
SALT LAKE CITY COUNCIL STAFF REPORT

DATE: April 2, 2004

SUBJECT: **Additional Information & Options Regarding UTOPIA**

AFFECTED COUNCIL DISTRICTS: Citywide

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NOTICE REQUIREMENTS: After a final financing plan is completed and adopted by the UTOPIA board, it will be sent to the pledging cities with a minimum of a 30 day notice in which to consider the revised interlocal. Within that 30 day period a city must give notice of the public hearing to those requesting notice as soon as the city sets the date.

KEY ELEMENTS:

Salt Lake City has been asked by the Utah Telecommunication Open Infrastructure Agency (UTOPIA) to pledge \$4,104,505 of annual sales tax revenues for a period of 20 years as a backstop for UTOPIA's debt service. If the Council desires to make the pledge, it must do so by April 15, 2004 per Senate Bill 66.

OPTIONS:

The Council has several options including the following:

1. The Council may wish to pledge future sales tax revenue as a guarantee on the debt service for UTOPIA's bonds. The UTOPIA board will provide a final financing plan to pledging cities and set a deadline by which any city can withdraw. The withdrawal mechanism will be that if a city has not adopted the revised interlocal agreement by a certain date, it will be deemed to have withdrawn from the pledge.

Some Council Members have inquired about the possibility of obtaining an insurance policy to cover the City's risk. The Administration is exploring this possibility as well as the possibility of transferring all or a portion of the required guarantee risk to an investor. *Council Members may wish to ask the Administration about the possibility of involving a third party insurer or investor and whether there is sufficient time to issue a request for proposals.*

2. The Council may wish to remain a member of UTOPIA but not pledge revenues to back the bonds. The fiber optic network would not be installed in Salt Lake City until the network is completed in pledging cities. The UTOPIA board will most likely change the interlocal agreement to reflect the possibility that some of the founding members may stay in even if they don't pledge. Salt Lake City would probably give up the right to share in any of the possible excess revenue that that the system may

generate from Salt Lake City users of the network. Under this option, Salt Lake City will need to advance the due diligence and other bond issue costs (\$53,114). Reimbursement of this advance as well as reimbursement of the advance for the feasibility studies (\$187,697) is contingent upon bonding.

3. The Council may wish to explore the option of a separate Salt Lake City fiber to the home network. The City would incur 100% of the risk of the Salt Lake City only network, but would have control of operations and potential revenues from the network. The City may be able to issue bonds to finance the construction of the City-only network at interest rates lower than UTOPIA but may face higher construction costs. There is also a possibility some providers will not want to provide services on the City-only network because of fewer potential customers compared to a multi-city network. There are several variations of this option, one of which is the possibility of partnering with a current provider to construct a fiber system. Additional analysis of the possible financing costs associated with these options will need to be completed before a City owned network could be constructed. The probable time to research and issue requests for proposals for a City network will likely be between one and two years.
4. Withdraw as a UTOPIA member and let the telecommunications market providers and market forces determine which services will be provided in the City, or attempt to work with the telecommunications companies currently providing services in the City to identify service level expectations.

ADDITIONAL INFORMATION:

What is the cost savings to City government from eliminated leases of fiber circuits or other telecommunication charges? – The City’s Information Management Services Division (IMS) is researching the costs that could be saved in lease and monthly service costs for fiber circuits, T1 lines, or other telecommunication services that will be available at no cost or little cost by participating in UTOPIA. *The Council may wish to ask representatives of IMS regarding the cost savings that would be realized by joining UTOPIA.* Currently there are some City facilities (such as fire stations or golf courses) that are operating with communication systems that are below the desired minimum speed levels. Under the UTOPIA or City-owned models, the City will have free access to the network for the City’s own communications needs.

Is it possible for Salt Lake City to construct a separate fiber optic network? – Over 200 U.S. communities provide municipal broadband services. There are benefits such as increased control and operations flexibility, possible reduced bond issuance costs and shorter build out time. There are also some increased risks compared to a multi-city network such as lower subscriber base, possible increased construction costs, and increased debt service responsibility. Traditionally, fiber optic links are less expensive to install when distances between homes are shorter. In this regard, the density of Salt Lake City helps keep the cost of the fiber installation to curb minimal. A further advantage Salt Lake City has is the level of existing fiber in core business areas.

Council staff made some preliminary debt service calculations relating to financing the construction of a city-owned network. If Salt Lake City constructs its own fiber optic system, annual debt services would be about \$9,150,000 assuming \$85,000,000 in construction costs, 20-year bond and a 5% interest rate (1% less than UTOPIA's projected rate). This debt service calculation also assumes two years of interest from bond proceeds and a reserve fund equal to one year's debt service (same as UTOPIA's proposal). If the City receives a 4% interest rate (2% less than UTOPIA's anticipated rate), annual debt service would be about \$8,220,000.

How much fiber-optic cabling is already available in Salt Lake City? – Fiber services are prevalent in the downtown area, International Center, Research Park, and at the University of Utah. There are 26 businesses with active franchise or lease agreements for use of the City's rights-of-way including businesses that connect two or more facilities. There are 13 inactive franchise or lease agreements for companies that are no longer in business in Salt Lake City. According to City ordinance (chapter 14.32 Construction, Excavation and Obstruction in the Public Way), those companies placing conduit in the right-of-way must place double the capacity and lease or make this excess capacity available to other users. The 2002 Olympics resulted in a backbone of fiber and conduit that may be available for leased or purchased for a City-owned or UTOPIA operated telecommunication network.

Are fiber optic networks in other countries supported by local governments? – National governments, regional governments and private enterprises are financing most fiber networks in other countries according to limited research by Council staff. The United States provides some grant financing for communities to install telecommunications infrastructure. One of the biggest differences between the current efforts in the U.S. and foreign countries is the lack of a national broadband policy in the United States. Other countries have strong national policies that provide for municipal broadband and fiber optic installation.

USA Today (1/19/2004) reports: "The USA is falling behind other nations in arming consumers and small businesses with a key economic tool: high-speed Internet access....The USA ranks 11th worldwide in broadband use, according to a recent United Nations report....While foreign governments are pouring big bucks into broadband, the United States has left broadband investment mostly to private companies."

President Bush recently made a statement in support of broadband technology at a conference in New Mexico. He said: "This country needs a national goal for broadband technology, for the spread of broadband technology. We ought to have a universal, affordable access for broadband technology by the year 2007, and then we ought to make sure as soon as possible thereafter, consumers have got plenty of choices when it comes to purchasing the broadband carrier....The more affordable broadband technology is, the more innovative we can be with education. It's important that we stay on the cutting edge of technological change, and one way to do so is to have a bold plan for broadband....The role of government is to create an environment in which the entrepreneurial spirit is strong, and in which people are able to realize their dreams...."

What is the potential impact of future markets/technology? – Current uses of high-speed broadband can give a glimpse of what the future may hold although it is difficult to envision the impact of future technology to more than a few years time.

- The Electronic HouseCall System implemented in Augusta, Georgia is a two-way system with a touch-screen unit in the patient’s home and another unit at a medical center. From the home unit, the patient could check his or her pulse, blood pressure, blood oxygenation, temperature, glucose levels and heart function with a modified electrocardiogram without connecting to medical staff. The patient and provider interact online through a videoconference.
- USA Today reports that workers are skipping flights by hooking up through video conferencing. People can work from anywhere creating less traffic and less pollution.
- The Alliance for Public Technology reports that schools are using online testing and are moving to electronic textbooks. Students who are unable to attend school can continue their educational pursuits. Adults who desire to obtain further education but who do not have the time to return to school are able to learn from work or home. Interaction with the best minds in the world is available through broadband.
- The Corporation of Education Network Initiatives in California (January 2004) reports that high-speed broadband allows teaching that is based on student’s learning styles and needs. Broadband allows education for working students. “Next generation broadband could offer personal and business communications vehicles that strengthen the bond of the existing family and community and, at the same time, widen horizons.” Further, they state that better and cheaper communication will be available to family and friends overseas. Language barriers will be broken because communication can be accessible in different languages. Families and individuals will be able to participate in local, national, and international cultural activities, exhibitions, craft shows, plays, musical events, parades and church activities.
- The Georgia Department of Corrections is utilizing broadband to improve access to medial services at its facilities by partnering with the Medical College of Georgia. Inmates are examined using telemedicine rather than transported to a medical facility.

Will residential home values increase with fiber optic broadband availability? – Broadband availability may not increase the value of a home, but it will probably provide an advantage to attract home buyers when selling a home. Council staff noted several listings of homes for sale that mentioned broadband service availability as a selling feature.

What are other telecommunication models? – UTOPIA’s business model includes distributing anticipated excess revenue to cities to help replace diminishing franchise fees and other declining revenues. Another approach would be to lower wholesale rates to a breakeven level thereby passing any savings to users. There are other models for providing high speed broadband services to homes in addition to the government wholesale model of providing fiber to the home (UTOPIA’s model). Some models are as follows:

- Fiber to the neighborhood with coax or copper wire to the home – Coax or copper wire can handle high-speed broadband for short distances.
- Fiber to the neighborhood with wireless technology to the home – New wireless protocols are being tested that may be able to handle high-speed broadband for short distances.
- Private/government partnerships – Michigan and Iowa have created broadband development authorities to spur creation of high-speed start-ups with low-interest loans.
- Creation of Investment Incentives - Government could provide investment incentives to aid private enterprises in deployment higher-speed broadband.

How extensive is broadband availability in Salt Lake City? – Comcast has a coaxial cable network to most neighborhoods of Salt Lake City. Qwest is planning to expand its DSL network to a much greater portion of Salt Lake City during 2004. Council staff randomly selected 20 addresses within each council district to provide an indication of the extent of current broadband services. Comcast and Qwest informed Council staff whether broadband services are available for each address.

Previously Council staff informed the Council of the number and cable broadband service was available for 89% of the sample and that DSL was available for 56% of the sample. However, some of the sample addresses were business addresses for which Comcast doesn't normally provide cable services, and for some business address Qwest was not the telephone provider and therefore couldn't provide DSL services. Another approach in tabulating the sample results would be to eliminate these business addresses from the sample. Therefore, the totals in the following chart do not always equal 20 addresses per council district. One could calculate the question either way – the first approach was a literal interpretation and the approach outlined below does not count against the companies if they do not provide cable or telephone service to an address in the first place either because the address is a business (in the case of cable broadband) or because telephone service is provided by another entity (in the case of DSL).

Broadband Availability in Salt Lake City				
Based on a sample of addresses within each Council District				
Council District	Cable Broadband Availability		DSL Broadband Availability	
	Addresses eligible for cable broadband service	Percent eligible for cable broadband services	Addresses eligible for DSL services	Percent eligible for DSL broadband services
1	12 of 15	80%	2 of 15	13%
2	15 of 15	100%	11 of 15	73%
3	18 of 19	95%	10 of 16	63%
4	20 of 20	100%	11 of 15	73%
5	20 of 20	100%	17 of 20	85%
6	20 of 20	100%	16 of 20	80%
7	20 of 20	100%	12 of 20	60%
Total	125 of 129	97%	79 of 121	65%

The following information was provided previously. It is included again for your reference.

The following are some of the pros and cons for participating in UTOPIA and backing the bonds:

<u>ARGUMENTS AGAINST UTOPIA:</u>	<u>ARGUMENTS FOR UTOPIA:</u>
<p data-bbox="168 520 719 590"><u>Cost of failure will be borne by pledging cities.</u></p> <p data-bbox="168 594 795 915">The pledge will be triggered if UTOPIA cannot make its entire bonded debt obligation. If this occurs the trustee will pay the annual debt payment from the reserve fund. Cities will then have one year to restore the reserve fund. If the total project fails, it could cost Salt Lake City taxpayers about \$26 per year on a \$175,000 home (\$2.15 per month), and it could cost a one million dollar business \$268 per year.</p> <p data-bbox="168 953 586 989"><u>Broadband is already available</u></p> <p data-bbox="168 993 790 1314">One policy issue is whether a fiber optic network is necessary in Salt Lake City because of the extensive amount of fiber that already exists. Salt Lake City is fortunate in that it has a fiber backbone that will allow almost any business to be connected. Fiber services are prevalent in the downtown area, International Center, Research Park, and at the University of Utah.</p> <p data-bbox="168 1352 794 1749">Comcast indicates that it has a fiber infrastructure to most every neighborhood in Salt Lake City. When a business desires a fiber connection, the business pays the contractor's price for running the fiber after several bids are obtained. Businesses can pay Comcast over time if necessary. Comcast's monthly operating fees depend on various circumstances, such as competitors' rates, and can vary from \$700 to \$1500 for 45 Mbps; \$2800 to \$3500 for 100 Mbps; and \$6000 to \$8000 for 1000 Mbps.</p> <p data-bbox="168 1787 774 1892">Qwest also provides fiber to businesses. The cost for each business depends on the distance away from existing fiber.</p>	<p data-bbox="824 520 1438 590"><u>UTOPIA will provide economic development advantages.</u></p> <p data-bbox="824 594 1450 1350">Fiber-optic technology provides transmission of voice, data and video many times faster than existing copper, cable, wireless, T-1, or satellite systems. Fiber services are already prevalent in most of the major business areas of Salt Lake City. With the increase of competition that will result from UTOPIA, businesses should have access to more reasonably priced high speed broadband services. The affordability of fiber broadband will allow smaller business to take advantage of higher speed services. For example, doctors can transmit and receive MRIs, CAT scans and large files of medical images and information. A trend toward home-based business and telecommunicating is facilitated by higher speed computer access. Salt Lake City may become a more desirable place for people to locate their business. Private contractors will construct the network, employing hundreds of local workers during the estimated 3-year build-out period.</p> <p data-bbox="824 1388 1438 1457"><u>Consumers will have greater customer choice, competitive pricing, and enhanced services.</u></p> <p data-bbox="824 1461 1450 1995">The UTOPIA network will encourage competition. The network will be open to private sector providers giving customers greater consumer choice, competitive pricing, and enhanced services. UTOPIA emphasizes that all consumers will benefit from increased competition resulting in lower prices, multiple choices for service, faster data delivery and clearer phone conversations or TV reception. UTOPIA expects that a portion of existing Internet users will take advantage of opportunities to buy significantly faster Internet access for the same price they are now paying for slower Internet access or to buy an improved range of communications and video</p>

Broadband services to homes are currently provided by coaxial cable or copper wire at speeds slower than fiber but faster than dial up modems. At the fact-finding meeting, the Comcast representative stated that cable broadband services are available to over 90% of the geographic area of Salt Lake City. Although Qwest doesn't currently have this extent of DSL coverage, it will add several remote terminals within Salt Lake City in 2004 to increase its broadband coverage.

Demand and actual take rates may be less than expectations.

According to UTOPIA's feasibility study, by the fourth year of operation 30% of households and businesses are expected to sign up for at least one service over the network (phone, TV, Internet, video, etc.). The break-even point is 30% after seven years. The independent study by Dean & Company to verify the feasibility study concluded that given the experience of other municipalities, UTOPIA's predicted take-rates over time are feasible.

Representatives from Comcast and Quest emphasized that the take rates may not have taken into account the complete response of current providers in order to encourage customers not to switch to a service provider using the UTOPIA network. Some households will probably continue to use slower dial up service (about 56Kbps) because of cost savings over broadband. Dial up service is accessible to anyone who has a telephone. The survey commissioned by UTOPIA reported that 40% of Salt Lake City households currently use dial up service while 28% use DSL or cable broadband.

Projected capital costs may be greater than projected.

UTOPIA asserts that construction costs are fixed because contracts are in place. These contracts include firm unit prices such as price per foot of aerial deployment, price per foot of underground deployment, and price per splice. The fixed costs include fiber, conduit, engineering, permitting, labor for splicing, etc. However, once the final engineering is

entertainment services for what they may now be paying for basic dial tone or cable TV.

Current service providers will probably lower their prices to remain competitive to providers using the UTOPIA network. This would result in savings to consumers whether or not they switch to a UTOPIA provider. Salt Lake City may become a more desirable place for people to live or purchase a home because of lower priced or superior phone, TV and Internet services.

Private sector service providers may not be building telecommunications infrastructure fast enough to accommodate the current needs to citizens and businesses.

Comcast currently has a coaxial network to most neighborhoods of Salt Lake City. Qwest is planning to expand its DSL network to a much greater portion of Salt Lake City during 2004. Although there are several current service providers that will bring fiber to businesses, the current services providers are not planning to bring fiber to residential housing. UTOPIA has invited current service providers to become providers over the network.

In some markets (not currently in Utah), DSL speeds of 8 mbps are available. In some markets, coaxial cable allows speeds of up to 10 Mbps. Fiber technology allows more than 1,000 Mbps, but UTOPIA is proposing 100 Mbps to each home, with the option of purchasing higher throughput if needed.

Fiber is currently available to businesses by several private providers including Comcast and Qwest, but pricing generally precludes access by residents or small home businesses.

Under the current situation there may be a delay in receiving fiber services due to scheduling and availability of resources. For example, it took almost one year for Salt Lake City to get a fiber connection from its downtown servers to the Airport.

completed, the number of units may vary from the projections, which would result in costs differences for UTOPIA.

The unit prices are firm for a two-year period beginning November 2003. Therefore, price could change before the entire network is deployed. The contracts also include some options for adjustment within limits. For example, a minor change in work may be agreed to without invalidating the contract. There are clauses in the contracts that make allowances for unforeseen contingencies. UTOPIA indicates they have included consideration of these contingencies in both the budget computations and contract language.

The contractor, Tetrattech, is the nations fourth largest telecommunications design/build contractor with annual revenue over \$1 billion. Tetrattech is required to supply a performance bond for an amount equal to 100% of estimated project total. All work is guaranteed for two years from acceptance.

Technology may become obsolete sooner than projected

UTOPIA predicts that fiber optic cable will be up to date for at least 20 years and electronic components for at least 7 years. Operating costs could be greater than projected if the useful life of electronics is less than 7 years.

Critics of UTOPIA have pointed out the advancements in technology over the past 20 years. Increased speed and distance of wireless technologies are being tested. Although wireless technologies are not equal to fiber there are advantages relating to mobility and ease of installation that don't require rewiring homes.

Salt Lake City will primarily receive above ground deployment

UTOPIA plans for aerial deployment in areas with other above ground utilities and buried deployment in areas with other underground utilities. Salt Lake City is estimated to have 80% of its current utilities above ground.

UTOPIA may result in an increase in City revenue.

There is not a separate analysis from either UTOPIA or the Administration that details what possible benefits increased competition may bring to Salt Lake City. It is possible that the installation of a carrier class fiber network will result in an increase in franchise fee revenue and on-going expenditure savings for City departments.

UTOPIA may create economies of scale compared to Salt Lake City constructing its own fiber network.

If Salt Lake City built its own network, it would undoubtedly save on bond interest costs over UTOPIA's bonding because of the City's past favorable bond ratings. The City would also own the network, have more control over its management, and could use it for City purposes. This approach has not been formally reviewed to date, although two Council Members have asked related questions.

It can be argued that a multi-city network can create economies of scale. The larger number of homes and businesses connected by a single network will create a significant market for advanced communications perhaps not possible with a single city. UTOPIA has had interest from multiple service providers that will offer both competing and complementary services. One could argue that construction costs of a larger network can also result in cost savings over smaller single-city networks because of volume. Given the bidding process, reasonable construction costs could also be available to an individual community.

The UTOPIA network will provide more advanced options than are currently available.

According to UTOPIA, the initial offerings by service providers will include broadcast video, telephone, and Internet access. In time, other services are likely to include high definition video, video on demand (renting movies to watch at your leisure without going to the video store), expanded home security, telemedicine (including always-on medical monitoring), interactive (real time video) distance learning,

<p>City Council Members have consistently expressed interest in moving toward underground utilities. The estimated cost of underground deployment is \$19.32 per foot compared to \$6.44 per foot for aerial deployment. If the Council elects to support UTOPIA a policy discussion about whether to support the above ground approach or whether to request that it is revised to include an underground approach for Salt Lake City may be in order. Of course, this would result in a significant increase in the cost to build the network and would also increase the amount Salt Lake City is asked to pledge to guarantee the bonds.</p>	<p>high quality graphics video gaming with competitors around the world, telework (real time collaboration with team members using video conferencing and instant file sharing capabilities), and full screen video phone service. Multiple competing and complementary services will provide residents and business owners with a variety of choices for their telephone, video, and internet service providers.</p> <p>The network will provide more advanced options for telecommuting and interactive distance learning. The network will enable hearing-impaired customers to hold fluid conversations in American Sign Language using full-motion video phones. Any family protections available under current entertainment and Internet services, such as filtering and parental controls, will be available.</p>
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Structure of UTOPIA

UTOPIA is an interlocal governmental agency formed in 2002 under Utah law by 18 cities: Brigham City, Cedar City, Cedar Hills, Centerville, Layton, Lindon, Midvale, Murray, Orem, Payson, Perry, Riverton, Roy, Salt Lake City, South Jordan, Taylorsville, Tremonton, and West Valley City. UTOPIA as a governmental agency must abide by open meetings laws and other applicable laws governing decision making.

The board of directors of UTOPIA is made up of one representative from each city. The board of directors are Rocky Fluhart, Salt Lake City; Wayne Pyle, West Valley City; Jim Reams, Orem; Alex Jensen, Layton; Janice Auger, Taylorsville; Daniel Snarr, Murray; Christopher Davis, Roy; Matt Shipp, South Jordan; Lee King, Midvale; Mark Cram, Riverton; Jim Allan, Cedar City; LouAnn Christensen, Brigham City; David Gill, Centerville; Todd Wilson, Payson; Ott Dameron, Lindon; Richard Woodworth, Tremonton; Brad Sears, Cedar Hills; and Ed Skrobiszewski, Perry.

Officers and employees of UTOPIA are at-will appointees of the Board of Directors.

- Paul Morris – executive director (salaried by West Valley City with reimbursement contingent upon bonding)
- Roger Black – deputy executive director and chief operating officer (\$6,000 per month salary)
- Dave Shaw – general counsel (salaried by Murray City with reimbursement for actual UTOPIA time contingent upon bonding)
- Cindy Patterson – office manager (Paid by UTOPIA at same salary as when at WVC on loan from West Valley City at same salary)

The benefit to officers and employees, if UTOPIA is successful, is the possibility of an ongoing salaried relationship with UTOPIA. The board of directors has not offered bonuses or other financial incentives. Any future salary increases would be under the control of the board of directors. If the project is successful, the officers could realize some enhanced marketability in their professions or recognition as experts by their peers. UTOPIA's offices are located in Murray. The network will be owned by the citizens, through their local governments and interlocal government agencies.

UTOPIA's consultant, DynamicCity, conducted a preliminary assessment and a feasibility study. DynamicCity's offices are located in Lindon near where UTOPIA's command center is located. UTOPIA also contracted with DynamicCity to manage deployment of the network. If cities approve the guarantee of UTOPIA's bonds, DynamicCity will gain significantly because of its contract to manage the deployment of the network. If UTOPIA is successful, DynamicCity will have the potential for future business opportunities.

The feasibility study cannot be classified as an independent study due to DynamicCity's ongoing consulting relationship. Therefore, the Board of Directors instructed UTOPIA to contract with an independent firm, Dean & Company, to verify the study. Dean & Company concluded: "While not without risk, the feasibility of UTOPIA is robust, and the plan is well-structured to create and capture value from the proposed investment." Dean & Company provides independent analysis of investment proposals. Documentation relating to their firm indicates that they recommend a very small percentage of the projects they analyze.

The consultants noted two key areas of additional leverage with regard to the implementation of the project: managing execution risks and strategic focus on several factors that are key to maximizing the economic value created by the project. The first key area noted such things as: starting with a small test cell, expanding to a stage two build-out pace before ramping up to full-speed build and monitoring and adjusting efficiency and effectiveness metrics at each stage. The latter key area of leverage notes several factors to focus on such as: local/community advantage, unique fiber to the home - intensive applications and serving the business community.

Dean & Company does not have any future direct financial interest in the project.

Several other companies have been awarded contracts that are contingent upon bonding:

- Tetra Tech Construction Services, Inc. – fiber deployment to the boundary of every property
- Allied Telesyn – access portal boxes for inside of homes or businesses
- Communications Technology Services, Inc. – wiring from boundary to the portal device inside each home or business
- New Basis – provide approximately 12 huts or vaults - roughly one per community
- Pfannenberger/Hydal – neighborhood cabinets (one per 1000 homes/businesses)

- Riverstone – switches at central operations center & distribution switches in neighborhoods
- Tyco Electronics – fiber management devices (one on a pole for every four to six addresses or one in the ground for every two addresses)
- Amino Communications LTD – video gateway boxes (small box near TV)
- AT&T – first provider of services

It is Council staff's understanding that these contractors were selected based upon an open bidding process in the same manner a municipality would select contractors.

Wholesale model

Over 200 U.S. communities provide municipal broadband services. Many of these communities are also electric power providers and offer cable TV or Internet services on a retail basis. Under the retail model, the government markets and provides the services and bills the customers (usually on a combined municipal bill that includes electricity, water, etc.). Under Utah law, the retail model is not available to government agencies for telecommunication services. Only the wholesale model is available.

UTOPIA's fiber optic telecommunications infrastructure will operate as an open service provider network after the first 9 months. UTOPIA will not provide retail service. Each service provider will market and bill its' own customers.

UTOPIA will charge a wholesale usage fee to service providers based on their use of the network. The actual fee amount will be based on the kind of connection. For example, the fee that AT&T will pay UTOPIA for each telephone connection is fixed whereas the fee for a 10 Mbps data connection includes a base fee and a fee based on the amount of usage. The fee schedule associated with the AT&T contract is proprietary. UTOPIA will use the fee revenue to pay for the operating expenses and debt service obligations associated with building and maintaining the network.

AT&T is the first service provider to commit to offering services over the network, and according to UTOPIA and the contract with AT&T, others service providers will be able to offer services after a period of 9 months.

Fiber and other technologies

The following table illustrates the differences in speed among various communications technologies. It shows how much time it would take to deliver the digital information contained in a typical DVD movie.

Time to Download a Typical DVD Movie (5 gigabytes)	
Industry Standards	Download Time
Dial-up Modem (56.6 Kbps)	8 days
DSL (256 Kbps)	43 hours
Satellite (400 Kbps) – service is one-way	28 hours
SDSL (1.5 Mbps)	7 hours
T-1 (1.54 Mbps)	7 hours
Wireless 802.16 (2 Mbps Kbps) – early testing stage	6 hours
Cable Modem (4 Mbps)	3 hours
Fiber T3 (44.736 Mbps)	15 minutes
Fiber OC-1 (51.84 Mbps)	13 minutes
Fiber OC-3 (155.52 Mbps)	4 minutes

Kbps = kilobits per second

Mbps = megabits per second

The Federal Communications Commission defines broadband as any connection that can either download or upload data at speeds exceeding 200 kilobits per second. In some markets (not currently in Utah), DSL speeds of 8 mbps are available. In some markets, coaxial cable allows speeds of up to 10 mbps. Fiber technology allows more than 1,000 mbps, but UTOPIA is proposing 100 Mbps to each home, with the option of purchasing higher throughput if needed. It is anticipated that in the UTOPIA service area, 93% of the subscribers will choose the 100Mbps service and 7% the 1,000Mbps service. Fiber is currently available to businesses by several private providers including Comcast and Qwest, but pricing generally precludes access by residents or small home businesses.

Benefits of UTOPIA to Salt Lake City residents and businesses

According to UTOPIA, the initial offerings by service providers will include broadcast video, telephone, and Internet access. In time, other services are likely to include high definition video, video on demand (renting movies to watch at you leisure without going to the video store), expanded home security, telemedicine (including always-on medical monitoring), interactive (real time video) distance learning, high quality graphics video gaming with competitors around the world, telework (real time collaboration with team members using video conferencing and instant file sharing capabilities), and full screen video phone service. Multiple competing and complementary services will provide residents and business owners with a variety of choices for their telephone, video, and internet service providers.

UTOPIA announced that all consumers will benefit from increased competition resulting in lower prices, multiple choices for service, faster data delivery and clearer phone conversations or TV reception.

A trend toward home-based business and telecommunicating is facilitated by higher speed computer access.

Take rates

According to UTOPIA's feasibility study, by the fourth year of operation 30% of households and businesses are expected to sign up for at least one service over the network (phone, TV, Internet, video, etc.). The break-even point is 30% after seven years.

The independent study by Dean & Company to verify the feasibility study included a comparison with the municipal networks of Cedar Falls, IA; Harlan, IA; Newman, GA; Scottsboro, AL; Ashland, OR; Tacoma, WA; and Glasgow, KY. The average take rates of these municipal networks were 45% after four years. Dean & Company concluded that given the experience of other municipalities, UTOPIA's predicted take-rates over time are feasible.

Most of other U.S. communities providing services over a fiber network are electric power providers. Some communities offer one or two services such as cable TV and Internet services, but do not have business plans similar to UTOPIA's plan. Therefore, it is difficult to have a true comparison. Representatives from Qwest and Comcast stated that the take rates are too high compared to their experience. Individuals who are critical of the UTOPIA approach have asserted that the take-rate estimates are high and they question whether the cities in the City are comparable to Salt Lake City's situation with an existing fiber backbone in the central business area.

Cost of materials and installation

UTOPIA asserts that construction costs are fixed because contracts are in place. These contracts include firm unit prices such as price per foot of aerial and price per foot of underground. The fixed costs include labor, fiber and electronics. The number of units may vary from the projections based on preliminary surveys, which would result in costs differences for UTOPIA. The contracts include some options for adjustment within limits. For example, a minor change in work may be agreed to without invalidating the contract. There are clauses in the contracts that make allowances for unforeseen contingencies. UTOPIA indicates they have included consideration of these contingencies in both the budget computations and contract language.

There was some disagreement at the fact-finding meeting regarding the cost of the network. UTOPIA's original cost estimates for fiber were less than what Comcast and Qwest pay for their fiber, but UTOPIA affirms that the cost for fiber is irrelevant now that a firm unit price contract is in place, which includes all materials including fiber.

Dean & Company stated that UTOPIA's planned fiber construction costs are consistent with their experience. The report also stated that UTOPIA's projections for total capital cost per subscriber are in the range of other fiber networks.

UTOPIA plans for aerial deployment in areas with other above ground utilities and buried deployment in areas with other underground utilities. Salt Lake City is estimated to have 80% of its current utilities above ground. The Qwest representative questioned this estimate and emphasized the trend to place more utilities in the ground.

City Council Members have consistently expressed interest in moving toward underground utilities. If the Council elects to support UTOPIA a policy discussion about whether to support the above ground approach or whether to request that it is revised to include an underground approach for Salt Lake City may be in order. Of course, this would result in a significant increase in the cost to build the network and would also increase the amount Salt Lake City is asked to pledge to guarantee the bonds.

Pledge amount and triggering event

Salt Lake City's estimated pledge amount is \$4,104,505 per year over the life of the 20-year bonds. Since interest is being borrowed for the first two years and since the bond proceeds will also include a reserve fund, the actual liability is for 17 years.

The pledge will be triggered if UTOPIA cannot make its entire bonded debt obligation. If this occurs the trustee will pay the annual debt payment from the reserve fund. Cities will then have one year to restore the reserve fund.

Cities are being asked to pledge sales tax revenue, but if a default occurs cities could pay the pledge by cutting services or raising revenue such as an increase to property taxes. If Salt Lake City raised the pledge amount through a property tax increase, it would cost Salt Lake City taxpayers about \$26 per year on a \$175,000 home, and it would cost a one million dollar business \$268 per year for 17 years. UTOPIA has also expressed the pledge amount as a monthly cost per month for every household and business. There are 181,740 households and 13,890 businesses within Salt Lake City, which equates to \$3.76 per month for each household and business if UTOPIA fails with all money spent and no salvage value. The estimated cost to taxpayers assumes that the system is fully built-out and is not producing any revenue.

There is not a separate analysis from either UTOPIA or the Administration that details what possible benefits increased competition may bring to Salt Lake. It is possible that the installation of a carrier class fiber network will result in on-going expenditure savings for City departments, an increase in franchise fee revenue and economic and social benefits to the City.

Current availability of broadband

Salt Lake City is fortunate in that it has a fiber backbone that will allow almost any business to be connected at any speed. Fiber services are prevalent in the downtown area, International Center, Research Park, and at the University of Utah.

Comcast indicates they have a fiber infrastructure to most every neighborhood in Salt Lake City. When a business desires a fiber connection, the business pays the contractor's price for running the fiber after several bids are obtained. Business can pay Comcast over time if necessary. One-time installation costs will be different for each individual business. One recent example was 750 feet of underground fiber and 1573 feet of aerial fiber for a cost of \$2,090. Council staff understanding is that Comcast's monthly costs are as follows:

- DS3 45 Mbps \$700-\$1500
- 100 Mbps \$2800-\$3500
- 1000 Mbps \$6000-\$8000

Qwest also provides fiber to businesses. The cost for each business depends on the circumstances. Each business enters into a contract – the length of which is designed to recover the costs of bringing in the fiber.

As of the completion of this report on Friday afternoon February 27, 2004 Council staff had not received requested information from Comcast. Qwest's information was delivered in the afternoon and so it is attached for your information but has not been reviewed by Council staff.

Dark fiber/Insolvent Ventures/Community Broadband

Over the past decade, many telecommunication companies have gone bankrupt. It has been noted in the comments to Council Members that because of the risky nature of telecommunications that municipalities should not be in the business of providing such services, yet during this time, a number of municipalities and county have entered the telecommunications arena. Many of the reasons given for providing such services is that there is not a cost effective alternative and that the incumbent providers will not provide services that meet minimum service standards that the community has enacted for economic and social reasons.

There are approximately 570 cities in the United States who provide their own telecommunications or community broadband services. Many of the cities follow the wholesale business model of providing the network infrastructure and allowing service providers operate on their system. Cities provide fiber leasing, internet access, local and long distance telephone, video and television content or a combination of all of these. There are cities in Utah that have installed and operate their own retail telecommunications services because they feel they were left without another cost effective alternative.

There are a variety of factors for companies who have entered the telecommunications field and not been successful. There are also companies and municipalities who have entered into the field as a provider of last resort and have been successful in their venture.

cc: Rocky Fluhart, Ken Cowley, Steve Whittaker, DJ Baxter