# Broadband In Urbana

- Overview (Sunshine with scattered caveats towards morning)
- Successes And Failures (With a brief synopsis)
- Consistent Messages
- Takeaways (with flowcharts)
- Where Does The Money Come From (More charts, sorry)
- What The City Can Do
- Conclusion
- Acknowledgements

# Overview



- The **good news** is as I outline later all things are achievable.
- The bad news is it may take me a little while to explain it.
- Over the next 10 to 12 hours I hope we can explore the wonderful world of fiber.
- I have interviewed, reviewed, requested and collected financial documents, minutes, franchise agreements, construction agreements, organizational documents, and scoured websites and supporting news.
- I have examined a vast array of institutions both large and small with differing levels of sophistication and operational models. I have included a number of them as examples of the many more just like them or because of their uniqueness.
- In this document I have used text directly from a number of websites to try to convey an organization's message untainted.
- Included are snippets of information that I have then summarized into a synopsis.
- I then coalesced this into consistent messages.
- I then ran it through my personal filter and created some takeaways.
- I used this information to create flowcharts and graphs to more easily (or not) convey some of the core principals and the decisions that Urbana may consider.
- Then we conclude!

# Successes and Failures



- Review of Cities with Major Broadband Projects
- UTOPIA in UT
- ONECommunity in OH
- Chattanooga TN, EPB (Electric Power Board)
- Danville VI, nDanville
- Renville-Sibley, MN  RS Fiber
- OpenCape in MA
- OSHEAN Rhode Island's Research & Education Network
- Carver County, MN  CCOFI (Carver County Open Fiber Initiative)
- Northern IL University iFiber
- Memphis Networx
- Sandy Oregon  SandyNet Fiber
- Cook County MN with Arrowhead Electric Coop (Synopsis only)
- Google  Kansas City Project  (Synopsis only)

# UTOPIA



2002, 11 Utah cities pledged sales tax revenue to form UTOPIA in an open access network. 16 cities now belong. Government Authority Model (Utah Telecommunications Open Infrastructure Agency)

Utopia is an organization that has **net assets of negative $120 million** after ten years of operations. The 11 cities issued **$185 million in bonds**

Customers may pay **connection fees of $3,000** over time by signing a contract with "the" city, which is attached to the property as a notice of interest.

UIA (The Utah Infrastructure Agency) is **a separate entity that the member cities formed** to grow the UTOPIA network and provide more oversight on the growth of their community-owned fiber optic network.

2012 Legislative Audit focused on **4 points of poor management** and suggests there might be a lack of demand in the market for UTOPIA's fiber-to-the-home technology. UTOPIA feels otherwise. Per UTOPIA there were over 10,000 inquiries this year from people interested in obtaining services over the network in the 16 member cities.

# OneCommunity



Established as nonprofit open-network in 2003

OneCommunity is a **501c3** with a profit spin off. As they evolve their model may evolve but the **tax effect has been negligible**.

The fiber-optic broadband network, covers almost **2,000 miles** around Northeast Ohio and connects more than **2,300** public institutions such as hospitals, schools, libraries and government offices.

Their model **does not** include a significant FTTP. (100 residence Case Connection Zone for a university)

Two build out grants totaling $125 million were rejected

One grant for $18,701,771 was granted for digital divide issues to provide training for 33,000 people in 5 states. It appears that mobilecitizen provided connectivity to some with a prepaid air card through CLEAR providing 1 to 8 mb of connectivity as a part of the grant.

The Port Authority of Medina County, Ohio, bonded $14.4 million connecting community anchor institutions and businesses

The port authority, which will own the network, plans to pay off the bonds over the next 20 years with fees charged to customers of the fiber network.

OneCommunity will build and presumably operate the Port Authority network, which is owned by the County, for the next 5 years.

# Chattanooga TN EPB



Chattanooga EPB is a not for profit company of the city

**Used 111 million federal grant for smart grid to fund FTTP**

Closed system and provides expensive triple play

Leverage electrical system for all aspects of support

EPB installs system to house

**Sued by Comcast and TCTA unsuccessfully**

$**230 million bond issue**, $180 million would pay for fiber-optic lines and electronic controls for the first 80 percent of the smart grid in the most populated parts of EPB's service area.

The remainder of the bond issue would pay for normal electric equipment such as poles and transformers.

# Chattanooga TN EPB continued



Comcast and the Tennessee Cable Telecommunications Association (TCTA) each **unsuccessfully sued** EPB in the past year. Both claimed EPB was using its electric system revenues to **illegally subsidize** its new residential telecommunications services.

Most of the cost of EPB's fiber-optic network is being absorbed by current electric ratepayers not future cable TV customers. But EPB officials said that's because the fiber network will improve the connections and reliability of the EPB electric grid and allow the utility to **install "smart meters".**

In television ads that aired last month, the state cable TV association urged citizens to call on the Chattanooga City Council to exercise caution about EPB's plans.

The ads highlighted the failure of another telecom venture involving the Memphis Light, Gas and Water division. That municipal distributor of TVA helped launch **Memphis Networx** in 1999 but ended up having to sell the venture at a $**28 million loss** in 2007.

# Danville VA, nDanville



**Open Access**

Division of the Utilities Department includes electrical

Complete installation to the home

No pushback from incumbents

Began in 2004; started providing access to business in 2007

44,000 electric customers largest provider in Virginia

Gamewood is the **only service provider** currently making use of nDanville's open system to reach the FTTP customers

By 2011 over 150 businesses are connected and IKEA located its first US manufacturing facility there.

Danville recognized by the Intelligent Community Forum as a Smart21 City in 2010, 2011 and 2012. From 2009 to 2012 only 6 from the US each year.

# Danville VA, nDanville continued



Danville was the first municipality to deploy a fully automated, Layer 3 open-access network; nDanville, with more than 135 miles of fiber, passes more than 1,000 business locations, including every parcel in all five business parks. Current customers have access to 100 Mbps fiber connections capable of delivering a wide variety of services, and 1 Gbps and 10 Gbps connections are available upon request.

Quote: The city does not sell broadband services such as Internet, phone service or TV but operates the broadband network as a "**public access digital roadway**." As with conventional transportation roadways, the city builds and maintains Danville's digital roads, but private businesses use the system to deliver broadband services. This approach creates broad opportunities for Internet service providers, which can offer a wide variety of services on the network for very low cost. Gamewood, a local service provider, has been a major beneficiary of the effort.

Danville's FTTP Progress: Initial project in 2010 was **3,000 homes** at an estimated cost of $2.5 million. By 7/6 2010 Homewood (local vendor) had sent out 1100 contact cards and received back 220 with a 85% favor rate. So 85% of 20% (187) cared enough to contact. This **did not impress the Council**.

# Danville VA, nDanville continued



Danville Utilities planned to run the broadband services to the homes, the **user would pay a monthly service fee** of $8.80 on their utility bill for the box (in 2010). **Gamewood** would bill customers for the actual services provided, and **pay the city 20 percent of those charges as an access fee for the cable.**

In October of 2010 Council changed the goals to 530 homes and businesses in one compact area. These were to be in ground and aerial. This apparently failed to pass Council.

In 2012 Council approved a 250 FTTH home project in the same concentrated area. The pilot project is expected to generate a positive cash flow by the sixth year of operation. **nDanville still plans to cover the costs to the home.**

Gamewood costs are normal what the market will bear pricing**. Internet** 20 down 4 up **$64.95. VOIP $25.00 IPTV $13.95 to $59.95**

This is a revenue driven **organic** build. Note the large electrical company component.

# Renville-Sibley, MN RS Fiber



Network is to be owned by the 11 participating towns and 2 counties. Operated under a structure called a **Joint Powers Board**. All are government entities and share the bonding authority.

No legal issues or incumbent pushback.

**Closed network to 8,000 homes** 70 million in revenue bonds; 50 million to build and 20 million to hold it for the 3 years and cover debt service reserve.

Private operation.

Doug Dawson has been working on the financial model. The necessary subscriber percentage to break even is **64.5 percent** of households.

Expected Standard Package Price of Triple Play:
**$100** for telephone, 20 megs of up and down Internet and 80+ channels of digital video.

# OPENCAPE



A public-private model was structured for the operation of the network and Regional Collocation Center. **CapeNet LLC** has been licensed by **OpenCape a 501c3** to operate and maintain the network. Business and government entities will contract with CapeNet for services.

$32 million BTOP grant with $8 million match

**No FTTP**

OpenCape will connect over 70 anchors and pass another 300.

OpenCape Corporation will own the physical assets of the network and Regional Collocation Center.

$32 million BTOP grant with $8 million match to construct a fiber optic backbone on Cape Cod with extensions to two major regional network connection centers in Providence and Brockton, a microwave radio overlay that includes Martha's Vineyard, and a regional collocation center in Barnstable Village.

# OSHEAN RI
# Research & Education Network



Founded in 1999 OSHEAN is a non-profit coalition of 24 universities, hospitals, government agencies, and other non-profit organizations

**Open system**

**Non for profit coalition**

BTOP of $21,739,183 for project Beacon 2.0

Beacon 2.0 to connect up to **50** community anchor institutions, with the capability to serve approximately 500 additional anchor institutions.

Beacon 2.0 network proposes service speeds between 1 and 10 Gbps.

Construct 339 miles of new fiber and incorporate 90 miles of existing fiber. Potential to facilitate affordable and accessible broadband service for up to 349,000 households and 8,000 businesses by **enabling** local Internet service providers to utilize the project's open network. **No actual FTTP component**

# Carver County



**Open Access**

**Division of Administration** department in the county.

$7.5 Million project with 6 Million BTOP to connect 86 anchors at 55 locations in 11 cities.

89 mile base ring with 33 miles of laterals placed in optimal locations for expansion

3 Fiber distribution huts

**Private Public partnership** with private partner handling all operations

**FTTP through private companies** but they will need to finish build out on their own dime.

# Northern IL University iFiber



**501c3: Plans to use series of joint ventures for projects as necessary**

$46.1 million dollar Federal, $15 million State

**All grant assets owned by the 501c3**

711 miles of new fiber and incorporate 233 existing miles

**No grant funded infrastructure flowing through campus all interconnects**

533 anchor institutions with capability for 130 more

Project also plans to upgrade the core infrastructure for Illinois Century Network, the state's educational network, and interconnect with NIUNet and Northern Illinois Technology Triangle, enabling 10 Gbps service for manufacturing and technology parks.

**No FTTP component**

Open access so outside vendors could use **if they did their own build out**

# Memphis Networx



In 2007 Memphis, Light, Gas & Water (MLGW) announced that the directors of Memphis Networx had agreed to **unload it for $11.5 million**. The Networx board consisted of three representatives from MLGW and three representatives from the group of private-sector investors that helped finance the company. Documents indicate that $**29 million was invested by MLGW alone and the cash return to MLGW was $994,000.**

50 firms were contacted last winter about buying the venture. Communications Infrastructure Investments (Zayo) made the highest offer.

The Networx board recommended selling Networx at this time because it was believed that a public/private partnership was an impediment to securing additional capital and that we needed to be honest with ourselves and the respective partners as to what the market value was," he said.

They showed that the Networx venture - the goal of which was to build a county-wide network for telecom users - was **not just broke**. Even short-term financing wouldn't help bridge a looming financial chasm.

This, from a business that approached the Memphis City Council two years ago hoping to keep its spigot of public funding turned on and forecasting that the venture would finally break even that year.

# Memphis Networx continued



In reality in early 2005 a consultant hired to perform a fair market valuation of Networx came back with some unpleasant news.

Moreover, it was news that council members apparently weren't made aware.

The consultant, Doug Dawson - president of CCG Consulting Inc. - found that Networx, was overstaffed, paid exorbitant salaries, and had more overhead than necessary. Dawson  believed that the company had overvalued itself by about $5 million and was aggressively over-budgeting.

"My first observation included too much staff and I took exception to the company's future forecast. Even though companies in the same boat as Networx generally operate on **thin profit margins**, Dawson went on, the fledgling telecom venture nevertheless rewarded its executives with fat paychecks and bonuses. “Memphis Networx pays about the highest commissions I have ever seen anywhere”.

# Sandy Oregon SandyNet fiber



Not for profit

Closed system from all appearances on the offerings at there website.

For the past year, the Sandy City goal was FTTH project that would be self-supporting and would allow them to offer 100 to 1000 Mbps fiber service for under $40/month.

The Cascadia Bornstedt neighborhoods were the winner of the "Why Wait For Google" contest,“. **Couldn’t get the numbers to work** for the combined Cascadia/Bornstedt neighborhoods.

Originally worked with Fibersphere to only serve the (more dense) Bornstedt Village. That came closer, but left nothing for contingencies. The concern was if it was difficult to make it work for probably the easiest-to-serve neighborhood, how would we be able to serve the rest of the city?

The Chelan Public Utility District in Washington is offering 100Mbps fiber service for $40/month, but they’re able to leverage their existing electric utility infrastructure (poles, easements, etc). My note: Chelan is an open system backed by electric component.

We asked ourselves: do we have any similar assets that we could use to reduce the cost of fiber in existing neighborhoods?

# Sandy Oregon continued



SandyNet and Public Works staff joined together and looked at several options for using our network of storm and sanitary sewer pipes, as well as using the same kind of micro-trenching technology that is used to place traffic detection loops at signalized intersections.

i3 America has patented a technology that allows fiber optic cable to be placed in sewer pipes. On June 20, 2012, i3 America, met with SandyNet and Public Works staff and proposed to build a fiber network that would serve every building (home and business) in the city. They would be able to do it at a cost (to the city) of $30/month for the fiber system, leaving us $10/month for Internet access costs, customer service, and other system management costs.

The reason they were able to do that is the use of our existing pipes as conduit significantly reduces the cost of installing the fiber.

On July 16, 2012 the City Council approved a Memorandum of Understanding with i3 that commits both parties to try to work toward a final agreement.

# Sandy Oregon continued



Sandy did financial projections indicating the model **may work**. To quote “There are some risks, but on the other hand, **if we could pull this off, it would be an amazing** service to be able to offer our residents and businesses”.

The projections assume that at **least half the households in Sandy will subscribe to the service, and that those who don't pay a small monthly fee (about the cost of a cappuccino) for having a "fiber-ready" home** (some **studies** have estimated that the availability of fiber Internet service can **add $5,000** to the value of a home).

The agreement guarantees i3 $30 a month at a 50% take rate for 10 years. At the end of 10 years the city will have the ability to purchase the system for the Fair Market Value of the system. Where this money comes from is a different question. Sandy Oregon may never want to buy and own their system. The City may want to just try to extend the contract and if they feel that serves the citizens needs that is a great solution for them.

**Triple play at 100 mb 104.99** after 12 months and **speeds are up to**. But 100mb for 39.95 is the real draw with a Gig for $60 more.

# Synopsis



- Utopia has attempted to reinvent itself and the current model provides hope to the communities holding the bag. Note the **cities are taking a much more aggressive interest.**
- OneCommunity is a sophisticated organization that goes beyond just infrastructure. They provide design and implementation expertise to current and potential members. This value added service along with the high speed connectivity makes this model viable. Note **they shy away from FTTP.**
- Chattanooga EPB: **Classic closed system backed by an electrical utility on smart grid steroids.** FTTP is a logical leveraged extension of such a system. The issues of how the fiber is getting paid for will be debated for years.
- nDanville: An open access with a successful small anchor build out. Leveraged on a electrical department. They will cover the costs to the home**. FTTP is being done organically** in very small steps to start. Open access doesn't necessarily mean less cost. **With only one service provider triple play is still pricey.**
- RS Fiber**: Go big or go home**. Combine 13 governmental entities under one board and raise **$70 million in revenue bonds**. No utility to soften the blow or cover your back. A closed network with a $100 triple play. **Needs 65% take rate** but given the area they could get it. No margin for error.

# Synopsis continued



- OPENCAPE: Another sophisticated 501c3 open access with a profit LLC. to run it. Currently interested in anchors only. **Need to expand** their model to add more anchors quickly.
- OSHEAN is similar to OPENCAPE. OSHEAN leveraged prior fiber into a major upgrade through BTOP. The large portion of anchors passed in relation to anchors connected in this project is interesting. It is **about future acquisition of anchors** with no look towards FTTP except in vague futuristic open access terms.
- Carver County: Open access with a primary focus on anchors. **A true public private partnership** with the private providing the operational piece. Interesting as an open access network with aspirations of FTTP but will let the vendors finish the connections full well knowing the potential for over build.
- Northern IL University: Open access Not for Profit. Large number of players all looking to NIU for guidance. Coming off of a smaller successful project with DeKalb. **Not looking to deal with FTTP** at this time unless vendor performs own build out.
- Memphis Networx: Only worth mentioning as an example of an organization run on a dream **without adequate oversight** and the **disaster** that ensued.

# Synopsis continued



- Sandy Oregon is using a non traditional technology (**sewer pipes**) for delivery. An upside down model where the Not for Profit is running a closed system (higher potential for profit) but partnering with an infrastructure provider who is clearly looking for a specific ROI. **Strengths include much reduced up front cash** and a closed system to tweak profitability. High percentage build out is critical for there success. Their model does not appear to create funding to buy the system after 10 years even though their citizens have paid for at least part of it once already.
- Cook County MN: County did not get a BTOP Award but initiated a 1% sales tax assuming they would. Arrowhead Electric Coop did get an award and plans to piggy back the fiber on the existing electric coop. The Coop is now working with county on details to bring the two entities into a Public Private Partnership.
- Google: A closed model with a build out to the highest committed areas (commitment means money both now and in the future). Redlining **was** an issue for Google. TV is such an impact Google had to create their own set top box to up their take rate. Google wants $300 dollars to connect. This directs build out to those that will most likely continue with expanded services such as their **$120 a month internet and TV**. **As innovative as Google appears to be in most areas of comparison they are no different than a typical closed model with a heavily funded organization behind them**. Usually an electric company but the effect is the same. High penetration to leverage the backbone assets and some big ticket items to create monthly cash flow.

# Consistent Messages



- Without an electrical utility to leverage, FTTP is a more risky model. You need cash up front unless like UTOPIA you charge $3,000 to connect. Note for UTOPIA the customer can spread it out over 20 years so you still need upfront cash to build.
- Open systems without infrastructure backing practically never effectively provide FTTP. It is too difficult to generate a money directed profit model.
- An open system is no guarantee of better prices if your open system does not have competition.
- Organizations such as OneCommunity, OpenCape, and OSHEAH are not government driven but support a large number of institutions. A government entity was never an option for them. They serve governments but were not organized by one. The 501c3 is their only reasonable model for operation, expansion and organizational consensus.
- The Northern project is a 501c3 because of the large number of institutions they support. A 501c3 creates a more workable enterprise when all assets are held by the not for profit, and expansion to other major players is a viable goal. A **properly structured 501c3** and the supporting profit LLC to protect its status would take the least reworking every time a new entity joins since the day to day working structure need not change.

# Consistent Messages continued



- Governments set up government entities. It's what they know. Doesn't mean it's the best solution but it's comfortable.
- No government unit I talked to had a clue about taxes. The 501c3's felt that taxes had not been an issue. Would anyone care to guess why? The only organization with a concern was a coop with the 85 15 rule.
- Most of the older systems were based on existing electric systems. Those may be coops in rural areas or municipal owned systems. Their existing model became the default model for the addition of fiber.
- Closed systems are priced to take what the market will bear for most of their products. That is usually some version of 10% less cost than the incumbent.
- A collocation facility owned by the enterprise has great value.
- The playing field we are hoping to compete on is not level. Only money levels the playing field.
- TV is important for take rate but practically no one wants to build there own Head In. In an open environment this issue is practically nonsensical.
- Businesses run without oversight search out their own core principles. The primary ones being avarice and incompetence.
- Simple appearing negotiations can have large scale ramifications. (Sandy and Albq.)

# Takeaways



- Its not about the bandwidth it's about the monthly fee. Aggregation models will show that like a parking lot I can oversubscribe. Promising lots of bandwidth doesn't mean they will use it. But, it does mean I can charge for it.
- In a model where return is calculated on dollars the monthly fee is King and promise anything to generate a high monthly fee.
- A higher take rate pays back in every reward category.
  - Efficient build out. (saves money)
  - Leverage of support services. (saves money)
  - Leverage of assets already in the ground (saves money)
  - Aggregation of usage (We relearned this lesson recently) and (saves money)
  - Community participation and ownership (positive community benefits)
  - Social and economic rewards driven deeper into the community (positive community benefits)
  - Accelerates future growth potential because it shortens the what if for opportunities (provides money and provides positive community benefits)
- Almost all open systems provide connectivity to anchor institutions only.
- In an open system the concept of digital roads becomes more meaningful. (The realignment of what reward means)

# Takeaways continued



- Organizations could use an open system to provide high speed internet to their staff or Coop member as a service provider if they so choose.
- Coops build slowly but create loyalty. Places risk, reward, and control directly on members.
- Organizationally we are better off with the U of I and Champaign than without. The costs and difficulties of extraction would be painful and we would lose the economic leverage that a larger system brings to bear.
- In any joint venture the type of organization has much less impact than the relationship between the members.
- Who appoints the board matters.
- The bylaws rule. Take care of the bylaws and you take care of the relationship.
- A well run system cannot serve to many ideals.
- Organizations prefer what they know.
- An open system that has vendors owning the fiber to the home has difficulty being truly open. This is like a private sanitary sewer service owning the connection from the city sanitary lateral to your house. If you don't like the service and hire someone else they must come in and trench your yard and do all separate connections. Heaven forbid they choose to go overhead.
- Multiple vendor partial build outs has a number of issues.

# Takeaways continued



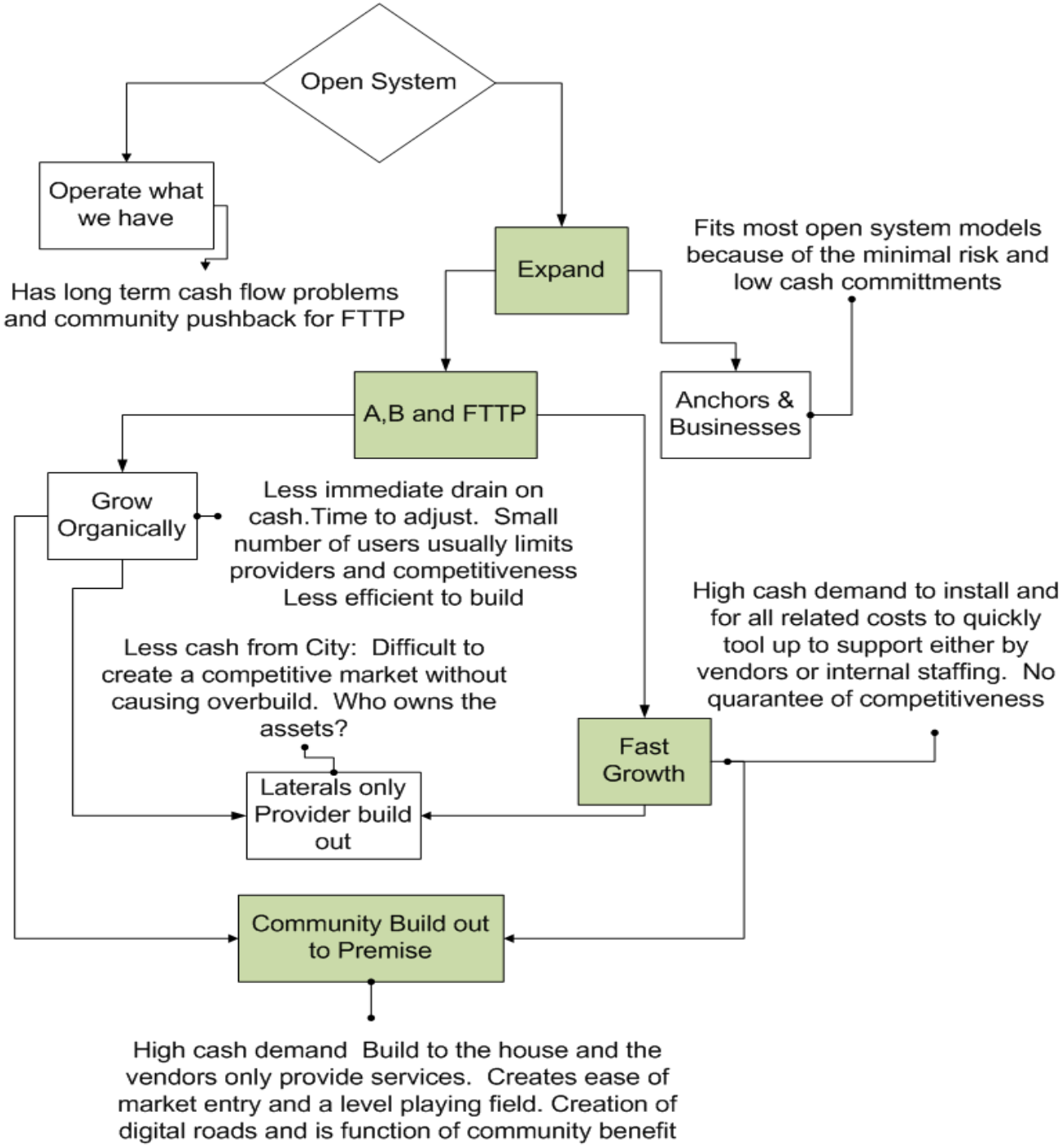
- If users pay to connect they should own the connections.
- If all the wonderful things I have heard about why communities need fiber is true then this isn't about the money. This is about investment in the community and then about the money.
- If a organization is run with both sustainability and customer value in mind then investments are reasonable to make.
- **Organic build outs** have a **slower but not lower cost and risk** per capita and the community pushback is strong.
- Because of BTOP money a large number of new entities and new organizational models have come into existence. A number of old attempts are getting new legs because of the increase in awareness. But, they are not proven. They are excellent examples of forward looking methodologies and we will need to learn from them.
- When talking purely about community benefit the first mb is far more important than getting them from 20mb to 100mb. From a social outreach perspective a wireless component has a clear value in a complete community
- The cities and the U of I will **not be able to step away from** the fallout of a poorly perceived FTTP build out even if we can point to an outside vendor. The community sees this as our project good or bad.
- I have **included** some **flowcharts** highlighting these issues.

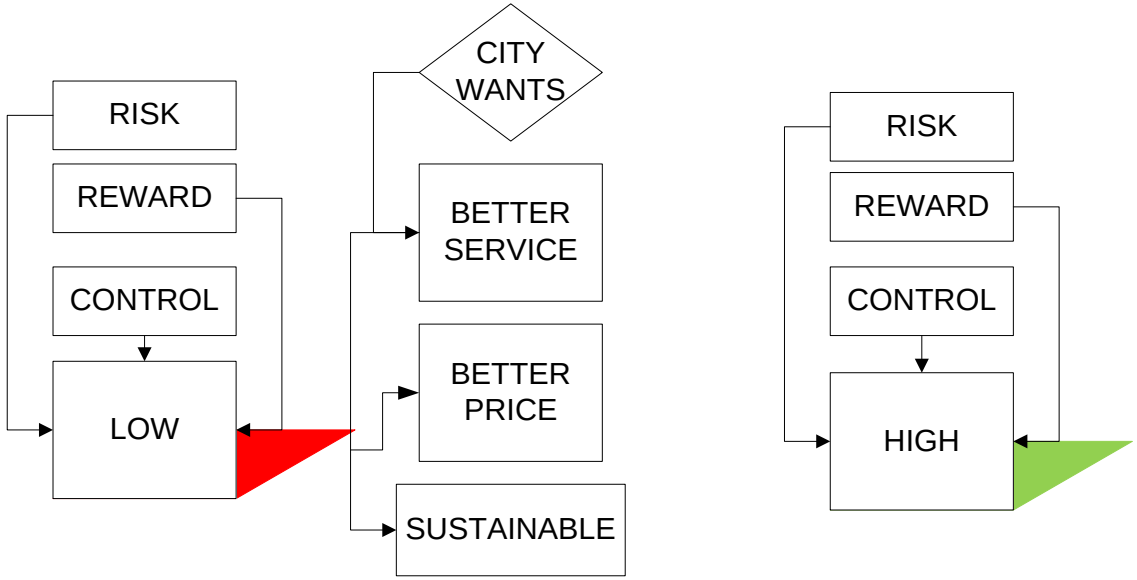
# List of Flowcharts



- A Simple Open System Build Out Decision Flowchart
- B What The City Wants Within Basic RRC Concepts
- C What Does The City Do Begins To Discuss Where We Fall on the RRC Line
- D Summary Graph of Where Do We Fit

# Simple Open System Build Out Decision Flowchart






At what cost both financially and philosophically

Vendor funds build out

Who brings the money

City funds build out

Gain control of citizen destiny

Definition of open level playing field matters

Vendor provides services

Use UC2B since handling anchors anyway

City provides services

Not necessary unless insufficient competition on Internet tier

Waste of assets in the ground

Slow incremental build out

Greater potential to keep money and jobs local if city builds

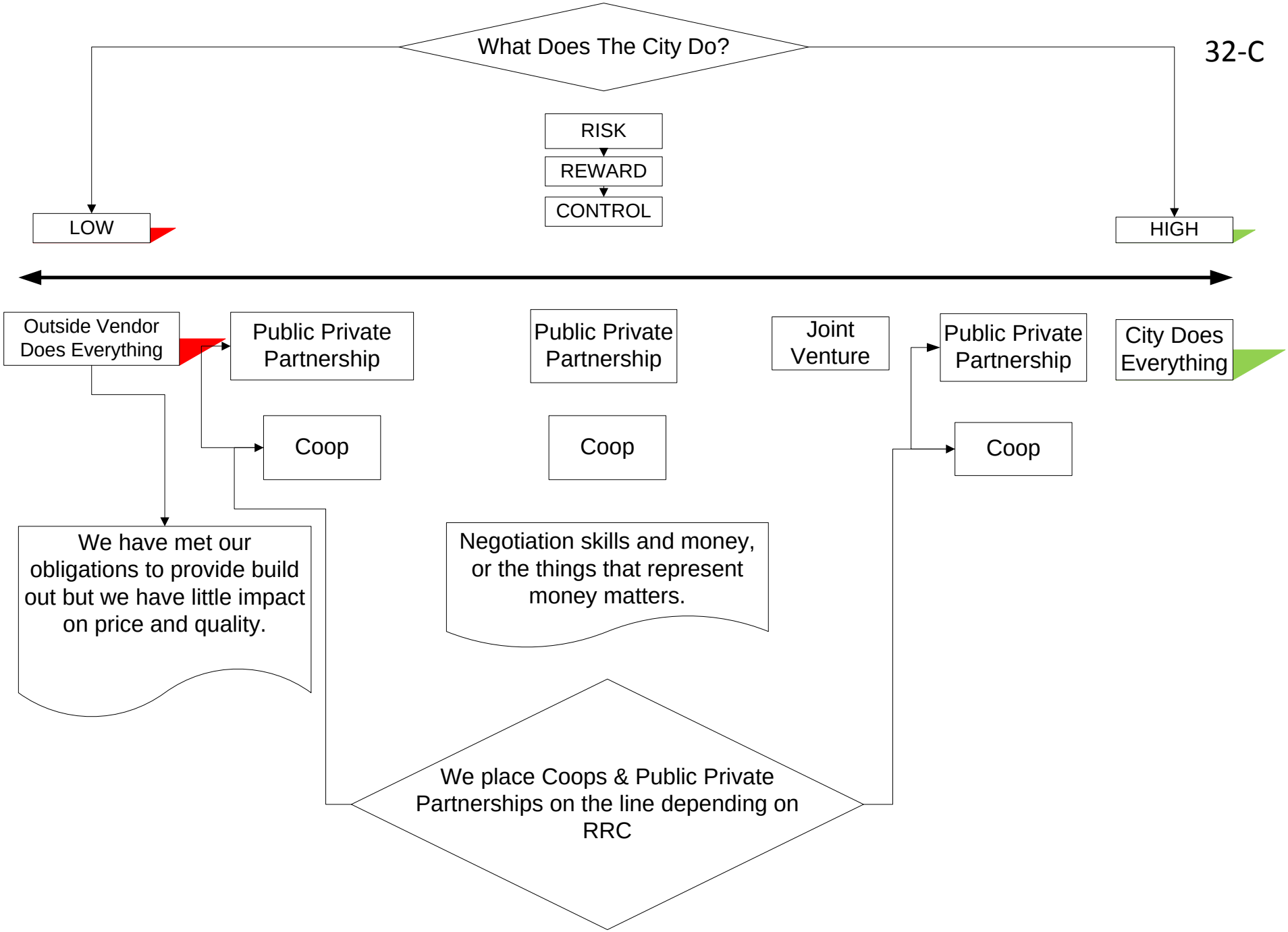
Fast complete build out

Not a likely without city money or an aggressive shift in RRC

Clearly define your reward system

Just because you build it doesn't mean they will come

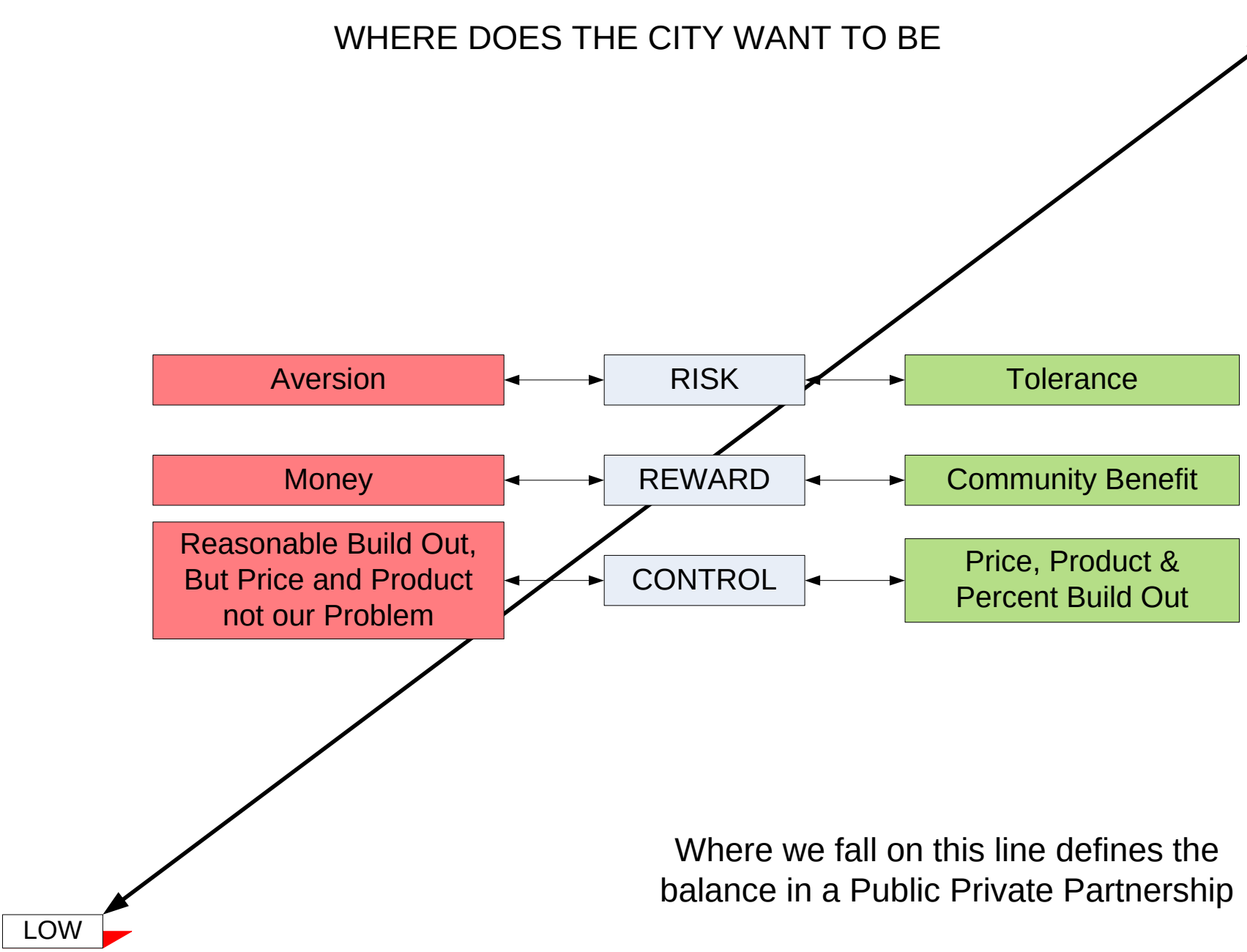
Marketing is critical


What Does The City Do?
RISK
REWARD
CONTROL
LOW
HIGH
Outside Vendor Does Everything
Public Private Partnership
Public Private Partnership
Joint Venture
Public Private Partnership
City Does Everything
Coop
Coop
Coop
We have met our obligations to provide build out but we have little impact on price and quality.
Negotiation skills and money, or the things that represent money matters.
We place Coops & Public Private Partnerships on the line depending on RRC

# WHERE DOES THE CITY WANT TO BE

HIGH

33-D




Where we fall on this line defines the balance in a Public Private Partnership

# Where Does The Money Come From

## Grants, Public Private Partnerships, or Local Funds



•Grants:

As our experience tells us Grants are usually not 100% and they come with rules. Unless the rules are inconsistent with organizational goals grants are good and the more the better. Our citizens benefit since Grants emulate an outside investor with a look towards fostering altruistic goals.

•Public Private Partnerships:

This group is the catch-all, it goes from single source through coops to extremely complicated joint risk funding models. While coops sound public, in the relationship with the City a coop is still a private entity and must be negotiated with in the same manner. In a **level playing field of negotiations** he who has the most risk needs to maintain the most control and reap the greatest rewards.

**Private side provides build out and services:** The only Municipal involvement is the fees we negotiate. Our citizens will cover the brunt through install and user fees. Competition is the citizens problem. We know this model intimately.

**Private side provides build out while the City runs the services:** Sandy Oregon is attempting to put this model into play as we speak. Upside moves major cash commitments to the vendor. Downside is promises made (risk) and If want the system at end of term must pay market rate even though the citizens have already made a major contribution to that investment. Sandy's model does not appear long term sustainable.

# Where Does The Money Come From continued

- Public Private Partnerships continued:

  This section gets into the interesting relationships where the Public side in an attempt to garner more control clearly begins to take on more risk. The open model piece of this has changed the profit dynamic for the private side and therefore increased risk.
  **The public side funds a portion of the build out:** This should create a stronger negotiating position for the public side but the key is to spend your negotiation currency in areas that actually further your goals. Look towards long term pitfalls.

  Public Private Partnerships are expected to be a win win proposition. Each side plays to their strengths and hides their weaknesses. This will either be expertise, access to money or strength of commitment. The expectation is a Public Private Partnership allows opportunities to flourish that neither partner would have accomplished on their own.

- Local Funds:

  The bulk of these funds are usually expected to come from the project at hand. The issues that affect this are:

  **Timing** (immediate large cash needs for build out)
  **Price Control** (for greater community benefit or to accelerate build out operates at a loss. This may be for a short term, long term or targeted)

# Where Does The Money Come From continued



•Local Funds continued:

**Incorrect Assumptions:**

To fast a build out (need more cash up front)
To slow a build out (take rate cannot support commitments)
Failure to take all factors into the equation (permits, physical impediments)
Poor construction modeling (design failure or implementation failure)
Poor financial modeling (unable to accurately predict a sustainable model)

**User Fees**

**One time installation charges**

All up front
Pay over time

Some version of installation charges usually happens no matter who installs the system. The good side is it creates commitment and is a strong indicator of users that will subscribe to higher level services in the future. The bad side is it can become a barrier to entry.

**Monthly Fee for services**

Transport; In an open system this area is the most interesting from a digital road community infrastructure perspective. Ultimately paid by the consumer.

Product; Closed systems control the product. We should be interested in providing bandwith only if the vendors were not competitive.

# Where Does the Money Come From continued

- Local Funds continued :

  **Right of Way Fees**: Usually negotiated away (value received)

  **Franchise Fee:** Can be complicated in calculating what to include.

  Albuquerque got it done but it's a closed system and FTTP doesn't really exist yet in any scalable numbers.

  **Tie it to a Utility:** Leverage capital and operations (not an option)

  **General Fund:** Might be good for short term shortfalls or timing issues but implies community benefit priorities without actually addressing them.

  **Revenue Bonds**: Bonds are not really a source of funds in the simplest of terms. Bonds provide accelerated timing of funds. Many communities say they are paying for it through the Revenue Bonds backed by the revenues of the system. Therefore **the community is not at risk** since the system will pay for it. But if they default on the bonds they lose the system. For the cities out there right now with a short fall in revenue what is actually going to cover that bond payment. That is the real source of the funds.

  **TIF District Funding:** Only available for the area in the district

  **General Obligation Bonds:** Same as above without the specific tie to revenue. The reality is your goal is to still pay the bonds with the revenue stream. Should be able to get a better rate than Revenue Bonds.

I Believe that if bonds are sold an attempt should be made to **sell locally** to allow citizens a chance to invest in their community.

# Where Does the Money Come From continued

**Raise Taxes: (These issues fall under the community good discussion)**

**Food and Beverage:** Every ½ of a percent is $334,000. Urbana is at ½ of a percent while Decatur, Bloomington and Normal are all at 2%. Theoretically helps spread costs to visitors. Some view this tax as regressive.

**Sales Tax:** Every quarter of a cent sales tax raises $709,000. Same thought as above that some costs are born by people outside our community. Some view this tax as regressive.

**Real Estate Taxes:** Every 1 cent increase per $100,000 assessed valuation raises $55,000. This is $5 annually to a $150,000 home. The upside of real estate taxes is part of the burden falls on the user that directly benefits from the asset to the home. The downside is the disproportionate burden that this could place on the business sector.

**Full Payment by recipient**: Similar to old special assessment can pay over time and gets targeted benefits. Member cities of Utopia are starting to use this model.

**Donations:** It worked for the Library expansion.

Thoughts for discussion include what is the value to the community for reducing the average internet bill $10 or more a month.

The following graphs cover a number of topics and finish with a couple of graphs showing sensitivity to short fall exposure.

# Graph List



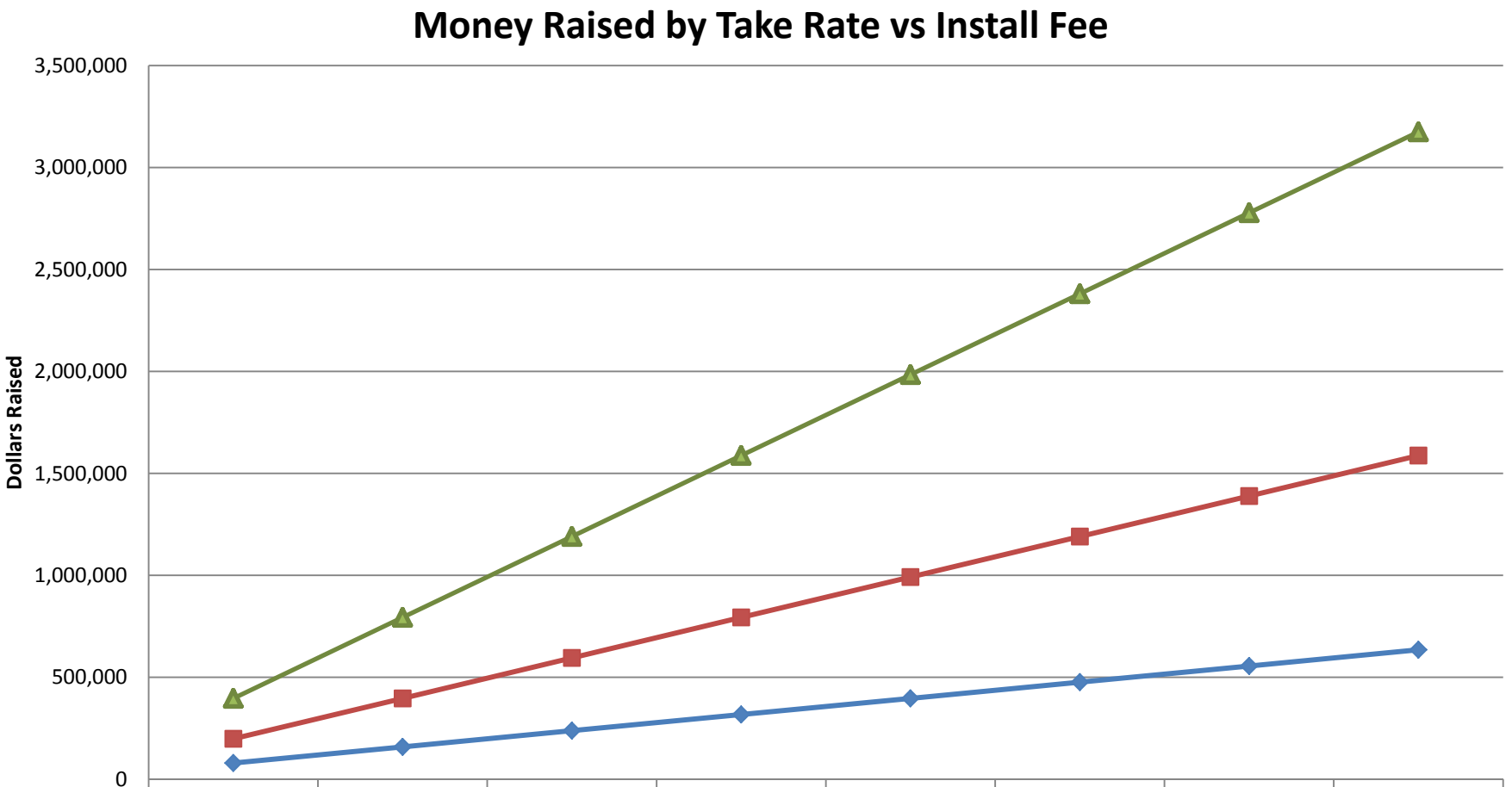
- E Urbana Parcel Count
- F Revenue From Install Fees
- G Revenue From Transport Fees
- H Annualized Revenues Generated
- I Annual Payment Per Published Rates
- J Payment Coverage By Fees Collected
- K Cost To Build Out
- L Cost To Build Out And Two Cycles Of Equipment Replacement
- M Funds Available With Bracketed Interest Rates For 20 Years
- N Cost Cover Sensitivity for System Install
- O Cost Cover Sensitivity for system Install & Two Hardware Replacement Cycles

Urbana Parcel Count 40-E

| Parcel Code | Description | Parcels | Connection |
|---|---|---|---|
| 1000 | lots | 449 | |
| 1100 | single family rental | 1231 | 1231 |
| 1150 | single family owner occupied | 5786 | 5786 |
| 1200 | duplex rentals | 345 | 690 |
| 1250 | duplex owner occupied | 115 | 230 |
| 1300 | 3 - 7 dwelling units | 84 | |
| 1400 | 8 or more dwelling units | 310 | |
| 1500 | frats sororities groups and residential hotels | 53 | |
| 1700 | mobile home parks | 4 | |
| 1800 | condo | 43 | |
| 1850 | Owner occupied condo | 227 | |
| 2000 | industrial | 33 | |
| 2100 | lots | 4 | |
| 3000 | commercial | 710 | |
| 3100 | commercial lots | 16 | |
| 4000 | communication and utilities | 11 | |
| 5000 | motels | 12 | |
| 6000 | exempts | 122 | |
| | | **9555** | **7937** |

# Revenue From Install Fees

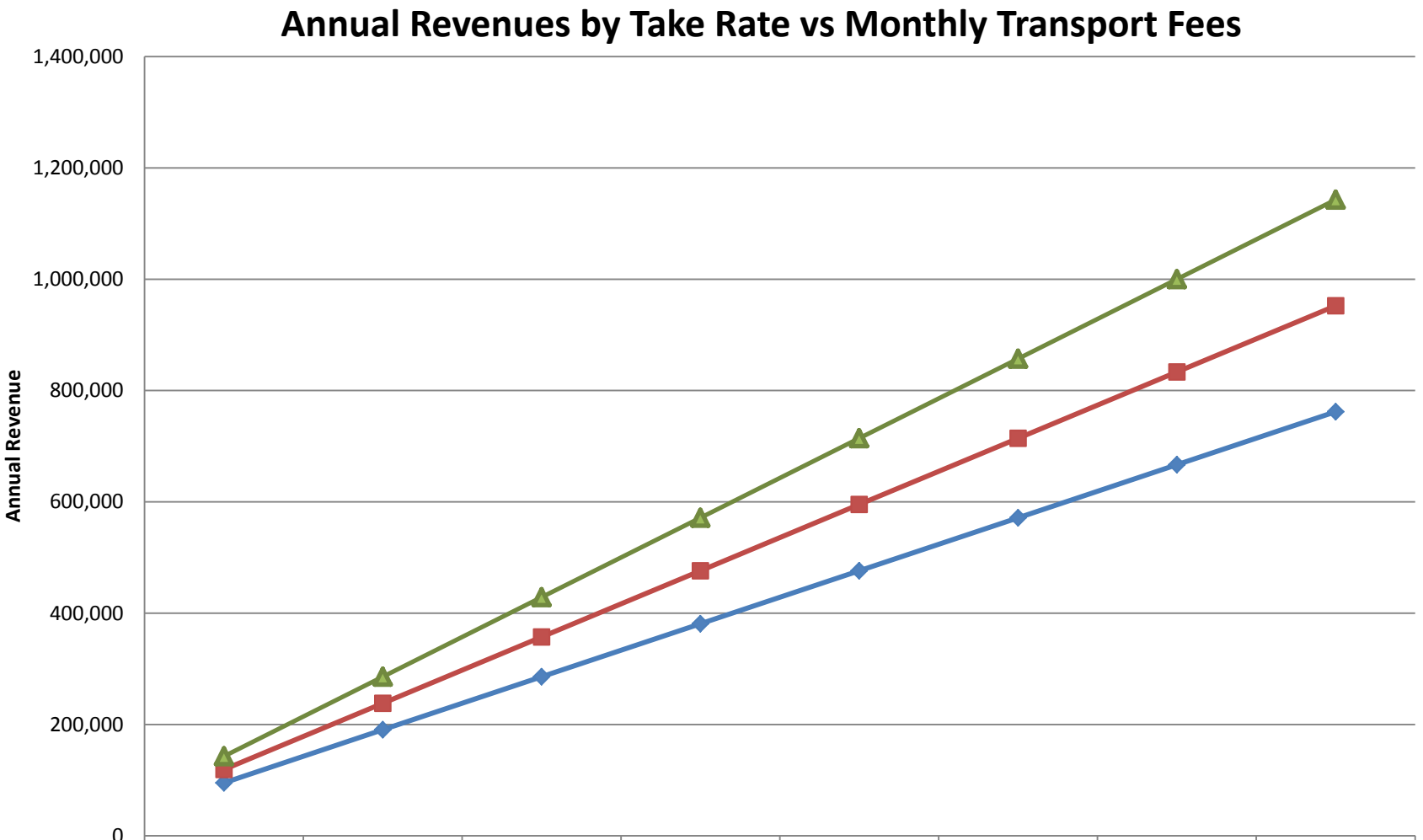





| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
|---|---|---|---|---|---|---|---|---|
| 100 | 79,370 | 158,740 | 238,110 | 317,480 | 396,850 | 476,220 | 555,590 | 634,960 |
| 250 | 198,425 | 396,850 | 595,275 | 793,700 | 992,125 | 1,190,550 | 1,388,975 | 1,587,400 |
| 500 | 396,850 | 793,700 | 1,190,550 | 1,587,400 | 1,984,250 | 2,381,100 | 2,777,950 | 3,174,800 |

# Revenue From Transport Fees



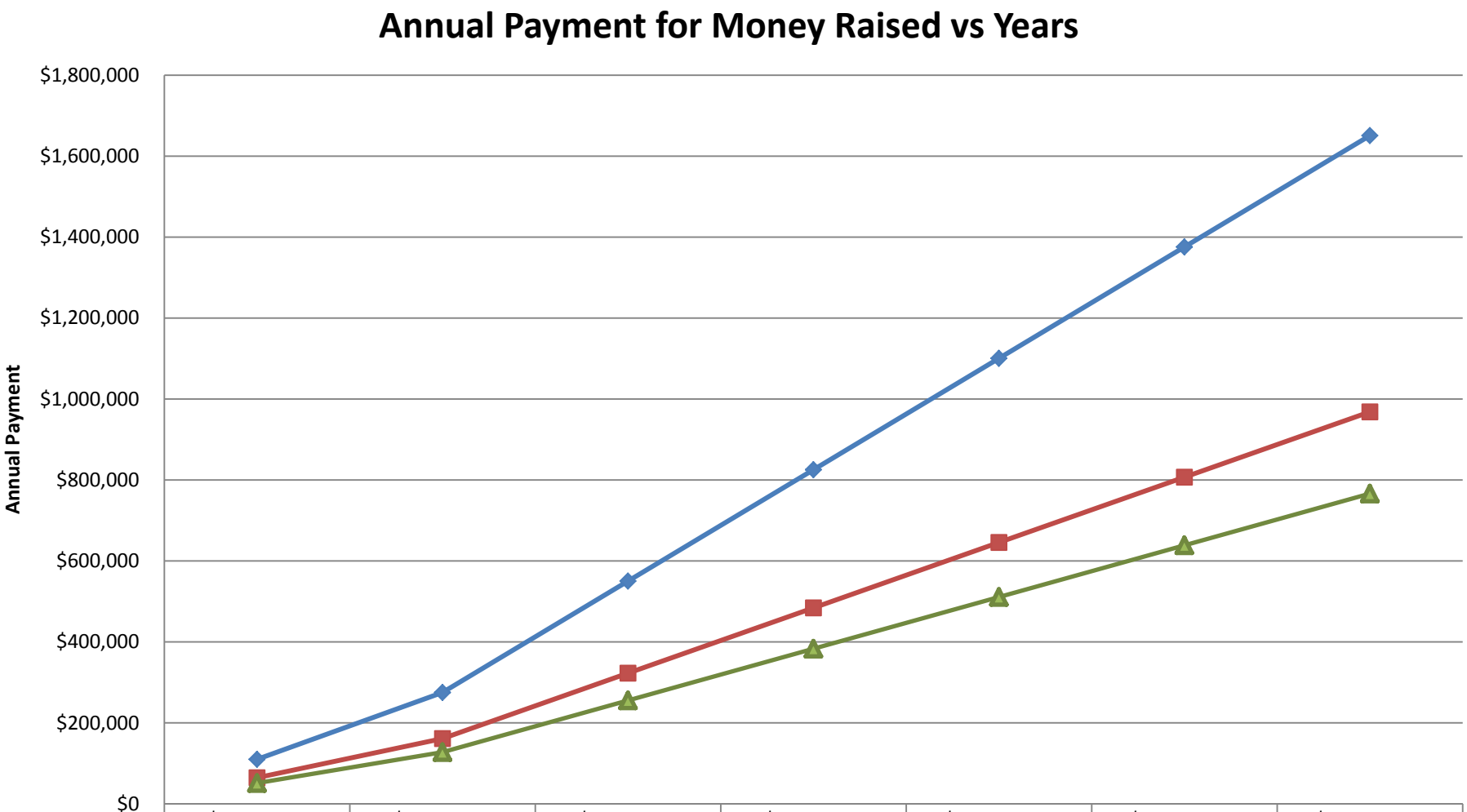



| | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
|---|---|---|---|---|---|---|---|---|
| 10 | 95,244 | 190,488 | 285,732 | 380,976 | 476,220 | 571,464 | 666,708 | 761,952 |
| 12.5 | 119,055 | 238,110 | 357,165 | 476,220 | 595,275 | 714,330 | 833,385 | 952,440 |
| 15 | 142,866 | 285,732 | 428,598 | 571,464 | 714,330 | 857,196 | 1,000,062 | 1,142,928 |

# Annualized Revenues Generated 43-H

| Years | Install | Monthly | | | Take Rate | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Fee | Transport | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| 10 | 100 | 10 | $103,181 | $206,362 | $309,543 | $412,724 | $515,905 | $619,086 | $722,267 | $825,448 |
| 10 | 100 | 12.5 | $126,992 | $253,984 | $380,976 | $507,968 | $634,960 | $761,952 | $888,944 | $1,015,936 |
| 10 | 100 | 15 | $150,803 | $301,606 | $452,409 | $603,212 | $754,015 | $904,818 | $1,055,621 | $1,206,424 |
| 20 | 100 | 10 | $99,213 | $198,425 | $297,638 | $396,850 | $496,063 | $595,275 | $694,488 | $793,700 |
| 20 | 100 | 12.5 | $123,024 | $246,047 | $369,071 | $492,094 | $615,118 | $738,141 | $861,165 | $984,188 |
| 20 | 100 | 15 | $146,835 | $293,669 | $440,504 | $587,338 | $734,173 | $881,007 | $1,027,842 | $1,174,676 |
| 30 | 100 | 10 | $97,890 | $195,779 | $293,669 | $391,559 | $489,448 | $587,338 | $685,228 | $783,117 |
| 30 | 100 | 12.5 | $121,701 | $243,401 | $365,102 | $486,803 | $608,503 | $730,204 | $851,905 | $973,605 |
| 30 | 100 | 15 | $145,512 | $291,023 | $436,535 | $582,047 | $727,558 | $873,070 | $1,018,582 | $1,164,093 |
| 10 | 250 | 10 | $115,087 | $230,173 | $345,260 | $460,346 | $575,433 | $690,519 | $805,606 | $920,692 |
| 10 | 250 | 12.5 | $138,898 | $277,795 | $416,693 | $555,590 | $694,488 | $833,385 | $972,283 | $1,111,180 |
| 10 | 250 | 15 | $162,709 | $325,417 | $488,126 | $650,834 | $813,543 | $976,251 | $1,138,960 | $1,301,668 |
| 20 | 250 | 10 | $105,165 | $210,331 | $315,496 | $420,661 | $525,826 | $630,992 | $736,157 | $841,322 |
| 20 | 250 | 12.5 | $128,976 | $257,953 | $386,929 | $515,905 | $644,881 | $773,858 | $902,834 | $1,031,810 |
| 20 | 250 | 15 | $152,787 | $305,575 | $458,362 | $611,149 | $763,936 | $916,724 | $1,069,511 | $1,222,298 |
| 30 | 250 | 10 | $101,858 | $203,716 | $305,575 | $407,433 | $509,291 | $611,149 | $713,007 | $814,865 |
| 30 | 250 | 12.5 | $125,669 | $251,338 | $377,008 | $502,677 | $628,346 | $754,015 | $879,684 | $1,005,353 |
| 30 | 250 | 15 | $149,480 | $298,960 | $448,441 | $597,921 | $747,401 | $896,881 | $1,046,361 | $1,195,841 |
| 10 | 500 | 10 | $134,929 | $269,858 | $404,787 | $539,716 | $674,645 | $809,574 | $944,503 | $1,079,432 |
| 10 | 500 | 12.5 | $158,740 | $317,480 | $476,220 | $634,960 | $793,700 | $952,440 | $1,111,180 | $1,269,920 |
| 10 | 500 | 15 | $182,551 | $365,102 | $547,653 | $730,204 | $912,755 | $1,095,306 | $1,277,857 | $1,460,408 |
| 20 | 500 | 10 | $115,087 | $230,173 | $345,260 | $460,346 | $575,433 | $690,519 | $805,606 | $920,692 |
| 20 | 500 | 12.5 | $138,898 | $277,795 | $416,693 | $555,590 | $694,488 | $833,385 | $972,283 | $1,111,180 |
| 20 | 500 | 15 | $162,709 | $325,417 | $488,126 | $650,834 | $813,543 | $976,251 | $1,138,960 | $1,301,668 |
| 30 | 500 | 10 | $108,472 | $216,945 | $325,417 | $433,889 | $542,362 | $650,834 | $759,306 | $867,779 |
| 30 | 500 | 12.5 | $132,283 | $264,567 | $396,850 | $529,133 | $661,417 | $793,700 | $925,983 | $1,058,267 |
| 30 | 500 | 15 | $156,094 | $312,189 | $468,283 | $624,377 | $780,472 | $936,566 | $1,092,660 | $1,248,755 |

# Annual Payment Per Published Rates 44-I




| | $1,000,000 | $2,500,000 | $5,000,000 | $7,500,000 | $10,000,000 | $12,500,000 | $15,000,000 |
|---|---|---|---|---|---|---|---|
| 10 1.781% | $110,055 | $275,137 | $550,274 | $825,411 | $1,100,547 | $1,375,684 | $1,650,821 |
| 20 2.568% | $64,560 | $161,400 | $322,799 | $484,199 | $645,599 | $806,999 | $968,398 |
| 30 3.01% | $51,085 | $127,713 | $255,426 | $383,139 | $510,852 | $638,565 | $766,278 |

# Payment Coverage By Fees Collected 45-J

| Interest | | Install | Monthly | | | | Take Rate | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Rate | Years | Fee | transport fee | 0.1 | 0.2 | 0.3 | 0.4 | 0.5 | 0.6 | 0.7 | 0.8 |
| 0.01781 | 10 | 100 | 10 | $937,542 | $1,875,085 | $2,812,627 | $3,750,170 | $4,687,712 | $5,625,255 | $6,562,797 | $7,500,340 |
| 0.01781 | 10 | 100 | 12.5 | $1,153,898 | $2,307,797 | $3,461,695 | $4,615,594 | $5,769,492 | $6,923,391 | $8,077,289 | $9,231,187 |
| 0.01781 | 10 | 100 | 15 | $1,370,254 | $2,740,509 | $4,110,763 | $5,481,018 | $6,851,272 | $8,221,526 | $9,591,781 | $10,962,035 |
| 0.02568 | 20 | 100 | 10 | $1,536,751 | $3,073,503 | $4,610,254 | $6,147,005 | $7,683,757 | $9,220,508 | $10,757,259 | $12,294,011 |
| 0.02568 | 20 | 100 | 12.5 | $1,905,572 | $3,811,143 | $5,716,715 | $7,622,287 | $9,527,858 | $11,433,430 | $13,339,001 | $15,244,573 |
| 0.02568 | 20 | 100 | 15 | $2,274,392 | $4,548,784 | $6,823,176 | $9,097,568 | $11,371,960 | $13,646,352 | $15,920,744 | $18,195,136 |
| 0.0301 | 30 | 100 | 10 | $1,916,203 | $3,832,406 | $5,748,609 | $7,664,812 | $9,581,015 | $11,497,217 | $13,413,420 | $15,329,623 |
| 0.0301 | 30 | 100 | 12.5 | $2,382,306 | $4,764,613 | $7,146,919 | $9,529,225 | $11,911,532 | $14,293,838 | $16,676,144 | $19,058,450 |
| 0.0301 | 30 | 100 | 15 | $2,848,410 | $5,696,819 | $8,545,229 | $11,393,639 | $14,242,049 | $17,090,458 | $19,938,868 | $22,787,278 |
| 0.01781 | 10 | 250 | 10 | $1,045,720 | $2,091,441 | $3,137,161 | $4,182,882 | $5,228,602 | $6,274,323 | $7,320,043 | $8,365,764 |
| 0.01781 | 10 | 250 | 12.5 | $1,262,076 | $2,524,153 | $3,786,229 | $5,048,306 | $6,310,382 | $7,572,458 | $8,834,535 | $10,096,611 |
| 0.01781 | 10 | 250 | 15 | $1,478,432 | $2,956,865 | $4,435,297 | $5,913,729 | $7,392,162 | $8,870,594 | $10,349,026 | $11,827,459 |
| 0.02568 | 20 | 250 | 10 | $1,628,956 | $3,257,913 | $4,886,869 | $6,515,826 | $8,144,782 | $9,773,738 | $11,402,695 | $13,031,651 |
| 0.02568 | 20 | 250 | 12.5 | $1,997,777 | $3,995,553 | $5,993,330 | $7,991,107 | $9,988,884 | $11,986,660 | $13,984,437 | $15,982,214 |
| 0.02568 | 20 | 250 | 15 | $2,366,597 | $4,733,194 | $7,099,791 | $9,466,388 | $11,832,985 | $14,199,582 | $16,566,179 | $18,932,776 |
| 0.0301 | 30 | 250 | 10 | $1,993,887 | $3,987,774 | $5,981,660 | $7,975,547 | $9,969,434 | $11,963,321 | $13,957,208 | $15,951,094 |
| 0.0301 | 30 | 250 | 12.5 | $2,459,990 | $4,919,980 | $7,379,971 | $9,839,961 | $12,299,951 | $14,759,941 | $17,219,931 | $19,679,922 |
| 0.0301 | 30 | 250 | 15 | $2,926,094 | $5,852,187 | $8,778,281 | $11,704,374 | $14,630,468 | $17,556,562 | $20,482,655 | $23,408,749 |
| 0.01781 | 10 | 500 | 10 | $1,226,017 | $2,452,034 | $3,678,051 | $4,904,068 | $6,130,085 | $7,356,102 | $8,582,120 | $9,808,137 |
| 0.01781 | 10 | 500 | 12.5 | $1,442,373 | $2,884,746 | $4,327,119 | $5,769,492 | $7,211,865 | $8,654,238 | $10,096,611 | $11,538,984 |
| 0.01781 | 10 | 500 | 15 | $1,658,729 | $3,317,458 | $4,976,187 | $6,634,916 | $8,293,645 | $9,952,374 | $11,611,103 | $13,269,832 |
| 0.02568 | 20 | 500 | 10 | $1,782,632 | $3,565,263 | $5,347,895 | $7,130,526 | $8,913,158 | $10,695,789 | $12,478,421 | $14,261,052 |
| 0.02568 | 20 | 500 | 12.5 | $2,151,452 | $4,302,904 | $6,454,356 | $8,605,807 | $10,757,259 | $12,908,711 | $15,060,163 | $17,211,615 |
| 0.02568 | 20 | 500 | 15 | $2,520,272 | $5,040,544 | $7,560,817 | $10,081,089 | $12,601,361 | $15,121,633 | $17,641,905 | $20,162,177 |
| 0.0301 | 30 | 500 | 10 | $2,123,360 | $4,246,720 | $6,370,080 | $8,493,440 | $10,616,800 | $12,740,160 | $14,863,520 | $16,986,880 |
| 0.0301 | 30 | 500 | 12.5 | $2,589,463 | $5,178,927 | $7,768,390 | $10,357,854 | $12,947,317 | $15,536,780 | $18,126,244 | $20,715,707 |
| 0.0301 | 30 | 500 | 15 | $3,055,567 | $6,111,134 | $9,166,700 | $12,222,267 | $15,277,834 | $18,333,401 | $21,388,968 | $24,444,534 |

# Cost To Build Out



| Count | | | | |
|---|---|---|---|---|
| 7937 | Take Rate | $1,500 | $2,000 | $2,500 |
| 1,587 | 0.2 | $2,381,100 | $3,174,800 | $3,968,500 |
| 3,175 | 0.4 | $4,762,200 | $6,349,600 | $7,937,000 |
| 3,969 | 0.5 | $5,952,750 | $7,937,000 | $9,921,250 |
| 4,762 | 0.6 | $7,143,300 | $9,524,400 | $11,905,500 |
| 5,556 | 0.7 | $8,333,850 | $11,111,800 | $13,889,750 |

# Cost To Build Out And Two Cycles Of Equipment Replacement

47-L

| | | | |
|---|---|---|---|
| Take Rate | $1,500 | $2,000 | $2,500 |
| 0.2 | $3,285,918 | $4,381,224 | $5,476,530 |
| 0.4 | $6,571,836 | $8,762,448 | $10,953,060 |
| 0.5 | $8,214,795 | $10,953,060 | $13,691,325 |
| 0.6 | $9,857,754 | $13,143,672 | $16,429,590 |
| 0.7 | $11,500,713 | $15,334,284 | $19,167,855 |

# Funds Avail. Bracketed Interest Rates 20 Yr

| Int. Rate | Year | Install Fee | Trans. Fee | | Take Rate | | | 48-M |
|---|---|---|---|---|---|---|---|---|
| | | | | 0.2 | 0.4 | 0.5 | 0.6 | 0.7 |
| 2.57 | 20 | 100 | 10 | $3,073,503 | $6,147,005 | $7,683,757 | $9,220,508 | $10,757,259 |
| 2.57 | 20 | 500 | 10 | $3,565,263 | $7,130,526 | $8,913,158 | $10,695,789 | $12,478,421 |
| 2.57 | 20 | 100 | 15 | $4,548,784 | $9,097,568 | $11,371,960 | $13,646,352 | $15,920,744 |
| 2.57 | 20 | 500 | 15 | $5,040,544 | $10,081,089 | $12,601,361 | $15,121,633 | $17,641,905 |
| 3.25 | 20 | 100 | 10 | $2,884,970 | $5,769,940 | $7,212,424 | $8,654,909 | $10,097,394 |
| 3.25 | 20 | 500 | 10 | $3,346,565 | $6,693,130 | $8,366,412 | $10,039,695 | $11,712,977 |
| 3.25 | 20 | 100 | 15 | $4,269,755 | $8,539,510 | $10,674,388 | $12,809,266 | $14,944,143 |
| 3.25 | 20 | 500 | 15 | $4,731,350 | $9,462,701 | $11,828,376 | $14,194,051 | $16,559,726 |
| 4.00 | 20 | 100 | 10 | $2,696,661 | $5,393,321 | $6,741,651 | $8,089,982 | $9,438,312 |
| 4.00 | 20 | 500 | 10 | $3,128,126 | $6,256,252 | $7,820,315 | $9,384,379 | $10,948,442 |
| 4.00 | 20 | 100 | 15 | $3,991,058 | $7,982,115 | $9,977,644 | $11,973,173 | $13,968,701 |
| 4.00 | 20 | 500 | 15 | $4,422,523 | $8,845,046 | $11,056,308 | $13,267,570 | $15,478,831 |

# Cost Cover Sensitivity for System Install

49-N

| Interest Rate | Years | Install Fee | Trans. Fee | .4 Take Rate | Cost to Deliver 1500 | 2000 | 2500 |
|---|---|---|---|---|---|---|---|
| 0.02568 | 20 | 100 | 10 | $6,147,005 | COVER | 5% | 23% |
| 0.02568 | 20 | 500 | 10 | $7,130,526 | COVER | COVER | 10% |
| 0.02568 | 20 | 100 | 15 | $9,097,568 | COVER | COVER | COVER |
| 0.02568 | 20 | 500 | 15 | $10,081,089 | COVER | COVER | COVER |
| 0.0325 | 20 | 100 | 10 | $5,769,940 | COVER | 10% | 27% |
| 0.0325 | 20 | 500 | 10 | $6,693,130 | COVER | COVER | 16% |
| 0.0325 | 20 | 100 | 15 | $8,539,510 | COVER | COVER | COVER |
| 0.0325 | 20 | 500 | 15 | $9,462,701 | COVER | COVER | COVER |
| 0.04 | 20 | 100 | 10 | $5,393,321 | COVER | 16% | 32% |
| 0.04 | 20 | 500 | 10 | $6,256,252 | COVER | 3% | 21% |
| 0.04 | 20 | 100 | 15 | $7,982,115 | COVER | COVER | COVER |
| 0.04 | 20 | 500 | 15 | $8,845,046 | COVER | COVER | COVER |

# Cost Cover Sensitivity for Install & Two Hardware Repl. Cycles

50-O

| Interest Rate | Years | Install Fee | Trans. Fee | .4 take rate | Cost to Deliver 1500 | 2000 | 2500 |
|---|---|---|---|---|---|---|---|
| 0.02568 | 20 | 100 | 10 | $6,147,005 | 6% | 30% | 44% |
| 0.02568 | 20 | 500 | 10 | $7,130,526 | COVER | 19% | 35% |
| 0.02568 | 20 | 100 | 15 | $9,097,568 | COVER | COVER | 17% |
| 0.02568 | 20 | 500 | 15 | $10,081,089 | COVER | COVER | 8% |
| 0.02568 | 20 | 500 | 17.50 | $11,556,369 | COVER | COVER | COVER |
| 0.0325 | 20 | 100 | 10 | $5,769,940 | 12% | 34% | 47% |
| 0.0325 | 20 | 500 | 10 | $6,693,130 | COVER | 24% | 39% |
| 0.0325 | 20 | 100 | 15 | $8,539,510 | COVER | 3% | 22% |
| 0.0325 | 20 | 500 | 15 | $9,462,701 | COVER | COVER | 14% |
| 0.0325 | 20 | 500 | 17.50 | $10,847,486 | COVER | COVER | 1% |
| 0.04 | 20 | 100 | 10 | $5,393,321 | 18% | 38% | 51% |
| 0.04 | 20 | 500 | 10 | $6,256,252 | 5% | 29% | 43% |
| 0.04 | 20 | 100 | 15 | $7,982,115 | COVER | 9% | 27% |
| 0.04 | 20 | 500 | 15 | $8,845,046 | COVER | COVER | 19% |
| 0.04 | 20 | 500 | 17.50 | $10,139,444 | COVER | COVER | 7% |

# What Does Cost Cover Tell Us?



The chart N shows that with reasonable cost controls one could expect to put a system in the ground and have it pay for its installation. From this perspective it's fairly easy to get takers. Early cash flow covers a multitude of sins.

The chart O shows small changes make big differences. As we can see even equipment maintenance is possible. But;

The difficulty for all systems of this nature is ongoing replacement for hardware (7 year) and long term replacement of the major system components (20 year). While these numbers are industry standards your mileage may vary.

As the charts begin to flesh out areas of sensitivity it is important to realize an Open Access model has fewer places to make profit than a closed system.

That is why the issue of long term sustainability continues to be discussed in terms of community benefit.

A 20 Percent shortfall on a $10 million project is $2,000,000 or $100,000 a year over the 20 year period. As discussed previously a small amount earmarked as a community benefit cost over the long haul could prevent a major meltdown 20 years out if the system cannot achieve self sustainability.

# What The City Can Do



- **Adopt the business plan**. The clarifications have been well done and the plan is just a plan. The principals are consistent with the realities I have researched and the numbers are a great starting point. But, it is a working document and will change. Some things will change dramatically.
- **Accept the 501c3 as working model**. The key is in the bylaws. I don't see compelling reasons to not work within the 501c3 umbrella.
- **Review methodologies to achieve a aggressive FTTP build out**. Change the paradigm and level the playing field.
- **Do a survey.** There are few things worse than doing something that no one wants for the price they don't want to pay.
- **Rule out nothing out of hand until it has been explored.** Including possible City funding.
- **Evaluate the RFIs** and explore the possibilities.
- **Early in the game** come to understand your Risk, Reward and Control thresholds.
- **None of these things will:**

1. Negatively effect the relationship with UC2B.
2. Compete with the UC2B business anchor expansion model. It enhances it.
3. Negatively effect the ability for outside vendors to perform a build out in Champaign.
4. Negatively effects the probability our citizens get highly competitive pricing.
5. Negatively effects a community based solution to red lining.
6. Keep a coop from thriving in this scenario as a service provider and able to grow as large as it chooses to be.

## Creating an Innovative Business Model
## Guiding Principles

Work to develop an ***open carrier neutral and multi-stakeholder community network that aggregates and leverages community investments*** to increase availability, capacity, and value added services. This ***lowers overall total cost of ownership (TCO) while increasing the social value of the communities' investment.*** In addition, the UC2B network approach can provide additional value to both the public and private sector by:

- **Improving Government Services** and **improving Health and Education** services;
- Helping communities leverage high speed broadband to prompt **economic development;**
- **Aggregating demand** across stakeholders and industries for **sharp collective cost reductions;**
- Leveraging the sharing of public and private assets and competencies (including phone, cable and utility) **to facilitate the delivery of the highest capacities and lower capital and operating costs,** while helping attract additional investment;
- **Providing an "Open" facilities based "Neutral Network"** that serves as a level playing field for all network and service providers for both physical and logical network services;
- Using and leveraging strong existing partnerships and agreements with key local, state and national providers to **rapidly deliver high capacity, best of breed solutions, for sharply lower costs;**
- **Leveraging the capital creation ability** of shared infrastructure and aggregating services to invest and advance the needs for broadband infrastructure throughout the region;
- Creating a community presence and civic social network via a community portal to **promote digital inclusion** for low income and other underserved populations**.**
- **Investing in the highest quality infrastructure available for community use.**

# Conclusion



- We need to define what we want and why we want it.
- Approving the business plan does not create a problem with expansion.
- Joining the City of Champaign and The U of I as part of a 501c3 does not create a problem with our expansion or with theirs.
- Lack of safeguards in an agreement to protect all entities goals is a problem.
- If we existed alone I would say a government owned model since that is what we know.
- I believe that the infrastructure needs to be owned by an entity that has the best interests of the users as a core value. Without that there is no level playing field for open access to flourish.
- It is not a level playing field and it will take someone's money to level it. We currently are being touted as an example but if we can't take the next step we will fall into the classification of another anchor only model that **could have** provided for our citizens a world class asset but were unable to achieve it for whatever the reason. In this competition excuses won't count, only results.
- The models I ran are conservative. As shown there are a number of ways to achieve this. We can do it, they can do it, anyone with money and desire can do it.

# Conclusion continued



- Finding a way to balance between user fees and community benefit is much better than paying an outside vendor connection fees and high monthly rates and owning nothing in the end. We would have a strong position in the future of UC2B if Urbana owned the build out and we would be able to provide our citizens truly open access and the competitive rates that can bring.
- Urbana doing this does not create a problem with the 501c3 nor does it force Champaign to perform in a like manner. Champaign could decide to allow vendor build out and have no negative effect on the model or the relationship of the entities. Urbana would function as a transport provider similar to UC2B for the portion we own and be paid as such.
- Urbana would have the luxury of opting to provide internet at a rate it felt was appropriate if no vendors in the open access model choose to offer a rate we felt was competitive.
- Build out choices are not all or nothing. One way or another our goal is to achieve a balance. There is much written on the philosophy of Social Contract Theory.
- Any number of providers could flourish in this environment even a coop.

# Conclusion continued



- We need to leverage all the fiber that UC2B has put in the ground. To allow that to go underutilized would be financially irresponsible. It's like building a bridge to nowhere. To underutilize UC2B assets would change this outstanding project to a boondoggle.
- As education continues to slide to the internet side it will be critical for our youth. A local build out under local control could help keep these dollars in our community through municipal jobs or local contractors that have gained experience through the original project.
- If it was an easy decision everyone would be doing it. Analysis should rule the day.
- These are not all or nothing decisions. these decisions exist on a continuum based on a balance of what makes sense for a community and the City should choose to participate at whatever level it is comfortable at.
- Assume there is **no free lunch.** This is not Urbana's problem this is Urbana's opportunity.

**RISK**

**REWARD**

**CONTROL**

**On which side do we fall?**

# Acknowledgements



Diane Kruse from Neo Fiber for her work on the business plan

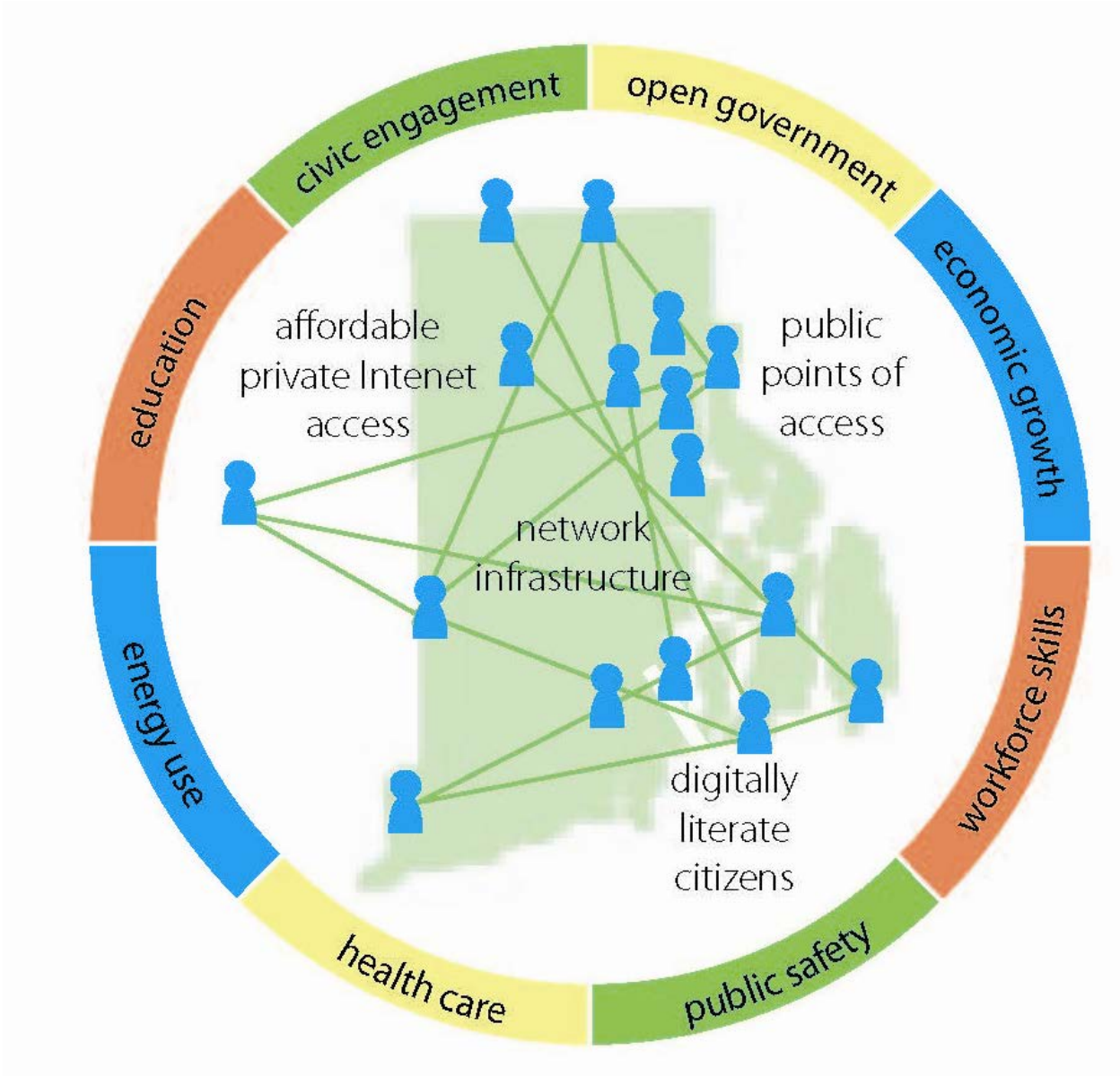
Joanne Hovis for her insights and the willingness to share them

The panel from the Models for building Local Broadband:

Brandon Bowersox-Johnson
Chris Mitchell
Joanne Hovis
Wally Bowen
Greta Byrum

The vast number of people from over 50 organizations that took their time to answer my questions, send me documents, and candidly discuss their organizational successes, failures, and personal opinions.

Last but not least, Mike Smeltzer who without his grand vision we wouldn't be talking about this today on this kind of scale.




Fiber Will Solve Everything