MINUTES OF THE SPECIAL WORKSHOP MEETING
OF THE LADY LAKE TOWN COMMISSION
LADY LAKE, FLORIDA
July 18, 2016

The Special Workshop Meeting of the Lady Lake Town Commission was held in the Commission Chambers at Lady Lake Town Hall, 409 Fennell Blvd., Lady Lake, Florida with Mayor Ruth Kussard presiding. The meeting convened at 5:00 p.m.

1. CALL TO ORDER

2. ROLL CALL: Tony Holden, Commissioner Ward 2
Dan Vincent, Commissioner Ward 3
Paul Hannan, Commissioner Ward 4
Jim Richards, Commissioner Ward 5
Ruth Kussard, Mayor/Commissioner Ward 1

STAFF MEMBERS PRESENT: Kris Kollgaard, Town Manager John Pearl, I.T. Director; C.T. Eagle, Public Works Director; Pam Winegardner, Finance Director; and Nancy Slaton, Deputy Town Clerk

3. Discussion/Consideration of a Fiber Wide Area Network (FiberWAN) (John Pearl)

I.T. Director John Pearl read the following (from a prepared document):

Thank you Mayor and Commissioner's for the opportunity to meet with you again this afternoon to discuss the FiberWAN concept for Lady Lake.

I would also like to thank Jim Lemburg, Don Dennis, Hiep Nguyen and Dale Borrowman for meeting or speaking with me in preparation for this workshop. They were each generous with their time and information and patiently answered my many questions.

For this workshop, I have prepared approximately 30 minutes of talking points at the beginning. I intend to read them verbatim. In this time, I believe I can answer most of the questions raised during the previous workshop and have planned the remainder of our time together for question and answer.

The desired outcome of this meeting is to receive direction, regarding whether or not to return to this Commission at a future regular meeting, to request approval to engage Magellan Advisors to prepare a comprehensive broadband design and technical plan for your consideration.

I am aware of only three municipalities (or census-designated places) in Lake County currently building or operating fiber wide area networks. Those are Leesburg, Clermont and The Villages. Since our last workshop I have met or spoken with the leaders of each of these efforts and I would like to begin by sharing the highlights of my notes of these discussions with you. I think starting here will provide answers to your prior questions sooner and also provide a better context for discussion about Lady Lake.

Leesburg Communications Utility

I met with Jim Lemburg on June 1st, here in Lady Lake. Jim is the Manager of the Leesburg Communications Utility (LCU). I have also communicated with him several times since.
Leesburg has been building their fiber network for 28 years.

It started as a SCADA project for the Electric Utility in 1987. This effort continued slowly, eventually including connectivity for all of their City buildings. Next the network experienced two major growth periods, the first driven by Central Florida Health's desire to connect its Leesburg hospital campus to its other campus in The Villages. The second was driven by an opportunity to begin providing service to many of the public schools in Lake County.

In the mid 2000's the Communication Utility was created and they were separated from the Electric Utility.

Today, the LCU currently manages 450 miles of infrastructure, not 185 as I previously reported.
LCU began a network reorganization in 2010. Previously, the network had been built in a piece-meal fashion of many isolated point-to-point segments, not built as a network and not built to efficiently serve customers. The reorganized managed network came online in 2012.

The newly reorganized network was deployed as a switched network, also known as carrier Ethernet or MetroE, with tiered services priced close to market rates.

The majority of their current fiber backbone is 96 count, with laterals typically 24 count. Only a small number of fibers are utilized in Lady Lake today, with service provided to the previously mentioned hospital, the elementary school, two fire stations and our library.
The majority of their network is at 50% or less capacity.

Although the LCU doesn't have an official business plan, I will attempt to outline one here for you:

To begin, I acknowledge that we do not know the costs of the earliest investments, when the Electric Utility was beginning to upgrade their SCADA system. However, we do know that the two earliest expansions (the hospital and the school system) had a combined cost of about $1.5 million. Total revenue this year is $2.5 million. And when Jim started six years ago it was $1.2 million. So revenues have slightly more than doubled in the past six years. Today the LCU has only 24 distinct customers. Approximately 50% of current revenues are from E-Rate eligible customers. They have reached their payback point. They are profitable and have been each year of Jim's tenure. LCU currently has approximately $450,000 remaining in long-term debt, slightly over $1.3 million in cash and another $210,000 of inventory. In addition, they have contributed in excess of $500,000 to the General Fund in recent years as well as born more than $500,000 of allocated General Fund expenses. Their annual payroll is between $300 and $400 thousand dollars plus benefits. Looking to add staff.

Their current business strategy is to continue to pursue a patient, opportunistic growth model waiting for business opportunities to present themselves. They are not interested in "build-it and they will come" business cases. But they will spend money on new infrastructure for new customers if the business case is justified.

Their typical customer is served by a combination of managed service and dark fiber, although LCU's preference is to sell managed service. LCU's target customer is looking to host services locally or is interested in achieving higher reliability. They are currently most interested in

medical services opportunities and medical campus areas near hospitals. The need is to facilitate the exchange of large amounts of data. They are also interested in providing backhaul service at cell towers.

LCU doesn't serve residential customers. They are not interested in FTTH in Leesburg because it would be an overbuild rather than a greenfield opportunity and therefore judged to be too expensive. Also, it is believed that the Leesburg population is currently tolerating the incumbent providers.

The LCU's current pricing structure is also too high for typical Mom & Pop companies. It is believed that the small companies are served fine by incumbent providers, there is not a lot of pent-up demand.

They have experienced revenue growth every year since their reorganization in 2012, but it has been very lumpy. The LCLS was a significant revenue growth opportunity last year. And they consider themselves to be a typical small business, with typical challenges and concerns.
LCU has not pursued any grant opportunities in the past six years. And few are available at this time.

Becoming a service provider (communications utility) like LCU today has additional burdensome Florida statutory requirements. Leesburg was grandfathered in before these requirements went into effect. New entries are currently required to have a certificate of authority and a business plan that is reviewed annually. They must maintain their own books and are not allowed to receive contributions from the municipalities general fund. Also service cannot be offered below cost. Lastly, it should be noted that the FCC has recently moved to challenge these State requirements, and the final outcome remains uncertain at this time.

With regard to Lady Lake building its own municipal fiber WAN infrastructure, Jim advised that if funds were available, it would be advantageous to place at least conduit, pull-boxes and/or vaults when and where the ground is open due to other construction along contemplated network routes.

Clermont
Next, I met with Don Dennis on July 16th in Clermont where he is their IT Director. Clermont has been building their fiber network for 5 years. It is presently a Municipal WAN only. Prior to beginning this project, they had implemented a 'dig-once' policy and installed more than 8 miles of conduit over an eight-year period, coordinating with other capital improvement projects. Their dig-once policy is addressed during the site review process, along with the water and sewer infrastructure. Developers are required to install conduit.

They began their fiber project by hiring a consultant who prepared a cost assessment and network design, planned the five-year build schedule and later prepared the RFP. An early goal for Clermont staff was to shift expenses from OPEX to CAPEX. Investing in this capital infrastructure project, funded by the penny sales tax and impact fees permanently reduced approximately $30k worth of recurring telecommunication operational expenses. This was accomplished primarily by reductions in the quantity of ISP service connections at various city facilities from 8 to 1. Other cost savings were achieved through the reduction of redundant equipment, software licenses, maintenance at remote sites and a reduction in overall system complexity. Their complete fiber plant is buried.

Their fiber plant is low maintenance. They have only experienced a cut line once. A service provider on contract performed the repair, with service restoration completed within 24 hours, and the offending party billed for the expense.

They currently use a Century Link provided service for Internet connectivity. It is provided from a single location for the entire Town and costs $257/month for 80Mbps of capacity.
Their SCADA system is connected to their fiber network. The majority of their fiber plant is 96 strands of which 24 strands are typically terminated throughout the network. The most any facility uses currently are 12 strands. The network is a hub & spoke topology with City Hall serving as the hub.

Don advised that we not depend on using the proposed fiber infrastructure as a revenue source, that everybody who can, is currently putting fiber in the ground, Century Link in Clermont, for example. The future business opportunities may not be there. However, with that stated, Clermont has recently begun the process of researching appropriate Master Service Agreement contracts, preparing for possible public-private-partnership opportunities. Don also advised that if cost-benefit analysis is the only factor in our decision, that we would be better served by continuing to pay a third party to provide the service.

Technologies Solutions Group (TSG)
Lastly, I spoke with Dale Borrowman on July 14th. Dale is the owner of The Villages Technologies Solutions Group (TSG). TSG have been building their fiber network in The Villages for approximately 16 years. There is currently a single location in the town in which The Villages has fiber. It is near the intersection of Griffin Ave and Highway 441. TSG currently doesn't forecast a need to build anything more here in Lady Lake at this time. With only a couple of temporary exceptions, their complete fiber plant is buried. Their SCADA system is connected to their fiber network. Dale shared, "It is fast, efficient and stable."

The Villages camera systems are connected to their fiber network, including their new ALPR cameras. They do use some radio equipment in the 900Mhz, 2.4 and 5Ghz ranges with 900Mhz being the most stable, but also having the slowest transmission speed. TSG currently uses the Level 3 POP in Wildwood (approximately 15 miles from Lady Lake Town Hall) for Internet connectivity.

Dale advised that the Lambda Rail service in East Leesburg is an alternative or redundant option for government entities, but more expensive. Dale also advised that, "If you are going to do a fiber project, put in as much as you can afford." Maintenance cost for the fiber in the ground thus far have been very little. They do perform many locate requests. They avoid overbuilds because of construction and higher maintenance costs. The typical repair cost for a 200 count fiber cable cut is between $9k and $10k. After repair, TSG pursues repayment from the offending party.

Immediate Municipal and Inter-Organizational Benefits
Now with regard to the immediate municipal and inter-organizational benefits of a fiber optic wide area network for Lady Lake, it is certain that our bandwidth needs as a municipality are going to continue to increase in the future. It is also expected that the cost charged by the incumbent providers for interconnectivity and bandwidth will also continue to increase. Under this current arrangement, the Town's existing WAN infrastructure will result in increasingly higher operating expenses year after year.

A municipal owned fiber wide area network would allow Lady Lake to reduce our overall telecommunication costs and protect the Town from future cost increases. A fiber optic network, if it were available today, would permanently remove approximately $20,000 of recurring operating costs from the Town's General Fund, and increasingly more in the future.

The Town also has the added expenses of having to manage and secure multiple ISP connections, the utilization and overhead of Virtual Private Network (VPN) technologies, which have the side effect of reducing available bandwidth, and the need to provide and manage redundant hardware and software licenses at multiple facilities to overcome bandwidth or latency challenges for employees. A municipal broadband network would have a lower operational cost to the Town. Additionally, this cost would remain relatively fixed year after year, regardless of the Town's bandwidth needs, unlike the existing WAN infrastructure that incurs more cost as bandwidth is increased.

A municipal broadband network would allow the expansion of services to Town facilities not currently served by the existing WAN for the cost of a physical connection with no new recurring annual costs.

Fiber optic is the best solution to build high capacity networks known today. The newest small cell millimeter-wave wireless solutions coming to market are now providing broadband capacity in certain situations. These may be used to compliment and/or temporarily extend broadband service. However, the physics of propagating signals with light using fiber optics versus propagating with radio waves in the atmosphere will ensure that fiber continues to be the safest core infrastructure investment.

A fiber optic municipal broadband network is an investment that will provide many decades of service to the Town. Over the past 30 years, the transmission capacity of fiber optic had increased enormously. Research firms and equipment manufactures continue to invest significant dollars to continue to develop new products and capabilities.

The Town's current WAN solution is built on a combination of asymmetrical (unequal download and upload speeds) business class IP services, VPN tunnels and 900Mhz wireless radios. In practical terms, it is an entry level or minimum viable solution. The incumbent IP solution provider's infrastructure is typically repurposed coaxial cable TV or copper telephone technology with multiple single points of failure. Service is often degraded with available bandwidth reduced to end users causing application latency or crashes and it is not as reliable as we would like. We have experienced multiple, multiple hour disruptive service outages this year, including three in the past six weeks.

The Town has several bandwidth intensive and disruption sensitive applications, such as the financial system and the GIS system used by many departments at multiple locations. Also the Police Department depends on their computer aided dispatch application and various research and reporting tools necessary to perform their duties. In many cases, access to the Internet has become as fundamental to the performance of our daily activities as access to power.

Although the existing WAN bandwidth capacity can be increased beyond the current service levels, this will increase the Town's operational costs. It will also not remove the reliability issue and therefore should be considered only a short term solution to an immediate need. Replacement of the current 900Mhz wireless solution currently used by our SCADA system, with

an underground fiber optic network, would also protect the Town from disruption in service caused by weather based events.

A fiber optic based municipal broadband network will provide the Town a reliable and scalable network infrastructure with near limitless growth potential while maintaining a low, fixed annual operating cost by reducing or eliminating monthly recurring costs paid to existing telecommunications providers. The network will immediately provide many times greater bandwidth than the existing WAN with potentially more bandwidth becoming available as electronics are upgraded over the life of the network.

A municipal broadband network is also considerably more flexible and better positioned to meet the Town's current and future technology needs. Owned and operated by the Town, the network would be used to meet current departmental requirements while enabling new services in the community.

Public safety will be one of the main beneficiaries. The Town has streamlined its public safety operations in recent years by contracting for dispatch services with the Lake County Sheriff's office. We currently lease a 1.5Mbps point-to-point circuit between the Police Department and the Sheriff's office in Tavares for access to CAD data. This service could be improved to provide a faster, more secure and more stable connection with a fiber optic interconnect in place of the existing incumbent provider's solution.

Similar to other municipalities, the Town does experience occasional vandalism, theft and damage of public property. We have had approximately 10 such incidents this year. Accordingly, staff has expressed interest in different types of municipal camera systems. A consolidated IP camera system that manages and archives data to a single data repository would provide a scalable and manageable solution. Such a camera system would likely also improve life safety and endangered person response times and could potentially be extended in partnership with DOT to provide public awareness of local traffic conditions. However, such a system would require an integrated network for communication, programming, viewing and storage of video data. And such a system would produce a significant amount of content requiring an equally significant amount of bandwidth. Without an integrated fiber optic network, individual cameras would either need to rely on individual ISP provided circuits combined with VPN solutions or small cell wireless technologies. Both of these have limitations regarding reliability and performance. And additional ISP provided circuits will require additional recurring operational expenses.

Mobile Data Terminals in the Police Department's patrol cars could benefit from the deployment of a wireless infrastructure utilizing a municipal broadband backbone for aggregation throughout the Town. A public safety wireless network that spans certain key areas of Lady Lake would be able to provide enhancements to current law enforcement capabilities by enabling rapid downloads of police MDT updates, quicker dissemination of information, and a redundant form of connectivity in the event of mobile data modem failures or propagation issues.

Fiber optic based municipal broadband networks provide a valuable asset to communities in times of emergency. An underground fiber optic backbone owned and operated by the Town would provide stable inter-organizational communications during natural disasters as these networks are generally unaffected by environmental conditions. This would allow public safety, emergency operations, administration, utilities and other departments to maintain communications and share information during emergency events.

Furthermore, a fiber optic municipal broadband network owned and operated by the Town when combined with virtual server technology would allow for the creation of an affordable, redundant data center at an alternate location to provide business continuity in the event that our current location suffered a catastrophic failure of any kind.

The Town's current desktop voice services are distributed to different locations through various Town facilities. The current system is dated and no longer supported under contract. In addition, we currently lease a 1.5Mbps point-to-point circuit between Town Hall and Public Works in order to share a single PRI circuit for dial tone.

A fiber optic municipal broadband network would eliminate this need for a leased point-to-point circuit. Many additional individual telephone lines that are currently used throughout the Town could also be replaced. Additionally, it could provide the foundation for a new Voice over IP (VOIP) telephony system that would allow an additional reduction in used PRI capacity, further reducing our desktop telephony costs.

An underground fiber optic network would also provide the Utilities department a more reliable SCADA connectivity solution, especially, as stated before, during various weather events. It is also anticipated that an underground fiber optic network would insulate the SCADA system from the various power conditioning issues that have caused system challenges in the past. The network could also provide additional voice, data, and video services at these remote sites at no additional bandwidth cost.

A municipal broadband network would allow the Town to support an Automated Meter Reading (AMR) implementation by establishing a backbone network for AMR data transport. The combination of a fiber optic network infrastructure and the wireless technology presently available in all of our meters would provide the necessary components to transport data from customer meters back to the utility billing application, providing an end-to-end, truly automated, meter reading system.

A municipal broadband network would provide the foundation for a public wireless infrastructure at key locations throughout the Town, providing direct fiber optic connectivity for access points in the field and interconnection for access points within City facilities. This could include locations at our public parks, recreational facilities and the Log Cabin area where we have many public events. This network would be segmented from any public safety and Town communications.

Lastly, an integrated municipal broadband network would allow the Town to provide new communication channels to citizens and businesses in the community. Distribution of panel displays together with public WiFi could be used to disseminate information to the community, provide local advertising for business, and provide greater accessibility to online and mobile municipal services. A broadband network would allow broad distribution of civic content including online information, emergency response information, streaming video, stored video content, and live broadcasting across multiple locations in the Town in near real time, allowing the Town to deliver content to its citizens and businesses more efficiently through its own internal infrastructure.

Potential Future Economic and Community Development Benefits

With regard to potential future economic and community development benefits, the Internet is key to the entire information economy and to the future of both the old and the new economy. In

just a few decades we have seen its power to decentralize production, connect and empower small scale producers and consumers and facilitate the spread of ideas and innovations.

Inevitably, when giant corporations own and operate local cable or wireless systems, they control a community's access to the Internet – including costs, speeds, and availability. In the modern information driven economy, this often means that a town or county's economic prosperity and future is in the hands of these corporations. Because these large corporations have money, lobbyists and lobbying power they tend to find different ways to influence regulators and public officials to increase profits at the expense of local needs. In response to this, more than 450 communities now have full (communication utility) or partial (public-private partnership) owned broadband networks.

The emergence of these networks often forces the incumbent providers to invest in upgrading their services, creating a more capable and competitive marketplace, benefiting the local economy. A fiber optic municipal broadband network has the potential to provide transformational economic benefits to the business community in Lady Lake including:

- *Creating public-private partnerships with competitive service providers that have an interest in utilizing the Town's network to reach local businesses with new telecommunication services.*
- *Providing a foundation of broadband services in areas targeted for economic development, utilizing fiber broadband as an economic development tool to attract and retain business.*
- *Improving access to broadband services in areas that traditionally suffer from poor access by extending service providers reach using Lady Lake's fiber optic network.*
- *Generating new sustainable revenues that can be reinvested into expansion of the network to serve more areas of the Town with fiber broadband access.*
- *The marketing of Lady Lake as a broadband community with targeted messaging to businesses and service providers.*

Conclusion
In closing, I would grant that when one considers the current populations of the others in the County who are presently building or operating fiber wide area networks, each at least double our current size, one could conclude that the timing of this idea may be a little premature. However, we know that our metropolitan region is currently the fastest growing region in the country. We believe that the 441 corridor running through the middle of our Town has the highest traffic counts in this region. And this will most likely be amplified when the road widening project is completed, wider roads are built to facilitate more traffic.

And that brings me to the single most important consideration. The anticipated road widening project and any other similar projects that may occur in the near future, offer both significant timing and cost savings opportunities to build a fiber wide area network. In fact, when you consider the location of this road, that it bisects the entire length of our Town, that many of our Town facilities and SCADA sites are near to it and that it is often difficult and expensive to negotiate right of way with the State after such a project is completed, especially when you are attempting to directional bore underneath their high capacity road…multiple times…It is hard to imagine a better time to consider this. ***If we were ever going to consider building such a network, this is the time to do so.***

Commissioner Hannan voiced his support of this project by stating the Town should do what it can afford to do at this time, as The Villages Technologies Solutions Group owner suggested.

Mayor Kussard reviewed the estimated costs of this project as almost $500,000 for the conduit, and almost $2 million for conduit and fiber; in addition to cost of internet services, right-of-way acquisition, and a consultant to prepare a business plan.

Mr. Pearl stated the $2 million cost is the projected cost today if the Town were to do an overbuild all in one year; with no coinciding capital infrastructure improvements, which would go up with inflation. He stated the Town could potentially save half that cost if the Town were to put conduit and cable in the ground coinciding with capital projects such as the widening of US Hwy 27/441 and the expansion of Rolling Acres Road.

Mayor Kussard expressed concern regarding recouping the costs as Lady Lake has no hospitals, universities, large schools or corporations that may utilize this type of service, as Leesburg is using it only for commercial, and Lady Lake would only use it for Town facilities at this time.

Mr. Pearl stated his thoughts are to overbuild now to take advantage of cost savings, and use it for municipal purposes now to save operational costs, with the possibility of utilizing the FiberWAN for other commercial uses in the future, although they are not guaranteed or even apparent now. He stated it could be an incentive for larger commercial development for Lady Lake in the future.

Town Manager Kris Kollgaard clarified that there would be a $20,000 yearly savings in operational costs now for a cost of $1 million for the municipal WAN.

Commissioner Hannan stated he feels that having this fiber in the ground will attract bigger corporations to Lady Lake, such as larger medical facilities needing it for high tech equipment.

Commissioner Richards commented that Leesburg has had FiberWAN for 13 years and not used it. He stated he is not in favor of having a $1 million solution for a $20,000 problem, although he understands the security and increased efficiency, etc., and the Town will still have to hook up to someone else.

Ms. Kollgaard questioned that since Leesburg already has the fiber, what would stop someone from hooking up to Leesburg instead of Lady Lake's FiberWAN if the Town had it.

Mr. Pearl replied Leesburg is unique in that it has a full-service communication utility, while Winter Haven and Clermont are hoping to do public-private partnerships, which have less restrictions and are a shared risk model. This creates competition and keeps costs down. Leesburg cannot sell services for less than cost, and they are very expensive.

Commissioner Vincent commented that the Town will have a lot of equity just by installing conduit and fiber in the ground even without it being hooked up (dark fiber).

Mr. Pearl shared that he looked into the Town's broadband opportunities in 2011, and in an email from Leesburg, it stated that a 20-year indefeasible right of use for one dark fiber pair running from Town Hall to the library and continuing to the Public Works building, would be priced at $262,615.00. He stated these kind of prices would not attract public-private partnerships, and he believes Lady Lake could; it would be a more attractive destination.

Commissioner Vincent stated that nobody would be able to undercut the Town if it put the conduit and fiber in while the roads are under construction, because of the cost savings of doing this. He stated that it will not get any cheaper.

Commissioner Richards commented that directional bore has gotten much more reasonable.

Ms. Kollgaard asked if the businesses in the area now, such as the ones across the street from Town Hall, would have the need for the FiberWan.

Mr. Pearl replied that the majority of the current top ten employers for Lady Lake are national chains, and he would anticipate they have national contracts and would not be interested in this type of service. He stated, though, that the new information economy is dependent upon this asset - fast, capable broadband internet availability.

After further discussion, it was the consensus of the Commission by a vote of 3-2 (Commissioners Hannan, Holden & Vincent in favor; Commissioner Richards & Mayor Kussard not in favor) for staff to move forward with contacting Magellan Associates to prepare a cost on developing a comprehensive broadband design and technical plan for the Town.

4. ADJOURN: There being no further discussion; the meeting was adjourned at 5:57 p.m.

_____ _____

Kristen Kollgaard, Town Clerk Ruth Kussard, Mayor

Minutes transcribed by Nancy Slaton, Deputy Town Clerk