunities for the area.
- Use public service announcements on radio and TV as well as Web sites and print media.

When: Commence Q2, 2008 and on going

Who: ITAC (as facilitator) in conjunction with k-12 educators, regional workforce development groups and regional businesses.

2.1.2 Promote expanded opportunities for continuous learning using online offerings (distance education), onsite delivery and use of videoconferencing.

When: Q4, 2007 and On going

Who: ITAC and partners

## Activity 2.2 Promote and Support Small Business Growth

Small businesses are the heart and soul of the Curry County economic engine.

### Tasks:

2.2.1 Widen the target population for entrepreneurship programs that emphasize use of digital technologies and telecommunications to attract the participation of women, the young and minorities. Coordinate efforts with SOCC and workforce development groups. Use public service announcements on radio and TV as well as Web sites and print media. Explore funding opportunities through workforce initiative grants.

When: Q4, 2007 and On going

Who: ITAC and partners

2.2.2 Establish a freestanding Innovation and Entrepreneurship Institute. (see Activity 2.4)

- Increase opportunities for county residents to create their own jobs and businesses using broadband capabilities.
- Bring special attention to the role digital and telecommunications technology brings.
- Examine and report on the role the k-12 education system could play in developing innovation and entrepreneurial skills and attitudes
- Facilitate increased networking among firms in order to foster a culture of mutual cooperation and risk-taking.
- Maximize use of the Internet/Web sites [note: excellent models for use of the web exist – e.g., [www.thebeehive.org](http://www.thebeehive.org)].

When: Q1, 2008 and on going

Who: ITAC and partners

2.2.3 Review and simplify registration procedures required to create a broadband-based business. Ensure that firms are able to open as quickly and painlessly as possible.

When: Q1, 2008 and on going

Who: ITAC and partners

## Activity 2.3 Develop Programs to Ensure Adequate Supply of Trades Workforce

Even as we look to add the absolutely critical dimensions of the 21<sup>st</sup> Century Digital Economy to our county and region, there will continue to be a large demand for qualified trades persons. No economy can exist without these qualified members of the workforce.

### Tasks:

2.3.1 Expand online 24 x 7 course offerings in support of the trades and support a seamless transition for high school students to achieve associate degrees or certifications. The didactic portion of many work skills programs can be offered via online and distance education delivery mechanisms. Work with the workforce development groups, k-12 and

SOCC to identify and evaluate expansion of online education and support for these areas of rapidly growing employment opportunities (partial listing):

- Advanced Electronics Technology (Avionics)
- Refrigeration & Major Appliance Service Technology
- Aircraft Mechanic
- Applied Service Management
- Auto Parts & Warehousing
- Building Construction Technician
- Building Maintenance and Management
- Carpentry
- Commercial Truck Driving
- Certified Automotive Technician
- Certified Truck & Diesel Technician
- Commercial and Residential Heating, Ventilation, & Air Conditioning (HVAC)
- Construction - Home Remodeling and Repair
- Electrician
- Electronic Systems Technician
- Locksmith Training
- Marine & Watercraft Mechanic
- Maritime Education
- Motorcycle Technician
- Plumbing Technology
- Small Engine Repair
- Transport Refrigeration & Air Conditioning

When: Q3, 2008 and on going

Who: ITAC, chambers of commerce, Workforce and Job Councils, k-12 and higher education.

#### Activity 2.4 Evaluate the Potential for Community Development Resource Centers

A Community Development Resource Center is a community service, social action, and/or educational facility where computers, related communications technologies, education programs and business mentoring are available to people. Each CDRC has its own unique qualities, yet all share a commitment to using technology, promoting access to education and providing business development support with a belief that a CDRC can be a means for participants to increase their self-sufficiency. This could be especially critical for the more rural communities of the county. (see Task 2.2.2)

#### Tasks:

2.4.1 Support the development of a full range of business incubator facilities from early initial concept to production and graduation. These include “incubation in place” wherein existing businesses are supported in creating new business lines. Incentives will include grants, low interest loans, relationships with research institutions and general business services.

When: Q1, 2008 and on going

Who: ITAC and partners

### **Goal 3 -- Curry County Is A Full Participant in the 21<sup>st</sup> Century Economy**

#### **Strategy**

*A knowledge-based digital economy will be a significant component of the 21st century economy and serve as an added dimension for promoting economic opportunities in Curry County.*

#### **Activity 3.1 Promote Curry County's Telecommunication Assets**

Let the world know about Curry's digital readiness, especially broadband capabilities. Actively engage in a public awareness campaign to tout the variety and depth of telecommunication services available in the county.

#### **Tasks:**

**3.1.1** Develop a Curry digital communities marketing campaign to promote Curry County as a place to do business in the 21<sup>st</sup> Century.

- Create promotional materials touting the county's array of telecommunications capabilities and 21<sup>st</sup> century preparedness for inclusion in marketing campaigns, presentation on Web sites, etc.
- Explore use of volunteer copywriters, students, etc.
- Explore opportunities in existing budgets (i.e., businesses, education, chambers of commerce, etc.) and/or seek economic development related grants.
- Expand the county Web site to become a one-stop location for the area that includes original content as well as links to other existing online resources in the county. Included here would be current statistics profiling the county, especially its telecommunications assets.

**When:** Q2, 2008 and on going

**Who:** Economic Development in conjunction with the ITAC and its partners

#### **Activity 3.2 Include 21<sup>st</sup> Century Factors In Economic Development Policy**

Globalization of markets for goods, services, capital, and labor accelerated in the 1990s and proved to be the undoing of both industrial recruiting and cost cutting. Regions were forced to move away from old industries and to search for new market opportunities, thereby ushering in our current era of global competitiveness. This represents a fundamental change from previous eras. This shift requires a workforce with 21<sup>st</sup> century knowledge-based digital skills and the opportunity for continuous learning to keep pace with the demand rapidly evolving skill sets. Curry County not only needs to focus on what happens at home but must also understand and prepare for its role in the global economy.

#### **Tasks:**

**3.2.1** Integrate 21<sup>st</sup> century economic development policies into existing approaches. Such policies need to foster continual increased diversification of our economy and need to go

beyond attracting and fostering light manufacturing, an area of significant risk for outsourcing today and in the foreseeable future, and tourism.

When: Q1, 2008 and ongoing

Who: Economic Development in conjunction with the ITAC and its partners

### Activity 3.3 Continue the Regional Approach to Economic Development

While each community in the region has unique challenges and opportunities, industries, transportation, land uses, natural resources, and other key elements of a healthy economy are regional in scope. Communities and the private sector need to cooperate to create regional wealth in a manner that promotes a coherent collaboration, respecting local character and identity.

#### Tasks:

3.3.1 Support and promote regional economic development activities. Work closely with Del Norte County in California. Add increased awareness of the need to further diversify the economy by adding increased knowledge-based businesses to ensure our participation in the global knowledge-based digital economy.

When: Q3, 2007 and ongoing

Who: Economic Development in conjunction with the ITAC and its partners

### Activity 3.4 Develop an “Independent Living” Pilot Project

A countywide task force will plan for meeting the housing and home healthcare needs of low-income seniors and people with disabilities by first developing a pilot project. This may be a separate group from the ITAC but possibly with some overlapping membership. The group would have representatives from a variety of sectors -- seniors and persons with disabilities, architects, contractors, healthcare, financial services, housing administration and other parties required for such a collaborative effort.

New technology solutions offer great promise to improve quality of care while reducing healthcare costs. It is time now for technology to transform the experience of aging as well as improving the lives of those persons with disabilities. This project would bring together builders, information technology workers, healthcare providers and other components required to produce the pilot project. The potential exists to improve the quality of lives, to save taxpayers money, and to create new opportunities for employment for seniors and persons with disabilities. It's also a great way to demonstrate our county's capabilities, both in telecommunications infrastructure and our ability to collaborate.

#### Tasks:

3.4.1 Develop a Project Independence pilot project.

- Review currently available technologies and identify infrastructure deficits that act as barriers to effective technology integration into housing for seniors and people with disabilities. Includes a review of available technology for enhancement of affordable housing and supports.

- Conduct a Needs and Awareness Survey to provide a picture of assistive technology awareness, experience, and barriers to use among seniors and people with disabilities. This information will help shape training activities, demonstration projects, and recommendations for systems change.
- Determine the extent to which current policies address assistive technology.
- Identify key policies that may be modified to effectively expand the integration of assistive technology.
- Develop a plan to promote and provide assistive technologies.
- Oversee implementation of recommended infrastructure improvements and demonstration projects, and develop information resources and training materials for consumers, housing developers, case managers, families, contractors and others.

When: Commence planning by Q1, 2008 with targeted completion of a pilot project by Q1, 2009.

Who: An alliance of concerned parties – ITAC, Sutter, Curry General, seniors and disabled services groups, and others as yet to be named (for example, local construction entities).

### Activity 3.5 Promote Increased Telework/Telecommuting Opportunities

Promote use of telecommunications as a means to reduce transportation impacts, which can improve air quality, personal convenience and reduce dependency on non-renewable resources. Many of these jobs will come from out of the area.

#### Tasks:

3.5.1 Promote telecommuting to businesses and institutions in and out of the county as a way to add employment opportunities, save our air, fuel and commute time. Possibilities include educational seminars on how to do it, PSAs on radio and TV, etc. Successful implementation will bring additional dollars into the economy.

When: Q1, 2008 and on going

Who: ITAC and partners

### Activity 3.6 Promote expanded use of telehealth/telemedicine technologies

Telehealth is “the practice of healthcare delivery using telecommunications technology including but not limited to diagnosis, consultation, treatment, transfer of medical data, education, dissemination of public health alerts and/or emergency updates”. Telemedicine is “the use of telecommunications technology to deliver clinical diagnosis, services and patient consultation”.

Telehealth technologies enable home health providers to redefine patient treatment plans, as they are able to increase patient visits due to elimination of a significant percentage of travel to patients' homes. Rural patients can now have access to specialists.

Spending on health care is an especially significant portion of any economy, especially rural economies. The more of those dollars that can be kept locally the better off the local economy will be.

## Tasks

3.6.1 Work with local providers to encourage and support expanded use of telehealth technologies. Communities can support acquisition of funds (grants and other sources) and provide other support (i.e., promotion). Availability of these modern services is a value-add for economic development activities. Here there's also an opportunity to become a service provider to others living out of the area by encouraging specialists to move to the area to operate consultation services serving outside the area.

When: Q1, 2008 and on going

Who: ITAC and partners, especially regional hospitals and clinics

### Appendix 1 – Gantt Chart

		2007		2008			2009				2010				
	Resource	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Goal 1 – Curry County’s Telecommunication Services Match 21<sup>st</sup> Century Demands</b>															
Activity 1.1 Establish a Standing Information Technology Advisory Committee															
Task 1.1.1 Recruit a standing advisory committee	ED Director														
Activity 1.2 Support and Facilitate Availability of Broadband															
Task 1.2.1 Establish a broadband goal	ITAC														
Activity 1.3 Support and Facilitate Availability of Quality Cellular Phone Service															
Task 1.3.1 Establish a cellular services goal	ITAC														
Activity 1.4 Establish a common set of ordinances for broadband conduit construction															
Task 1.4.1 Adopt county and municipal ordinances	County & cities														
Activity 1.5 Support and Facilitate Regional Route Redundancy															
Task 1.5.1 Continue regional planning efforts to establish route redundancy	ITAC														
Activity 1.6 Establish a regional exchange point															
Task 1.6.1 Work with regional providers to establish a carrier neutral exchange point	ITAC														
Activity 1.7 Identify funding to support continued planning efforts															
Task 1.7.1 Identify and lock in funding for these efforts for the next two years	ITAC														

		2007		2008				2009				2010			
	Resource	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Goal 2 – Curry County’s Workforce Is 21<sup>st</sup> Century Ready</b>															
Activity 2.1 Ensure development of a 21 <sup>st</sup> Century Digital Economy Prepared Workforce															
Task 2.1.1 Deliver a coordinated 21 <sup>st</sup> Century Literacy Readiness campaign	ITAC +														
Task 2.1.2 Promote expanded opportunities for continuous learning using online offerings	ITAC +														
Activity 2.2 Promote and Support Small Business Growth															
Task 2.2.1 Widen the target population for entrepreneurship programs	ITAC +														
Task 2.2.2 Establish a freestanding Innovation and Entrepreneurship Institute	ITAC +														
Task 2.2.3 Review and simplify registration procedures required to create a broadband-based business	ITAC +														
Activity 2.3 Develop Programs to Ensure Adequate Supply of Trades Workforce															
Task 2.3.1 Expand online 24 x 7 course offerings in support of the trades	ITAC +														
Activity 2.4 Evaluate the Potential for Community Development Resource Centers															
Task 2.4.1 Support the development of a full range of business incubator facilities	ITAC +														

		2007		2008				2009				2010			
	Resource	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Goal 3 -- Curry County Is A Full Participant in the 21<sup>st</sup> Century Economy</b>															
Activity 3.1 Promote Curry County's Telecommunication Assets															
Task 3.1.1 Develop a Curry digital communities marketing campaign	TA EDA, ITAC +														
Activity 3.2 Include 21 <sup>st</sup> Century Factors In Economic Development Policy															
Task 3.2.1 Integrate 21st century economic development policies into existing approaches	TA EDA, ITAC +														
Activity 3.3 Continue the Regional Approach to Economic Development															
Task 3.3.1 Support and promote regional economic development activities	TA EDA, ITAC +														
Activity 3.4 Develop an "Independent Living" Pilot Project															
Task 3.4.1 Develop a Project Independence pilot project.	ITAC +														
Activity 3.5 Promote Increased Telework/Telecommuting Opportunities															
Task 3.5.1 Promote telecommuting to businesses and institutions in and out of the county	ITAC +														
Activity 3.6 Promote expanded use of telehealth / telemedicine technologies															
Task 3.6.1 Encourage and support expanded use of telehealth technologies	ITAC +														

## Appendix 2 – Impacts of Broadband

### Jobs, jobs, jobs!<sup>9</sup>

The introduction of broadband technologies has enabled traditional and new forms of communication to become a reality throughout the world. One fact that cuts across every region is that broadband technologies enable many applications that provide enormous benefits to citizens, most especially as jobs.

Broadband is an accelerator of economic development. This is because there are significant economic benefits to using broadband technologies for many applications. With broadband access, worker productivity increases, jobs are created, and wages grow. Broadband creates opportunities for bundling services together and enables operators to offer more services to consumers at lower prices, creating added efficiencies in both time and money. In addition, new or offshoot industries are created as a result of broadband. As broadband penetration rates grow, there will be a resulting demand for computer and home networking equipment, as well as wireless handheld devices and other equipment that facilitates broadband use.

The economic benefits of broadband arise from both direct and indirect sources. The economic benefits of broadband can also be attributed to indirect factors, including:

- Increased e-commerce
- Reductions in commuting
- Increased consumption of entertainment
- Internet telephony (VoIP)
- Savings in healthcare as a result of sophisticated telemedicine.
- For the entertainment sector, the economic benefits result from efficiencies in the distribution of goods, services, and information.

The ability to telework -- to work either from home or another location, such as a telecenter outside a person's regular office -- is a very significant broadband application. Teleworking can contribute to time and cost savings for both employees and employers as well as to enable persons with disabilities to work. While teleworking is generally thought to be "working from home," it is not limited to this. It also refers to using virtual or satellite offices to work. In a virtual office, employees may share a reduced office space at a nearby employer facility, use the same offices on a rotating basis, or participate in a fee-based telework center arrangement.<sup>10</sup>

Many community banks already offer online banking to help meet the ever-evolving needs of bank customers. Some banks see high-speed access as a way to expand those services. Broadband connectivity allows banks to offer everything from talking ATMs and digital check processing to two-way video interactions with bank personnel. The result is more competitive banks and efficient anytime/anywhere banking.

High-speed connections are as vital to today's transportation companies as railroad tracks, highways, and airports. Broadband-enabled devices help fleet managers monitor the routes of long-haul trailers, track cargo, and protect against security threats at ports, airports, and warehouses. Wireless broadband connections keep truckers in touch with loved ones while on the road, and help incident commanders provide emergency responders with critical data in the event of a transportation emergency.

## **Our children, their futures<sup>11</sup>**

Based on the data collected over the past decade, there is no doubt that more children of all incomes and backgrounds are using computers and the Internet than ever before. But it is also clear that some groups of young people -- primarily rural, low income and minority youth -- have poorer access to technology than others.

Since it was coined in the mid-1990s, the term “digital divide” has mostly been used to describe the gap between those who have “ever” and those who have “never” used a computer or the Internet. But as technology and its role in our society evolve, the concept of what constitutes access is evolving, too.

With computers in most schools and libraries and rising home connection rates, almost all children have at least the possibility of basic access. Yet many advocates argue that ongoing inequities in *meaningful* access have real implications for children’s educational and economic opportunities. These inequities are reflected in the use of terms such as “digital opportunity” and “digital inequality” as alternatives to “digital divide.”

Whatever they call the current digital divide, policy experts and advocates generally agree that increasing technology access for underserved children is a worthy policy goal. They also see a natural evolution from policies focused on major infrastructure investments, such as wiring the nation’s schools and libraries, towards integrating online access into other policy objectives. Instead of technology goals, there are goals to help children learn, develop, and succeed in the workforce with the help of technology. Where policy and political differences arise is over how to define the significance of the current divide, and what role the government should play in narrowing it.

A great deal of progress has been made in closing the digital divide. Most children from all major income groups and ethnicities have gone online, but significant gaps in both the quantity and quality of access remain: where their access is located, the speed of their connection, and the skills they are taught for making the most of their online experience. These gaps could have real implications for children. Will all young people be prepared to participate in an increasingly digital economy and culture? Or will those who are already at risk be left farther behind as those with high-quality access -- from better computers at school to high-speed connections at home -- move ahead?

What role can or should government play in closing today’s digital divide? The remaining gaps in technology access may well be the most challenging to bridge. They are both less visible and more complex than the gaps we have already closed. As the first generation to grow up with the Internet starts to enter the larger world, we will undoubtedly learn more about the effects of the digital divide and see new directions for public policy.

In the meantime, there appears to be enough information about today’s divide, in all its aspects, to inform a county, state and national debate about the educational importance of children’s access to technology, what meaningful access looks like, and how much private and public investment is enough. While it may require new language and new approaches, this could be a very fruitful time for policymakers, industry leaders, and advocates to refocus on the digital divide, especially as it relates to the future of our state, our children.

## Healthcare

Broadband technologies can eliminate the distance barrier for rural patients by providing access to out-of-area physicians and health care resources. High-speed links let doctors deliver medical care more quickly and efficiently. Broadband-enabled medical devices are currently being used to improve the quality of life for all Americans.

The costs of health care impose an enormous burden on the economy. The latest projections from the Centers for Medicare & Medicaid Services show that annual health-care expenditures are expected to reach \$3.1 trillion by 2012, growing at an average annual rate of 7.3% during the forecast period or 17.7% of gross domestic product, up from 14.1% today. Telehealth will become a multi-billion dollar industry. But just what are the benefits of telemedicine? A recent white paper by the Telehealth Association of Oregon (TAO) examined this from three perspectives.<sup>12</sup>

### Economic Development and Quality of Life Perspective:

- Advancements in delivery of services
- Keeps dollars in the local economy
- Aids business recruitment and retention
- Workforce development / jobs
- Quality of life and longevity gains are worth a lot
- Clinical trials -- expands opportunity for participation

### Patient's Perspective:

- Access to healthcare
- Saves time, travel, and other expenses
- Healthcare at home
- Health provider integration
- Increased comfort-level with the technology

### Provider's Perspective:

- Emergency Room "front line" support
- Accuracy of diagnosis / reduction of medical errors
- A multifold increase in efficiency
- Continuing Medical Education / Lifelong learning

Telehealth, if used to its full extent, has the potential to cause great and far-reaching effects on the field of medicine. That is why it is important to take a look at the possibilities and limitations now. In that way we prepare to make the most of the technology available to us in the 21st Century.

*Will broadband Internet services be available to all Curry County residents?* Within the answer to this question lies the answer to whether telehealth is going to be a beneficial product of the technological age for our county's residents. The advent of telehealth brings some very useful technology to the medical community of the region and the rest of the U.S.. Yet many challenges

remain ahead. Everything about the suggested programs for telehealth also depends on the hurdle of availability.

### **Access to government<sup>13</sup>**

The big idea here is “e-the-people.” E-government links people not just to each other and the e-commerce marketplace but also to the public marketplace of ideas, debate, priorities, initiatives, innovation, services, transactions, and results. It has the potential to put ownership of government truly in the hands of all Curry County residents.

Imagine government truly of, by, and for the people -- where individuals and organizations no longer wait in line between eight and five on weekdays only, but where they can be online at any time or place they wish. A place not only to get information but also to complete transactions with government, get services, talk with elected representatives -- even to vote; a government that organizes and furnishes information and services around the needs of people while protecting their privacy.

Imagine people in government who are excited about using the Internet to make a difference and produce results, answering questions instantly, using secure networks that cross organizational boundaries to serve the public. Imagine people in business enjoying fast and easy interactions with government that produce results in the public interest.

Imagine people in all sectors -- government, business, non-profits, and the research community -- working together to make this happen quickly, creatively, and cost effectively. This is e-government -- *our* government of the future, not *the* government of the past.

But don't stop there. E-government is not just about speed, efficiency, or accessing information online. Individuals according to their preferences and needs can also tailor it. Imagine individual Americans creating customized, one-stop sites for themselves online, where they can choose to get information, conduct transactions, or communicate with their elected representatives. Imagine having your own self-designed, interactive site where you can directly conduct all your business with government whenever you wish. You can pay taxes, check your Social Security earnings, find out whether your building permit has been granted, renew your driver's license after your site has reminded you without being asked that it is coming due. You can also participate in public hearings, create communities of interest with others online, monitor voting records, and express your views to your representatives. In short, you can choose how and when to connect with government, with the ability to choose appropriate levels of privacy and security.

Here we do not advocate substituting electronic for personal communications between people and public servants. Rather, we envision more strategic and satisfying personal communications of higher quality, supported by electronic information, sources, transactions, and interactions.

### **Public safety<sup>14</sup>**

Law enforcement, fire departments, emergency medical technicians, ambulances, emergency rooms, public health departments and even schools are among the entities that are driving toward a more seamless interoperability in their communications. A mixture of broadband communication modalities may be used for a variety of innovative applications, including the

delivery of real time video from inside burning buildings, floor plans to police officers entering a hostile environment, and even videos from robots entering a collapsed mineshaft.

Disaster relief and being committed to the relief of suffering people in situations of complex humanitarian emergencies and natural disasters is an enormous task. Not only does this involve technical equipment but also human engagement and methods of communication are important factors to guarantee the safety of people and nature.

A growing demand for mobile broadband services within telemedicine, fire fighting, mobile robotics and law enforcement operations are emerging rapidly. Remote patient monitoring is one of the key aspects of crisis and disaster management. It is crucial to the effectiveness of frontline medical assistance to injured citizens. The concept of remote patient monitoring is the subject of intense study in both the civil and military peacekeeping sectors where the need for a reliable, secure and very high capacity mobile technology has been identified in order to address activities on the scene of incidence.

Capabilities, involving either an ad hoc or day-to-day operational environment, include:

- Wireless mission-critical broadband data
- Secure and interoperable communication capabilities
- Multiple users with multiple applications
- Self-establishing and -healing network nodes (i.e., route diversity)
- IP-based mobile networking
- Robust management and control systems
- Flexible existing infrastructure dependence
- Dynamic and flexible radio configuration
- Real-time digital voice, video and sensing
- Video, still photos, complex graphics and drawings files
- Enhanced bio-telemetry information

### **Not for profits**

Foundations and their grantees, no longer solely are at the mercy of the mass media for coverage, have an important new platform of their own from which to express views, exchange ideas, publicize their work, and continue to do what they do best -- touching the lives of millions.

Nowadays, most people expect that all organizations -- including nonprofits -- will be able to connect to the Internet. Internet connectivity allows organizations to perform a wide variety of mission critical tasks:

- Use e-mail to inform and raise funds
- Conduct research on the web
- Post information to the web
- Create and maintain a Website
- Use web-based software applications.

The question for nonprofit organizations is no longer whether they should have Internet connectivity, but rather what type of connection, and who is the best provider.

Not unlike other sectors non-profit organizations are increasingly taking advantage of video conferencing, distribution of educational videos, Internet telephony (i.e. Voice over Internet Protocol – VoIP), and other large demand bandwidth applications.

## **Recreation**

Many people have used broadband to:

- Further personal hobbies
- Browse the Internet for fun
- Play games
- Gamble
- Download music, videos and movies.

In addition, position location technology, combined with broadband, can allow people to obtain restaurant information, local maps, and museum and tourist information. Broadband will increasingly be used to download on-demand movies and other entertainment content.

Entertainment is one of the fastest growing uses of the Internet, demanding more and more bandwidth for its applications. It is also a large contributor to our economy.

## **Rural communities**

Rural residents need telecommunications as a substitute for transportation even more than urban folks. Telehealth, distance learning, e-government, and e-commerce are more important to rural communities than to urban communities because they have lower population densities, greater travel distances and fewer local services. Most urban folks do not realize how much “drive time” is required to conduct business and government in rural Oregon. Broadband infrastructure suitable for telecommuting, including from rural Oregon to government offices in Salem and to local government offices, can make a significant difference to the economy and the quality of life in rural communities.

### Appendix 3 - Implications of the new Digital Economy<sup>15</sup>

In the new global economy information and communications technology (IT) is the major driver, not just of improved quality of life, but also of economic growth. Moreover, there are strong indications that IT has the potential to continue driving growth for the foreseeable future. Yet, most policymakers do not adequately appreciate this fundamental reality. In fact, after the post-2000 economic dip many concluded incorrectly that the IT economy was smoke and mirrors.

The reality is that while the benefits of new technologies are often exaggerated at first, they often turn out to exceed initial expectations in the moderate-to-long term. This is exactly what has happened with the digital revolution. The digital economy is more than fulfilling its original promise, with digital adoption rates exceeding even the most optimistic forecasts of the late 1990s. The integration of IT into virtually all aspects of the economy and society is creating a digitally enabled economy that is responsible for generating the lion's share of economic growth and prosperity.

Notwithstanding the centrality of IT to economic growth, there have been surprisingly few attempts to catalogue what is known about IT's impacts on the economy:

- Productivity
- Employment
- More efficient markets
- Higher quality goods and services
- Innovation and new products and services.

In order to better understand IT's role in economic growth it is important to realize that the digital economy is more than an economy conducted on the Internet. Rather, it represents the pervasive use of IT (hardware, software, applications and *telecommunications*) in all aspects of the economy, including internal operations of organizations (business, government and non-profit); transactions between organizations; and transactions between individuals, acting both as consumers and citizens, and organizations. IT has enabled the creation of a host of tools to create, manipulate, organize, transmit, store and act on information in digital form in new ways and through new organizational forms. And its impact is pervasive as it is being used in virtually every sector from farming to manufacturing to services to government.

Importantly, the "IT engine" does not appear likely to run out of gas anytime soon. The core technologies (memory, processors, storage, sensors, displays, and communication) continue to get better, faster, cheaper, and easier to use, enabling new applications to be introduced on a regular basis. Moreover, the adoption of digital technologies by organizations and individuals continues to grow.

There is no doubt that the IT revolution has enhanced quality of life, from improving health care, to making it easier for children to get better information and learn more, to giving consumers more convenience in their interactions with business and government and making it easier to measure environmental quality. But while these and other benefits are important, perhaps the most important benefit of the IT revolution is its impact on economic growth. The diffusion of information technology and telecommunications hardware, software, and services turns out to be a powerful driver of growth, having an impact on worker productivity three to five times that of non-IT capital (e.g., buildings and machines). In fact, in the United States IT was responsible for

two-thirds of total factor growth in productivity between 1995 and 2002 and virtually all of the growth in labor productivity.

While these productivity impacts from IT are among the highest in the United States, most other nations have benefited from the IT revolution as well. Economists have found significant impacts of IT on the productivity of firms in many other nations, including Australia, Canada, Finland, France, Switzerland. Moreover, while its impact is not as large in most developing nations, IT is making a difference there as well, in part because IT expenditures rose twice as fast in developing nations from 1993 to 2001 compared to the OECD average. For example, IT usage in China was responsible for 38 percent of the increase in total factor productivity growth and 21 percent of GDP growth.

IT boosts productivity in a variety of ways. It lets organizations automate tasks, freeing workers up to create value in other tasks. IT also has widespread complementary effects, including allowing organizations to fundamentally reengineer processes and lets organizations more efficiently use capital and natural resources. IT also has a number of indirect effects, which in turn spur higher productivity, including enabling larger markets and better organizational decision-making.

In addition, IT boosts economic output by enabling more people to work. The IT industry itself creates jobs, on average paying 84 percent more than average jobs. Moreover, IT appears to be playing a key role in reducing the severity of the business cycle, allowing the economy to run at full capacity more of the time. Additionally, IT makes it easier for more people to join the workforce, including disabled people and people who cannot work full-time, but who can work part-time or from home. Our standard of living is not just a function of higher levels of efficiency, but of the quality of products and services. IT is helping organizations boost quality. IT enables more information about quality to be collected, giving organizations greater opportunity and incentive to boost quality. IT also makes it easier for organizations to design more customized products and services, which by definition are of higher quality because they more closely fit the desires of consumers.

Finally, IT is making it easier to create new products and services. IT gives researchers powerful new tools that make discovery easier. Moreover, IT boosts innovation by giving users more of a role in shaping innovation, in part by making research more collaborative.

In short, IT is the major driver of today's global economy. But just because IT has been the leading engine of growth does not mean that policymakers can afford to be complacent. Ensuring that societies fully benefit from the IT revolution means that policymakers must devote the same, if not higher, level of attention to it than they currently give to more conventional economic policy areas, such as managing the business cycle.

## Endnotes

We've attempted to provide complete attribution for use of the intellectual property of others. Our apologies are offered to any we've missed.

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<sup>1</sup> "Measuring Broadband's Economic Impact," William H. Lehr, Carlos A. Osorio, Sharon E. Gillett, Massachusetts Institute of Technology, Marvin A. Sirbu, Carnegie Mellon University, Presented at the 33<sup>rd</sup> Research Conference on Communication, Information, and Internet Policy (TPRC, September 23-25, 2005, Arlington, VA, Revised as of January 17, 2006, [http://cfp.mit.edu/groups/broadband/docs/2005/MeasuringBB\\_EconImpact.pdf](http://cfp.mit.edu/groups/broadband/docs/2005/MeasuringBB_EconImpact.pdf), page 23, retrieved January 20, 2006

<sup>2</sup> Ibid, "Measuring Broadband's Impact," In this section we share a number of quotes and thoughts from "Measuring Broadband's Economic Impact"

<sup>3</sup> Ibid, "Measuring Broadband's Impact," page 2

<sup>4</sup> Ibid, "Measuring Broadband's Impact," page 5

<sup>5</sup> Ibid, "Measuring Broadband's Impact," page 5

<sup>6</sup> Ibid, "Measuring Broadband's Impact," page 5

<sup>7</sup> Ibid, "Measuring Broadband's Impact," page 18

<sup>8</sup> Ibid, "Measuring Broadband's Impact," page 23

<sup>9</sup> "Why Broadband Matters," Report of the Oregon Telecommunications Coordinating Council, presented November 16, 2004 to the Oregon Joint Legislative Committee on Information Management and Technology, John Irwin, Chair, ORTCC, pages 5 - 12

<sup>10</sup> "The Economic and Social Benefits of Broadband Deployment," <http://www.tiaonline.org/policy/broadband/Broadbandpaperoct03.pdf>, Telecommunications Industry Association, October 2003, page 6

<sup>11</sup> "Children, The Digital Divide, And Federal Policy," <http://www.kff.org/entmedia/7090.cfm>, The Kaiser Family Foundation, September 16, 2004

<sup>12</sup> "Benefits of Telemedicine," <http://www.ortcc.org/reports/>, white paper for the Telehealth Association of Oregon, John Irwin, et al, January 16, 2004

<sup>13</sup> "E-government - The Next American Revolution," [www.excelgov.org](http://www.excelgov.org), The Council for Excellence in Government, December, 2002

<sup>14</sup> Project MESA, <http://www.projectmesa.org/>

<sup>15</sup> "Digital Prosperity: Understanding the Economic Benefits of the Information Technology Revolution", Robert D. Atkinson & Andrew S. McKay, [http://www.itif.org/files/digital\\_prosperity.pdf](http://www.itif.org/files/digital_prosperity.pdf), March 2007, retrieved March 8, 2007