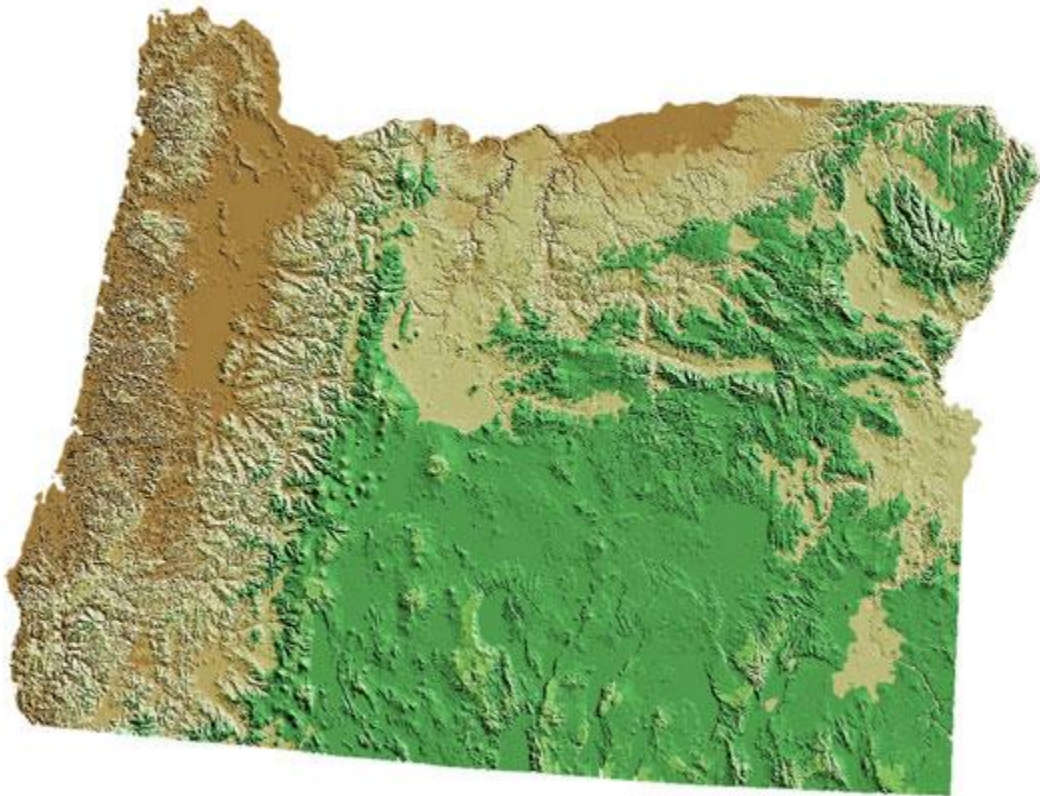


**OREGON BROADBAND  
MAPPING AND DEMAND AGGREGATION  
PROJECT PROPOSAL**



**April 8, 2009**

# OREGON BROADBAND MAPPING AND DEMAND AGGREGATION PROJECT PROPOSAL

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# OREGON BROADBAND MAPPING AND DEMAND AGGREGATION PROJECT PROPOSAL

## PREFACE

### **The Case for Action**

Oregon, like other states, has a Digital Divide. The Digital Divide manifests itself in two ways. First, people with limited incomes (regardless of location) may not be able to afford a personal computer or a broadband subscription. Second, Oregonians in many rural communities have the need and the means, but live and work outside the range of a network operator offering broadband services.

Some individuals make the case that access to satellite Internet service constitutes access to broadband for Rural Oregonians. Many informed people disagree. Satellite Internet services perform better than conventional dial-up Internet services and have improved in recent years. Having said that, satellite service is *not* a substitute for a dependable, symmetrical high-speed broadband service (where you can upload and download information at comparable speeds).

At the national level and in many forward-looking states, the notion that we need a National Broadband Policy—supported by state-level broadband initiatives—has gained momentum. Valid economic reasons exist why rural communities and regions remain unserved or underserved. Let’s face it. It is difficult to make a business case to serve sparsely populated rural areas; especially places with challenging terrain.

A growing number of people view the establishment of public-private partnerships as the most promising means to address these complex issues. At the local level, for instance, local governments can play a key role by serving as anchor tenants on a network built and operated by the private sector. Also, at the local and regional level, grass roots outreach efforts to stimulate local demand for telecom services can make an enormous difference. Helping rural residents understand the myriad applications of high-speed broadband (things like distance learning, workforce development, e-commerce, telemedicine)—applications *especially* relevant to rural communities located far from population centers—can make network deployments viable. Indeed, increasing the “take rate” of services (the percentage of people in an area subscribing to a network) improves the business case for *any* network deployment.

There are reasons to be optimistic that the Digital Divide in large sections of Oregon can be solved in the near future. Here’s why. New wireless technologies like WiMAX (Worldwide Inter-operability for Microwave Access) and Long Term Evolution (LTE) can provide cost-effective broadband-level speeds (4G networks). These new wireless technologies are either ready for deployment or close to being ready for deployment. And, in recent years, the cost of deploying fiber networks has decreased considerably. Fiber backbone networks are critically important assets for any type of network (wired or wireless). And, there’s growing support for the provision of targeted public subsidies to assist network operators deploy services to unserved and underserved areas. So, the stars are beginning to line up.

### **The Value Proposition**

The proposed *Oregon Broadband Mapping and Demand Aggregation Project* provides a scalable template to assist the rapid and effective development of public-private partnerships to address the Digital Divide.

In Oregon, the actual status of broadband deployments is unknown. Yes, individual companies deploying networks in Oregon have a good idea which communities are unserved or underserved. However, such information is often deemed proprietary. Moreover, that information, while highly significant, only constitutes disconnected pieces of a much larger strategic puzzle.

What's missing is a comprehensive GIS-based inventory of unserved and underserved communities in Oregon (both rural communities and urban enclaves) gathered at a meaningful scale. The other data that should be gathered—which goes *far beyond* simple footprints of places with and without services—is *demographic information* about income levels, price sensitivities and the particular needs of people in unserved and underserved consumer-groups. This demographic information, coupled with outreach programs (“e-initiatives”) to stimulate demand for telecom services, can make an enormous difference. The inventory information helps the private sector evaluate the true potential of providing service to unserved and underserved areas. In addition, the inventory information enables local governments, the state government, and, the federal government target subsidies for telecom deployments to get *all* of Oregon served.

### **Grounded in Experience**

The work scope encapsulated within the *Oregon Broadband Mapping and Demand Aggregation Project* is ambitious. But, it is entirely doable. The tasks outlined were developed from boots-on-the-ground experience in unserved and underserved rural communities in Oregon and Northern California. Indeed, the work scope arose from a completed set of broadband infrastructure inventory/demand projection projects initiated by the Curry County Commissioners and the Del Norte Tri-Agency Economic Development Authority in 2006. The two projects were funded by the Oregon Economic & Community Development Department (OECDD) for Curry and the California Department of Transportation (CalTrans) for Del Norte. Following the two-county effort a substantially larger and more complex project was conducted across four rural counties in Northern California. The Redwood Coast Connect project was funded by the California Emerging Technologies Fund (CETF) and regional funding partners.

Let's briefly evaluate the results of those projects. The private sector used the inventory information to justify the expenditure of millions of dollars to upgrade fiber networks on the Southern Oregon Coast. In addition, in Northern California, companies are now poised to make additional major investments in telecommunications infrastructure—making use of the California Advanced Services Fund (CASF) and other sources—to greatly enhance services on both sides of the California-Oregon border. The CETF has submitted the strategic investments identified during the inventory project in their submission for federal funding to California under the American Recovery & Reinvestment Act of 2009 (ARRA).

As such, because the work scope was developed through real-world experiences that have *stimulated actual deployments*, we are confident this *Oregon Broadband Mapping and Demand Aggregation Project* will work. Let's get on with the job!

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# OREGON BROADBAND MAPPING AND DEMAND AGGREGATION PROJECT PROPOSAL

## EXECUTIVE SUMMARY

The purpose of the project is twofold:

- 1) facilitate the deployment of ubiquitous broadband in Oregon
- 2) assess Oregon's preparedness for use of broadband

Oregon needs to document definitively broadband services availability across the state for public policy development, infrastructure development and economic development. A comprehensive market study will determine the current status of broadband deployment, the availability and cost of broadband services and the population's preparedness for its productive use.

The actual complete and comprehensive status of broadband in all parts of Oregon is unknown. Today, decision makers must rely upon anecdotal assessments and limited data sets to inform policy and investment discussions. A comprehensive market analysis based on meticulously collected data in a standard format is needed to support effective public and private sector planning.

We propose the following set of inter-related activities to develop a comprehensive set of data and maps with recommendations to further broadband deployment and usage in Oregon.

### **Profile Demand**

*Comprehensively survey and compile demographic and demand-related broadband data across Oregon.*

- Surveys: Quantify and qualify prospective broadband users and subscribers, including usage, speed and affordability.
- Demographics: Document information required to understand the market(s) of the state such as: demographics and population trends, economic profile of the state and its communities, business sector assessments, and other related data.
- Community Meetings: Conduct community meetings and surveys and to obtain statewide participation throughout the course of the project and to build local ownership of the outcomes.

### **Inventory Infrastructure and Services**

*Inventory and map telecommunication infrastructure and service offerings to document broadband service coverage.*

- Maps: Document Oregon's existing telecommunication infrastructure and services. Include potential telecommunication build-out assets such as power infrastructure, tower structures, tall buildings, silos, strategic hilltops and other potential sites for build-out.

## **Identify Current Public Policies**

*Document and analyze policies that influence broadband deployment.*

- Policies: Identify federal, state and local government policies relating to broadband.

## **Final Report: Recommendations to Promote Broadband Investments and Usage**

*Provide strategies for increasing broadband availability and usage for all of Oregon.*

- Final Report: The Final Report will provide:
  - A comprehensive analysis of broadband availability throughout Oregon;
  - A comprehensive analysis of broadband demand throughout Oregon;
  - A comprehensive analysis of infrastructure gaps;
  - Recommendations for increasing broadband availability;
  - A template to guide promotion and encouragement of investment;
  - Recommendations for public education and workforce development;
  - Considerations for policy enhancements; and
  - An outreach and engagement plan to address broadband needs of the economically challenged, the rapidly growing minority populations, and seniors and persons with disabilities.

The provision and usage of critical broadband services in Oregon's economy requires public and private sector collaboration and planning. Hard data is essential to this process.

The estimated duration of the project is 2 years with an estimated investment of \$1,255,000.

Through information gathering, planning and collaboration, Oregon can facilitate and stimulate the activities required to bring broadband to all areas of the state, rural and urban. Through planning and collaboration policies can be formulated to promote the deployment and usage of broadband to improve Oregon's economy and quality of life.

# OREGON BROADBAND MAPPING AND DEMAND AGGREGATION PROJECT

## PROJECT OVERVIEW

### Purpose and Rationale

The purpose of the project is twofold:

- 1) facilitate provision of ubiquitous broadband in Oregon by providing high quality, independently developed market data and maps and
- 2) assess Oregon's preparedness for use of broadband in the economy.

Telecommunications has become 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 contributed as much as 75% of U.S. labor productivity gains.

Broadband has altered the fundamentals of our core infrastructure and how we live, work, learn and participate in society. Indeed, today, broadband is no longer a luxury. Increasingly, it has become an essential service required for everyday life. People and communities lacking broadband services are disadvantaged in the same way people and communities without electricity or telephone service were disadvantaged in the first half of the twentieth century. To remain competitive in today's world Oregon's businesses, institutions and residents must have available to them access to advanced telecommunications technologies and services AND they need the knowledge/training of how to employ these technologies.

Communities left behind will have limited participation in the economic opportunities of the global market and limited access to healthcare, education and government. In addition, those people will have a lesser access to jobs, education, health care, government services and the other important amenities that broadband provides. If the Digital Divide in Oregon is not addressed, the economic divide between urban and rural communities and between the rich and poor residents will surely grow wider. And, for the private sector, being on the wrong side of the Digital Divide translates into many lost business opportunities.

Oregon needs to know definitively the levels of broadband availability across the state to guide the development of public policy, infrastructure development and economic development. A comprehensive market study, compiled in a format that is intelligible to both the private sector and public sector, will document the current status of broadband deployment, the availability and cost of broadband services and the population's preparedness for its productive use.

Today, the actual status of broadband in Oregon is unknown. Alas, in Oregon, only anecdotal assessments and limited data sets inform policy and investment discussions. A comprehensive study based on meticulously collected data in a standard format, prepared state-wide, is needed to support public and private sector planning.

Many populated areas and communities still lack any form of broadband. Others, fortunately, are served by multiple broadband providers. Over the course of this project, the size and location of served, unserved and underserved areas in Oregon will be delineated. That information, in turn, will enable individuals in the private sector and public sector to formulate strategies to close those service gaps and make specific recommendations for addressing the gaps.

To spur the deployment of broadband in 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> tiered unserved and underserved markets, (often rural communities but sometimes urban neighborhoods)—markets that are deemed marginal from a business perspective—we must develop detailed market profiles and practicable business models. To make progress on this front we need to document and understand the needs of different consumer groups, households, businesses, education, health and government. With the right team in place, it is possible to quantify the aggregated demand represented by each of these important user groups and couple this information with data on price sensitivities of each of these different consumer groups (i.e., the willingness and ability to pay).

In order to bring broadband to unserved markets, often rural but sometimes urban neighborhoods, that are marginal from a business perspective, success often rides on developing detailed market profiles accompanied by prudent and practicable business models. To do this we need to understand the needs of different consumer groups, households, businesses, education, health and government. We also need to quantify the aggregated demand represented by each group along with a determination of the price sensitivity of different groups.

Moreover, unless we stimulate and aggregate demand for broadband services in unserved and underserved communities, many areas in Oregon will stay on the wrong side of the Digital Divide. The stimulation of deployments of infrastructure may be as simple as documenting a market opportunity. That information can be used to attract investment from the private sector, the public sector, or, through public-private partnerships. Through this data gathering process, we anticipate learning that some *truly* remote sparsely-populated regions of Oregon can only be served through a subsidized network. Knowing the location of these places enables us, with much greater clarity, to understand the scale of subsidy needed to close particular service gaps in tough-to-serve regions. Because taxpayer dollars will be used to expand broadband services, the data will enable us to target these subsidies with precision. That, in turn, can substantially boost the accountability and transparency of the process and boost public confidence that public resources are being used wisely.

### **Outcome and Impact**

This project will have a positive impact on the 3.8 million residents living in the 98,386 square miles of the State of Oregon. It will provide independently derived quality data and analysis for broadband infrastructure investment decisions. It will identify opportunities for rural and urban business development, jobs, access to quality healthcare, and educational opportunities. Seniors and persons with disabilities will benefit with increased access to telework, healthcare and reduced social isolation. And, the deployment and usage of telecommunications services can reduce the reliance on traditional forms of transportation and commerce and improve the economic prospects of Oregonians living in isolated communities.

The primary goal of the project is to facilitate the deployment of broadband services to all communities, rural and urban. The project will profile and aggregate user demands, engage providers, seek to reconcile/coordinate state, county and municipal policies and provide actionable information to entrepreneurs. The project will determine the size and location of unserved and underserved areas in Oregon and offer specific recommendations to close the gaps.

In addition, this project will identify the current readiness of Oregonians to employ telecommunications and make recommendations for increasing their use of broadband to

participate in economic, social, governmental and personal opportunities made possible by broadband.

Often, discussion on how to move Oregon's economy forward turn to characterizing lost opportunities by not having widely available and affordable advanced telecommunications infrastructure (i.e., broadband). Quantitative studies find 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>1</sup>

Provision of critical broadband services and its use in the economy now requires a marrying of public and private sector collaboration and planning. To make progress we need hard data.

The task of developing this information is complex and daunting. But, it certainly can be done. It takes careful planning and genuine collaboration to succeed.

### **AN INDEPENDENT AND COLLABORATIVE PROJECT**

Oregonians will best be served if the information gathered is developed by an independent team of Oregonians. Even any perception of bias in the data collection or reporting will undermine an effort to compile this information. We are not suggesting all members of a team must have direct expertise in all aspects of the project. On the contrary, a number of skill sets are needed to make this project successful. For instance, people with expertise in Geographic Information Systems (GIS) are needed to organize and display the information. And, individuals skilled in facilitating public meetings, people who understand the different regions of Oregon, are needed to maximize the effectiveness of outreach efforts with the public and private sector.

Ultimately, a project like this will only succeed if it benefits from widespread cooperation, especially in the collection of map data. A major theme of this project is to be inclusive and to gain trust and the collaboration of existing broadband service providers—large and small. If we succeed at outreach, incumbent providers of telecom services will come to understand they have a lot to gain by participating in the effort because demand for services in their area will be boosted. In addition, the information gathered during this project can justify the use of public resources to expand privately-owned and operated networks.

### **AN OREGON PROJECT**

Oregon has, within her borders, individuals with the skill set and experience needed to conduct this project.

- Geographical Information System (GIS) needs can readily be met through any number of our excellent universities and engineering companies.

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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

- Many highly qualified information technology consultants are available to assist over the course of the project.
- Substantial expertise in conducting and analyzing complex surveys exists in the state.
- Community meeting expertise can be found across the state.
- Numerous individuals have the experience developing and conducting a project of this magnitude.
- Many communities have local knowledge relative to broadband ready to be shared.
- Previous experience in developing and managing this project is available. The opportunity to leverage the experience of the project proposal developer, having executed this approach multiple times and with experience across all of the project's components could greatly enhance the execution and successful completion of the project.

By leveraging the many resources in Oregon to carry out this work—rather than outsource the inventory process to out-of-state entities—dollars expended on this project will stay in Oregon. In addition, with Oregonians doing this work, we can make sure it is properly *ground truthed*.

### STAKEHOLDERS

Virtually everyone in Oregon can be considered a stakeholder in ubiquitous and affordable broadband. A number of studies document the benefits of broadband on jobs, healthcare, education, government, recreation, public safety and much more. Since by definition stakeholders are the people impacted by (or could have an impact on) the project, their views need to be taken into account.

Early in the process, stakeholder input will be solicited in the assessment of broadband opportunities and development of a plan to address gap analysis. These stakeholders include but are not limited to:

- State residents
- Healthcare providers and consumers
- Pre-K-16+ educators and students
- Government (includes Tribal Sovereignties)
- Libraries
- Public Safety agencies (law enforcement, fire, emergency medical technicians, public health)
- Community-Based Organizations
- Seniors
- Business Sectors
- Underserved populations, i.e., minorities, persons with disabilities, low income, seniors
- Telecommunications providers (telephony and broadband)
- Potential investors for broadband infrastructure/services and for economic development

## PROJECT TIMEFRAMES AND COMPONENTS

### Timeframes

This is a complex undertaking. Too often, efforts like this, which are meant to have enduring impact, have been underestimated at the outset. As such, the project phases and components presented below are based on the real-world experience gained from similar projects in analogous settings.

The six project phases include:

Tasks	Timeframe
<b>Phase 1 – Project Formation:</b> <ul style="list-style-type: none"> <li>• Acquisition of Project Manager, consultants and outsource resources</li> <li>• Identify survey team and develop surveys</li> <li>• Design community meetings and acquire team</li> <li>• Identification of economic, demographic and population data sources</li> <li>• Identification of facilities</li> <li>• Identification, acquisition and implementation of IT hardware and software</li> <li>• Preparation of a more detailed budget and project plan</li> <li>• Staff training</li> </ul>	3-4 Months
<b>Phase 2 – Data Collection and Recording:</b> <ul style="list-style-type: none"> <li>• Conduct surveys</li> <li>• Collect map data</li> <li>• Collect policies and ordinances</li> <li>• Enter data from all sources</li> <li>• Enter data into database and GIS</li> </ul>	6-8 Months
<b>Phase 3 – First Stage Analysis:</b> <ul style="list-style-type: none"> <li>• Generation of initial analysis and results</li> <li>• Gain feedback from Advisory Committee</li> </ul>	2-4 Months
<b>Phase 4 – Second Stage Analysis:</b> <ul style="list-style-type: none"> <li>• Refinement of analysis and results plus integration of additional data sources and capabilities</li> <li>• Review with Advisory Committee</li> </ul>	2-4 Months
<b>Phase 5 - Preparation of the Final Report:</b> <ul style="list-style-type: none"> <li>• Final report production</li> </ul>	2-3 Months
<b>Phase 6 – Presentations of Project Results:</b> <ul style="list-style-type: none"> <li>• Presentations of the project report</li> </ul>	1 Month
<b>Total Estimated Timeframe</b>	<b>16-24 Months</b>

Figure 1 – Project Phases

## Unserved and Underserved Definitions

For purposes of this project we will use the following definitions.<sup>2</sup> In the Final Report we will reassess these definitions.

- An **unserved** area is any service region in which no facilities-based provider offers any level of broadband service such that internet connectivity can only be achieved through dial-up or satellite services.
- An **underserved** area is any service region in which no facilities-based provider offers broadband service at the benchmark transmission speeds of at least 1 Megabit per second (Mbps) upload and 3 Mbps download.

## Broadband Service Tiers to be Evaluated

We will assess broadband capacity (uploads and downloads) by community using the FCC tiers<sup>3</sup>:

<i>Tier</i>	<i>Rate</i>
1	200 Kbps up to 768 Kbps
2	768 Kbps to 1.5 Mbps
3	1.5 Mbps to < 3.0 Mbps
4	3.0 Mbps to < 6.0 Mbps
5	6.0 Mbps to < 10.0 Mbps
6	10.0 Mbps to < 25.0 Mbps
7	25.0 Mbps but < 100.0 Mbps
8	100.0 Mbps and beyond

Figure 2 – Broadband Service Tiers to be Evaluated

## Profile Demand

*Comprehensively survey and compile demographic and demand-related broadband data across Oregon.*

- Surveys: Quantify and qualify prospective broadband users and subscribers, including usage, speed and affordability.
- Demographics: Document information required to understand the market(s) of the state such as: demographics and population trends, economic profile of the state and its communities, business sector assessments and other related data.
- Community Meetings: Conduct community meetings and surveys and to obtain statewide participation throughout the course of the project and to build local ownership of the outcomes.

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<sup>2</sup> The American Recovery & Reinvestment Act of 2009 requires the National Telecommunications Information Agency (NTIA) to work with the Federal Communications Commission (FCC) to develop definitions of unserved and underserved. The definitions provided here will serve as placeholders until that work of the FCC and NTIA is accomplished.

<sup>3</sup> “Development of Nationwide Broadband Data to Evaluate Reasonable and Timely Deployment of Advanced Services to All Americans, Improvement of Wireless Broadband Subscriber Data, and Development of Data on Interconnected Voice over Internet Protocol (VoIP) Subscriber Data”, FCC WC Docket No. 07-38, Adopted: March 19, 2008, Released: June 12, 2008, [http://hraunfoss.fcc.gov/80/edocs\\_public/attachmatch/FCC-08-89A1.doc](http://hraunfoss.fcc.gov/80/edocs_public/attachmatch/FCC-08-89A1.doc)

Two broad categories of data will be gathered and compiled into a meaningful format for use:

- Surveys
- Existing data sources

Project data will be entered into a data repository for ease of analysis and reporting.

The survey process will quantify and qualify prospective broadband users and subscribers, including categories of usage, speed and affordability.

The data collection process will employ the “best practices” and experiences gained from previous efforts. Examples of previous efforts include:

- Redwood Coast Connect (<http://redwoodcoastconnect.humboldt.edu/>)
- Computer Systems Policy Project ([www.cspp.org](http://www.cspp.org)) as updated by CENIC ([www.cenic.org](http://www.cenic.org)) (*On the Road to a Gigabit Broadband: Are we there yet? A Self-Assessment Guide for Communities*)
- North Carolina Rural Internet Access Authority (e-NC, <http://www.e-nc.org/>)
- Technology Council of Central Pennsylvania (<http://www.tccp.org/>)
- J Irwin Community Informatics (<http://www.jirwinconsulting.com/>)
- Nebraska Information Technology Commission (<http://www.nitc.state.ne.us/>)
- ConnectKentucky (<http://www.connectkentucky.org/>)
- others

Gathering community survey data of course requires extensive fieldwork. Survey instruments fall into three broad categories:

- Community Surveys (non-random)
- Telephone Survey (randomized)
- Technical Surveys (non-random)

Taken together the three survey approaches provide a comprehensive view of the state’s broadband demand profile. Combining survey results with other data sets provides a highly accurate holistic view of broadband demand with a high degree of reliability and confidence in the results.

### **Survey Instruments**

The survey instruments will be derived from a variety of existing survey instruments. Draft surveys are supplied in appendices 2, 3 and 4. The surveys have been used with great success in southern Oregon and northern California. The surveys can be employed in this project with some modifications. This survey design process will be a first step in the project. Where deemed appropriate, the survey instruments will be modified to maximize the utility of the information. For example, two augmentations could include a method to gauge the broadband status of seniors and persons with disabilities as well as the preparedness of Oregonians for participation in the new economy.

The Survey Development Project Team will be composed of people experienced with developing these instruments, conducting fieldwork to gather the survey data, the assembly of the data and with building a readily-understandable means to view the data. Results of this process will be

used to finalize the details of the community survey implementation plan. Trained survey staff will conduct the community meetings.

Community meetings, telephone email, website presence and 1:1 meetings will be employed to reach a reasonable number of survey participants.

The telephone survey will be scripted and coordinated with the community survey. This survey process will be outsourced. Surveyors will be trained and calls may be randomly monitored.

Use of a website survey tool will be evaluated. The on-line survey will be provided in an alternative format on the website for sight-impaired persons. Techniques to ensure only one response per location will be employed. However, at present this is not an exact science.

Surveys will be designed for ease of coding and compilation. Survey results will be input into a database application for ease of access and reporting. Every effort will be made to tie the survey data to a geographic location. This way, survey results can be placed into appropriate map layers.

In addition to the English version of the survey, a Spanish translation of the written, telephone and website survey instruments are planned.

The survey instruments and implementation details will be reviewed and, based on the recommendations of the survey team, approved by the Advisory Committee (AC).

Results will be compiled and analyzed in a report presented at the end of the project. A Reports Development Team will design the final report formats. The AC will review the recommended report structure for completeness and relevance.

### **Survey Implementation**

The surveys will take several months to execute due to varied regions, travel distances, time of year, different targeted groups and the complex logistics of holding community meetings. Consulting advice on best practice approaches for conducting surveys with Tribal populations will be sought and applied to the project. Data from all surveys will be aggregated, analyzed and presented according to a pre-defined format into the Final Report.

### **Community Survey**

Community Surveys will build profiles of broadband preparedness and current status. These are community assessment surveys that examine residents' opinions and attitudes about service delivery and the quality of life in their community. In this instance, the surveys focus specifically on broadband and related issues affecting the communities.

Information gathered from the surveys will be used to assess current rates of technology adoption and usage across multiple sectors for each of the communities surveyed. This information will also provide a benchmark for each community's current readiness to participate in the economic, social, governmental and personal benefits arising from broadband availability and adoption.

State residents and stakeholders will be encouraged to provide survey input via telephone, mail, email, online and participation in face-to-face meetings. Postings on the project's website will include surveys, reports, maps and other information relevant to this phase of the project.

## **Community Meetings**

Community meetings will serve as focal points for gathering surveys and hearing suggestions from the communities. The community meetings will complement the other data collection activities of the project. The purposes of the community meetings are to:

- inform communities of the project processes, outcomes and potential impacts;
- promote and encourage participation in the project survey process (i.e., the random telephone survey, the elective surveys, or the business surveys); and;
- provide a forum for community members to provide qualitative data in addition to the standardized survey data.

As we all know, Oregon has a large landmass with many incorporated communities and other scattered clusters of population. Many of these communities are quite rural. Given the time constraints of this project, it will not be possible to hold a meeting in every cluster of population in Oregon. Therefore, we will seek opportunities to combine community meetings for communities in relative close proximity to one another (see Appendix 1 - Communities).

The primary reason for holding community meetings is to gather data. The meetings provide the opportunity for community members to complete a survey and to offer comments to a standardized set of questions.

Question 1: What kinds of things would you do if you had faster and more reliable broadband access either at work or at home? Alternatively, tell us what can't you do now, in your workplace or home, that having broadband access could help you do (or do better)?

Question 2: What has been happening in your area or things you have heard about, that are already working towards getting or increasing high-speed internet connectivity in your area?

Question 3: What do you think are the most important step[s] to take next that could help your community move forward towards broadband access for all? Who are the people doing this work or that can help make it happen?

An open invitation to the public will be issued in advance of the community meetings. In addition to community meetings, we anticipate seeking numerous face-to-face, encounters, including civic leaders and local, state and federal elected officials. All community meetings will provide access for persons with disabilities (includes use of sign language interpreters) and, where indicated and appropriate, be conducted in the language of the group.

The community meetings aspect of the data collection is time-consuming. Moreover, it requires specialized skill sets and considerable advanced planning. (See Appendix 5 – Planning Steps for Community Meetings (draft)). Taking time to do this early engagement with the communities is exceedingly important. It will set the stage for the rest of the process.

## **Telephone Surveys**

When the desired sample consists of the general population, telephone surveys can provide several advantages. Advantages include: rapid contact with respondents; interviewers can elicit more complete and substantive answers from respondents as well as ask for clarification and

elaboration concerning responses. Additionally, use of randomized selection of telephone numbers provides for statistically extensible projections across the populations.

The Telephone Survey will be coordinated with the Community Survey. A Spanish version may be required. Together they will provide a very comprehensive and accurate set of data points used by planners.

### **Business and Institution Technical Survey**

This category of survey will help build profiles of broadband preparedness and current status for Oregon's businesses and institutions. This survey probes for technical information and will require completion by IT or network management staff.

### **Survey Drafts**

The draft surveys found in the appendices are provided to jumpstart the crafting of the final versions of the surveys. We anticipate the survey team in conjunction with the Project Developer and Manager will develop the final versions of the surveys, including the details of process, to ensure widespread participation.

### **Demographics**

Document information required to understand the market(s) of the state such as: demographics and population trends, economic profile of the state and its communities, business sector assessments, and other related data. Layered mapping techniques will provide an easy to use view of this data.

Surveys provide insights into community readiness and details of infrastructure utilization and planning. When added to other critical data used to define and profile an area, the total package offers powerful and compelling case for investment. The project will provide research and data collection of the other critical dimensions of the region for successful broadband provisioning. Private sector investors typically require this information for use in evaluating business opportunities. This compilation consists of:

- Demographics and trends
- Economic profile of the region and its communities
- Household data
- County and municipal ordinances relating to broadband infrastructure
- In and outbound migrations
- Other pertinent information that may be derived over the course of the project.

### **Inventory Infrastructure and Services**

*Inventory and map telecommunication infrastructure and service offerings to document broadband service coverage.*

- Maps: Document Oregon's existing telecommunication infrastructure and services. Include potential telecommunication build-out assets such as power infrastructure, tower structures, tall buildings, silos, strategic hilltops and other potential sites for build-out.

## **Maps and Services Documentation**

The project will document Oregon's existing broadband (telecommunication) infrastructure and services. The project will include potential telecommunication build-out assets such as power distribution infrastructure, tower structures, strategic hilltops, tall buildings, silos and other potential sites for build-out. This is a complex and time-consuming task. But, the information gained from the project is well worth the expenditure of time and effort. A detailed understanding of network topologies and the ability to interact professionally with a wide variety of providers is required to complete this task.

Maps showing infrastructure provisioning in various layers along with household, survey data and other related data provide an extremely useful tool for visualizing the current status of broadband deployment and usage in Oregon. However, the provision of maps alone does not build out networks nor engage end-users in broadband literacy programs. These maps and associated findings are a first step toward determining meaningful policies and investment strategies as we move into the future.

Maps illustrating infrastructure provisioning in various layers along with household, survey data and related data are extremely useful tools for visualizing the current status of broadband deployment and usage in Oregon. However, maps alone don't tell us how to best target investments to deploy networks. And, maps alone don't tell us how best to engage end-users (in different regions among different consumer groups) in broadband literacy programs. The maps and associated findings, therefore, should be viewed as among the necessary first steps toward the development of effective policies and investment/implementation strategies.

## **Map Data Collection**

Geographic Information System (GIS) technology will be employed to produce layered maps portraying the collected data. Commercial telecom and broadband infrastructure is a complex mixture of fiber, copper, and wireless assets owned by multiple telecom service providers. And, sometimes government agencies own wireless or fiber assets. There is no single source that reflects this breadth of this infrastructure and service provisioning. Rather, it is a patchwork of sources. There are a variety of commercial data sources that can be licensed, and, other publicly available data can be accessed to build significant complementary capabilities into a blended GIS layered overview (e.g., Telcodata, Telegeography, Federal Communications Commission, Tele Atlas, Michael Baker Corporation).

Data for GIS mapping broadband of supply will need to be gathered from a wide-range of sources. Potential categories of data and sources include:

- Telecommunication company territories from the Oregon Public Utilities Commission (OPUC)
- Many communities possess cable company service area maps via their re-franchising efforts.
- Current telecommunications service providers and services provided.
- Global Positioning Satellite (GPS) locates for Central Office (CO) and Wire Center Locations telephony switches is available through TelcoData.US.
- The Federal Communications Commission (FCC) databases provide detailed information about antennas, microwave and cellular services.

- Wireless ISPs and WiFi hotspots will be contacted to gather data on their service areas and what services are provided at what price.
- These services will be characterized by speed, synchronicity, cost, user support, and limitations, such as weather, diversity of backhaul, mobility, and distance to “hub.” Identifying backhaul options will be important to determining future broadband coverage for communities.
- Power grid (i.e., poles and established rights of way)
- Provider engineering drawings
- Cable Provider Service Boundaries
- Middle Mile & Long Haul Fiber Infrastructure
- Metro Fiber Infrastructure
- Other Fixed Wireless Broadband
- Mobile/cellular maps on websites
- American Automobile Association (AAA) or topographical maps marked up by providers and local residents
- Purchased data (TeleAtlas)
- Provider employees, such as local linemen and cable employees
- GIS data for census and demographic information
- Federal Communications Commission (FCC) tower/radio/license databases
- Satellite Providers and Coverage
- Healthcare planning organizations Office of rural Health, Oregon Health Network), schools, libraries, etc.
- Fire tower data
- Data Center Locations
- Other sources

Acquisition of map data from some telecommunication providers may need to be conducted under Non Disclosure Agreements (NDAs). And, therefore, some of the resulting maps may need to remain anonymous for reporting purposes. However, every effort must be made to identify network ownership to gain the full measure of value from the mapping effort.

To understand opportunities for demand aggregation, the project team will gather data on existing telecommunications infrastructure and services, map the data, analyze pending telecommunications projects and develop alternative scenarios for meeting perceived needs. Given the size of the geographic area and community diversity, there won’t be a “one size fits all” solution. There will be multiple scenarios and/or options to choose from. The Alternative Scenarios analysis will address by community at least the following elements:

- Underserved Communities by County
- Estimated Residences
- Applicable Infrastructure Scenario(s)
- Local Loop Capital Needed
- Possible New Annual Revenue
- Notes (e.g., requires backhaul access)

## Identify Current Public Policies

*Document and analyze policies that may influence broadband deployment.*

- Policies: Identify federal, state and local government policies relating to broadband.

This project component seeks to understand the status of public policies and ordinances.

“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>4</sup>

## Policies Analysis and Recommendations

Identify and collect this information. Provide analysis of policy status. Develop a template for telecommunication related policies.

### County and municipal policies

One of the strategies to increase broadband usage is having a common set of county and municipal policies and standardized ordinances relating to telecommunications planning and construction. The project will identify what policies exist and where they are stored. Recommendations will seek to move us toward a common set of policies (or at least a coordinated set of policies) for broadband deployment in Oregon.

### Legislation

Policy can help drive investment in broadband networks. Understanding the current legislative landscape is a critical first step to formulating recommendations. Analysis may lead to recommendations for legislative action or incentives where appropriate. Some scenarios might include a case for increased deregulation, funding, or, direct incentives for infrastructure investments.

## Final Report: Recommendations to Promote Broadband Investments and Usage

*Provide strategies for increasing broadband availability and usage for all of Oregon.*

- Final Report: The Final Report will provide:
  - A comprehensive analysis of broadband availability throughout Oregon
  - A comprehensive analysis of broadband demand throughout Oregon
  - A comprehensive analysis of infrastructure gaps
  - Recommendations for increasing broadband availability
  - A template to guide promotion and encouragement of investment;
  - Recommendations for public education and workforce development;
  - Considerations for policy enhancements; and

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<sup>4</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

- An outreach and engagement plan to address broadband needs of the economically challenged, the rapidly growing minority populations, and seniors and persons with disabilities.

The Final Report will provide a comprehensive analysis of demand, and infrastructure gaps plus recommendations for increasing broadband availability and usage throughout Oregon.

The target audience for the final report includes but is not limited to:

- Private sector telecommunication investors
- Congressional delegation
- Oregon State Legislature
- Oregon Governor
- Oregon Economic and Community Development Department
- Federal entities
- Elected officials at all levels of government (city, county, state and federal)
- Tribal Governments
- Project Advisory Committee
- State residents and institutions
- Funding sources

The final report will be extensive and include the following sections (brief descriptions follow):

- Purpose
- Methodology
- Survey Results, Maps and Other Critical Data
- Aggregated Broadband Demand
- Definition of terms
- Alternative Scenarios
- Existing Policies and Policy Recommendations
- Outreach and Engagement Plan – Seniors, Minorities and Persons with Disabilities
- Project Evaluation
- Recommendations for Next Steps

The Project Manager will hold overall responsibility for producing the Final Report. Given the complexity of the project, it will be a team effort led by the Project Manager.

The Final Report will be published in hard copy (limited number) and be posted on a website. Online GIS will provide layered presentation of project data. A PowerPoint presentation will provide a concise format for presentations in meetings on release of the Final Report.

### **Purpose**

Discussion of the purpose and rationale for conducting the project will be provided in this section.

## **Project Methodology**

This section of the report will provide a detailed description of the project methodology. Also included will be detailed discussions of survey selection and execution, approaches to staff and consultant selection, anticipated and realized challenges, any adjustments made over the course of the project, lessons learned and other matters delineating the approach and course of the project. The Project Evaluator will prepare this segment with assistance from project team members.

## **Survey Results, Maps and Other Critical Data**

The Final Report will include identification, characterization, and mapping of the existing broadband infrastructure and services of the State of Oregon. Also covered will be data gathered in community meetings, other surveys, and resources such as demographic data, economic data, census data, FCC data, telecom provider data, ethnicity maps and poverty maps. GIS technology will be used to present layered maps of the results.

Descriptions and mapping of existing infrastructure, including broadband coverage, telecom provider contact information and regional backhaul options. Elements of the overall telecommunications infrastructure will be included, such as telephony switch locations, antennas and microwave radio sites. “Best efforts” will be applied because the sources of information are varied (available in different formats) and presented at different levels of precision, especially regarding broadband infrastructure.

Mapped data will cover at least the following:

Demographic and Economic Data:

- Median Age by County/Community
- Median Household Income by County/Community
- Households in Poverty by County/Community
- Housing Units by County/Community
- Ethnicity by Community
- Population Density by County/Community
- Years of College by County/Community

Supply and Demand Data by County/community:

- Broadband Supply
- Broadband Demand
- Backhaul Capability and Coverage
- Areas Lacking Reasonable Access to Backhaul Capacity
- Broadband Availability and Speed Maps
- Business and Institutional Broadband Capacity
- Fixed Wireless Availability and Speed Map
- Library Broadband Capacity and Speed Map
- Schools Broadband Capacity and Speed Map
- Healthcare Facilities Broadband Capacity and Speed Map
- Mobile Wireless Broadband Capacity and Speed Map
- Providers per area
- Telephone Survey Representation

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- Telephony Fiber and Switches
- Written and Online Survey Representation
- Written and Online Survey of Current Broadband Service and Type
- Written and Online Survey Broadband Demand Geo-coded to Address
- Community Meeting Locations Over Course of the Project

The Final Report will include an outline of the served, unserved and underserved communities of the State of Oregon. The Final Report will address not just the incorporated communities but also other clusters of residents (“best efforts”).

### **Aggregated Broadband Demand**

The Final Report will provide delineation by category and sector of prospective users (subscribers) for broadband service in the state. Included will be a discussion of the process and format for tracking the potential demand by user category in order to quantify the potential aggregated demand by community and county.

The project will report on outreach efforts in addition to the results of the surveys, including the outreach and engagement plans for local, state and federal elected officials as well as that used for civic leaders.

### **Definition of Terms**

A variety of phrases and terms related to the topic will be defined. Included in this section will be recommendations for definitions of broadband, unserved, underserved and others.

### **Alternative Scenarios**

The Final Report will present a set of recommendations for development and adoption of criteria for speed and other service performance specifications for broadband infrastructure. Included will be discussion on the adequacy of the asymmetric broadband services benchmark used for purposes of this study (i.e., transmission speeds of at least 1 Megabit per second (Mbps) upload and 3 Mbps download). We will answer the following question: Do the study results indicate a need to develop a symmetric broadband service benchmark?

This segment of the Final Report will also provide recommendations for alternative scenarios (technology, construction and connections) for building broadband infrastructure that meets the adopted criteria. Information on multiple broadband infrastructure scenarios and implementation options will be provided, since “one size doesn’t fit all,” especially for rural areas. This will take into account access to broadband services and planning in adjacent states with the potential to serving Oregon’s border communities.

Because there will be multiple infrastructure scenarios to choose from, local communities will need a process to determine what’s the most appropriate approach for their market. An evaluation scorecard and process will be provided for communities to evaluate multiple scenarios for the right local fit. This will require formulating who does evaluations in a community, ranking pros/cons of scenarios, analyzing existing community infrastructure. A scorecard will be developed that includes: vendor stability, initial capital investment, ongoing costs, ubiquity, functionality, ease of use, user support, mobility and universal design.

### **Existing Policies and Policy Recommendations**

The Final Report will identify existing county and municipal policies relating to telecommunications. Sources of data will be collected and listed. The Final Report will include recommendations for a common set of ordinances and recommendations, if so determined, for appropriate legislative action.

### **Outreach and Engagement Plan – Seniors, Minorities and Persons with Disabilities**

The Final Report will include development of an outreach and engagement plan to minorities and persons with disabilities. The approach will seek to ensure incorporation of accessibility into the aggregation of demand and deployment of broadband in the Oregon.

### **Project Evaluation**

The Project Evaluator along with the Project Manager will be responsible for completing the project evaluation report to be incorporated into the Final Report. The project will have a designated independent evaluator for the duration of the project. The evaluation report will provide a complete, honest and independent assessment of the project. Additionally, a project evaluation report will be provided at each Advisory Committee (AC) meeting. On-going project evaluation over the life of the project is to ensure accountability and adherence to the purpose of this project.

### **Recommendations for Next Steps**

Recommendations will be provided to increase broadband deployment and usage. Items to be addressed in the next phase include:

- Approaching service providers with marketing information to encourage private investment in deployment.
- Outreach to funding sources for capital infrastructure investments where there is no apparent economic incentive for the private sector.
- Brokering public/private partnerships for rural broadband.
- Identifying areas needing greater route diversity.
- Identifying key backhaul development projects.
- Identifying areas with technology education needs.
- Developing model policies for jurisdictions.
- Other matters that may be deemed of importance to the outcome of this project.

## **PROJECT INFORMATION TECHNOLOGY**

The Project is a collaborative effort that will be gathering data through a variety of means, including surveys, map data, interviews and reports from across Oregon. The IT solution we seek includes:

- A common repository for all data.
- Graphic Information System (GIS) technology to graphically represent data.
- A website to serve as a public face for the project and as a working space for the project.

An integrated “shelf ware” system approach will be pursued to minimize customization and investment costs.

## **IT Services Acquisition and Management**

The scope and scale of this project requires the use of several modes of Information Technology. The Project Manager will hold responsibility for the appropriate use of IT across the project. Much, if not all, of the IT implementation functions will be outsourced.

## **Data Repository**

The data repository will house all critical data collected over the life of the project.

Data must be easily archived, retrieved, and reported. The ability to produce reports from multiple data sets is necessary. The database application will be browser accessible because the data input effort will not necessarily occur in a single location. The database must work seamlessly with the GIS and website technologies employed. The database will be designed at the outset of the project in parallel with the survey and GIS designs. Daily backups and offsite storage will be required.

## **Geographic Information Systems (GIS)**

A significant component of this work will involve GIS mapping and spatial analysis of the physical, social and economic infrastructure and community broadband requirements throughout the region. While GIS is well understood in the mapping of infrastructure, correlating this information with information from surveys or focus groups is examined less frequently. However, nearly all information we collect about people; their communities and environments can be tied to some geographic location and analyzed in GIS (Steinberg and Steinberg, 2006)<sup>5</sup>.

For example, we may survey people at their home address or a geographic unit such as a census block or city of residence. These locations can be easily mapped to a location and examined in conjunction with the current communications infrastructure to more fully understanding the current broadband infrastructure as well as existing gaps and opportunities to bridge those gaps. Effective research necessitates collection of appropriate data in an appropriate fashion and then conducting an intelligently thought out analysis that makes sense for the question being addressed (Steinberg and Steinberg 2006).

End users must have the capacity to use a standard browser from any location to view maps posted on the website. Non-standard technologies will be avoided.

## **Website**

A website will serve as a public face on the project, a workspace for updating databases, informing project team players, informing the public, conducting online surveys and other uses to be defined for the project.

In order to meet the needs of the both the public and the working group the website will need to meet the following criteria:

- The site must have the capability to be updated through a secure Content Management System (CMS) by a variety of people. Access level security controls will be necessary. An Open Source tool is suggested (TBD).
- The site must be flexible and dynamic with the ability to expand as the project develops.

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<sup>5</sup> Steinberg, Steven J. and Sheila L. Steinberg, *Geographic Information Systems for the Social Sciences, Investigating Space and Place*. 2006, SAGE Publications, Inc, Thousand Oaks, CA. ISBN: 9780761928720

- The ability to offer surveys to the public as well as providing a means for staff to enter survey data from the field.
- Maps and other graphic objects must be easily accommodated.
- Additional collaborative or dynamic applications such as a forum, mailing list, blog or wiki may need to be integrated in to the site.
- Design must be clean, simple and fast loading.
- Navigation should be intuitive and easy to follow.
- Content must be searchable.
- Interactive maps must be available in addition to static map displays.
- Online surveys will be readily accessible by dial-up users.
- Public pages must follow the accessibility standards as determined by American Disabilities Act, Section 508 (see Appendix 6 - Accessible Websites and ADA Compliance Policy).

### **IT Equipment and Application Software**

Development of geospatial data, analysis, modeling and mapping as well as the website, online surveys and interactive map will need to be addressed. The complexities of maintaining consistent database schema through all components of the project require careful up-front definition.

Essential software for the project might include the following but needs thorough evaluation to ensure the IT needs of the project are addressed:

- ArcGIS 9.2 for GIS data preparation, analysis, modeling and mapping (<http://www.esri.com/>) / (<http://www.placeways.com/communityviz/?p=communityviz>).
- ArcGIS Server 9.2 (ESRI) for web-based, interactive maps (<http://www.esri.com/software/arcgis/arcgisserver/>). These maps are served via an ArcGIS Server platform (Inline Corporation, [http://www.inlinecorp.com/products\\_platforms\\_arcgis.htm](http://www.inlinecorp.com/products_platforms_arcgis.htm)).
- CommunityViz Professional 3. 1 (Placeways) for scenario modeling Adobe Creative Suite 3 (Adobe) for cartographic design of publically available PDF format maps and for management and conversion of various data sources provided in non -geo spatial graphic formats.
- Limesurvey (Opensource, <http://www.limesurvey.org/>) for development of online surveys on the website.
- Microsoft Office
- Nuance for PDF preparation and conversion (<http://www.nuance.com/pdfconverter/>)
- Document scanner
- Online collaboration tools

## **GOVERNANCE, PROJECT MANAGEMENT AND STAFFING**

### **Governance**

The overall complexity and criticality of this project requires a formalized approach to governance and a professional organizational structure. Governance is the action of developing and managing consistent, cohesive policies, processes and decision rights for a given area of responsibility.

Governance along with professional organizational structures provides a formal mechanism for participative decision-making and increased accountability. Governance is the action of developing and managing consistent, cohesive policies, processes and decision rights for a given area of responsibility.

### **Advisory Committee**

An Advisory Committee (AC) will provide guidance and oversight for the project. The AC will monitor project progress through periodic reports from the Project Manager, approve any changes of substance to the Project Plan and Budget and make recommendations as necessary to provide direction for the project.

The AC will elect a Chair from among its members. The Advisory Committee (AC) will be composed of 7 members.

- Economic Development representative (1)
- Healthcare representative (1)
- Education representative (1)
- Tribal representative (1)
- Telecommunication Industry representative (1)
- Cities representative (1)
- Counties representative (1)

The following are required to participate in all AC meetings:

- Project Manager
- Independent Project Evaluator

AC meetings will occur at two-month intervals over the course of the project, including a final meeting to approve the Final Report. AC meetings will be open to the public. The chair or any member of the AC may call for an executive session of the AC when addressing personnel matters or other sensitive topics. A majority vote of the AC members will be required to call an executive session.

Project staff or funders may be required or invited to attend the AC meetings, as determined by the Chair.

Emergency sessions may be called at the request of the AC Chair or any member of the AC, with concurrence of the Chair.

The AC will receive and monitor regularly scheduled project reports, provide feedback, as deemed necessary.

The AC members will be entitled to receive reasonable lodging and travel expenses but will otherwise serve on a voluntary basis.

Any decisions will be made on the basis of a majority vote of AC members present at meetings. The list of matters that may surface requiring a vote of the AC include but are not limited to:

- Determinations of sufficient cause to adjust the project plan and approval of how those adjustments will be implemented
- Recommendations for project improvements
- Direction on project expenditures
- Budgetary expenditures submitted by the Project Manager
- Survey instruments and process
- Operational reports
- Website acceptability
- Use of consultants
- Continued service of the Project Manager
- Other matters requiring review and approval

The AC will NOT be involved in detailed management of the project. That is the role and responsibility of the Project Manager. Any interference of a member of the AC in the day to day project management, on a majority concurrence of the other members of the AC, will be cause for removal.

### **Project Location**

The project will be located in Oregon. Periodic meetings will be held in a yet to be identified physical location. However, this project will be unique in that many of the project participants will be physically located in different regions in Oregon and will employ various telecommunication tools for project communications. Those tools range from teleconferences, videoconferences, web-based tools, email and other modalities to be identified in Phase 1.

IT equipment will be housed in a single physical location but architected to be available through the internet. Off-site back up storage will be required.

### **Project Management and Staff**

The project management team and staff will include (see Figure 3 - Organizational chart):

- Project Manager
- Financial Manager
- Assistant to the Project Manager
- Assistant to the Financial Manager
- Survey, data administration and GIS Management – outsourced
- Community Meeting Team
- Student Assistants
- Project Evaluator
- Consultants

**Oregon Broadband Mapping and Demand Aggregation Project  
- Organization Chart -**

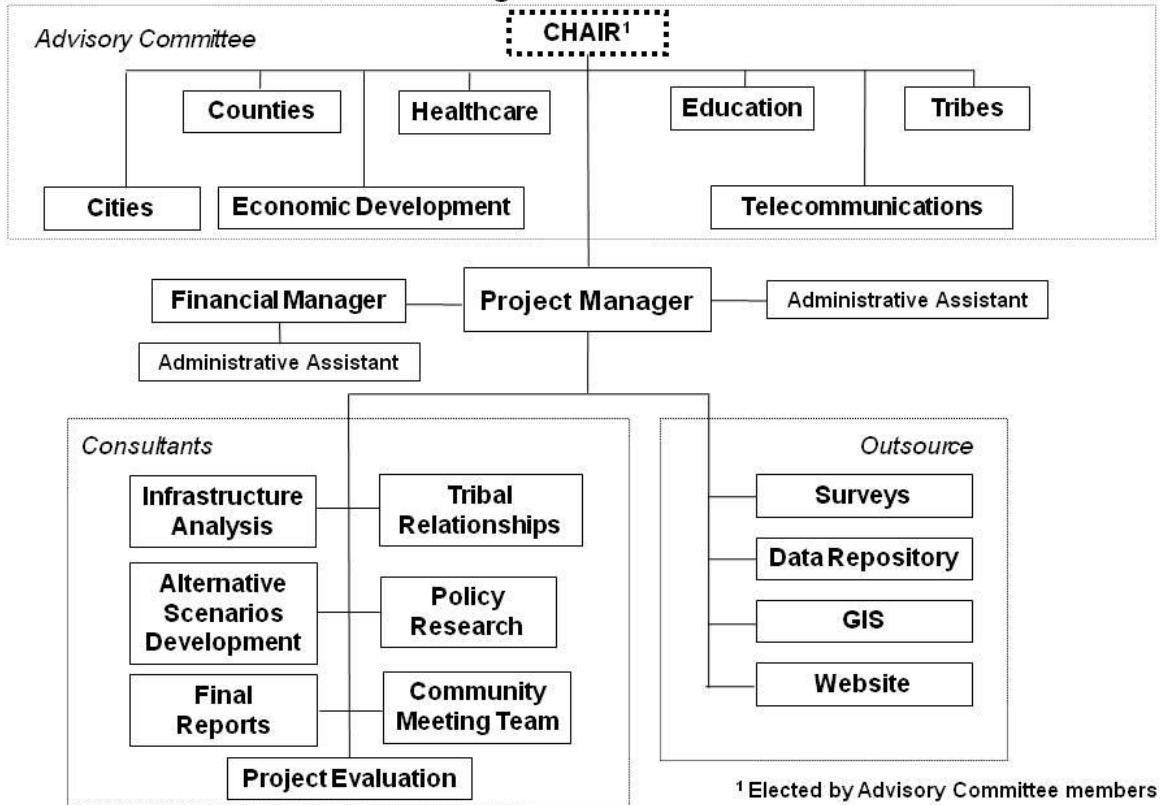


Figure 3 – Organizational Chart

**Project Manager**

The Project Manager (1) will:

- Report to the AC Chairman
- Provide project staff oversight, operational management, monitoring and reporting
- Oversee preparation and delivery of reports
- Make recommendations to the AC for project improvements
- Attend and participate in meetings, as appropriate
- Oversee the collection of data from all sources
- Provided direction and oversight of the consultants
- Oversee all analysis and report writing
- Be directly and actively involved in all aspects of the project
- Be a resident of the state

**Assistant to the Project Manager**

The Assistant to the Project Manager will:

- Coordinate meetings and make reservations for travel and lodging
- Administer the Project Manager’s schedule
- Assist the Project Manager as directed, including support to the AC

- Answer phones and direct callers to appropriate project resources
- Demonstrate competency in use of Microsoft Office applications, browser usage for online research and email.
- Assist with writing as directed by the Project Manager
- Be a resident of the state

### **Financial Manager**

The Financial Manager (1) will:

- Provide an operational liaison role with the funding entities
- Report to the Project Manager
- Implement and manage all fund accounting processes
- Be a resident of the state

### **Assistant to the Financial Manager**

The Assistant to the Financial Manager (1) will:

- Report to the Financial Manager
- Provide project support as directed by the Financial Manager
- Track activities and tasks against the budget plan
- Administer project financial details at the direction of the Financial Manager
- Provide defined monthly, quarterly and final project financial statements.
- Provide ad hoc financial reports as directed by the Financial Manager
- Process deposits and invoices in a timely fashion
- Demonstrate competency in use of Microsoft Office applications, financial applications, browser usage for online research and email.
- Be a resident of the state

### **Survey Management**

Survey process management will be outsourced and will:

- Report to the Project Manager
- Coordinate the efforts of the Survey Team
- Provide bi-weekly operation reports to the Project Manager
- Make recommendations to the Project Manager for project improvements
- Work with the Survey Staff to organize, attend, and participate in the community meetings
- Implement the survey process
- Attend and participate in the community, AC and other meetings, as appropriate
- Direct collection and management of repository data
- Sort and catalog project data
- Ensure security and backup of project data
- Oversee collection of repository data, mapping and reports
- Ensure data quality
- Provide data administration support to the project
- Be a state of Oregon entity

## **GIS Management**

GIS process management will be outsourced and will:

- Report to the Project Manager
- Coordinate the efforts of the GIS Team
- Provide bi-weekly operation reports to the Project Manager
- Make recommendations to the Project Manager for project improvements
- Work with the GIS Staff to organize, attend, and participate in the community meetings
- Implement the GIS process
- Attend and participate in the AC and other meetings, as appropriate
- Direct collection and management of GIS repository data
- Sort and catalog project data
- Ensure security and backup of project data
- Oversee collection of repository data, mapping and reports
- Ensure data quality
- Provide GIS data administration and mapping support to the project
- Be a state of Oregon entity

## **Student Assistants – Database, GIS, and Website**

The student assistants (number TBD) will:

- Provide assistance at the direction of the Project Manager or the outsourced process management, as appropriate.

## **Consultants**

Consultants (TBD) will be required at various times over the course of the project. Where possible, these individuals will be Oregon residents. This is an Oregon project and the State of Oregon has requisite the talent pool.

This project requires specialized skills and resources. These resources will be acquired on a “just in time basis.” Some consultants are likely to be involved in several project activities, as appropriate. Consultants working at the direction of the Project Manager will provide expertise and services for:

- Community Meeting Team (possibly outsourced)
- Acquiring and analyzing existing infrastructure
- Alternative scenarios and scenario evaluation process
- Policy Research
- Tribal relations
- Final reports
- Project evaluation

## **Accounting Support**

Fund accounting<sup>6</sup> will be applied over the life of this project. This includes processing of financial transactions and reporting to provide:

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<sup>6</sup> Fund accounting serves any nonprofit organization or the public sector. These organizations have a need for special reporting to financial statements users that show how money is spent, rather than how much profit was

- internal financial reporting to project management, consultants and outsourced management for use in planning and controlling current and future operations and for non-routine decision making (these decisions require joint approval of the Project Director and Financial Manager)
- financial reporting to outside parties.

The Project Manager and the Financial Manager jointly will be responsible for ensuring that appropriate accounting controls and procedures are in place; in writing and approved by the AC.

The Financial Manager will sign expense requests and other payments on concurrence with the Project Manager. A dollar cap policy may be developed by the AC and require co-signing by a designated member of the AC. Neither the Financial Manager nor the Project Manager may authorize payment to himself or herself. The AC chair, will authorize these invoices for payment.

### **Change Management**

This project will employ a “learning model” approach to ensure continuous learning and refinement of the pre-defined steps of the Project Plan and Budget. Some changes in operational details may be required as the project progresses and opportunities for improvement arise. The overall targeted project objectives will remain unchanged.

Minor changes not materially affecting the budget, targeted delivery dates or deliverables will be managed by the Project Manger and reported through normal reporting mechanisms. Any change that materially affects the budget, targeted delivery date or deliverables must be addressed through the AC.

### **Bi-monthly Status Reports**

The Project Manager, with input from team members and the Project Evaluator, will develop a format for reporting progress using the project plan as the basis for reporting. Reporting will occur every other month to the AC and funders.

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earned. Profit oriented businesses only have one set of self-balancing accounts or general ledger. On the other hand, nonprofits can have more than one general ledger depending on their needs. A business manager in charge of such an entity must be able to produce reports that can detail expenditures and revenues for multiple funds, and reports that summarize the financial activities of the entire entity across all funds. For example, if a school system receives a grant from the state to support a new special education initiative, and receives federal funds to support a school lunch program, and even receives an annuity to award to teachers for research projects - at any given time, the school system must be able to extract the financial activities attributed to these programs and report on them. Given that funds are essentially having more than one general ledger, the accounts can be designed by the special use of account numbers, each set of numbers therein represent a specific fund. Alternatively, they can be designed by using certain recording and reporting capabilities and features of the accounting software being used. For this reason, many nonprofit organizations and the public sector will often use off-the-shelf or custom-designed accounting software that is flexible enough to accommodate the needs of special reporting.

The use of fund accounting has often been a topic of debate in the accounting profession who question its usefulness, particularly in the standard-setting process. However, it is the unique nature in which nonprofit organizations and the public sector operate that has made fund accounting a useful system for financial reporting to meet the needs of financial statement users. To that end, the accounting profession has recognized this need and continues to support the use of fund accounting by providing extensive standards and principles in this area.

[http://en.wikipedia.org/wiki/Fund\\_Accounting](http://en.wikipedia.org/wiki/Fund_Accounting)

The status reports to the Project Manager and the AC will present in a bulleted manner:

- accomplishments for the period,
- planned activities for the next period,
- financial status, and
- any issues/concerns/advisories of the Project Manager (includes concerns of staff).

Reports should be to the point. The purpose of reports is to inform and advise. The Project Manager will require from all project participants bi-weekly one-page reports in a similar bulleted manner to provide for ease of report roll-up and summarization.

### **BUDGET**

Current estimates are for an up to 2-year duration with a budget of \$1,255,000. A detailed project plan will be developed in Phase 1 (see Figure 1 – Project Phases) and may result in a phased approach by region with the potential for revisions to the estimated budget.

The project budget is for staff, consultant fees, outsourcing and other direct expenses. All project team members will be work under an “at will” employment contract. There are other potential expenses and in kind donations (e.g., time invested by local volunteers to assist in setting up and conducting community meetings) not captured by this budget.

<b>Items</b>	<b>Description</b>	<b>Estimated 2-year Investment</b>
<b>Staff, Contractors and Outsource:</b>		
Project Manager	Project implementation design, details, coordination and management	140,000
Project Manager Assistant	Assist the Project Manager as directed, including support to the AC	60,000
Financial Manager	Financial management, liaison with funding sources	100,000
Project Accounting Assistant	Administer project financial details at the direction of the Financial Manager	60,000
GIS Consulting (Outsourced)	GIS system configuration and management, data integration, analysis, mapping and	150,000
Survey Consulting (Outsourced)	Develop and implement surveys (work with the Community Meeting Team), work with communities, school districts, regional stakeholders, and compile and provide analysis of the data	100,000
<b>Consultants:</b>		
	Telecom Network Analyst	100,000
	Community Meeting Team Leader	50,000
	Community Meeting Team (5)	150,000

<b>Items</b>	<b>Description</b>	<b>Estimated 2-year Investment</b>
	Policy Research	50,000
	Tribal Relations	50,000
	Alternative Scenarios	50,000
	Project Evaluation	<u>50,000</u>
	<b>Staff, Contractors and Outsource Subtotal:</b>	<b>1,110,000</b>
<b>Other Project Expenses:</b>		
Travel and lodging	Travel to locations, overnight stays and food	15,000
Miscellaneous supplies	Paper, ink, binders, etc.	5,000
Miscellaneous expenses	???	<u>5,000</u>
	<b>Other Project Expenses Subtotal:</b>	<b>25,000</b>
<b>Information Technology:</b>		
ESRI ArcInfo	Professional GIS license to be used to manage the data and the database and for geo-processing for up to 3 concurrent users	10,000
ESRI ArcEditor	Data editing and analysis. This license can also be used to administer the SQL database and publish to ArcGIS Server	7,000
ESRI Business Analyst Extension	Demographic analysis including demographic and street datasets for Oregon	7,000
ESRI's Developers Network	EDN includes all of ESRI's server products and ArcEditor for development and testing purposes	4,000
ESRI ArcGIS Image Server Extension to ArcGIS server	Simplifies managing large imagery datasets	11,000
ESRI ArcGIS Server Standard Enterprise	For publishing data over the internet for internal or external use for unlimited users on a server with up to 4 cores	22,000
Computer Hardware	Server and workstations	20,000
Computer Software	Operating system and office functionality	4,000
ESRI Training & Travel	Depending on staff skill levels and needs	15,000
Website	Development and management	<u>20,000</u>
	<b>Information Technology Subtotal:</b>	<b>120,000</b>
	<b>Total Estimated Investment:</b>	<b>1,255,000</b>

Figure 4 – Project Budget

## APPENDIX 1 – COMMUNITIES

This list is a first cut at identifying the communities of Oregon. In some instances due to their relative proximity to one another, we may consolidate community meetings in the interest of time. We also recognize that there are a number of clusters of residents that may not be identified with a community name. Every attempt will be made to address these populations.

### **Baker County**

Baker City  
Greenhorn  
Haines  
Halfway  
Huntington  
Richland  
Sumpter  
Unity

### **Benton County**

Adair Village  
Albany  
Corvallis  
Monroe  
Philomath

### **Clackamas County**

Barlow  
Canby  
Damascus  
Estacada  
Gladstone  
Happy Valley  
Johnson City  
Lake Oswego  
Milwaukie  
Molalla  
Oregon City  
Portland  
Rivergrove  
Sandy  
Tualatin  
West Linn  
Wilsonville

### **Clatsop County**

Astoria  
Cannon Beach  
Gearhart  
Seaside  
Warrenton

### **Columbia County**

Clatskanie  
Columbia City  
Prescott  
Rainier  
Scappoose  
St. Helens  
Vernonia

### **Coos County**

Bandon  
Coos Bay  
Coquille  
Lakeside  
Myrtle Point  
North Bend  
Powers

### **Crook County**

Prineville

### **Curry County**

Brookings  
Gold Beach  
Port Orford

### **Deschutes County**

Bend  
La Pine  
Redmond  
Sisters

### **Douglas County**

Canyonville  
Drain  
Elkton  
Glendale  
Myrtle Creek  
Oakland  
Reedsport  
Riddle  
Roseburg  
Sutherlin

Winston  
Yoncalla

### **Durham**

Forest Grove  
Gaston  
Hillsboro  
King City  
North Plains  
Portland  
Rivergrove  
Sherwood  
Tigard  
Tualatin  
Wilsonville

### **Gilliam County**

Arlington  
Condon  
Lonerock

### **Grant County**

Canyon City  
Dayville  
Granite  
John Day  
Long Creek  
Monument  
Mt. Vernon  
Prairie City  
Seneca

### **Harney County**

Burns  
Hines

**Hood River County**

Cascade Locks  
Hood River

**Jackson County**

Ashland  
Butte Falls  
Central Point  
Eagle Point  
Gold Hill  
Jacksonville  
Medford  
Phoenix  
Rogue River  
Shady Cove  
Talent

**Jefferson County**

Culver  
Madras  
Metolius

**Josephine County**

Cave Junction  
Grants Pass

**Klamath County**

Bonanza  
Chiloquin  
Klamath Falls  
Malin  
Merrill

**Lake County**

Lakeview  
Paisley

**Lane County**

Coburg  
Cottage Grove  
Creswell  
Dunes City  
Eugene  
Florence  
Junction City  
Lowell  
Oakridge  
Springfield  
Veneta  
Westfir

**Lincoln County**

Depoe Bay  
Lincoln City  
Newport  
Siletz  
Toledo  
Waldport  
Yachats

**Linn County**

Albany  
Brownsville  
Halsey  
Harrisburg  
Idanha  
Lebanon  
Lyons  
Mill City  
Millersburg  
Scio  
Sodaville  
Sweet Home  
Tangent  
Waterloo

**Malheur County**

Adrian  
Jordan Valley  
Nyssa  
Ontario  
Vale

**Marion County**

Aumsville  
Aurora  
Detroit  
Donald  
Gates  
Gervais  
Hubbard  
Idanha  
Jefferson  
Keizer  
Mill City  
Mt. Angel  
Salem  
Scotts Mills  
Silverton  
St. Paul  
Stayton  
Sublimity  
Turner  
Woodburn

**Morrow County**

Boardman  
Heppner  
Ione  
Irrigon  
Lexington

**Multnomah County**

Fairview  
Gresham  
Maywood Park  
Portland  
Troutdale  
Wood Village

**Polk County**

Dallas  
Falls City  
Independence  
Monmouth  
Salem  
Willamina

**Sherman County**

Grass Valley  
Moro  
Rufus  
Wasco

**Tillamook County**

Bay City  
Garibaldi  
Manzanita  
Nehalem  
Rockaway Beach  
Tillamook  
Wheeler

**Umatilla County**

Adams  
Athena  
Echo  
Helix  
Hermiston  
Milton-Freewater  
Pendleton  
Pilot Rock  
Stanfield  
Ukiah  
Umatilla  
Weston

**Union County**

Cove  
Elgin  
Imbler  
Island City  
La Grande  
North Powder  
Summerville  
Union

**Wallowa County**

Enterprise  
Joseph  
Lostine  
Wallowa

**Wasco County**

Antelope  
Dufur  
Maupin  
Mosier  
Shaniko  
The Dalles

**Washington County**

Banks  
Beaverton  
Cornelius

**Wheeler County**

Fossil  
Mitchell  
Spray

**Yamhill County**

Amity  
Carlton  
Dayton  
Dundee  
Lafayette  
McMinnville  
Newberg  
Sheridan  
Willamina  
Yamhill

**APPENDIX 2 – COMMUNITY SURVEY (DRAFT)**

*[Note: This draft is provided as a sample to jump start the survey design process]*

*PLEASE PROVIDE REQUESTED INFORMATION - CHECK BOXES FOR ALL THAT APPLY*

Your location:  Unincorporated Area or  City Area/City Name: \_\_\_\_\_

Your Name (optional): \_\_\_\_\_

Your Business Name (optional): \_\_\_\_\_

Your business eMail address (optional): \_\_\_\_\_

Number of Employees (include yourself): \_\_\_\_\_ Home Based Business:  Yes  No

**Your business sector:**

- Advertising/Marketing
- Agriculture
- Communications
- Construction
- Distribution/logistics
- Education
- Financial Services
- Food
- Government
- Healthcare
- Hospitality/Lodging
- Insurance
- Legal
- Manufacturing
- Mining
- Not for profit
- Public Safety
- Retail
- Real Estate
- Services
- Technology/Computers
- Telecommunications
- Transportation
- Other Specify: \_\_\_\_\_

**Telecommunication connections at your location** *(Check all that apply)*

- Telephone lines
- Cell phone
- TV – Cable
- Wireless internet
- Wireless internet - Satellite
- TV – antenna
- TV - Satellite

How many telephone numbers do you have? \_\_\_\_\_

[Note: Not telephone handsets, but different telephone numbers)

**How are they used?** *(Check all that apply)*

- Personal/family use
- Business use
- Internet dial-up
- FAX machine
- Shared - FAX/internet/conversations
- Other: \_\_\_\_\_

**Rate your business telephone service** *(Check only one)*

- Excellent
- Good
- Fair
- Poor

List your telephone provider(s): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do you have video conferencing on site?  Yes  No

If you answered “No,” do you have a need for video conferencing?  Yes  No

### Computer ownership

Do you have a computer(s) at your location?  Yes  No

*If you checked "Yes," please answer these questions:*

How many PC's do you own? \_\_\_\_\_

How many people use your PC's? \_\_\_\_\_

Do you have a local area network (LAN - two or more computers connected together)?  Yes  
 No

*If you checked "No," check all that apply:*

- PC's are too expensive  I need training before I'll get a PC  
 PC's are unimportant  I don't like technology  
 I have access to a PC elsewhere  Other: \_\_\_\_\_

Computer skills you use? (*Check all that apply*)

- Word Processing  Spreadsheets  Presentations  
 Database  Digital photography  Other: \_\_\_\_\_

### Internet connections

Do you have an internet connection at your location?  Yes  No

*If you checked "Yes," what kind of connection do you use and what does it cost each month?  
(Check all that apply)*

- |  |          |  |          |
|--|----------|--|----------|
| <input type="checkbox"/> Dial up over telephone line | \$ _____ | <input type="checkbox"/> Wireless (satellite)  | \$ _____ |
| <input type="checkbox"/> ISDN                        | \$ _____ | <input type="checkbox"/> Wireless (land-based) | \$ _____ |
| <input type="checkbox"/> DSL                         | \$ _____ | <input type="checkbox"/> T1                    | \$ _____ |
| <input type="checkbox"/> Cable modem                 | \$ _____ | <input type="checkbox"/> Other (specify _____) | \$ _____ |

Importance of internet access (*Check only one*)

- Critical  Very important  Somewhat important  Not important

Importance of internet connection speed in your business (*Check only one*)

- Critical  Very important  Somewhat important  Not important

Would you be willing to pay for additional internet connection speed?  Yes  No

What would be a reasonable price for high-speed (broadband) internet access? (*Check only one*)  
(*Broadband can be many times faster than dial-up.*)

- Less than \$20  \$20 to \$29  \$30 to \$39  \$40 to \$49  \$50 to \$59  \$60 or more

Which of the following telecommunication services do you see as important?

(*Check all that apply - UNDERLINE or CIRCLE the ones you don't recognize*)

- Wireless (satellite)  T-1  DS-3  
 Wireless (land-based)  DSL  Video Conferencing  
 Cable  Gigabit Ethernet  
 Virtual Private Network  ISDN  Other (specify \_\_\_\_\_)

Do you have a website:  Yes  No

If you checked "Yes," where do you host your business website:  Onsite  At an ISP

Rate your business internet Service Provider (ISP) (*Check only one*)

- Excellent  Good  Fair  Poor

List your ISP(s): \_\_\_\_\_

**Internet/web use**

Do you use the internet/web?  Yes (go to question a.)  No (Skip a. and go to b.)

a. If you checked "Yes," how many of these services do you use? (Check all that apply)

- Send and receive email
- Look up information on the world wide web (for example, health, education or other)
- Purchase items/services online
- Sell items/services online
- Online work (e.g., reports, updates to databases on the web, apply for permits online, etc.)
- Take classes online  Other (specify): \_\_\_\_\_

b. If you checked "No," check all that apply:

- I use a public computer to access the internet  I prefer personal interaction
- I'm concerned about privacy and personal security  Other: \_\_\_\_\_

Are you interested in getting training on the use of the internet/web?  Yes  No

What training would you suggest? \_\_\_\_\_

Are you interested in getting business training?  Yes  No

What training would you suggest? \_\_\_\_\_

**What are your concerns or comments?**

1. Voice – Local/Long Distance/Cellular
2. Internet/world wide web
3. Video/Television
4. Other (for example, training)

I have no concerns or comments to share at this time.

## New Economy Business Skills

Help us assess your current and future business training needs. Please indicate the business skills you would like to acquire or need to know more about. Please check all that apply.

- Building and operating a business  
*Tools and techniques needed to start a business.*
- Improve Your Home or Small Business  
*Tools and techniques needed to grow a business. The basics of running a successful business in times of change.*
- Marketing strategy  
*Tools to take your idea to market and make it a success. Techniques for pricing your product or service. Assessing demand and finding your target market.*
- Business Communications  
*Techniques to ensure that your communication style is positive clear, concise, and to the point, and that your listening is sharp.*
- Sales  
*Skills and strategies associated with selling products and services to customers and closing the deal.*
- Finance and Accounting for the business manager  
*Key financial principles of the business world. How to obtain financial assistance for growing your business.*
- Management and Leadership  
*Techniques for business planning, organizing, motivating, innovating, facilitating and controlling.*
- Credit sales  
*Using credit card sales in your business.*
- Interviewing and hiring the right people  
*Conducting more successful interviews and making better hiring decisions.*
- Achieving balance at work and at home  
*Creating balance in your life.*
- Business law  
*Business contract fundamentals.*
- E-commerce  
*E-commerce involves technical skills as well as other skills such as business, project management, communication, creative design, marketing, ordering, selling, fulfillment, support, and direct one-on-one marketing*
- Website design and maintenance  
*Fundamentals of web design and maintenance using a web authoring tool.*

### APPENDIX 3 – TELEPHONE SURVEY (DRAFT)

[Note: This draft is provided as a sample to jump start the survey design process]

1. Your location:  Unincorporated Area or  City  
Area/City Name: \_\_\_\_\_
2. Your Name (optional): \_\_\_\_\_
3. Your Business Name (optional): \_\_\_\_\_
4. Your eMail address (optional): \_\_\_\_\_

#### Telecommunications

5. Telecommunication connections at your location (Check all that apply)  
 Telephone lines  Cell phone  TV – Satellite  TV – antenna  TV – Cable
6. How many telephone numbers do you have? Land lines \_\_\_\_\_ Cell phone \_\_\_\_\_  
[Note: Not telephone handsets, but different telephone numbers to your location)
7. How are they used? (Check all that apply)  
 Personal/family use  Business use  Internet dial-up  FAX machine  Shared
8. Rate your business telephone service (Check only one)  Excellent  Good  Fair  Poor  
Telephone company: \_\_\_\_\_

#### Computer Ownership

9. Do you have a computer at this location?  Yes (go to question a.)  No (Skip a. and go to b.)

a) If “Yes,” please answer these questions:

How many PC’s do you own? \_\_\_\_\_ How many people at your location use your PC’s? \_\_\_\_\_  
Do you have a local area network (LAN - two or more computers connected together)?  Yes  No

b) If “No,” check all that apply:

- PC’s are too expensive  PC’s are unimportant  I need training before I’ll get a PC
- I don’t like technology  I have access to a PC elsewhere  Other: \_\_\_\_\_

10. Computer skills you use? (Check all that apply)

- Word Processing  Spreadsheets  Presentations  Database  Digital photography
- Video  Other: \_\_\_\_\_

#### Internet/web use in your location

11. Do you use the internet/web?  Yes (go to question a.)  No (Skip a. and go to b.)

a. If you checked “Yes,” how many of these services do you use? (Check all that apply)

- Send and receive email
- Look up information on the world wide web (for example, health, education or other)
- Purchase items/services online
- Sell items/services online
- Online work (e.g., reports, updates to databases on the web, apply for permits online, etc.)
- Take classes online  Other (specify): \_\_\_\_\_

b. If you checked “No,” check all that apply:

- I use a public computer to access the internet  I prefer personal interaction
- I’m concerned about privacy and personal security  Other: \_\_\_\_\_

#### Internet Connections

12. Do you have an internet connection at your place of business?  Yes  No

13. If you checked "Yes," what kind of connection do you use and what you pay each month?  
(Check all that apply)
- Dial up \$ \_\_\_\_\_     Cable modem \$ \_\_\_\_\_     Wireless (satellite) \$ \_\_\_\_\_  
 DSL \$ \_\_\_\_\_     ISDN \$ \_\_\_\_\_     Wireless (landbased) \$ \_\_\_\_\_  
 T1 \$ \_\_\_\_\_     Other (specify \_\_) \$ \_\_\_\_\_
14. Importance of internet access (Check only one)  
 Critical     Very important     Somewhat important     Not important
15. Importance of internet connection speed (Check only one)  
 Critical     Very important     Somewhat important     Not important
16. Does have video conferencing at this location site?     Yes     No  
If you answered "No," do you have a need for video conferencing?     Yes     No
17. Would you be willing to pay for additional internet connection speed?     Yes     No
18. What would be a reasonable price for high-speed (broadband) internet access? (Check only one)  
 Less than \$20     \$20 to \$29     \$30 to \$39     \$40 to \$49     \$50 to \$59     \$60 or more
19. Which of the following services do you see as important for the future?  
(Check all that apply)
- DSL     Cable     Wireless (satellite)     Wireless (land-based)  
 ISDN     T-1     DS-3     Gigabit Ethernet     Video Conferencing  
 Virtual Private Network

Website

20. Do you have a business website:     Yes     No
21. If you checked "Yes," where do you host your website: HOST name: \_\_\_\_\_
22. Rate your internet Service Provider (ISP) (Check only one)  
 Excellent     Good     Fair     Poor
23. List your ISP(s): \_\_\_\_\_
24. Are you interested in getting training on the use of the internet/web in your business?     Yes     No
25. What training would you suggest? \_\_\_\_\_
26. Are you interested in getting more business management training?     Yes     No
27. What training would you suggest? \_\_\_\_\_

**APPENDIX 4 – BUSINESS AND INSTITUTION TECHNICAL SURVEY (DRAFT)**

*[Note: This draft is provided as a sample to jump start the survey design process]*

**Introduction**

This questionnaire is designed to gather detailed information for defining the size and scope of current and projected telecommunications. Completing this questionnaire does not obligate you or your organization to anything. Please answer all of the questions as precisely as you can.

**Contact Information**

1. Name:
  
2. Title:
  
3. Organization:
  
4. Telephone Number:
  
5. Email:
  
6. Does your organization have multiple locations?
  - Yes
  - No

**General Information**

7. What is the nature of your organization? (choose one)
  - Healthcare
  - Business - Manufacturing
  - Business - Retail/Wholesale
  - Business - Services
  - Business - Other for-profit
  - Education
  - Government
  - Other (please describe)
  
8. How many total employees does your organization have?
  - 1-10
  - 11-50
  - 51-100
  - 101-250
  - 200+

9. What are the primary reasons for your interest in the Broadband Demand Aggregation Project? Please check all that apply.

- To purchase new services that currently are not available in my region
- To save money on existing telecommunications services
- To connect with like-minded organizations that share applications over a network (Wide Area Network or WAN)
- To upgrade services for a better value
- Other (please describe)

10. Generally speaking, how much does your organization spend on telecommunications services each month? (Estimated Monthly Total Cost)

- Do Not Use
- Less than \$100
- \$100 - \$500
- \$500 - \$1,000
- More than \$1,000

11. Type of services.

Please check all that apply

- Internet Service
- Data (WAN) Service
- Voice (Phone) Service
- Video Service

### Network Locations

This section will collect information for each location within your organization that needs to change or upgrade its internet or WAN telecommunications services. This technical information will help us build an accurate picture of demand at the technical level. ***Please complete additional Network Location details for each location.***

12. Physical Street Address

13. How many technology staff are at this location?

14. What is the data circuit capacity at this location (Mbps)?

15. Select the type of data circuit your organization currently uses at this location.  
Please check all that apply.

- DSL
- Cable Modem
- ISDN
- Frame Relay T-1
- Dedicated Access T-1
- DS3 or T-3s
- Ethernet Fiber
- Fixed Wireless
- None
- Other (please describe)

16. What is the transport medium (line type) for this circuit?

- Copper line
- Coaxial cable
- Wireless
- Fiber
- Other (please specify)

17. Who is the circuit provider (vendor)?

18. Circuit contract expiration date:

19. How much internet (Mbps) is delivered through this circuit?

20. Who is your Internet Service Provider (ISP)?

21. ISP contract expiration date:

22. Estimated peak internet usage (%):

23. Estimated total combined monthly cost for the data circuit and internet service?

24. Do you own or lease your network 'edge' equipment?  
(used to connect your network to the vendor's network)

- Own
- Lease

25. If you own your 'edge' equipment, list what kind:

**Additional locations? Please provide responses to questions 12 through 25 for each additional location.**

**APPENDIX 5 – PLANNING STEPS FOR COMMUNITY MEETINGS (DRAFT)**

NOTE: Credit to Terry Uyeki, Humboldt State University, for the development of this framework as part of the Redwood Coast Connections Broadband Demand Aggregation Project.

<i><b>Planning Step</b></i>	<i><b>Persons Involved</b></i>	<i><b>Timeline</b></i>	<i><b>Toolkit Component</b></i>
1. Assemble database of Key Stakeholders as described in proposal	Project Team	Month (TBD)	<ul style="list-style-type: none"> <li>• Community Sectors: Key Stakeholders</li> </ul>
2. Make arrangements for press conference announcing initiative and community meetings and surveys <ul style="list-style-type: none"> <li>• Select spokespersons &amp; press conference contact.</li> <li>• Write press release</li> <li>• Arrange logistics for press conference</li> <li>• Send invitations to media, Key Stakeholders, organizations</li> <li>• Outline talking points for speakers</li> </ul>	Funders, Advisory Board, Community Meetings or Communications Coordinator, Administrative Assistant	Month (TBD)	<ul style="list-style-type: none"> <li>• Sample Press Release 1</li> <li>• Press Conference agenda</li> <li>• Invitation</li> </ul>
3. Host the press conference	Project Team “principals”, Community Meeting Coordinator, Administrative Assistant	Month (TBD)	<ul style="list-style-type: none"> <li>• Sign-in Sheet</li> </ul>
4. Decide upon community meeting objectives, and plan the meeting agenda. Select communities for the meetings.	Meeting Coordinator, Consultants, Administrative Assistant	Month (TBD)	<ul style="list-style-type: none"> <li>• Meeting Agenda</li> <li>• Slide presentation</li> <li>• Table for type of Internet Connection</li> <li>• Instructions for Mapping Exercise</li> <li>• Sign-in sheet</li> <li>• Hand-outs:               <ul style="list-style-type: none"> <li>○ Project Fact Sheet</li> <li>○ Survey Methodology</li> </ul> </li> </ul>
5. Design community meeting evaluation, both process and outcome evaluation.	Meeting Coordinator, Consultants, Administrative Assistant	Month (TBD)	<ul style="list-style-type: none"> <li>• Meeting evaluation form</li> <li>• Meeting debriefing form</li> </ul>

<b><i>Planning Step</i></b>	<b><i>Persons Involved</i></b>	<b><i>Timeline</i></b>	<b><i>Toolkit Component</i></b>
6. Contact potential local sponsors regarding meeting sites, invitation list, media contacts, and involvement in meeting promotion (e.g., distributing flyers and invitations, interviews with media, making presentations) and logistics	Meeting Coordinator, Administrative Assistant, Advisory Board, local contacts (e.g., local government officials, Chamber executive director, media)	Months (TBD)	<ul style="list-style-type: none"> <li>● Information Packet <ul style="list-style-type: none"> <li>○ Sample flyer/poster</li> <li>○ Sample invitation</li> <li>○ Project FAQ</li> <li>○ Sample Press Release 2</li> <li>○ Sample PSA</li> <li>○ Sample newspaper ad</li> </ul> </li> <li>● Meeting room requirements</li> </ul>
7. Plan logistics for community meetings (e.g., supplies & materials, reserving meeting room)	Meeting Coordinator, Administrative Assistant	Months (TBD)	<ul style="list-style-type: none"> <li>● Meeting Checklist</li> </ul>
8. Plan & execute meeting promotion (e.g., release of press releases & PSA's, timing ad placement in newspapers)	Meeting Coordinator	Months (TBD)	<ul style="list-style-type: none"> <li>● Sample media database [see Information Packet]</li> </ul>
9. Day of meeting: arrive ~3 hours in advance of meeting to set up room and refreshments.	Meeting Coordinator, Administrative Assistant,	Months (TBD)	<ul style="list-style-type: none"> <li>● Elective surveys, color-coded for meeting site &amp; numbered, with pre-paid postage on envelopes</li> </ul>
10. After the meeting, debrief meeting process and outcomes, make revisions as needed, and plan follow-up steps needed (including sending thank you notes to cosponsors). Analyze meeting attendance (numbers & sector representation) and evaluation feedback.	Meeting Coordinator, Administrative Assistant	Months (TBD)	<ul style="list-style-type: none"> <li>● Meeting evaluation form</li> <li>● Meeting debriefing form</li> </ul>
11. Conduct content analysis of comments provided by meeting participants during the community forum part of the community meetings	Meeting Coordinator, Administrative Assistant	Months (TBD)	<ul style="list-style-type: none"> <li>● Presentation, Using Visual Methods to Represent Community-Identified Needs and Issues</li> </ul>

## APPENDIX 6 – ACCESSIBLE WEBSITE AND ADA COMPLIANCE POLICIES

The project team adopts the following Accessible Website and ADA Compliance Policy:<sup>7</sup>

1. Establish a policy that our website pages will be accessible and create a process for implementation.
2. Develop and adopt a plan for making our web content accessible. Describe our plan on an accessible web page.
3. Encourage input on improvements; including which pages should be given high priority for change.
4. We will let citizens know about the standards or guidelines that are being used and make the more popular web pages a priority.
5. Ensure that all new and modified web pages and content are accessible:
  - Check the HTML of all new web pages. Make sure that accessible elements are used, including alt tags, long descriptions, and captions, as needed.
  - When images are used, including photos, graphics, scanned images, or image maps, include alt tags and/or long descriptions for each.
  - When online forms and tables are employed, make those elements accessible.
  - When posting documents on the website, always provide them in HTML or a text-based format (even when also providing them in another format, such as Portable Document Format (PDF)).
6. Ensure that in-house staff and contractors responsible for web page and content development are properly trained.
7. Provide a way for visitors to request accessible information or services by posting a telephone number or email address on the home page. Procedures will be established to assure a quick response to users with disabilities who are trying to obtain information or services in this way.
8. Periodically enlist disability groups to test our pages for ease of use; and use their feedback to increase accessibility.

### **Providing for Persons with Disabilities**

Ensuring that all programs and activities are accessible to individuals with disabilities means that all facilities, services, and information must be readily accessible and usable by persons with disabilities. Meetings, conferences, and seminars must be accessible to persons with disabilities, including employees, participants, and the members of the public. Accessibility at meetings includes accessible communications and materials and accessible facilities for persons with mobility impairments.

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<sup>7</sup> Accessibility of State and Local Government Websites to People with Disabilities, United States Department of Justice, <http://www.usdoj.gov/crt/ada/websites2.htm>, Adopted from “Voluntary Action Plan for Accessible Websites.” A more comprehensive resource is the Web Content Accessibility Guidelines developed by the Web Accessibility Initiative. These guidelines help designers make web pages as accessible as possible to the widest range of users, including users with disabilities. The Web Accessibility Initiative is a subgroup of the World Wide Web Consortium—the same organization that standardizes the programming language followed by all web developers. Information for web developers interested in making their web pages as accessible as possible, including the current version of the Web Content Accessibility Guidelines (and associated checklists), can be found at [www.w3c.org/WAI/Resources](http://www.w3c.org/WAI/Resources) and Information about the Web Accessibility Initiative can be found at [www.w3c.org/WAI](http://www.w3c.org/WAI).

Meeting planners must ensure that the site chosen for the location of a meeting meets the accessibility standards of the state and the federal governments.

It is the responsibility of the meeting organizers to provide auxiliary aids in order to ensure accessible communication with individuals with disabilities who are to participate in or in other ways benefit from the meeting. Such auxiliary aids could include, for example, providing materials in alternative formats, providing sign-language interpreters, etc.

During the course of inviting participants and confirming participation, efforts must be made by both the organizer and the site reservations coordinator to notify participants what materials or visual aids will be used and where and how the facilities are accessible. Also, the meeting organizer must inquire whether the individual with disabilities has any additional needs and must determine what, if any, auxiliary aids are required by the individual, either before or during the meeting, in order to have access to the meeting. This information is to be shared between the meeting site and the organizers.

Project staff should consider the accessibility of the meeting or event to individuals with disabilities, in addition to the significance of the meeting or event to the Project's interests, in deciding whether to participate.

- A "check-list" will be developed by appropriate Project team members to assist persons in planning meetings by ensuring that all accessibility issues and requests for auxiliary aids are considered at the time a meeting is being planned. In the meantime, meeting organizers should confirm with the meeting site that the facilities and services planned for the meeting are accessible to persons with disabilities and that meeting participants are asked whether they need any auxiliary aids in order to make the meeting accessible.
- Meeting advisory forms used by the Project will include a space to indicate the accessibility of facilities and the type of auxiliary aids required.
- Training for all Project team members will be given concerning this policy. The training plan should include a biannual refresher course to assure proper implementation of accessibility requirements.
- Members of the Project team, constituents from the disability community, and other appropriate persons will develop a list of local facilities that are accessible to persons with disabilities, sign-language interpreters, auxiliary hearing devices, etc..

### **Compliance with American Disabilities Act, Section 508**

The project will comply with requirements of The Americans with Disabilities Act (ADA), whether or not any Federal funding is received. The ADA specifies that if government entities receive Federal funding, the Rehabilitation Act of 1973, generally require that state and local governments provide qualified individuals with disabilities equal access to their programs, services, or activities unless doing so would fundamentally alter the nature of their programs, services, or activities or would impose an undue burden.

One way to help meet these requirements is to ensure that government websites have accessible features for people with disabilities, using the simple steps described in this document. An agency with an inaccessible website may also meet its legal obligations by providing an alternative accessible way for citizens to use the programs or services, such as a staffed telephone information line. These alternatives, however, are unlikely to provide an equal degree

of access in terms of hours of operation and the range of options and programs available. For example, job announcements and application forms, if posted on an accessible website, would be available to people with disabilities 24 hours a day, 7 days a week.<sup>8</sup>

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<sup>8</sup> Ibid, US DOJ, <http://www.usdoj.gov/crt/ada/websites2.htm>. Also see “Web-based Intranet and Internet Information and Applications (1194.22)”, <http://www.access-board.gov/sec508/guide/1194.22.htm>.

## APPENDIX 7 – PROJECT PROPOSAL DEVELOPERS

### Principal Author

John Irwin, J. Irwin Community Informatics, has developed and implemented many business plans over his multi-sector 40-year business and public services career. He has overseen over a billion dollars in information technology investment. His expertise in developing and managing complex, large scale projects is well-proven. Since leaving the corporate world in 1998, Mr. Irwin has provided planning expertise to rural communities in Oregon and California His contributions range across a number of sectors and disciplines: healthcare, education, public safety, government, telecommunications and economic development. Mr. Irwin's planning efforts have helped to bring high-capacity broadband to rural counties in Oregon and California.

Recently he led the concept/project development and served as a senior consultant for the Redwood Coast Connect (RCC) Broadband Demand Aggregation Project for 4 rural northern California counties (<http://redwoodcoastconnect.humboldt.edu/>, in particular see the DOCUMENTS page for the final report). The RCC project built on his extensive experience, research and analysis for approaches for bringing broadband to rural areas. The RCC project already has led to funding for several small wireless internet service providers (WISPs) and for a major backhaul/route diversity investment (\$18+ million).

As Chair of the Oregon Telecommunications Coordinating Council from 2001 to 2008, Mr. Irwin developed an in depth understanding of broadband across all of Oregon, rural and urban. Over that period he coordinated development of a number of statewide roundtables, white papers and reports. View these at [www.ortcc.org](http://www.ortcc.org) or at his website [www.jirwinconsulting.com](http://www.jirwinconsulting.com).

Mr. Irwin is the current Vice-chairman of the Area Health Education Center of south west Oregon ([www.healthyoregon.com](http://www.healthyoregon.com)) and served as Vice-chairman of the Telehealth Alliance of Oregon from 2006 to 2008 ([www.ortelehealth.org](http://www.ortelehealth.org)). He currently is engaged as a telecommunications planning consultant in northern California, as an economic development consultant to Curry County in Oregon and is a member of the Oregon Connections Telecommunications Conference planning committee.

For a more detailed resume see [http://www.jirwinconsulting.com/about\\_us.htm](http://www.jirwinconsulting.com/about_us.htm).

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### Contributing Editors

**Onno Husing**, Executive Director, Oregon Coastal Zone Management Association (OCZMA), has successfully carried out cutting-edge research projects on a wide variety of projects and OCZMA has produced peer review studies on the Oregon Coast's economy. He became Executive Director of OCZMA in 1996. In addition to this broadband mapping and demand aggregation effort for telecommunications infrastructure, OCZMA is spearheading a spatially-explicit ocean planning effort in Oregon. OCZMA helped establish (and provide technical assistance to) a network of locally-based ocean resources planning teams to carry out this work.

In 2005, OCZMA released "Oregon Coast Telecommunications Economic Development Strategy" (funded by the Economic Development Administration (EDA) and the Oregon

Oregon Broadband Demand Aggregation Project

Economic & Community Development Department (OECD). The Coastal Telecom Strategy provided a blueprint for how to accelerate the deployment and usage of telecommunications on the Oregon Coast.

OCZMA was awarded honorable mention in 2006 for Outstanding Partnerships by the Oregon Economic Development Association (OEDA) for its work on the Coastal Telecom Strategy.

In 2007, OCZMA was awarded a Regional Business Opportunities Grant (RBOG) from the US Department of Agriculture to continue work on telecommunications (a nationally competitive grant process). And, in 2007, EDA made a second grant award to OCZMA to work toward implementation of the Coastal Telecom Strategy and to encourage the development of wave energy off the Oregon Coast (in a manner that protects the marine environment and existing uses of the ocean).

In 2007 Mr. Husing received the Outstanding Telecommunications Advocate for the State of Oregon at the Oregon Connections Conference. And, in 2007, he was named one of the State of Oregon's 50 Great Leaders by Oregon Business Magazine.

Mr. Husing recently was elected as the Chairman of the Oregon Telecommunications Coordinating Council (2009).

Mr. Husing contributed the preface and editing to this proposal.

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**Edwin Parker, PhD.**, has presided over a telecommunications consultancy on the coast of Oregon since 1989. Previously, he had been President of the Data Networks Division of a large telephone company, a unit that included the former Equatorial Communications Company. He co-founded Equatorial in 1979, helped it grow from an entrepreneurial idea to a public company, and was its Board Chairman, President and Chief Executive Officer prior to its merger with Contel in 1987. Equatorial was the first company in the world to use very small satellite earth stations for data communications.

From 1962 to 1979 he was a professor of Communication at Stanford University, where he specialized in the social and economic effects of information technology. He taught at the University of Illinois from 1960 to 1962. He has co-authored or co-edited five books and more than 75 professional articles. The second edition of his latest book, *Electronic Byways: State Policies for Rural Development through Telecommunications*, was published by the Aspen Institute in 1995. An earlier book, titled *Rural America in the Information Age: Telecommunications Policy for Rural Development*, was published in 1989 by University Press of America. He graduated from the University of British Columbia in 1954 and received his Ph.D. from Stanford University in 1960.

He is chair of the CoastNet committee of the Economic Development Alliance of Lincoln County. Oregon Governor John Kitzhaber named him "local economic development leader of the year in 1995". He represented the Oregon coast on the Connecting Oregon Communities Advisory Board. He was recently appointed by Governor Kulongoski to serve a second term on the Oregon Telecommunications Coordinating Council.

He currently serves Oregon Health Network as co-chair of the Technology Committee and was previously co-chair of the Interim Executive Committee.

Dr. Parker continues his contribution to Oregon's telecommunications future by advocating the opportunities of public-private partnerships in telecommunications, explaining and encouraging needed changes to Oregon's legislative and policy environment, advancing the cause of telemedicine and telehealth, promoting collaboration and cooperation in sharing of networks for healthcare and education opportunities, and advocating for the expanded use of telecommunications for all Oregonians...no matter where they live.

Dr. Parker provided editing and substantial intellectual guidance for this proposal.

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**Christopher Tamarin**, Telecommunications Coordinator, Oregon Economic and Community Development Department, assists communities across Oregon with telecommunications issues. He has seventeen years experience in marketing voice and data telecommunications services and equipment used in small and large communities by multi-location companies, electric utilities, healthcare providers, schools, and government agencies.

He has an MBA from the University of Nevada and an MS in Telecommunications from the University of Colorado. He has five years teaching experience at Eastern Oregon University.

Mr. Tamarin provides staff services to the Oregon Telecommunications Coordinating Council, leads the Oregon Connections Telecommunications Conference planning and serves as a member of the board of directors for the Oregon Health Network (OHN) and Telehealth Alliance of Oregon (TAO).

Mr. Tamarin provided editing and many thoughtful recommendations for this proposal.

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