

High Speed Internet Task Force Report

Recommendation

The High Speed Internet Task Force has determined a ubiquitously deployed fiber-optics broadband infrastructure is essential. The task force studied several municipal broadband infrastructure deployment models. The task force's due diligence made clear the resounding need for municipal broadband connectivity infrastructure, in order to provide for essential city service efficiencies and promote enhanced quality of life needs in the following areas:

- Telehealth
- Education
- Emergency Services
- Traffic Management
- Storm Water Management
- Management of Efficient Water Usage

Furthermore, properly deployed broadband municipal infrastructure lays the foundation for economic growth measures and initiatives to help keep Herriman the premier option for economic progress and viability. As a result of a properly deployed municipal infrastructure, private high-speed internet companies would be encouraged use of the infrastructure to sell competitive ubiquitously available gigabit internet services.

The task force recommends the **Opt-Out Utility Model** (see **Opt-Out Utility Model** below) to the Herriman City Council to best help the City to provide the services noted above. The ubiquitous broadband deployment should be accomplished by entering into a Public Private Partnership with a suitable broadband expert(s). The Herriman municipal fiber-optic infrastructure should be designed to facilitate the many essential connectivity needs of the city. Furthermore, the municipal fiber infrastructure would be provisioned as an "Open-Access" system, allowing private sector companies the ability to utilize the network providing an ultra-competitive internet service offering landscape/market. Herriman City would maintain control and ownership of its broadband network. Design, engineering, construction, and operations of the network would occur in conjunction with selected PPP partners who will maintain required core competency requirements and responsibilities. The body of this report provides additional information as to how the task force came to this recommendation.

Introduction

Herriman City staff and elected officials often receive phone calls and emails from residents requesting that something be done to address the lack of internet service options in the city. In response, the Herriman City Council directed staff to organize a *high-speed internet task force* for the purpose of researching, discussing, and recommending options to provide the residents and businesses in Herriman with reliable high-speed internet service. The members of the task force consisted of two city council members, five Herriman City staff members, and one independent consultant. Other industry professionals were invited to the task force meetings to provide insight and additional information that the task force utilized to gain a better understanding of the options available.

It is apparent that the several companies that currently provide internet in Herriman are not providing the level of service for high-speed internet that residents and business owners desire to have. The lack of high-speed internet has been especially highlighted during the COVID-19 pandemic where many residents were forced to work remotely or attend school from home and needed to have reliable internet access. The lack of options for internet service providers is more prevalent in older areas of the

city. It is common for multiple internet providers to install fiber optic cable during the construction phase of new developments, but it is rare that these companies install new infrastructure in existing developments where the improvements have not previously been installed. The reason for this is likely due to the cost to install the infrastructure, which is significantly higher in previously developed neighborhoods. Many older areas have only one or two options for internet service and the city staff has not been made aware of any plans that other internet providers have to provide additional service to these areas in the foreseeable future.

As the Committee researched the options available, it became apparent that there is a difference between 1) High-speed internet and 2) High-speed broadband infrastructure. While faster internet speeds results from the second, the ability of the City to utilize “smart city” technologies may not be available under the first. The Committee focus has shifted to understanding the high-speed broadband infrastructure needs and how it could be leveraged to solve both challenges. In the remainder of this report, every effort will be made to distinguish between “internet” and “broadband”.

The City currently does not own or manage any of the infrastructure associated with internet services or broadband. There are options where the city could partner with a private company to provide internet service to the residents as well as City facilities. There are also options where the city could construct, own, and manage an entire high-speed broadband infrastructure (including internet service), similar to how the water system is operated. This scenario is called the Utility Model. Figure 1 depicts the spectrum of service models. It is anticipated that any change will result in resistance from current internet service providers.

As the community becomes more dependent on reliable, high-speed internet, it is anticipated that internet service providers in the private sector will lead out with providing the type of service needed. However, the City’s ability to leverage higher internet speeds to support city functions may be limited under a private sector internet only approach. Broadband allows the City to manage systems that include traffic signal phasing, security systems at parks and city facilities, storm water storage/discharge, enhancement to data management for law enforcement, and other opportunities that may arise. The high-speed internet task force has explored several options to address these concerns, which are discussed in following sections of this report.

Additionally, a special note should be made that broadband infrastructure is considered by many technology experts to be as essential to the future operations of municipalities as water and electricity are today. Broadband infrastructure is the core of “smart city” enhancements to create cost savings, efficiencies, better management tools, and provides the ability to leverage technology solutions for many issues the community faces such as traffic congestion, commute times, air quality, water conservation, and even economic development.

Analysis

Herriman’s current mode of operation only allows private companies who have a franchise agreement with the city to install infrastructure and provide internet service to residents and businesses within Herriman’s boundaries. It should be noted that there are some anomalies where some residents obtain their internet service from satellite or cellular phone hot spot connections. This scenario is aptly named the Private Service Provider Model. There are other models that can ultimately provide internet service to residents and businesses in the city where some or all of the system is owned and/or managed by the city. A system owned by the city is named the *Utility Model* because the system functions similar to

other city owned utility systems such as the water system. A depiction of the internet provider service models is provided in **Figure 1**.

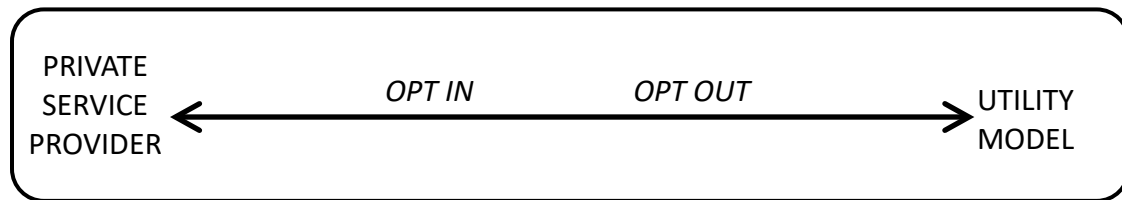


Figure 1. Internet Service Provider Spectrum

The private service provider model relies solely on private companies to plan, design, construct, and manage the internet system. In this model the infrastructure is owned privately, and internet service is maintained privately. The customer service provided to the end user is the responsibility of the private company. As you move from left to right on the spectrum, the ownership and management of the system shifts from the private to public. Under the utility model, the infrastructure can be owned by the city and maintained by either the city or a private company by agreement or a Public-Private-Partnership (PPP). In this model while the infrastructure can be used to provide faster more reliable internet, it can also be utilized to improve City functions and efficiencies. Furthermore, internet service can be provided by the city or by private companies under the utility model. If private companies are used to provide the service, then the city should create a bid process where interested companies can be selected through a competitive process, and they would be responsible to manage all aspects of the customer service for their internet services to the end users. This task force recognizes the potential conflict of interest between a “public” utility and a private service, and believes that a PPP not only could provide high speed internet, a broadband infrastructure to support city interests, but also foster competition, lower prices, and better service levels for all residents and businesses in the city.

The model that the city chooses to move forward with is determined by the plans and goals of the city council. Two driving questions to help determine the city’s goals are 1) Is the city solely focused on internet services for the residents and businesses? and 2) Are there compelling reasons for the city to take the lead in constructing a conduit network that could utilize fiber optic technology allowing the city to create a network that could manage infrastructure such as storm water outlets, drinking water supply systems, and traffic management systems? Additionally, there may be a desire for the city to own and manage a fiber optic network to better ensure a reliable system that could attract new businesses, promote teleworking, and provide better efficiency with emergency response services. As the task force explored the pros and cons of several models, they considered the input received from residents and worked to understand the goals of the city council. The results of this effort are described below.

Private Service Provider Model

The private service provider model is how the city currently operates. Under this model newer developments seem to be well-served. Areas throughout the city that were developed prior to widespread use of the internet are underserved by this model. The reason for this is that it is costly to install infrastructure in areas that were not developed with infrastructure that supports high-speed internet. For these reasons there are concerns that older areas will not have access to high-speed internet and that there is little motivation to provide the necessary infrastructure to service those areas.

This model is currently not providing the level of service to the residents of Herriman that is desired, which is apparent by the feedback the city council and staff are receiving from the residents. This model

also fails to incentivize providers to expand service in areas with limited densities of subscribers, or older areas of the city where installing new service could be more costly. This model does provide the residents and businesses with the most liberty by completely allowing them to choose whether or not they want to subscribe to internet service, but it also relies solely on the private sector to provide service to all areas of the city.

Opt-In Service Model

The opt-in service model assumes that at least some portion of the fiber optic system, consisting of conduit, fiber optic cable, handhole boxes, main hubs, etc., is publicly owned. In order to fund the installation and maintenance of the fiber optic system, the city needs to establish a user fee that is charged to the residents of the city who opt-in to receive the service. Those who do not opt-in would not be required to pay into the system. Customers who do not originally opt in would need to be charged a new connection fee if they chose to opt-in to the system later to cover the cost to provide the infrastructure to their home or business. New development could have the infrastructure installed as the development is constructed to avoid the higher cost of connecting homes and businesses to the system later.

Under the opt-in service model, the fiber optic system is independent of that actual internet service, which would likely be provided by a private company. This also means that the user fee associated with the fiber optic system would be independent of the cost to provide internet service so that the overall cost to customers would include costs for both the user fee and internet service.

This model would allow the city to utilize the network to help ensure safety and efficient operation of systems in Herriman. The city could interconnect city owned buildings and public infrastructure using the system. Some examples of the benefits this system could provide are that the city could utilize Supervisory Control and Data Acquisition (SCADA) to remotely manage storm water detention basin outflows, drinking water pump stations and storage tank connections, and traffic signal integration throughout the city. Additionally, the Herriman Police Department (HPD) could utilize the network to remotely monitor body camera video and security cameras in City parks and other facilities.

This model provides significant benefits to the overall operations of the city and could help provide a better variety of internet options to residents and businesses. This model has some inherent risk to the city because if too few residents opt-in to the system there may be a funding shortfall to construct and/or manage the overall system. There are also concerns with the cost to connect homes and businesses to the network after the initial offering. This could happen when someone purchases an existing home and the home's previous owner may not have opted in to the service. This model provides residents with considerable flexibility as to whether or not they want to utilize the fiber optic system.

Opt-Out Service Model

Similar to the opt-in model, the opt-out service model assumes that at least some portion of the fiber optic system, consisting of conduit, fiber optic cable, handhole boxes, main hubs, etc., is publicly owned. In order to fund the installation and maintenance of the fiber optic system, the city needs to establish a user fee that is charged to the residents of the city who do not choose to opt-out of receiving the service. Those who opt-out would not be required to pay into the system. Customers who choose to opt out would be charged a new connection fee if they chose to connect to the system later. This fee would pay for costs incurred by the city to provide the infrastructure to their home or business. New development could have the infrastructure installed as the development is constructed to avoid the

higher cost of connecting homes and businesses to the system at a later time as outlined in the scenario above.

This model provides significant benefits to the overall operations of the city and could help provide a better variety of internet options to residents and businesses. This model also presents some risk to the city that there could be a high number of residents who opt out of the service resulting in a funding shortfall for the system. There is also a concern that some residents may fail to opt-out. This could happen for several reasons including not receiving notice of the requirement to opt-out or accidentally failing to opt-out despite a desire to do so. Because of this it is anticipated that there could be disputes between the city and residents/business owners who desire to opt-out but are included in the system. These factors indicate that this model provides residents and business owners with slightly less flexibility than the opt-in model as to whether or not they want to utilize the fiber optic system.

Utility Service Model

The opt-in and opt-out models are essentially versions of the utility model that allow residents and business owners the ability to choose whether or not they want to have access to the fiber optic network. Similar to the opt-in and opt-out models, the utility service model assumes that at least some portion of the fiber optic system, consisting of conduit, fiber optic cable, handhole boxes, main hubs, etc., is publicly owned. In order to fund the installation and maintenance of the fiber optic system, the city would establish a user fee that is charged to all residents of the city. Since all homes and businesses would be connected to the system the residents and business owners would be able to choose whether or not they want to use the internet service available to them through the fiber optic system. New development would be required to install the fiber optic system infrastructure as part of the development, similar to other utility systems like water and sewer.

A base level internet service, provided by a private company that the city contracts or partners with, should be a consideration that would be provided as part of the user fee under this model. Higher levels of internet service could be offered to customers at an additional charge. This model allows customers the option to not purchase a higher level of internet service but they would be required to pay the user fee regardless of that choice.

This model provides significant benefits to the overall operations of the city and could help provide a better variety of internet options to residents and businesses. This model presents the least amount of risk to the city in regard to funding the system, because there is no ability for residents or business owners to opt out of receiving the service. It also follows that this model does not allow a method for residents and business owners to choose not to receive the base level service. This model also appears to be in direct conflict with existing internet service providers in the city and would create a competition between public and private services.

Hybrid Option

The council could choose to move forward with a hybrid of these options. The city could install a fiber optic system to service only city owned facilities and then utilize the private service provider model for internet service throughout the city. Exhibit A, attached to this report, depicts the city owned facilities that would be connected by the fiber optic system with this scenario. It should be noted that this option relies solely on the private sector to install infrastructure and provide internet service that meets the needs of the customers and does not help to solve the issue with providing reliable, high-speed internet service to older developments. This scenario significantly reduces the costs to Herriman City to

construct a fiber optic system for city services but also reduces the ability of the city to address the internet needs of residents and business owners.

Summary

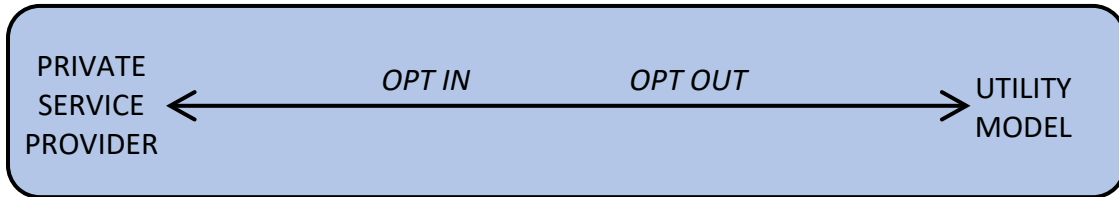
Herriman is in a unique position where there are numerous options available to help residents and business owners by providing options for high-speed internet services. The private service provider model, currently used by the city, is largely not providing the residents and business owners the ability to connect to a reliable, high-speed internet system, although there is a high demand for this type of service throughout the city. Private providers are also not planning to expand their systems throughout the city to address the resident's high demand for high-speed internet. Moreover, the city could largely benefit from a fiber optic network that would increase safety and efficiency throughout Herriman.

If it is the desire of the city council to only provide more internet options to residents and business owners and not take on the cost and responsibility installing a city-owned fiber optic network, then the private service provider model should be chosen. Additional internet providers, such as Google Fiber, could be contacted to bring their services into Herriman. This could provide more options to residents but leaves the city with very little ability to ensure resident's and business owner's needs are adequately addressed.

If the city council desires to ensure the high-speed internet needs of all residents and business owners are addressed, then one of the opt-in, opt-out, or utility model options should be chosen. Each model has a certain amount of financial risk to the city. If the city council is very risk-averse, then the utility model should be chosen. If the council is comfortable with some risk, then the opt-in and opt-out models are both good options.

If the city council desires to have a fiber optic system to help support city operations but would prefer to leave internet infrastructure and service offerings to the private sector, then the hybrid option should be the chosen model. This model would significantly reduce the financial risk of the city but leaves the city with very little ability to ensure residents and business owner's needs are adequately addressed.

HIGH-SPEED INTERNET PROVIDER MODEL SPECTRUM



Internet Service Provider Model Comparisons

	Private Service Provider Model	Utility Model	Opt-In Service Model	Opt-Out Service Model
Management Structure	Relies on private companies to plan, design, construct and manage	City plans, designs, constructs, and manages		
Infrastructure	Owned Privately	Owned by City OR through a Public Private Partnership	Owned by City OR through a Public Private Partnership	Owned by City OR through a Public Private Partnership
Internet Service	Private	Bid out to several companies	Bid out to several companies	Bid out to several companies
Customer Service	Private	Bid out to several companies	Bid out to several companies	Bid out to several companies
Benefits	No cost to City	<ul style="list-style-type: none"> • City collects a user fee to fund the infrastructure • Fosters competition between internet service providers • Lower prices through a base option • Better service levels • Faster speeds available at an additional cost 	<ul style="list-style-type: none"> • Users opt-in to subscribe • City collects a monthly user fee to help pay for infrastructure • Gives City greater flexibility in using system for City purposes • More flexibility for users 	<ul style="list-style-type: none"> • City collects a monthly user fee to help pay for infrastructure • Requiring the user to "opt-out" typically increases the "take rate" thus increasing the ability to pay for infrastructure • More flexibility for users
Challenges	<ul style="list-style-type: none"> • Areas throughout the City may not be served • Fails to incentivize providers to expand service in areas with limited densities of subscribers 	Requires all residents to subscribe to the system.	If enough users do not opt-in there may be a shortfall to cover the infrastructure investment	If users opt-out there may be a shortfall to cover the infrastructure investment