

THE GRANT COUNTY DIGITAL NETWORK COALITION

MEMORANDUM

SUBJECT: CREATING A MISSION DRIVEN ORGANIZATION

DATE: AUGUST 21, 2018

EXECUTIVE SUMMARY

The Grant County Digital Network Coalition was created on April 10, 2018 to provide regional services to Grant County residents. Its roots were the efforts of an interagency task force of volunteers from the public and private sector who identified the need (and opportunity) to improve broadband coverage throughout Grant County. At present, the Coalition consists of the City of John Day (“John Day”), an Oregon municipal corporation, City of Seneca (“Seneca”), an Oregon municipal corporation, and Grant County (“County”), a political subdivision of the State of Oregon. In accordance, with ORS 190.085(2), the parties submitted notice to the Oregon Secretary of State and received approval to form the new agency under Agreement No. AG-2018-03.

As an intergovernmental agency, the Coalition was organized to use a collaborative governance process – one in which multiple stakeholder perspectives and needs are considered. This intent is reflected in the structure of its board of directors, which includes representatives from each participating agency in the coalition and two at-large positions representing the entire county. It is also reflected in its cost sharing agreement, which requires a commitment of financial resources from each participating agency on a per capita basis.

The purpose of this memo is to present the conceptual basis for creating a new intergovernmental agency and to provide guidance to its board of directors on options to consider with regard to planning and administering the organization.

CREATING A MISSION DRIVEN ORGANIZATION

The Grant County Digital Network Coalition is a mission driven organization – an intergovernmental agency that operates with a shared vision using shared resources.

A mission driven organization measures success by its ability to execute its core mission. It uses guiding principles as decision criteria and operates with the intent of fulfilling its mission.

The initial meetings of the Grant County Digital Network Coalition present a unique opportunity to set the tone for future operations. This will require the board of directors to agree upon and adopt a core mission and principles.

For purposes of discussion, an example of a mission statement could be:

“To provide the fastest internet possible at the lowest price possible to as many residents as possible.”

To achieve this mission, the Grant County Digital Network Coalition would need to create opportunities for digital infrastructure and services that add economic value, defined as: increased profitability for our businesses; increased efficiency for our public and non-profit agencies, and; improved quality of life for our residents.

The agency’s ultimate measure of success will be in its ability to deliver on its mission statement. Did the agency succeed in providing the fastest internet speeds possible? Was it able to deliver services at a lower cost to its users? Was it successful in expanding broadband access to residents who previously were denied access?

PRIVATE VERSUS PUBLIC INVESTMENT STRATEGIES

The same standard could (and should) be applied to our private sector providers. However, private internet service providers (ISPs) are not typically mission driven organizations. They are private companies. Their goal is to maximize profits. Many providers accomplish this by controlling access to the market, artificially constraining data speeds, and limiting service areas to high-density areas or areas where they can leverage government subsidies to extend service. When those conditions change, private ISPs tend to disengage from the market or adapt their services in other ways that may not be beneficial to our residents.

Private sector ISPs have to reach a certain subscriber rate (aka “take rate”) at a given price point in order to achieve a return on investment (ROI). For this reason, private sector ISPs tend to view broadband as a private good: one that must be purchased to be consumed, is rivalrous (i.e. creates competition) and is excludable. This model is effective in high-density metropolitan areas where the cost per subscriber remains low and firms can differentiate across market segments to maximize profits. However, the model tends to break down in rural and frontier communities.

The lack of industry diversification in Grant County along with high unemployment and low household earnings creates a disincentive for private sector expansion and competitive pricing because of the risk that ISPs will not achieve a market rate ROI. The exclusionary principles of a private good are still in effect but without the benefits of affordability and consumer choice.

As a result, many communities have begun to view digital connectedness as a public good: a service that one individual can consume without reducing its availability to another individual and from which no one is excluded. Taxes typically pay for public goods because they create positive spillover effects that benefit an entire community.

A third model that is gaining ground is public private partnerships (P3s). P3s leverage private sector money, expertise, innovation and flexibility, and combine these with the institutional reach of a public organization. Public agencies use P3s to connect vital

services and infrastructure to other policy goals such as economic development, public safety, community revitalization and workforce development.

A P3 can take several forms based on a given project’s needs. One example is Design-Build-Operate-Maintain (DBOM), where a public agency owns, finances and oversees the network, but a private sector partner is responsible for the construction, operations and maintenance. Another example is a joint venture. In this arrangement, the government and private partner(s) together form a new corporation – known as a special purpose vehicle (SPV) or project company – that builds, owns and operates the network. With these additional components in place, a DBOM can become a DBFOM (Figure 1).

Design-Build-Operate-Maintain (DBOM) P3				Joint Venture P3			
Manage Project				Manage Project			
Design	Build	Operate	Maintain	Design	Build	Operate	Maintain
Finance Project				Finance		Project	
Own Project				Own		Project	

Figure 1. P3 options (private sector in blue, public in green)

OPERATING MODEL

The board of directors will have two parallel functions to perform as part of its operating model:

1. The Network Coalition – the administrative entity that provides collaborative governance; sets policy frameworks, goals and objectives; evaluates the performance of the organization, and; finances the organization.
2. Grant County Digital – an enterprise that delivers broadband services and digital communications infrastructure to Coalition residents that may operate either as a public utility or through some form of P3.

The first function is the regulatory function, common to every government organization. The second relates to service delivery. There is a wide variety of service delivery options, and the Board will have to choose from among them.

Dark Fiber (Wholesale) Provider. The Board could construct a fiber backbone to connect to the main internet that is publicly owned and operated as shared infrastructure, but then lease fiber pairs within that backbone to private companies through an indefeasible right to use (IRU) agreement. Private companies would then be responsible for delivery to the premise. The IRU model would place the agency in the position of being a wholesale, or dark fiber, provider. It limits the agency’s financial risk, but also relies on willing private sector partners to make the last mile connection to residents and businesses. Rates for this type of service would have to be negotiated directly with the private sector ISPs.

Lit Fiber (Retail) Provider. Another option is to directly enter the market, offering internet services as a public utility. This approach is similar to operating a

wastewater treatment, water or power utility. Users pay a low fixed cost and service is made available to any resident within the coverage area. Unlike traditional utilities, connecting to publicly owned fiber would not be required by ordinance. It would be an optional utility service provided to residents. This model was adopted by Sandy, OR. They provide a municipal fiber network for their residents called SandyNet with no contracts, no data caps, and monthly rates of \$39.95 for 300 Mbps symmetrical and \$59.95 for 1 Gbps symmetrical.¹ Digital telephone service is also offered for \$20 per month. At present, the Coalition lacks the resources to pursue this option, nor is it a preferred approach for low-density markets due to inadequate cost recovery.

Open Access Network. The Board could create both a connection to the main internet and the last mile connections to the premise, and then open those connections up to any competitive provider through an open access, software defined network (SDN). SDNs allow provisioning of capacity across any fiber optic line to any ISP through a process called network virtualization. The infrastructure remains publicly owned from the main internet to the premise, but any private sector ISP could enter the market by providing capacity and network services. This is the model adopted by Ammon, ID, where gigabit symmetrical residential broadband rates are less than \$58.50 per month. Customers on this network can select from a range of private sector ISPs, all offering service across publicly owned and publicly financed infrastructure.²

DECISION CRITERIA

The Board should establish decision criteria to help evaluate the various courses of action available to them. Criteria could include the following:

Transparency. The Coalition should proactively communicate with residents and customers to ensure transparency in decision-making. Member agencies and the Coalition as a whole should be financially transparent and provide clear and concise financial data. *Do residents and customers understand why the Board made the decision it did?*

Alignment. Service offerings should be aligned with the adopted mission. *Do the services we provide achieve and enhance our core mission?*

Attainability. The Coalition's strategy has to be achievable given available capital resources and resource constraints. *Can we do what we said we were going to do with the funding and labor available to us?*

Sustainability. The Coalition's services have to be financially and operationally sustainable after they become operational. *Will the network services and applications be self-sufficient based on our anticipated revenue stream?*

¹ <https://www.ci.sandy.or.us/sandynet/>

² <https://cyber.harvard.edu/publications/2017/09/fibercompetition>

Publicly Supported. The Coalition's strategy should have broad public support, as measured by public feedback and user adoption of the services. *Are residents supportive of what we are providing?*

Prioritized. Services should be prioritized and both the priorities and timelines should be clearly communicated. Priorities could be listed quantitatively as a 1-to-N list or qualitatively (e.g. quick wins, most essential, long-term, etc.)

Room for Growth. The proposed operating model, infrastructure and service offerings should allow room for adaptation, innovation and future growth. *Will we be able to build on these services for the next 40-70 years?*

PLANNING CONSIDERATIONS

None of these factors predetermine "how" the Coalition will provide services. They simply provide a framework for the board of directors to help them make the decisions they need to execute their mission. The Board can use these principles to guide their decision making.

Among the early planning considerations they will need to make are:

- **Appointment of at-large board members.** The Board is structured with three positions appointed by the three Parties to the agreement (County Court, John Day and Seneca). These three board members may in turn appoint two at-large members, creating a five-member board. The at large members may be replaced in the future by new jurisdictions that become parties to the agreement.
- **Appointment of an Executive Director.** The Board may choose to appoint a non-voting Executive Director as its primary point of contact. The Executive Director can be empowered by the board to negotiate agreements and interface with vendors, but all decision-making authority will rest with the voting members of the Board.
- **Communications Strategy and Timeline.** The City of John Day, as the lead agency, purchased a five-year right to the domain name www.GrantCountyDigital.com and its associated domains (.info, .net, .org., and .us). This URL will become a website for the Coalition to use as a digital communications platform. The Board will need to develop a communications strategy to ensure residents are aware of its meetings, decisions and the timeline for deploying services.
- **Planning, Technical Assistance and Network Design.** John Day has issued preliminary, fixed price contracts for planning and technical assistance. These subject matter experts will advise the Board on the various options and cost-benefit tradeoffs. After reviewing this information, the Board will need to determine its best value operating model and contract for network design and construction services based on that model. The technical advisors will work with

the various stakeholders, including the public and private financing agencies, to ensure the Coalition receives impartial planning advice and technical expertise and makes the decisions that deliver the best value to constituents in executing the Coalition's mission.

- **Ministerial Actions.** The Board, as a new agency, will need to undertake several ministerial actions related to establishing a new government agency, including creating administrative functions for legal services, financial advising and accounting; use of public contracting regulations; procedures for passing ordinances and resolutions; procedures for approving and adopting its annual operating budget; and establishing set meeting times and locations. The Board may choose to develop its own administrative functions. Alternatively, the intergovernmental agreement allows the Board to use the existing administrative functions of the City of John Day as the lead agency. In either scenario, the Board is in charge. They collectively direct the administrative operations for the agency.

FIBER OPTIC SYSTEM DESIGN & STAKEHOLDER ENGAGEMENT

The network planners and architects hired by the Board will be responsible for engaging with our private and public sector stakeholders to determine the optimal system design, based on guidance and policy objectives provided by the Board.

Several private sector firms have reached out with interest in supporting this endeavor, including OFS Optics (the firm that designed SandyNet) and EntryPoint Networks (the firm that designed the Ammon network). OFS provided the preliminary cost estimate used in the funding request for the state appropriation. The Grant County Internet Task Force has also held meetings with Michael Weidman, President and CEO of LS Networks, and Stuart Taubman, Senior Director of the Zayo Group, as potential providers of network capacity and physical infrastructure. Within the public sector, the task force is coordinating with senior executives within the state government as well as academic partners involved in the statewide fiber optic network, including Robel Tadese, Chief Information Officer for Business Oregon, and Jonathon Dolan, Assistant Vice Provost, Infrastructure and Operations at Oregon State University.

In addition to these companies, the task force held an Industry Day with incumbent providers CenturyLink and Oregon Telephone Corporation (OTC) on October 9, 2017. The meeting was organized by Brant Wolf, Executive Vice President of the Oregon Telecommunications Association. It was attended by Tre Hendricks, Director of Government Affairs and Senior Counsel at CenturyLink; Samantha Ridderbusch, State and Local Government Affairs Director for CenturyLink; and Garrin Bott, CEO of M.D. Communications (the parent company for OTC) who operates telecommunications companies in Idaho, Utah, Oregon, Washington and Missouri. Members of the Internet Task Force present at the meeting were Scott Myers, Grant County Judge; Nick Green, John Day City Manager; and Ken Olson, CEO of Old West Federal Credit Union.

During the Industry Day, the incumbent providers expressed interest in collaborating with the future Coalition to identify ways to share resources. The group discussed various approaches to collaboration, including sharing existing infrastructure and pooling capital from the intergovernmental agency with funds available to the incumbents, such as CenturyLink's Connect America Fund. The meeting was considered a preliminary discussion as the task force was a volunteer organization that did not have the authority to commit to an agreement. However, all parties concurred that a future meeting and potential collaborations between the Coalition and the incumbents would be in the best interests of all stakeholders.

The Board should agree to meet with these stakeholders. They will also need to recognize that the assets owned by the incumbents are not "our" assets. Many residents in the County have questioned why we are proposing to create an additional connection to the main internet when there are already existing fiber connections. The simple answer is that, even though those assets were financed using public funding, they are owned and operated exclusively by private sector providers. These providers can regulate where and under what conditions our residents have access to the internet.

Private firms set the pace for deployment, contractual obligations for receiving service, price and quality of service. They can also liquidate their assets or discontinue providing services at their sole discretion. Mergers and acquisitions in this industry are commonplace. For example, CenturyLink recently completed the acquisition of Level 3 Communications, a dark fiber provider.³ The combined company, with estimated pro forma revenue of \$24 billion for the trailing twelve months, is in a position to exercise significant power over Grant County (both positive and negative). CenturyLink could readily acquire OTC connections, taking our current duopoly market and creating a monopoly where one firm controls 100 percent of the market.

By creating a publicly owned connection to the main internet, the Grant County Digital Network Coalition will be able to create a competitive environment in which any ISP or a public utility may provide access to digital services. This could be accomplished by extending service from John Day to Burns or to other proposed long-haul routes in adjacent counties.

Route Planning

One key consideration for the initial dark fiber route to Burns is that it provides benefits in multiple dimensions:

- Enables access to Seneca for high speed internet service to this Coalition city;

³ See CenturyLink news release, November 1, 2017.
<http://ir.centurylink.com/Cache/1001229930.PDF?O=PDF&T=&Y=&D=&FID=1001229930&iid=4057179>

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- Buildable with an aerial route along OTECC's approved utility corridor that extends from John Day to Burns;
- Provides access to the statewide network along Highway 20 in Burns, a publicly owned network that extends from Salem to Boise, which is operated by the Oregon Fiber Partnership;
- Allows for future shared public services to operate between Grant and Harney counties and state agencies that also have access to the statewide network;
- Creates the option for WiFi hotspots and improved digital communications within the Malheur National Forest and along US 395S.

Additional route options may become available in the future that will extend service to Mitchell and will facilitate expansion of a publicly owned network to service the northern and western portions of Grant County. Wireless options will also need to be explored.

Additional Planning Considerations

The Board's planners and network engineers will also consider a multitude of technical factors that will affect service delivery, design-build costs and future operating expenses. These factors include but are not limited to:

- **Network transport requirements** (voice, video, data, telemetry and FTTx);
- **Network Protocol/Architecture** (Token Ring, Ethernet/Gig-E, ATM, Sonet/SDH, Fiber Channel, Hybrid Fiber Coax and/or FTTx/PON);
- **Standards to Utilize** (Transmission Standards (SONET/SDH, Fiber Channel, FTTx/PON); Installation Standards (TIA-568-C, TIA-758, ITU-T-G983/984); Testing Standards (ISO/IEC 61280, ISO/IEC 14763);
- **Wavelength** (Multimode (850nm, 1300nm) or Singlemode (1310nm, 1490nm, 1550nm, CWDM, DWDM));
- **Data Rate/Bandwidth Requirements** (DC, Ethernet, Sonet/SDH, 10 Gbps, 40 Gbps and Fiber vs. Copper (at the premise));

The Board's technical advisors will also provide planning assistance related to operational and financing requirements such as:

- **Capital Costs** (right of way costs, hub location costs and make ready costs, administrative and operating expenses, lifecycle maintenance and repair, and necessary contingency funds);
- **Permitting** (pole attachment permits, forest service special use permits, etc.);

- **Physical and Environmental Requirements** (cable route, hardware locations, optoelectronics locations, outdoor plant, inside plant, indoor versus outdoor cable considerations, and equipment locations);
- **Protection** (level of switching protection, route protection, backup power options and equipment standby);
- **Choosing Components** (transmitters, receivers, amplifiers, passive optical devices, cable designs, number of fibers, future proofing, bandwidth limitations, etc.);
- **Optical Power Budget** (fiber loss, other anticipated losses, safety margin, aging margin, receiver dynamic range, splice loss and connector loss, etc.);
- **Testing and Documentation** (network certification requirements, test schedules, etc.)

The board of directors does not necessarily require in-depth knowledge of these technical parameters. Rather, the Board needs to be able to evaluate and make decisions based on the best available advice. These decisions include talking with multiple vendors and component manufacturers; talking with industry representatives and public sector advisors; resolve conflicting facts about network deployment options and service delivery models; and knowing and understanding the cost-benefit impact of their decisions.

TIMELINE & NEXT STEPS

The network, as currently envisioned, will be deployed in multiple phases: Phase 1 will be the network planning, design and financing; Phase 2 will construct the fiber optic connection to the main internet; Phase 3 will build-out the network to the main urban areas of the county and to residents within the initial service area; and Phase 4 will expand coverage to outlying communities.

During Phase 1, the planning firms will build on the work of the task force by conducting preliminary route research, cost-benefit analysis, potential site connections, GPS field data collection, permitting requirements and analysis, research and project coordination with Coalition stakeholders.

Phase 2 will begin upon approval of the USDA Community Connect Grant the City of John Day applied for in May 2018. Commstructure Consulting, lead engineers for this project, will attend the first meeting and describe the proposed route and work conducted to date for this phase of the project.