



CITY OF LAKELAND

Broadband Business Plan



DRAFT



TABLE OF CONTENTS

TABLE OF CONTENTS	2
1.0 INTRODUCTION	6
2.0 CURRENT BROADBAND INDUSTRY	8
3.0 BENEFITS TO LAKELAND	10
3.1 WHY MUNICIPAL UTILITIES ARE INVESTING IN BROADBAND	10
3.2.1 THE FUTURE OF WIRELESS	13
4.0 MARKET ANALYSIS	16
4.1 QUANTITATIVE MARKET RESEARCH	16
4.2 RESIDENTIAL SURVEY FINDINGS	16
4.2.1 INTERNET PROVIDERS	16
4.2.2 RESIDENTIAL INTERNET PRICES	17
4.2.3 SATISFACTION	18
4.3 COMMERCIAL SURVEY STATISTICS	20
4.3.1 COMMERCIAL INTERNET PROVIDERS	20
4.3.2 COMMERCIAL BUSINESS INTERNET PRICING	20
4.3.3 COMMERCIAL SATISFACTION	21
4.4. MARKET SHARE CALCULATIONS	23
5.0 REGULATORY ANALYSIS	25
6.0 BUSINESS STRATEGY	27
7.0 PRODUCTS AND SERVICES	29
7.1 INTERNET	29
7.1.1 RESIDENTIAL INTERNET	29
7.1.2 BUSINESS INTERNET	31
7.2 TELEVISION	32
7.2.1 CONTENT ACQUISITION	32
7.2.2 SUPPORTING OVER THE TOP	33
7.3 VOICE	35
7.3.1 VOICE SERVICES	35
7.3.2 WHITE-LABEL VOICE RESALE	36
7.3.3 RESIDENTIAL VOICE PRODUCTS	37
7.4 BUNDLES	38
8.0 MARKETING AND SALES PLAN	39
8.1 THE MARKETING AND SALES APPROACH	39

8.2 PRODUCTS AND SERVICES	40
8.3 CONTENT PRODUCTS AND SERVICES	41
8.4 MARKETING PERSONNEL	42
8.5 CUSTOMER ENGAGEMENT	43
8.6 MARKETING OUTREACH PLANNING	43
8.7 SALES CAMPAIGNS	45
8.7.1 OVERVIEW	45
8.7.2 SALES GOALS	45
8.8 ESTABLISH GREAT CUSTOMER EXPERIENCES	46
8.8.1 PRODUCT LAUNCH PLANNING	46
8.8.2 PRODUCT LAUNCH ELEMENTS	46
8.8.3 RECRUIT PILOT AND BETA TEST CUSTOMERS	47
8.8.4 LAUNCH TACTICS	49
8.8.5 KEY ADVERTISING COPY POINTS	49
9.0 OPERATIONS PLAN	50
9.1 HIGH-LEVEL GOVERNANCE	50
9.2 BILLING AND OPERATING SUPPORT SYSTEMS	50
9.2.1 CUSTOMER INFORMATION SYSTEM	51
9.2.2 ACCOUNT VERIFICATION (CPNI, FTC RED FLAGS RULE)	51
9.2.3 ACCOUNT OVERVIEW	52
9.2.4 SERVICES DETAILS	52
9.2.5 ACCOUNT NOTES AND HISTORY	53
9.2.6 BILL PRESENTATION AND HISTORY	53
9.2.7 ONLINE CUSTOMER PORTAL	53
9.2.8 BILLING	53
9.2.9 ADDRESS MANAGEMENT	54
9.2.10 FACILITIES ASSIGNMENT	54
9.2.11 AUTOMATIC PROVISIONING OF SERVICES	55
9.2.12 OUTSIDE PLANT MAPPING AND DOCUMENTATION	56
9.2.13 EQUIPMENT TRACKING	57
9.2.14 TROUBLE TICKETING	57
9.2.15 SCHEDULING AND SERVICE ORDER FLOW	58
9.3 BSS/OSS SELECTION AND IMPLEMENTATION	60
9.4 MANAGEMENT TEAM STRUCTURE	61
9.4.1 STAFFING CONSIDERATIONS FOR SUPPORT TIERS	61
9.5 PHYSICAL WORKSPACE LAYOUT	63
9.5.1 CALL CENTER TEAM STRUCTURE AND HIERARCHY	64
9.6 STANDARD OPERATING PROCEDURES	65
9.6.1 CALL AND EMAIL HANDLING	65
9.6.2 TROUBLE TICKET DOCUMENTATION	67
9.6.3 INTERACTIVE VOICE RESPONSE (IVR)	68
9.6.4 TROUBLESHOOTING TOOLBOX	68
9.6.6 TROUBLESHOOTING STEPS	69
9.6.7 TICKET ESCALATION AND TROUBLESHOOTING	70
9.6.8 KEY PERFORMANCE INDICATORS (KPIs)	73
9.6.9 INDIVIDUAL AGENT-LEVEL KPIs	76

9.6.10 TEAM LEVEL KPIS	76
9.6.11 CUSTOMER LOGIN SYSTEM	78
9.7 NETWORK OPERATIONS CENTER (NOC)	78
9.7.1 NOC OPERATIONS CONSIDERATIONS AND BEST PRACTICES	78
9.7.2 NETWORK MANAGEMENT	79
9.7.3 PHYSICAL LAYOUT	79
10.0 NETWORK DESIGN & COSTING	80
11.0 FINANCIAL PLAN	81
12.0 BUSINESS RISK ANALYSIS	82
13.0 IMPLEMENTATION PLAN FRAMEWORK	83
13.1 PROJECT & CONSTRUCTION MANAGEMENT FRAMEWORK	83
13.2 NETWORK DESIGN	84
13.3 ENGINEER’S ESTIMATES & FINANCIAL PLAN INPUTS	85
13.4 CONSTRUCTION	86
13.5 START-UP	87
13.6 CUSTOMER SERVICE READINESS	88
13.7 OPERATIONS	90
13.8 DATA CENTER STANDUP	91
13.9 SALES & MARKETING	93
13.10 PILOT DEVELOPMENT AND PHASE ROLLOUT	94

TABLE OF FIGURES

FIGURE 1: MUNICIPAL & UTILITY BROADBAND NETWORKS	8
FIGURE 2: WIRELESS NETWORK DIAGRAM	14
FIGURE 3: INTERNET PROVIDERS UTILIZED BY LAKELAND AREA HOUSEHOLDS	17
FIGURE 4: HOW MUCH WOULD LAKELAND HOUSEHOLDS PAY FOR A CITY-PROVIDED INTERNET SERVICE?	17
FIGURE 5: LAKELAND AREA HOUSEHOLD SATISFACTION LEVELS FOR INTERNET SERVICES	18
FIGURE 6: REASONS HOUSEHOLDS WOULD SWITCH TO A CITY-PROVIDED INTERNET SERVICE	18
FIGURE 7: OTHER SERVICES THAT LAKELAND HOUSEHOLDS PURCHASE FROM THEIR INTERNET PROVIDER	19
FIGURE 8: INTERNET PROVIDERS UTILIZED BY LAKELAND AREA BUSINESSES	20
FIGURE 9: LAKELAND AREA BUSINESSES SATISFACTION LEVELS FOR INTERNET SERVICES	21
FIGURE 10: REASONS HOUSEHOLDS WOULD SWITCH TO A CITY-PROVIDED INTERNET SERVICE	21
FIGURE 11: OTHER SERVICES THAT LAKELAND BUSINESSES PURCHASE FROM THEIR INTERNET PROVIDER	22
FIGURE 12: ATTRIBUTES, LEVELS, RELATIVE IMPORTANCE AND PART-WORTH UTILITIES FOR RESIDENTIAL.....	23
FIGURE 13: ATTRIBUTES, LEVELS, RELATIVE IMPORTANCE AND PART-WORTH UTILITIES FOR COMMERCIAL.....	23
FIGURE 14: LAKELAND POTENTIAL SERVICE OFFERINGS, PRICES & MARKET SHARES	24
FIGURE 15: RESIDENTIAL FIBER-OPTIC INTERNET PRODUCTS.....	30
FIGURE 16: RESIDENTIAL MANAGED SERVICES.....	30
FIGURE 17: BUSINESS FIBER-OPTIC INTERNET PRODUCTS TIER 1 –SAMPLE SMALL TO MEDIUM BUSINESSES.....	31
FIGURE 18: RESIDENTIAL FIBER-OPTIC INTERNET PRODUCTS.....	34
FIGURE 19: RESIDENTIAL VOICE PRODUCTS	37
FIGURE 20: DOUBLE-PLAY	38
FIGURE 21: TRIPLE-PLAY.....	38
FIGURE 22: EXAMPLE OF A HIGH-LEVEL FLOW OF AUTOMATIC PROVISIONING.....	56
FIGURE 23: SERVICE ORDER PROCESS FLOW	59
FIGURE 24: PROPOSED FUNCTIONAL ORGANIZATIONAL STRUCTURE.....	61
FIGURE 25: TECHNICAL SUPPORT 24/7/365 SCHEDULE.....	62
FIGURE 26: PERFORMANCE INDICATORS RELATING TO CALL WAIT TIMES	74
FIGURE 27: QUALITY ASSURANCE REPORT EXAMPLE	75

1.0 Introduction

This Broadband Business Plan provides the background and analysis of the City’s broadband initiative with potential options to expand its current program to provide services to residents and businesses.

Over the years, the City has amassed a large installed-base of fiber-optic and wireless infrastructure, which it has leveraged to provide valuable high-speed connectivity to the Polk County School District, local libraries, public safety and Lakeland Electric substations and facilities. The City also leases dark fiber to local providers to bring high-speed connectivity to businesses and other entities in the area. SurfLakeland provides free wireless services through portions of Downtown Lakeland and other select areas, using the fiber network to connect wireless antennas across the City.

The City’s assets can further be leveraged to become a platform to deploy broadband services to residents and businesses. These resources coupled with new investments and operations could provide a fiber-based infrastructure to the City and Lakeland’s communities. Why fiber? Fiber remains the most effective infrastructure to provide high-speed broadband with the longest life of any broadband technology. It is a 20-30-year asset and remains the gold standard for providers to use to deliver broadband services.

Most residents and businesses in Lakeland have access to only one or two options for their internet service. By providing broadband services, the City could increase competition and choice for its community, while having positive impact on economic development, education and the technology amenities that are available to citizens and businesses.

The network will provide high-speed, fiber-optic broadband services, with 1 gigabit (and other speeds) available to homes, and with future expansion to 10 gigabit services. Businesses will also have access to the same speed services and Lakeland will be able to facilitate even greater speeds to large businesses up to 100 gigabit, if required. The City also has the opportunity to couple internet with television and voice services, which are valuable options to provide bundles that are consistent with other providers’ offerings.

In addition to broadband services, municipal fiber as envisioned would provide additional connectivity for multiple civic and utility functions throughout the Lakeland area. This includes supporting Lakeland Electric’s future needs, enabling Smart City applications for transportation and public safety, creating a Lakeland-wide technology platform for high-tech business cultivation and enabling opportunities to reduce the cost of doing business in the City.

Deploying fiber to homes and business is a major investment, and City leadership should take careful consideration not only of the benefits, but also the risks. Therefore, a cohesive plan must detail these benefits and risks to Lakeland. And, the plan must reliably demonstrate that if the City invested in this network, it would have reasonable reassurance that the costs of the system would be covered by the revenues generated by the system.

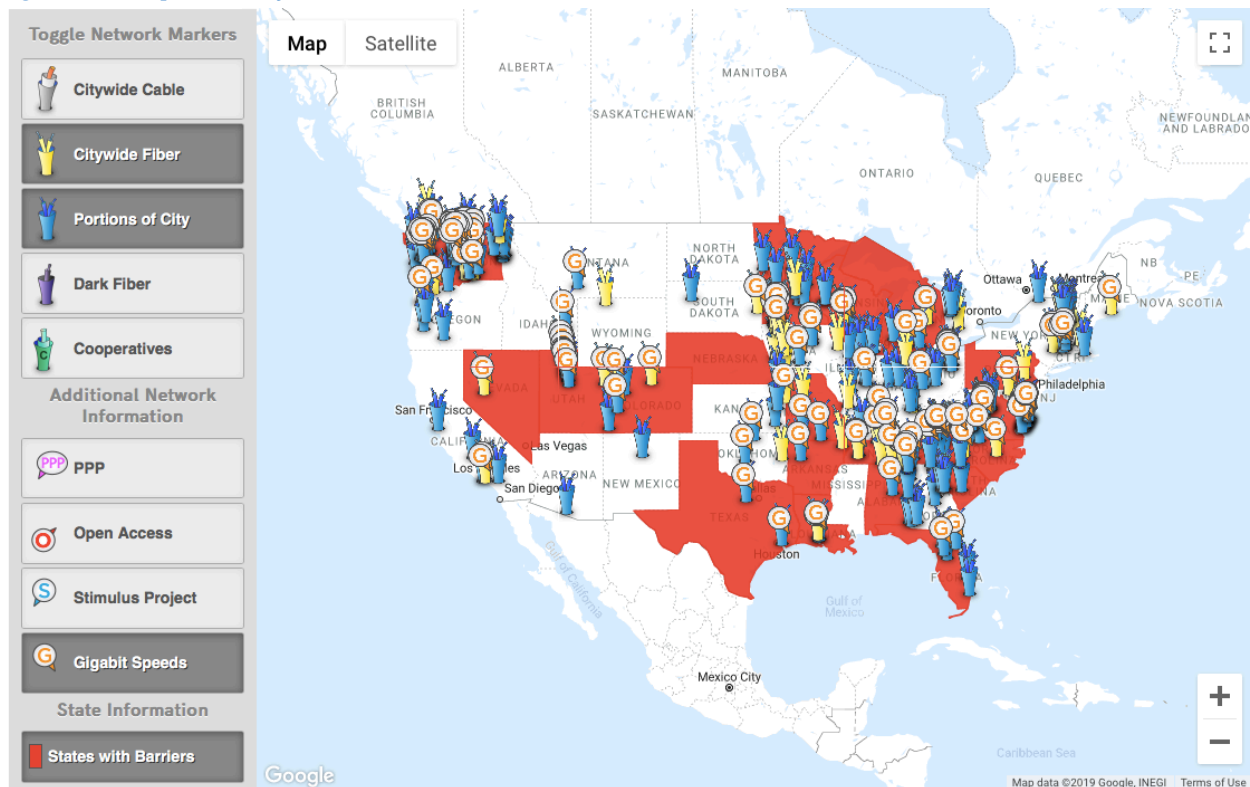
This Plan provides a detailed structure for the City to expand its investments in fiber to provide retail broadband services to the Lakeland community. It incorporates strategies and solutions, market research, preliminary engineering and construction cost estimates, organizational and operational recommendations for future network implementation projects, and funding strategies for potential deployment of broadband services.

2.0 Current Broadband Industry

Local governments and utilities are charged to make wise investments in infrastructure for the communities they serve. Electric service has traditionally been their domain; however, broadband internet access has become an essential service that many organizations supply to their customers today. About 200 municipalities and utilities and about 285 electric cooperatives in the US provide these types of broadband services, utilizing fiber-optic technologies to deliver very high, symmetrical speeds, and reliable services. Cities and utilities are accustomed to excellent service and community support, which has led their charge into broadband, coupled with responsiveness to their customers' needs for faster, more reliable internet.

Figure 1 illustrates these providers today, including municipalities and utilities (including cooperatives). Municipalities and utilities that supply internet services to their customers generally do so by retailing these services. They provide internet access as well as customer service, support, and maintenance management of all services.

Figure 1: Municipal & Utility Broadband Networks



How has this occurred? Similar to Lakeland, many cities maintained their own fiber networks in their organizations to serve municipal or electric utility needs. The networks began to expand with greater demand for internet access and connectivity. Utilities saw this as an opportunity to help their local communities and improve the usage of these assets, many of which had excess capacity.

Like Lakeland, utilities have listened, and in some cases, they've expanded access to their own fiber to allow local businesses, government organizations, schools and even broadband providers to use this high-speed infrastructure.

In other cases, they have taken a community-wide approach to expanding broadband services for all residents and businesses, in the same way they have done with electricity, serving 100% of their territories. They bring the same culture of service that they've cultivated in the electric utility to the broadband world. They utilize their expertise in planning, building and maintaining infrastructure to support the transition into these new business ventures.

Many different approaches have been used by utilities to deploy Fiber-to-the-Premises ("FTTP") networks in their communities and several feasible broadband deployment and operations strategies exist. What has been learned over this period is that no "cookie cutter" model exists to replicate the successes that some utilities providers have enjoyed, such as Chattanooga Electric Power Board, TN, Longmont Power & Communications, CO and Lafayette Utility Systems, LA.

However, challenges are always evident, and utilities must be very careful in their approach to providing broadband services, as it is a new business endeavor and one that many are not accustomed to. Utilities must determine accurate costs, prices, take rates and operational plans to manage their networks. They must learn to compete, which is a significant undertaking that is not generally a part of utility culture.

Most importantly, their plans must be well-executed to achieve the customers needed to sustain their networks financially. These are significant undertakings that take the right mix of organizational structure, management experience, operational cohesiveness and funding. Organizations such as Ashland, OR, Burlington, VT and Wilson, NC all experienced significant challenges in deploying services. In the case of Burlington, VT, the system was eventually sold to an operator in 2018 after being rescued by a private investor that co-funded operations with the City for nearly a decade.

Fiber networks also create positive social and economic benefits to communities. Many public utilities have enabled improvements throughout the communities they serve in terms of economic and community development, education, healthcare and citizen engagement. These benefits are often called "off balance sheet benefits", or intangible benefits, because the value of the benefits are real to the community, even though they may not show up on a pro forma or balance sheet.

Therefore, as part of the overall broadband equation, the City's leadership should always keep in mind the additional benefits realized through serving its community organizations with high-speed connectivity, including schools, hospitals, local governments, and non-profit organizations. The network provides a lift to all these organizations in addition to an additional revenue stream to the City above and beyond the consumer broadband market.

3.0 Benefits to Lakeland

3.1 Why Municipal Utilities are Investing in Broadband

Enhancing Utility Capabilities

Fiber networks provide a high-speed communications platform that allow electric utilities to deploy new electric grid modernization capabilities. Distribution utilities leverage their investments in fiber to support a number of these applications, such as recloser deployment, which enables millisecond changes to the electric grid to route around line failures and real-time demand-response technologies that enable utilities to manage demand, capping peak-hour load, and reducing electric costs.

Other applications include:

- Automatic reconfiguration of distribution resources with 50-millisecond switching capabilities to reduce or remove the impact of interruptions;
- Real-time monitoring of distributed energy resources as they grow within the utility territory;
- Reliable connectivity to support future behind-the-meter programs to help manage demand;
- High-security dark fiber penetrating further into the distribution system to support the grid modernization applications; and,
- Future deployment and integration of electricity storage resources to support plug-in electric and hybrid electric vehicles.

For Lakeland Electric, the FTTP network will extend its communications capabilities to the consumer, providing a platform for future grid modernization applications for the utility's use.

Reducing Lead Times for Service

The time to install and activate a customer's broadband services is significantly determined by the availability of infrastructure in the area. The industry standard lead time for activation of fiber-optic broadband services is 30 to 60 days in most markets where broadband providers operate. In many cases, the lead time may double or triple depending on how much additional fiber construction is necessary to reach the end user's location. Utilities improve the customer experience by deploying FTTP services throughout their regions to reduce the overall lead times for installation.

The City would be able to accelerate business broadband installations with its FTTP versus the long lead times that are experienced by businesses today.

Enhancing Economic Development

Florida's High Tech Corridor spans 23 counties across Florida, with the majority of the area within Central Florida. Polk County and Lakeland fall in the center of this region, which is home to thousands of innovative organizations ranging from agritech, to aviation and aerospace, finance, microelectronics, nanotechnology and more.

According to Florida High Tech, key industries include: Information Technology, Life Sciences, Nanotechnology, Modeling, Simulation and Training, Optics and Photonics, Sustainable Energy, Agritechology, Aviation and Aerospace, Digital Media, and Finance.^[1] While Lakeland is situated along the I-4 corridor between Orlando and Tampa, attracting and retaining organizations from these types of industries will continue to grow in importance.

Businesses and organizations large and small require internet access to be viable and productive in today's economy. If the organization providing the product or service cannot acquire internet service of great capacity and at a fair cost, the organization may search for a different location to operate. Technology-based and innovative organizations require increasingly large amounts of bandwidth to conduct business. Whether the technology is high-tech labs in the biomedical field or the simulation industry constructing programs for the military, these organizations will require reliable, high-speed internet capable of supporting a wide variety of needs.

The City will build an infrastructure that supports a tech ecosystem throughout Lakeland.

Increasing Availability

Increasing the availability of high-speed broadband into the City's business corridors provides an opportunity to enhance local economic development efforts. Through the deployment of fiber technology, areas within the City footprint can designate these areas as being fiber-ready, allowing any business moving to the City to recognize that fiber services are readily available and prevalent at competitive rates. Access to high-speed internet is a significant economic driver for communities looking for ways to attract and retain businesses.

Improving Adoption

Broadband affordability and broadband adoption are positively correlated. As affordability increases, so does adoption. The City may positively influence adoption by providing competitive services at low costs for disadvantaged residents, small startup businesses, and other groups. Incentive programs have been employed by utilities based on community need to raise the bar for adoption, which also increases their overall customer base and helps close the digital divide. Increasing adoption is a strategic goal of Polk Vision and the Smart Communities Team, who's vision is that "All of Polk County will have high speed, affordable internet access to 2030."

Increased internet adoption equates to more productivity throughout the community, whether focused in increases in educational attainment, better healthcare and overall well-being, and as a way to increase digital interaction with local government-provided services.

Keeping Dollars in the Local Economy

When local utilities provide FTTH services, revenues from internet, video and other services stay local in the community rather than being exported. Subscriber fees are reinvested into the utility's plant and operations to sustain and grow the system rather than being taken out of the local economy. These reinvested dollars bring new benefits to subscribers in faster speeds and new services that utilities continually deploy in their FTTH networks.

More dollars kept in the local economy means greater investments in local public infrastructure, as well as more savings to the local consumer.

Improving Affordability

Public utilities that invest in broadband improve the access, affordability, and quality of broadband services over what has traditionally been provided by broadband providers. Rather than taking profits from the network, public utilities often seek to reinvest in the network, or to stabilize or lower prices for their customers. They also strive to maintain consistent pricing at the same levels for their customers rather than pricing services at different rates depending on location or promotional offers.

Many utilities offer low-cost “lifeline” packages for disadvantaged or low-income residents to enable them to get services they couldn’t otherwise afford. A recent report from Harvard University’s Berkman Klein Center for Internet and Society found that municipal/utility broadband networks achieve lower prices for their subscribers than comparable services from traditional broadband providers. A few key points from the study include:

- When considering entry-level broadband service—the least-expensive plan that provides at least 25/3 Mbps service—23 out of 27 community-owned FTTH providers charged the lowest prices in their community when considering the average cost of service over a four-year period, taking into account installation and equipment costs and averaging any initial promotional rates with later, higher rates.
- In these 23 communities, prices for the lowest-cost program that met the current definition of broadband were between 2.9% and 50% less than the lowest-cost such service offered by private providers in that market. In the other four cases, a private provider’s service cost between 6.9% and 30.5% less.
- While community-owned FTTH provider pricing is generally clear and unchanging, private providers offer initial promotional prices and then raise the monthly price sharply. The price hike often ranges between \$10 and \$40 after 12 months.

The City will be able to stabilize rates and cost structures, better manage cost increases, and provide a higher level of customer service to its subscribers just as it does today with its electric service.

Preparing for Smart City Technologies

Municipalities across the world are deploying technology infrastructure and systems to support ubiquitous connectivity across their regions. Local governments and utilities are connecting more devices and community infrastructure components to support a smarter community. While local governments have historically focused on connecting buildings and public sites to their networks, future demands will drive connectivity to water and wastewater systems (well points, lift stations, pump stations, AMI collectors), stormwater systems (manholes, weirs, structures), greater levels of surveillance (cameras, sensors, vehicles), as well as new transportation technologies.

For Lakeland Electric and the City of Lakeland being a full-service City and utility provider, the FTTP network will provide dense fiber capacity into all areas of the City, connecting its community infrastructure to power a Smarter Lakeland.

Smart City initiatives deploy digital technology to control public assets, generate data, and make municipal services—and citizens’ lives—better. The results can be huge bottom-line gains including reducing energy consumption, manual labor, component failures, vandalism, and

other costs. Smart Cities can also generate additional benefits and revenue by enhancing current services or offering new services. Online and self-serve rentals, data brokering, and advanced connectivity are a few examples. Needless to say, these opportunities involve substantial investments in hardware, and require workforce up-skilling. They can also have big connectivity requirements.

A recent study and report by Deloitte noted that “Deep deployment of fiber optics into our nation’s network infrastructure might not be as glamorous as the eagerly anticipated launch of fifth-generation mobile networks (5G); however, it is just as important—if not more so. In fact, 5G relies heavily on fiber and will likely fall far short of its potential unless the United States significantly increases its deep fiber investments.”¹ The study estimates that the US will need to invest \$130 - \$150 billion in the next 5-7 years in fiber infrastructure in order to support the roll out of next generation wireless.

3.2.1 The Future of Wireless

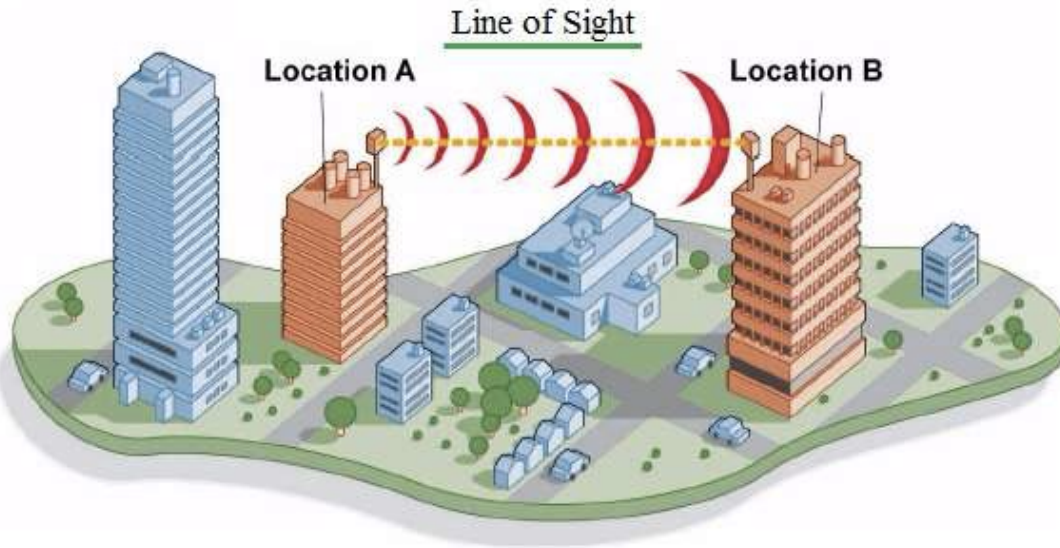
Wireless broadband can operate as mobile wireless or microwave fixed. Fixed wireless can be used to connect remote locations or sparsely populated areas, where DSL or cable service would not be economically feasible, via long-range directional microwave antenna.

Fixed wireless services allow consumers to access the internet from a fixed point while stationary, and typically requires an external antenna with direct line-of-sight between the distant wireless transmitter and the customer building-mounted receiver. Speeds are generally comparable to DSL and cable modem. These services have been offered using both licensed spectrum and unlicensed devices. To deliver a fixed wireless solution, providers need to consider a few things:

- Available and appropriate spectrum – not all spectrum is created equal
- Tower locations and siting
- Terrain and form of interference
- Backhaul options
- Bandwidth requirements

¹ <https://www2.deloitte.com/us/en/pages/consulting/articles/communications-infrastructure-upgrade-deep-fiber-imperative.html>

Figure 2: Wireless Network Diagram



Wireless (and cellular) signals travel through the air via microwave wireless spectrum. This spectrum is not an infinite resource; there is only so much available. While technology continues to improve the amount of bandwidth that can be delivered over a set amount of spectrum, spectrum is still limited. Spectrum in the US is managed by the Federal Communications Commission (FCC), which establishes rules for how spectrum is to be used, who has the rights to use it, and then works to govern the use of that spectrum.

Spectrum is licensed for radio (FM/AM), TV broadcast, military communications, airlines, satellites, emergency use, ship-to-shore communications, cellular communications and many others. Blocks of spectrum are basically lumped into two buckets: licensed and unlicensed spectrum. Unlicensed spectrum can be used by anyone who agrees to “play nice” within that spectrum. Wi-Fi is an unlicensed spectrum that the FCC has made available for anyone to use as long as rules are adhered to. Carriers generally do not deploy services in unlicensed spectrum because they would have a difficult time providing any type of guaranteed quality of service to their end users.

Getting high bandwidth broadband and the ability to penetrate walls and terrain is a balancing act. Spectrum in the lower ranges offers better non-line-of-sight solutions, whereas the higher spectrum ranges need a more line-of-sight solution, requiring the transmitting antenna to be able to “see” the receiving antenna with limited trees and buildings in the way to be effective.

Terrain, then, plays an important role in the network design. Spectrum does not get over mountains or hills very well, nor does certain spectrum do very well in penetrating through trees, bushes, water or distance. The farther away the transmitter and the receiver are from each other, the less bandwidth is available. Transmitter sites need a means of connecting to the network, whether via fiber or microwave to another site where it then transitions to a wireline fiber network. Fiber can be costly to install to remote locations. Electrical power, security and access are also considerations when locating appropriate tower sites.

5G Mobile Wireless

The fifth generation of mobile wireless networks, known as 5G, is being designed and developed, with forecasted commercial availability in 2020 and an increased maturity of the network in subsequent years. 5G networks operate multiple frequencies using millimeter wavelengths to offer anticipated download/upload speeds of 1 Gbps. The networks are designed to provide increased efficiencies while decreasing latency and are designed for improving the performance of connected devices that define the Internet of Things. Examples include autonomous vehicles, healthcare monitoring technologies, ultra-high-definition video, virtual reality, and many more applications that are ripe for development.

4.0 Market Analysis

4.1 Quantitative Market Research

The purpose of the market research assessment was to determine what value residential (households) and commercial (businesses) customers place on various aspects of their broadband services in order to forecast the demand for City-provided broadband, if it were introduced to the current market. The market research targets existing customers across the service territory. A random sample of respondents was selected for the email distribution to remove any self-selection bias in the survey. The survey instrument utilized an online platform for distribution of surveys. Individual surveys were distributed electronically via email with a survey link embedded in the email, with a unique survey identifier and URL. The random sample was also geographically tested to ensure all communities across the City and electric service area were well represented.

The survey contained a behavioral portion, which solicited information on current internet, voice and video services and included information on pricing, satisfaction, importance and household demographics. The survey also contained a choice-based conjoint (“CBC”) portion which determined quantitative demand for services by asking respondents to select their preferred choice from a series of existing market offers, as well as a City-provided offer. Surveys were analyzed to determine the quantitative demand resulting from the CBC, while the behavioral portion of each survey inferred specific findings that reinforced those of the CBC or provided additional insight into the preferences of customers.

4.2 Residential Survey Findings










A total of 38,300 surveys were distributed to Lakeland Electric residential customers via email. A total of 850 surveys were completed by Lakeland households, which yielded a 5% overall margin of error in the results at a 95% confidence interval.

4.2.1 Internet Providers

The survey determined the current market share for providers in Lakeland’s territory to understand what providers Lakeland area customers utilize today and the services they offer. Spectrum is the dominant provider in the market today, with the majority share of the market at 85.4%. Frontier follows as the second leading provider, with 11.6% of Lakeland area households subscribing to FiOS fiber-optic internet service.

The remaining 3% of households report subscribing to a wireless, cellular or satellite-based internet service. Providers included Verizon, Comcast, DirecTV, AT&T, HughesNET and Dish Networks. Subscriptions to Comcast/Xfinity were also reported in .4% of households, although Comcast/Xfinity residential services were not identified when analyzing the market for active providers.

Figure 3: Internet Providers Utilized by Lakeland Area Households






Value		Percent	Count
Spectrum		85.4%	916
Frontier		11.6%	124
Other - Write In		0.9%	10
Verizon		0.7%	8
Comcast/Xfinity		0.4%	4
Direct TV/AT&T		0.5%	5
Hughes Net		0.3%	3
Dish Networks		0.1%	1
Unsure		0.1%	1

4.2.2 Residential Internet Prices

Lakeland area households report paying \$61 per month on average for their home internet services. Prices and speeds differed based on packages to which they subscribed. Packages ranged from \$99 per month for 400-megabit service to \$20 per month for 12-megabit service.

Lakeland area households were also asked how much they would be willing to pay if the City were to provide service at commensurate speeds with current services. 40.4% of households were willing to pay up to \$59.99 while 18.1% were willing to pay up to \$79.99. Only 2.9% of households reported that they would not subscribe to a City-provided internet service.






Figure 4: How Much Would Lakeland Households Pay for a City-Provided Internet Service?

Up To Price		Percent	Count
\$39.99		31.2%	222
\$59.99		40.4%	288
\$79.99		18.1%	129
\$99.99		7.3%	52
I would not subscribe to a City provided internet service		2.9%	21

4.2.3 Satisfaction

Satisfaction levels for internet services include 34.6% of households that are dissatisfied with their internet service, 15.5% which are neutral and 49.9% that are satisfied with their internet services. These figures assume satisfaction levels at the rates households currently pay for their services.








Figure 5: Lakeland Area Household Satisfaction Levels for Internet Services

Value		Percent	Count
Very satisfied		16.7%	123
Somewhat satisfied		33.2%	244
Neither satisfied nor dissatisfied		15.5%	114
Somewhat dissatisfied		23.3%	171
Very dissatisfied		11.3%	83

34.6%
15.5%
49.9%
Dissatisfied
Neutral
Satisfied

With what aspects of internet service are households most dissatisfied? For those customers that were dissatisfied with their current services, Figure 6 illustrates the reasons that customers would switch to a City-provided internet service. 63.1% cited lower prices as the most important reason, followed by 12.9% citing faster speed and 10.0% citing higher reliability.

Figure 6: Reasons Households would Switch to a City-Provided Internet Service

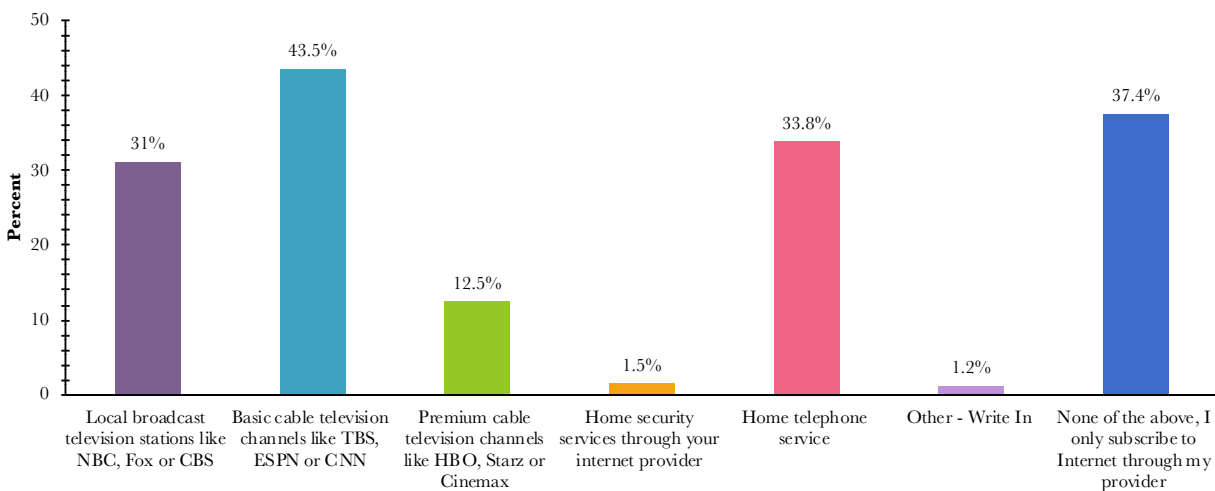
Value		Percent	Count
Lower price		63.1%	657
Faster speed		12.9%	134
Higher reliability		10.0%	104
Better customer service		2.3%	24
I prefer purchasing my internet from a local provider		2.8%	29
I would not switch to Lakeland's internet service		4.0%	42
Other - Please explain		4.9%	51

The survey asked respondents what other services they bundled with their home internet services, to gain a measure of the City's opportunity to offer voice and television services. The survey found that 43.5% of households bundle local television programming with their internet service, while 31% bundle national television channels and 12.5% bundle premium channels. 33.8% of households also bundle home telephone services.

This indicates a viable market for Lakeland to offer both television and home phone services, as complements to its internet service. Although “cord-cutting,” or the trend of consumers to abandon their traditional cable TV services for over-the-top services such as Netflix and Hulu is accelerating, a large percentage of Lakeland households continue to subscribe to traditional cable TV service. Providing cable TV service has traditionally been a very capital-intensive proposition, which required investment in expensive headend equipment and staff to support the equipment.

Under these circumstances, it was very challenging for small providers to warrant the investment, particularly given the evolutions in television viewing toward over-the-top options. Today, new television delivery options exist that emulate traditional cable TV service but do not require the significant capital investment, allowing operators to offer service without the risk of stranded capital. This option enables the City to offer TV service economically, while protecting it from an over-the-top market transition that would otherwise strand its capital investments in the television headend and equipment. Further details are provided in the Products and Services section of this Plan.

Figure 7: Other Services that Lakeland Households Purchase from their Internet Provider



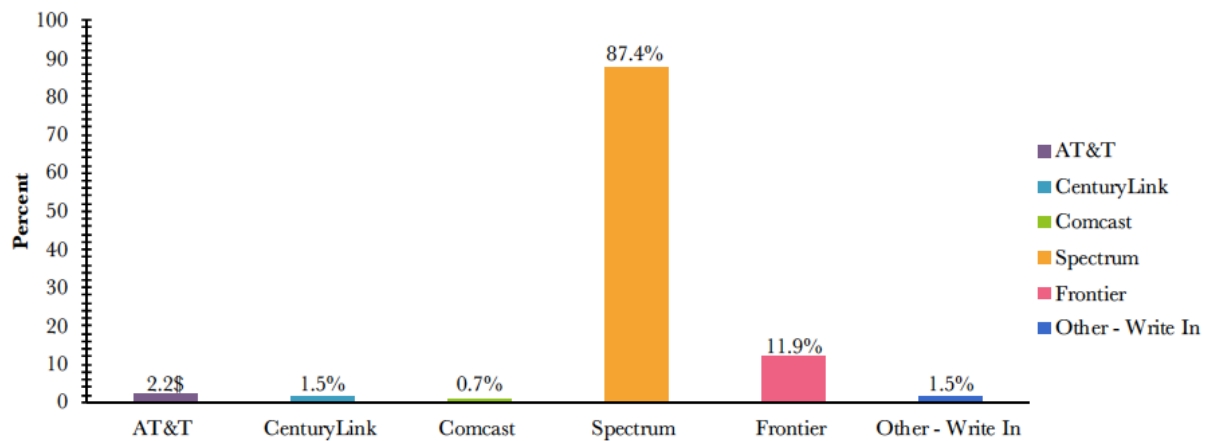
4.3 Commercial Survey Statistics

A total of 4,196 surveys were distributed to Lakeland Electric commercial customers via email. A total of 149 surveys were completed by commercial customers, which yielded a 9% overall margin of error in the results at a 95% confidence interval.

4.3.1 Commercial Internet Providers

The survey determined the current market share for providers in Lakeland’s territory to better understand what providers Lakeland broadband business customers utilize today and the services they offer. Spectrum was reported as the dominant provider in the market today, with 87.4% of Lakeland area businesses subscribing to internet services from the company. Frontier follows as the second leading provider, with 11.9% of Lakeland area businesses subscribing FiOS fiber-optic internet service. The remaining 4% of businesses subscribe to additional internet providers including AT&T, CenturyLink, Comcast.

Figure 8: Internet Providers Utilized by Lakeland Area Businesses








4.3.2 Commercial Business Internet Pricing

Lakeland area businesses pay on average \$171 per month for 80 megabits of service for their business internet services. The survey data was stratified to determine what different sized businesses paid for internet service, given the wide variation in pricing between small and large businesses. For businesses under 50 employees, which made up 82% of survey respondents, their average price paid per month was \$139 while businesses over 50 employees averaged \$460 per month. This is an important distinction to assess the City’s future pricing for business internet services. The majority of businesses with internet needs are small businesses and are very price sensitive. Therefore, the City will need to set small business rates relatively low to incent small businesses to switch to the City’s services.

4.3.3 Commercial Satisfaction

Satisfaction levels for internet services include 37% of businesses that are dissatisfied with internet service, 18% that are neutral and 45% that are satisfied with their internet services.

Figure 9: Lakeland Area Businesses Satisfaction Levels for Internet Services

Value		Percent	Count
Very dissatisfied		12.0%	12
Somewhat dissatisfied		25.0%	25
Neither satisfied Nor dissatisfied		18.0%	18
Somewhat satisfied		33.0%	33
Very satisfied		12.0%	12
Totals			100

37%

Dissatisfied

18%








Neutral

45%

Satisfied

With what aspects of internet services are businesses most dissatisfied? For those customers that were dissatisfied with their current services, Figure 10 illustrates the reasons that businesses would switch to a City-provided internet service. 44.6% cited lower prices as the most important reason, followed by 17.7% citing faster speed and 19.2% citing higher reliability.

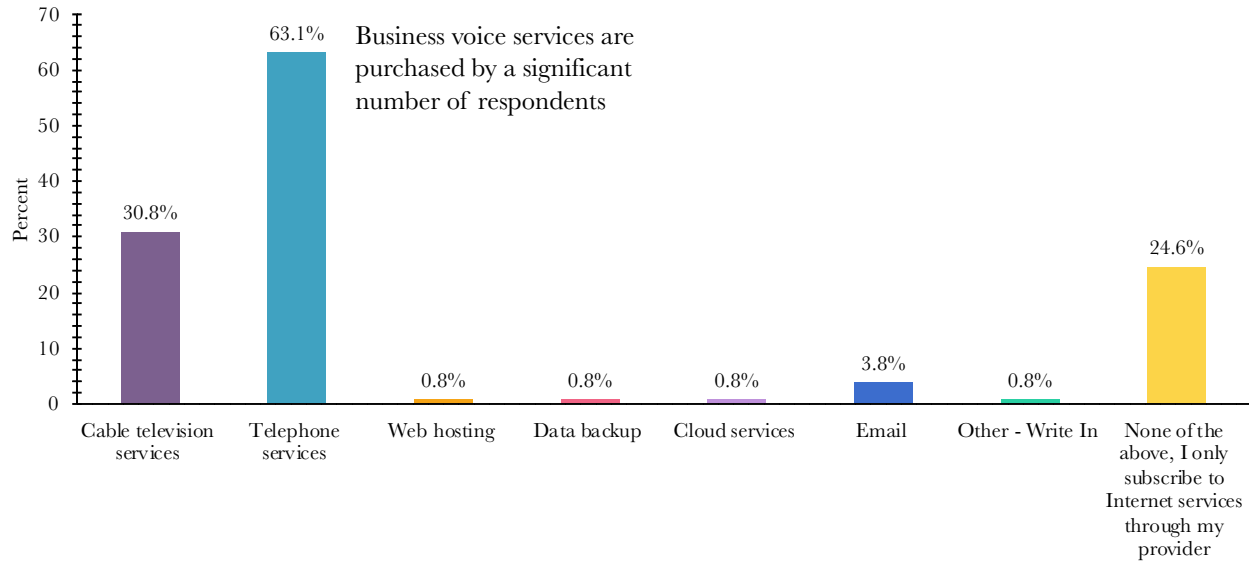
Figure 10: Reasons Households would Switch to a City-Provided Internet Service

Value		Percent	Count
Lower price		44.6%	58
Faster speed		17.7%	23
Higher reliability		19.2%	25
Better customer service		3.8%	5
I prefer purchasing my internet from a local provider		4.6%	6
I would not switch from my current provider to the City of Lakeland's internet service		3.8%	5
Other - Write In		6.2%	8
Totals			130

The survey asked respondents what other services they bundled with their business internet services to gain a measure of the City's opportunity to offer complementary services to businesses. The survey found that 63.1% of businesses bundle business telephone services with their internet service, while 30.8% bundle cable television services. This indicates that the City could offer business telephone service and business television service. These services would utilize the same telephone and television distribution that the City would use for its residential services; therefore,

it is an opportunity to expand the City’s business offerings beyond only internet. Business telephone services carry high margins, while providing a valuable add-on service that allows the City to maintain competitive offerings with other providers.

Figure 11: Other Services that Lakeland Businesses Purchase from their Internet Provider



4.4. Market Share Calculations

The conjoint analysis provides a predictive assessment of estimated take rates that the City could achieve, based on actual customer preferences in the market. The conjoint study allows the City to supply offers to actual customers included in the market research and see how its services would “stack up” against the competition, in terms of prices, speeds and brand.

Results of the conjoint analysis determined an estimate of market share that the City could attain if it provided high-speed internet services to its residential and business customers. Part-worth utilities were calculated for the three attributes: Speed, Brand and Price, along with the relative importance of each attribute. Four levels were utilized for each attribute in the choice-based conjoint. Figure 12 illustrates the conjoint design and resulting part-worth utilities.

Figure 12: Attributes, Levels, Relative Importance and Part-Worth Utilities for Residential

Attribute	Relative Importance	Level	Utility
Speed	47.3%	1000 Megabit	10.3
		500 Megabit	8.1
		100 Megabit	5.8
		50 Megabit	0.0
Brand	11.2%	Comcast/Xfinity	0.0
		Frontier FiOS	0.1
		Spectrum	1.0
		City of Lakeland	1.6
Price	41.6%	\$99.99 Per Month	0.0
		\$79.99 Per Month	3.6
		\$59.99 Per Month	6.8
		\$39.99 Per Month	9.2

Figure 13: Attributes, Levels, Relative Importance and Part-Worth Utilities for Commercial

Attribute	Relative Importance	Level	Utility
Speed	26.2%	1000 Megabit	7.4
		500 Megabit	6.4
		100 Megabit	3.1
		50 Megabit	0.0
Brand	13.3%	Comcast/XFinity	0.2
		Spectrum	1.4
		AT&T	0.0
		Frontier FiOS	0.3
Price	59.9%	City of Lakeland	2.4
		\$79.99 Per Month	16.9
		\$149.99 Per Month	14.6
		\$299.99 Per Month	8.5
		\$499.99 Per Month	0.0

From these part-worth utilities, take rates (market share preferences) were calculated through use of a market share simulator. This converted part-worth utilities into shares of market preference,

for each provider (brand) studied and provided a market share preference for each product offered by the provider. This was valuable in determining the right product mix of speeds and prices that would drive the greatest market share for the City.

The results of this simulation indicate that the City could attain a residential market share of 38% providing internet services at competitive market rates and consistent or faster speeds than current offers. This market share includes discounting for risk, including execution risks that are commonly found with new startup providers. Raw market share from the conjoint analysis indicated a 50.7% overall take rate for the City. However, this assumes that the City would be an established provider in the market with active services.

In reality, the City will be a new market entrant that must build its network, operations and salesforce. In response, the City should also anticipate that competitors will react by lowering rates and by negotiating long-term contracts with their customers. These three forces together may yield lower take rates for the City, which should be built into an effective take rate. Therefore, the raw market share is discounted for the many risk factors that the City will encounter in deploying its services. The raw market for residential internet service is discounted from 50.7% to 38% through this process to arrive at a more conservative, real-world assessment of the City's take rate. The same process is followed to calculate the business internet take rate, discounting the raw market share of 59.1% to 41%.

The City's offerings and market shares are listed in Figure 14 below. These include internet services for residential and business markets. They are optimized based on competitors' existing offerings to the market.

Figure 14: Lakeland Potential Service Offerings, Prices & Market Shares

Service Offering	Price	Market Share
1 Gigabit	\$99.99	2%
400 Megabit	\$59.99	11%
200 Megabit	\$49.99	24%
25 Megabit	\$25.99	1%
Effective Take Rate		38%

Business Offerings

Service Offering	Price	Market Share
1 Gigabit	\$499.99	3%
500 Megabit	\$349.99	7%
100 Megabit	\$139.99	20%
50 Megabit	\$59.99	11%
Effective Take Rate		41%

5.0 Regulatory Analysis

This regulatory analysis provides a snapshot of the City's current status with the Florida Public Service Commission and a discussion of the requirement to provide cable television services as an option in the business plan. A full review and opinion by the City attorney or outside legal counsel is recommended before moving forward with a full implementation.

The City of Lakeland maintains certification to provide communications services granted by the Florida Public Service Commission (FPSC).² This certificate was granted by Commission order on July 18, 1994, in Docket No. 940628-TA. The City's foresight in obtaining this certificate is now very beneficial since it grandfathers the City from applicability of several of the provisions of Section 350.81, which make it more restrictive for municipalities in Florida to provide communications services including retail cable television service, high-speed internet service and telephone service. This gives the City of Lakeland more flexibility and options to provide a range of retail and wholesale communications services to its community.

The State of Florida laws regarding a non-facility based cable service identify that the City has the opportunity to apply for NCTC membership, benefiting from the cable incumbents rubber-stamp statewide video certification and requirements framework. Regulatory documentation is included below for the City:

- **Regulatory Reform, deregulation of services:** F.S. 364.011 as amended in 2011 by HB1231, the "Regulatory Reform Act", states the telecommunications services which are exempt from PSC jurisdiction, to be essentially all telecommunications services:
 - "Intrastate interexchange telecommunications services."
 - "Broadband services, regardless of the provider, platform, or protocol."
 - "VoIP."
 - "Wireless telecommunications, including commercial mobile radio service providers."
 - "Basic service."
 - "Non-basic services or comparable services offered by any telecommunications company."

- **Regulatory Reform, elimination of certificates:** F.S. 364.33 as amended by HB1231 states "After July 1, 2011, the commission shall cease to issue certificates of necessity, but existing certificates of necessity remain valid." The City of Lakeland holds certification to provide communications services granted by FPSC order on July 18, 1994, in Docket No. 940628-TA.
 - Despite HB1231's elimination of certificates of necessity, the FPSC still grants "certificates of authority" under F.S. 364.335.

² The following discussion does not constitute a legal opinion and should not be construed as such. Questions about interpretation or applicability of these or other provisions of Florida law should be directed to legal counsel.

- After passage of HB1231 in 2011 the PSC combined various types of certificates, including Lakeland’s original “AAV” (alternate access vendor) certificate of necessity into a single telecommunications certificate.

- **Imposition of Business Case Requirements on Municipals, Lakeland grandfathered:** In 2005 F.S. 350.81 was enacted, which placed onerous procedures and requirements on government entities seeking to offer communications services. However, Lakeland is largely exempt from its requirements since it is “grandfathered” as a result of being certificated by the PSC prior to April 1, 2005. 350.81(4)(a) exempts a governmental entity that was providing “advanced services, cable services, or telecommunications services” prior to that date from **most** of the “business case” and other procedural requirements of this chapter. Lakeland was certificated in 1994 to provide telecommunications services. The requirements which **Lakeland remains subject** to under this chapter tend to be reasonable requirements the City would wish to observe anyway as a best practice. These are:
 - “Keep separate and accurate books and records, maintained in accordance with generally accepted accounting principles, of a governmental entity’s communication service [which] shall be made available for any audits of the books and records conducted under applicable law. To facilitate equitable distribution of indirect costs, a local government shall develop and follow a cost-allocation plan, which is a procedure for allocating direct and indirect costs and which is generally developed in accordance with OMB Circular A-87, Cost Principles for State, Local, and Indian Tribal Government, published by the United States Office of Management and Budget.”
 - “The governmental entity shall establish an enterprise fund to account for its operation of communications services.” [paragraph (2)(h)]
 - “The governmental entity shall adopt separate operating and capital budgets for its communications services.” [paragraph (2)(i)]
 - “A governmental entity may not use its powers of eminent domain under chapter 73 solely or primarily for the purpose of providing a communications service.” [paragraph (2)(j)]
 - “If, after 4 years following the initiation of the provision of communications services by a governmental entity or 4 years after the effective date of this act, whichever is later, revenues do not exceed operating expenses and payment of principal and interest on the debt for a governmental entity’s provision of communications services, no later than 60 days following the end of the 4-year period a governmental entity shall hold a public hearing” to address continuing provision of services. [paragraph (2)(l)]
 - In addition, there are provisions regarding revenue bonds which apply.

6.0 Business Strategy

The business strategy will define the City's value proposition in the broadband market and what factors differentiate the City from the competition. The core strategy will be to focus on superior products and services, continue the excellent reputation for local customer service, and maintain community orientation. By launching a far superior fiber broadband suite of products, the City will position itself as the technology and service leader in the Polk County area. Along with the Lakeland brand, these advantages will make the City a formidable competitor in the broadband marketplace.

The quantitative market research indicates that Lakeland area households and businesses would be likely to switch to a City-provided internet service under the right conditions. The City would need to offer high-speed internet in competitive market tiers for prices that are equal or up to 15% less than consumers are currently paying today.

The conjoint analysis results indicate that at rates slightly below the current market, and after discounting for execution and competitive risks, the City could attain a 38% residential market share and a 41% commercial market share. How will the City gain this market share? By providing a superior customer experience through higher speeds and reliability, exceptional customer service and competitive pricing from a trusted local brand.

The City must also address possible weaknesses in sales and marketing and the competitive broadband environment as it deploys services. By acquiring, assigning, or even partnering with the right leadership to drive positive culture from the electric side into the competitive broadband space, the City can build a sustainable entity that can create a positive revenue-generating enterprise to help bolster the entire utility while also fostering greater regional economic development and improving the quality of life of its members.

The City's 350-mile fiber backbone will jumpstart the deployment of broadband services while reducing the overall costs for deployment. The City's fiber, electric infrastructure, rights-of-way and operational environment all create opportunities to provide more effective broadband services and reduce costs, where they may be leveraged. Although on the onset of the City's deployment these resources may not all be utilized, over time, the opportunities to build synergies between broadband and electric will grow.

The Lakeland broadband enterprise will be a startup that acquires all the necessary resources and funding from the City. The broadband enterprise will be a technology leader, starting with its internal use of technology for business performance.

This approach:

- Makes the City's corporate intention clear: to become a high-performing utility that capitalizes on every tool available to it. This is very important for engaging potential partners and customers;
- Clearly separates the electric business from the broadband business;

- Recognizes its customers' interest in better, cheaper, faster broadband, and that its customers place great value on these services. The City wants to make sure its customers are equipped with technology services that meet their needs, now and in the future; and
- The decision to enter a new line of business will be based on the value it delivers to customers, evidenced by customers' willingness to pay and their stated needs.

General Broadband Strategy

To be a successful broadband provider, the City must build an organization with the competence to thrive in a highly competitive environment while maintaining its mission of serving the community first. A number of key themes should be considered as the City plans to deploy services, including:

- Utilize the strong local brand known for reliability and customer service to introduce the City's portfolio of broadband services to households and businesses;
- Utilize existing fiber and related resources to reduce the cost of deployment and increase the flexibility in which the City deploys services;
- Build an organization with the same culture of providing excellence in reliability and customer service that Lakeland Electric provides today;
- Recognize that the broadband enterprise must excel in the competitive environment and hire leadership that has a strong competitive orientation and prior experience in delivering broadband services;
- Focus on delivering benefits to customers rather than features;
- Use the City's existing relationships with the residential and business communities to market, advertise, sell and connect more customers;
- Focus on attracting major employers, employment centers, and commercial corridors to utilize the City's services;
- Partner with municipal governments, county governments, school districts and other public organizations to support their needs through the City's technology services;
- Identify homeowner's associations, apartment complexes and other multi-dwelling units for bulk subscriptions to City services.

7.0 Products and Services

The City will offer a comprehensive portfolio of broadband products and services to its customer base. This section defines why these will be important, both for capturing market share and for helping to achieve a sustainable business model.

The City will be offering “Triple Play” services. These three services are comprised of television and video content services, telephone and voice services, and high-speed internet services. These services will be offered to both residential and business customers in multiple service level package arrangements.

7.1 Internet

Internet services will provide high-performance, scalable internet access to residents and businesses in the service area. The City’s internet services will provide tiered services that allow residents and businesses to purchase exactly the right amount of bandwidth for their internet needs.

The City will be able to offer direct, symmetrical, fiber-optic internet to consumers in its service area. Service tiers will be geared to match or exceed existing service offerings by existing providers to incentivize and attract customers. In many cases, the City will be able to provide greatly increased speeds at low prices to their residential and business communities. The City will balance these speed increases against “upsell” opportunities that may allow the utility to generate additional ARPU (“average revenue per user”) when customers require upgrades from their existing speeds to higher ones. The technology advantages of fiber will give the City a very clear advantage as demand for bandwidth continues to increase with over-the-top video, smart home and other new applications.

7.1.1 Residential Internet

The rates and service packages defined here provide the greatest opportunity for the City to capture market share and achieve the forecasted take rate for services. The service offerings and packages below are shown as individual services; however, The City will also bundle these packages to provide double and triple-play options to its market. Since the market changes quite often, The City will revise packages and pricing to maintain competitiveness with the current market.

The City’s services will be symmetrical, meaning that residents will receive the same upload and download speeds for their services, rather than asymmetric speeds, which the competition provides today. This enables the City to offer more benefits to residents, giving them the ability to upload larger files, use more real-time video, support more multi-player games, run home based-businesses more effectively and support more smart home technologies.

Residential Fiber-optic Internet Products

Figure 15: Residential Fiber-Optic Internet Products

<p>\$19.99 Value 25</p>	<ul style="list-style-type: none"> • 25 Mbps symmetrical • Supports basic surf and email
<p>\$49.99 Standard 200</p>	<ul style="list-style-type: none"> • 200 Mbps symmetrical • Great value for a faster, more reliable service • Surf, talk and watch movies online
<p>\$59.99 Power 400</p>	<ul style="list-style-type: none"> • 400 Mbps symmetrical • Ideal for power users and homes with many devices • Double your speed for only \$10 more
<p>\$99.99 Extreme Gig</p>	<ul style="list-style-type: none"> • 1 Gbps symmetrical • The gold standard for internet in the US • Blazing fast, unlimited devices and data

Residential Managed Services

Figure 16: Residential Managed Services

Proposed Optional Managed Services Offerings

In-home managed Wi-Fi (24x7 phone and one onsite per year support)	\$9.99
Upgrade to dynamic IPv4 public IP address	\$5.00
Add one Wi-Fi extender to managed Wi-Fi services	\$2.99
Video Streaming Support – silver (24x7 phone support)	\$7.99
Video Streaming Support – gold (24x7 phone and one onsite per year support)	\$9.99
Bundle of managed home Wi-Fi and OTT video support – silver (24x7 phone support)	\$14.99
Bundle of managed home Wi-Fi and OTT video support – gold (24x7 phone and up to two on-sites per year support)	\$19.99

7.1.2 Business Internet

The City will provide a portfolio of high-speed internet access services to businesses. Tiered packages will be structured for small and medium businesses (“SMB”) and enterprise-class businesses. Both business classes will be offered an array of service levels, upload and download speeds and pricing tiers. While the SMB class is tailored for popular community service and pricing information to the general business community, the enterprise classes of service will not be published, given that most enterprise business pricing may include customized services and speeds, which are priced on an individual case basis. Standard pricing generally does not apply.

The service levels have been configured to provide competitive offerings. Since the market changes quite often, the City will revise packages and pricing to maintain competitiveness with the current market. These service levels provide the greatest opportunity for the City to capture market share and achieve a substantial take rate for services. These service offerings below are shown as individual services priced monthly. Lakeland would also bundle these with additional services to provide package options to its market.

Business Fiber-Optic Internet Products

Tier 1 – Sample Small to Medium Businesses

Figure 17: Business Fiber-Optic Internet Products Tier 1 – Sample Small to Medium Businesses

<p>\$59.99 Business Value</p>	<ul style="list-style-type: none"> • 50 Mbps download / 5 Mbps upload • Great value for a reliable small business service
<p>\$139.99 Business Plus</p>	<ul style="list-style-type: none"> • 100 Mbps download / 20 Mbps upload • Ideal for small business with many devices
<p>\$349.99 Business Pro</p>	<ul style="list-style-type: none"> • 500 Mbps download / 25 Mbps upload • A must-have for media consuming businesses
<p>\$499.99 Business Max</p>	<ul style="list-style-type: none"> • 1 Gbps download / 30 Mbps upload • The choice for larger data-centric companies

Tier 1 commercial internet customers get one private (NAT) dynamic IPv4 address and /64 IPv6 subnet with base service. Customers may also upgrade to a static IPv4 public IP address for \$5 per month, and this will be communicated in the customer facing materials.

7.2 Television

Television is still a critical element of the offering being the catalyst that drives greater uptake and penetration rates. However, the video industry is in a state of transition. Video programming is transitioning to what is referred to as “Over the Top” (OTT) programming, also known as “streaming” services.

Consumption of OTT video is climbing sharply as consumers face longer work days and shifting schedules with all of us in front of a proliferation of devices that enable ubiquitous access to view and consume video content anywhere, anytime. According to eMarketer, the number of cord-cutters will have grown to 39.3 million by the end of 2019 and in 2022, a dramatic 55.1 million will have cut their cords. Key to remember here is that demand is not going away; people are still demanding and consuming video content, but are doing so in a new, nontraditional format.

Much of the OTT vs Traditional TV also plays into demographics. Nontraditional TV users tend to be younger millennials and Gen Z. Some statistics show that nearly 90% of adults in the US aged 25-34 access their television content via the internet. Contrastingly, the numbers dropped to around 60% of adults above the age of 50³. In tune with the demographics of the City, nearly 40% of adults in Lakeland are over 50. We can assume that the City’s residents will still have a high demand for bundled video services.

As OTT transitions to become the standard way that viewers watch and interact with media, network operators like the City can become a core part of the media value chain. A solid OTT platform will enable the City to enrich the audience’s experience by converging the connected devices and screens of today for always-on media services.

7.2.1 Content Acquisition

Due to the uncertainty of how the television business model evolves, it is recommended that television services be sourced through a third-party provider on a wholesale basis as opposed to making the significant capital investments needed for a “full-blown” video headend, \$5 - \$7 million in total. In the wholesale model, the City would only be required to procure the local middleware, storage, and set-top box components necessary to distribute television channels to their video subscribers. The City would also need to acquire separate programming rights for television channels through the National Cable Television Cooperative (“NCTC”) to offer video services to customers. The NCTC bundles about 80% of the programming contracts into a master purchasing agreement that small operators can utilize to aggregate their programming. About 20% of the programmers still require direct contracts with the operator, for which the City will negotiate directly. NCTC charges a \$1,500 application fee, and estimates a 30-day period for review and approval of a programming contract.

³ <https://techjury.net/blog/cord-cutting-statistics/>

7.2.2 Supporting Over The Top

The ideal OTT platform is a broadcast-grade, modular architecture that supports the delivery of highly customized OTT solutions to meet the demands of a large-scale deployment. Some flexible deployment models will include open cloud, managed private cloud, and hybrid cloud options, while integrating with potential video partners and third-party solutions.

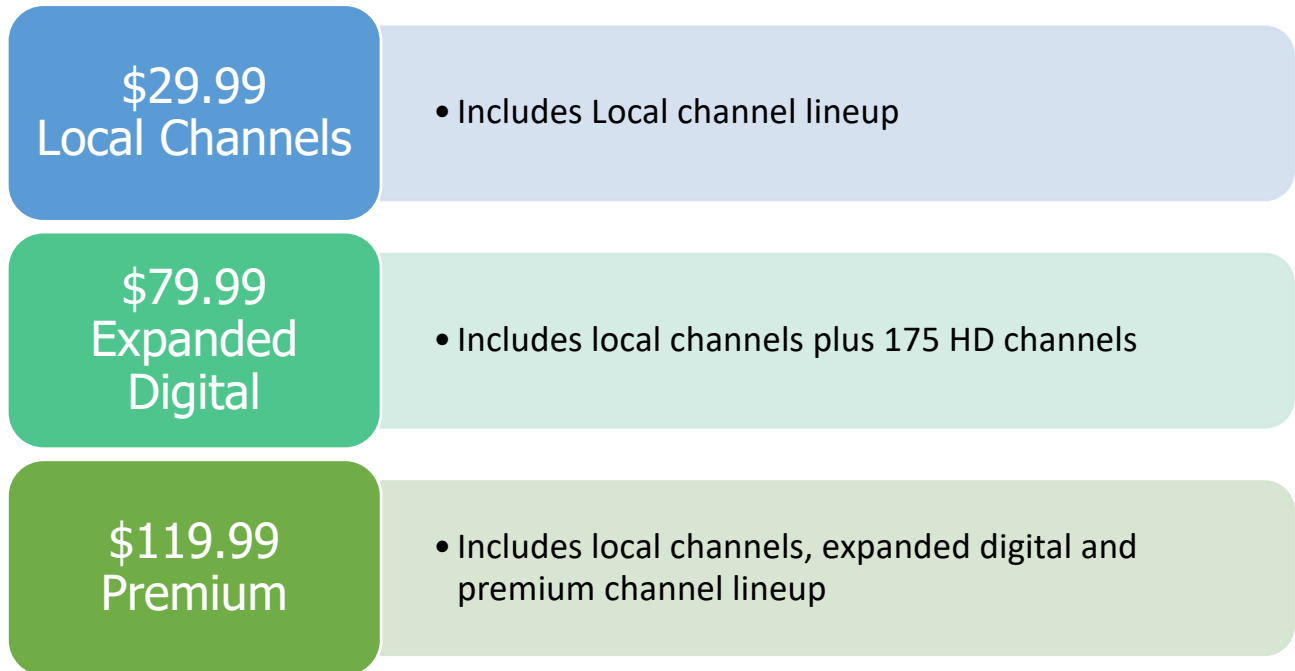
To support OTT, the City must be able to bridge the gap between traditional broadcast and software-based media:

- Take advantage of an open architecture that enables the City to simplify its infrastructure, leverage increased bandwidth to improve quality, and reduce costs.
- Virtualize infrastructure with overlaid IP capabilities to ensure customer continuity and ease the transition to new technologies and offerings.
- Reduce reliance on expensive hardware in favor of software-based solutions that are easily upgraded, and include features such as linear play out, signal acquisition, user management, secure delivery, content lifecycle workflow tools, and more.
- Quickly and cost-effectively configure mobile and connected device applications to deliver “TV Everywhere” to audiences on multiple platforms.
- Develop new services and business models in the areas of digital rights management, device interconnection, and advanced advertising and billing.
- Deploy centralized management of pay-per-view, advertising and other subscription-based revenue models that deliver geo-targeted and socio-demographic content to increase viewership and drive advertising revenues.
- Allow consumers to create personalized portals for choosing their own content.
- Introduce dual-screen interactivity as a clear differentiator, video-on-demand (VOD), web browsing, and social tools such as rating and commenting.
- Enable your audience to interact on their mobile or tablet device to rate, share, and comment with peers while watching their favorite programs on the big screen.

Residential Video Products

The City will offer a full lineup of linear video service, with precise channel lineup to be determined through a MobiTV service or similar virtualized headend television vendor.

Figure 18: Residential Fiber-Optic Internet Products



Business Video Products

Lakeland Video for business will be offered to any level of Lakeland Broadband service through "over the top" video priority. Video services will offer a full channel lineup of linear video service, with channel lineup determined by MobiTV or similar service contract. Business pricing and bundled features all depend highly on the type of television service required by the business and are generally individually priced, based on the exact configuration. These services make up a small portion of the City's overall offers and revenues.

7.3 Voice

Because of the advent of IP technology, both video and voice have become applications running over a broadband connection. While it is true that home-based voice customers are continually decreasing, approximately 30% of all residents have a home-based telephone service, and this rate remains much higher in rural areas. Although voice is being replaced by wireless voice services it still carries strong margins with very little capital to deploy, and low on-going O&M cost.

Voice services are an absolute necessity for business customers. Unlike residential services, voice services for businesses are growing in demand and carry even greater margins than residential voice services at a low capital cost. However, business voice will require a high level of customer support, defined by Service Level Agreements (SLAs), which provide terms and conditions of service to business customers.

The City can consider offering voice services to its membership, and there are two voice service options that the City should consider. The first is a facility-based CLEC option, and the second is white label resale option. These are detailed in the balance of this chapter.

7.3.1 Voice Services

Hosted Voice is a cloud-based hosted telephone network that the City would create via its fiber network connected to a third-party voice provider in a white label environment and sold by the City as a retail voice service to residents and business customers as various types of voice products. The hosted PBX would use the open IP-PBX standard as the underlying transport technology. Several key advantages of a hosted PBX environment are:

- *Lower Capital Costs* – Costs are limited to new phones and some networking equipment to ensure quality of service.
- *Predictable Operating Expenses* – Monthly charges are calculated on a per-telephone basis. If a customer has 50 employees, each with a telephone, the monthly cost will be 50 times a set fee. As telephones are added, simply add the per-telephone fee.
- *No Maintenance Expenses* – The City service includes all the costs associated with equipment software upgrades and maintenance.
- *Ease of Management* – Routine changes like adding people or changing an extension number are done by the customer using a simple web interface.
- *No Obsolescence* – The VoIP service provider hosting the system will routinely upgrade the service so that new enhancements are delivered on an ongoing basis at little or no cost.

7.3.2 White-Label Voice Resale

The white-label resale option for voice service implementation is described as the method of providing voice services by leasing switching, interconnection and a number of resources from a CLEC already in the market that you plan on offering services within. With this service method, the voice service provider is simply reselling another CLEC's services. This service offering provides the least control to the voice service provider, but also allows the voice service provider to assume the least amount of responsibility in the telecommunications marketplace/industry.

Under this model, the voice service provider will pay the wholesaler on a per line/telephone number basis. As an example, a residential subscriber with one telephone line will require a telephone number, voice switch feature set, 911 access and long-distance service. Most white label wholesalers package these things together under one price depending on the feature package and the long-distance service offered. Feature packages usually include "bronze," "silver" and "gold" service package tiers and allow you to buy unlimited long distance or metered long distance on a line-by-line or number-by-number basis. There are also additional charges for lines with voice mail, music on hold and attendant services.

As a "white label" offering, the CLEC will "brand" all interfaces to the customer as Lakeland. The City will have their own Customer Service Representatives (CSRs) for voice services who will interface with the customer, but any electronic voice, computer or print presented to the customer through the wholesaler CLEC systems will have the City logo and look. Some of these voice, computer or print interfaces may be announcements made by the phone switch for services, any computer phone "app" or program, or any on-line voice service or billing portable provided by the wholesale CLEC to the end users.

Under this model, the City would ensure that the wholesaler switch can interoperate with an ONT /CPE at the customer premise. The City would also interconnect to the wholesaler switch via the internet or purchase dedicated transport to the wholesaler. In any case, the City would need to ensure that the connections between the wholesaler and the City core routers are very reliable because there will be no switching system on site at the City.

The voice service provider using this option is not an official "telephone company" and has no rights within the telephone network. If the City uses this option, all benefits for being a CLEC will belong to the CLEC from which service is leased.

White Label CLEC Host Functions

The CLEC host will perform the following functions:

- Transport to the local ILEC Tandems and switches
 - Calls to and from the local carriers will traverse the wholesale CLEC's interconnection trunks.
- Port the numbers from existing service providers
 - The wholesaler will facilitate the port of the City's customers' numbers from their current provider to the City voice service.
- File taxes for virtually all telecom related taxes except for sales taxes
 - Some wholesaler/hosts will ask the reseller to establish relationships with the 911 authority for taxes and fees, but most will handle this for the reseller.

- Sales taxes will be the responsibility of the reseller.
- 911 interconnection
 - The wholesaler must have 911 trunks to the local 911 tandems in order to facilitate 911 calls to the local PSAPs.
- Intrado interfaces for MSAG changes
 - As a CLEC, the wholesaler must update the MSAG and will provide the interface to Intrado to update the MSAG.
- Access to the ILEC and other CLEC Porting systems
 - This is part of the ability to port numbers in a local area. The reseller will gather relevant information from the City and will interface the porting systems of the other LECs to facilitate the City customer number.
- SS7 services (transport and database functions)
 - All CLEC switches must have SS7 functionality as described under the “Facilities-based CLEC option” above and the wholesaler is no exception.
- Long Distance Trunks
 - The wholesaler will have their own long-distance carriers and long distance provided to the reseller will traverse these carriers and the transport between the wholesaler’s CLEC switch and the long-distance providers.
- OSS/BSS functionality from their chosen OSS/BSS vendor
 - This will be part of the contract between reseller and wholesaler.

7.3.3 Residential Voice Products

Lakeland Voice is a Voice over Internet Protocol (VoIP) product would generally be offered bundled with internet services, rather than provided as a stand-alone service.

Figure 19: Residential Voice Products

<p style="text-align: center; margin: 0;">\$24.99</p> <p style="text-align: center; margin: 0;">VOIP Home Phone</p>	<ul style="list-style-type: none"> Crystal clear digital voice technology Features Caller ID, Call Waiting, Voicemail Includes unlimited local and long distance calling
---	---

Business Voice Products

The City’s Business Voice features a hosted voices service similar to residential VOIP home phone, but with additional options and features, such as automatic call distribution, dial plans and routing. Business lines will provide unlimited local and long-distance services, as well as voicemail, auto-attendants and fully configurable dial plans. Web-based customer portal offers personalized management and provisioning of various calling features and services. Prices are custom for each business subscribing, based on the quantity and specific features of the business voice services.

7.4 Bundles

Bundles are an essential part of the City’s offerings, as nearly 60% of Lakeland households currently subscribe to at least two services. The City should offer bundles of two and three services, known commonly as double-play and triple-play. Double-play services include internet service plus television or telephone service. Triple-play bundles include internet, television and telephone service. Exact bundles will be developed once the City moves into implementation, since adjustments may be required if market conditions have changed. The most common bundles that the City will offer are included below.

Figure 20: Double-Play

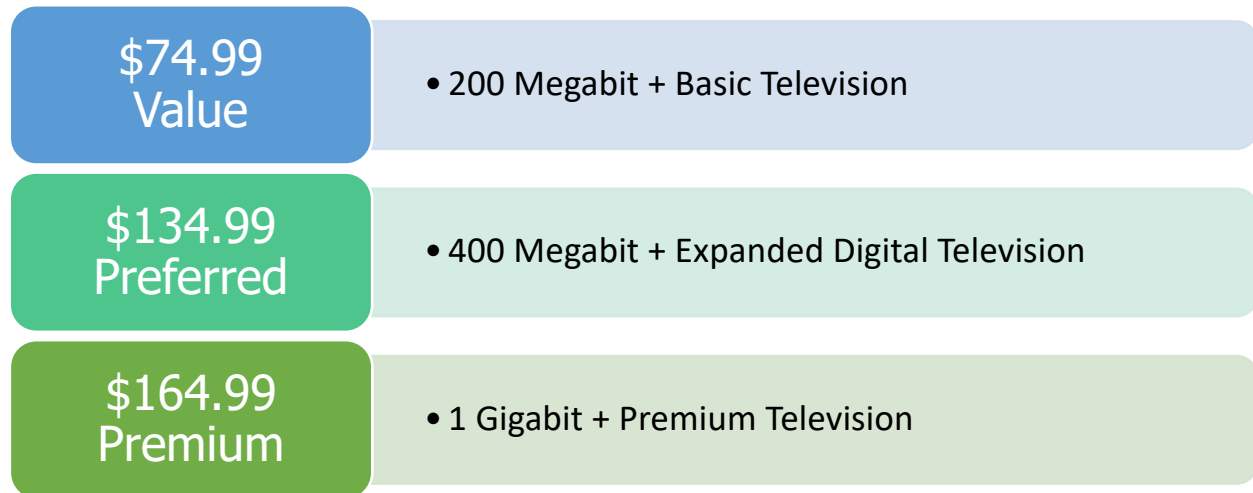
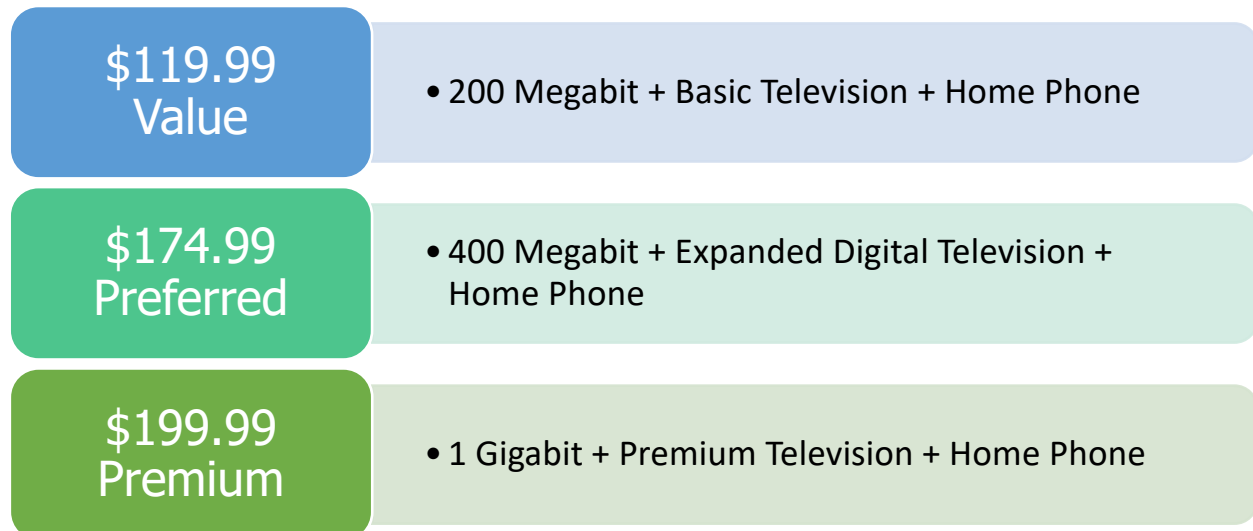


Figure 21: Triple-Play



8.0 Marketing and Sales Plan

As the City forges its strategy to provide broadband services, a critical part of the plan is organizing and structuring the Marketing and Sales Plan. A key hurdle for cities and utilities entering the broadband space is the new domain of sales, marketing and competition. Execution of a well-crafted Marketing and Sales Plan will give the City the capabilities to manage the competitive environment and adjust as needed.

Fueled by the need for broadband to connect wired and wireless technologies, the City must embrace the future needs and never underestimate the growing demand for broadband on an ever-increasing basis. This demand places the City in an excellent position as an infrastructure provider to enable world-class connectivity at a value price point, and stellar customer service leading to a compelling market positioning.

The City will be entering into a market where it has never competed; therefore, an "outside-in" approach was sought in the previous feasibility study to understand the needs and wants from the consumer perspective, and to understand how well those needs were being met by the current market. This plan was developed for the City's leadership team and details marketing and sales activities that will be required for the City to be competitive in the current market.

All markets are dynamic and require careful attention to changing market trends, product development and consumer taste. This should be viewed as a living and breathing portion of the Business Plan that should be updated to reflect those dynamic forces in the marketplace. Forecasting and reacting to the market is an extremely important part of implementing and maintaining marketing plans and processes.

8.1 The Marketing and Sales Approach

Steps to a Marketing and Sales Plan include creating a mission statement, designing marketing communications and sales channels, and implementing a training and support plan for all sales, customer service and field staff so that each team member is fully aware of the City's mission. It will be important for the City to maintain the same level of professionalism and customer-centered approach for its broadband business as its current electric utility operations. The City must know its consumers, the best ways to reach them and what services they want and need.

The Competitive Broadband Marketplace

The marketing and selling of broadband service is Lakeland's first foray into competing with the private sector. While there are similar facets and some overlap with the electric side and other City services, the marketing of broadband is a completely different industry, reaching a different kind of consumer, and requires leadership and staff to adopt a different mindset and skillset and a competitive orientation.

The City must be prepared for incumbent providers to react to the City entering the market. The City should expect competitive providers to respond by upgrading their services or repackaging offerings by lowering prices and extending contracts to lock in their current customers. The City's

Marketing and Sales Plan must be reflective of the market and should engage the community for education of what separates the City’s services from the other providers. This is the City’s value proposition.

Building on Organizational Strengths

The City has a unique advantage in the marketplace with its exciting new brand that builds on a long history and favorable reputation for quality and reliability. This natural advantage means that potential customers will be open to discussing and considering City offerings. This has also been reinforced in the market research, with 30% - 50% of the market preferring a City-provided service over other options, at similar rates as are in the current market.

Central to the promotion of the City’s broadband offerings will be the service reliability and the continuation of excellent customer service and close customer relationships. The central role of these elements to this plan builds on the mission of the City of Lakeland to be “A community working together to achieve an exceptional quality of life.”

8.2 Products and Services

This plan will focus on full retail broadband products and services tailored for households and small, medium and enterprise businesses. The City will offer triple-play services, which include internet, television and telephone services. These services will be offered to both residential and business customers in multiple service level package arrangements.

Broadband services have become the modern-day must-have utility, and the demand will continue to grow as more of the economy is dependent on having high quality, high-speed broadband. At some point, virtually all video and traditional television service will be delivered across broadband connections, and voice has already moved into Voice over IP (VoIP) connections, requiring increasing levels of connectivity. The City’s broadband network will be capable of scaling beyond 1 gigabit to 10 gigabit services at competitive prices. Investments in the latest fiber access technologies will position the City to have a distinct competitive advantage over other providers whose networks will not scale economically.

Branding

The Lakeland brand conveys a high-tech orientation with local relevance. The City’s name would be market-friendly to utilize for the City’s broadband service – Lakeland Broadband. Lakeland Broadband could be co-launched within the same year as the greater Lakeland brand, leveraging the momentum of the greater brand, press releases and changes to the website, print and video ads.

The City will need to create identities for its brand and broadband product offerings and packages. With the new broadband enterprise specifically, the City should design a complementary broadband logo with the same color palette, typesetting and other design elements as the overall City branding.

Branding goes well beyond a logo into the essence of establishing a recognizable trademark and company culture and reputation that demonstrates the City's values and customer care proposition. The City brand is often characterized by how customers describe the City's services and how City employees describe the City's culture and operating philosophies in the presence of customers and potential customer in public.

Every community and internal department and process touchpoint helps establish the City brand, for ill or for good. The difference is how the customers views these touchpoints. Are they positive experiences or exercises in futility? From a visual standpoint, it is important to maintain consistency in terms of logo shape, size, color and use. Along with this, the City's mission statement and code of customer engagement states its value proposition, which should flow through all its broadband customer engagements.

8.3 Content Products and Services

Content is primarily traditional "Cable TV" channels, such as ESPN, HGTV, movie channels like HBO and Showtime, and news channels like MSNBC, FOX and CNN. That landscape is rapidly changing as content providers move to directly-profitable streaming service and consumers "cut the cord" for television services. Television content remains a key reason for consumers to get broadband as part of a bundle with telephone services. While they make less use of television and telephone, many consumers prefer having the services and are willing to pay for them. Thus, content services drive uptake and can be quite profitable, indirectly.

Content providers dictate contract terms and there is very little negotiation in pricing or delivery of services. The contracting process is complex and time consuming, and contracts can be very restrictive. There are no partnership opportunities with content providers as the relationship is essentially a provider/customer relationship.

Data center facilities are necessary to receive video content and retransmit it over the local network. While the equipment requirements have decreased, the City must have the facilities along with the agreements to distribute the content. Lakeland is well equipped for data center access with a City data center at City Hall and access and space in Cologix.

8.4 Marketing Personnel

The City has a unique advantage in the marketplace with its built-in brand and reputation for quality and reliability. This natural advantage means that potential customers will be open to discussing or considering City offerings. This was seen in the market research, which demonstrated a significant interest in the potential City offers and willingness to subscribe, as evidenced by the resulting 38% consolidated take rate. However, this natural advantage will soon disappear if the City is unable to respond to the customers' demands in a meaningful and efficient manner. Therefore, execution is paramount, which means the City needs the right resources to make informed decisions about how to attract and win customers.

The requirements for staffing will include one Director of Sales and Marketing reporting to the General Manager, one dedicated Residential Sales Manager and one dedicated Commercial Sales Manager. The City will also contract with door-to-door salespeople, who are paid on commission and will "blitz" new communities with direct sales offerings. They should be directly managed by the Director of Sales and Marketing. The City will need to set the ground rules for these campaigns, including manner of interaction with new customers and developing schedules to sweep neighborhoods as the network is being built.

The City will develop a sales and marketing mission to develop products and services that embrace and enable its customers' new digital lifestyles, and directly attract technology-driven consumers. The goals for the City include:

- Properly positioning products and services in the context of a digital lifestyle
- Responding to its customer base by offering new services
- Delivering a high-value, competitively priced service, from a trusted local organization
- Putting customer needs first

The first step in a successful Marketing and Sales Plan is to develop products and services that embrace customers' needs, then to properly position those products and services in the context of customers' needs. The emergence of the digital lifestyle has changed the dynamic of how customers live, work and play. Today more than ever, customers embrace tools that provide convenience, function, productivity and entertainment. Business customers demand reliability, value and world-class customer service.

8.5 Customer Engagement

As the City begins to engage its customers, it must be strategic in its approach. The City will be prepared to position itself in this new market. The City sales team will be equipped with the facts or “truth” behind their competitors offers and services and be able to show how the City’s service exceeds each of the competition’s value propositions. The sales teams will keep this knowledge up to date in order to ensure that the City maintains competitiveness and understands what moves the competition makes in response to the City’s market entry.

Technology Driven Customers

Today, we are amid a shift in behavior among consumers rapidly adopting a lifestyle that demands nonstop connectivity regardless of distance, time, location and environment. This constant “being online” is critical to more productivity, expanding leisure and entertainment opportunities, providing greater security, and feeling of belonging and engagement. These new critical demands create both challenges and opportunities for the City as it enters the broadband business. Technology-centric customers are generally the largest internet users and, for broadband providers, are generally the most profitable. The City should target this customer group in its initial launch of broadband services. These customers consist primarily of young families with children and single and married working professionals. Technology-driven customers are the most targeted customers by the competition and the fastest growing market segment.

These customers desire interactivity and engagement products and place a high value on customer service, something the City’s current customers value from the electric utility. Technology-driven customers prefer internet speed and reliability over price and are often inclined to spend more on an offer with higher speed and reliability than to spend less on an offer with lower speed and reliability.

The City will adopt approaches and methods that fully utilize cyber and digital forms of technology and outreach. Two-way engagement using rich media, social, and mobile enable “conversations.”

8.6 Marketing Outreach Planning

Outreach with impact requires identifying and getting to know the stakeholders critical to the City’s success. The City will identify stakeholders key to the initial launch of its services. This understanding will lead to outreach activities that reach the correct audiences with the right message delivered effectively. Stakeholders include individuals and groups involved in, impacted by, and holding a vested interest in the City’s broadband services. It is critical to remain responsible and responsive to the public and utility members, reaching stakeholders with different needs and preferences.

Identifying and attempting to better understand broadband stakeholders will allow the City to tailor its message to customer demand. A technical presentation may work for government officials or engineers but may not be appropriate for the general public. The City will tailor all communications to the appropriate audience, matching the communications tool to the stakeholder. The answers to these questions should yield a list of potential stakeholders:

Step 1 - Identify supporters and detractors

- Do some stakeholders already understand the project and support the City's efforts?
- What do they need to know about the progress to maintain their support?
- Who could object to the project - both now and in the future?
- How much information do they have about the City's goals?
- Who does the City need to support the project? Local businesses, utility members, local government officials, regional authorities, trade associations, unions, funds granting authorities, and neighborhoods are all important to consider.

Step 2 - Identify people and organizations who share interest in broadband

- Who shares an interest in the types of services the City will deliver?
- Who shares an interest in the communities the City will serve?
- Who has the tools to contribute?
- What other assets might be leveraged to communicate through the above?

Step 3 - Identify stakeholders who will benefit from services

- What do they know about the City's services?
- What do they need to know about the City's progress?
- How much do they know about broadband or internet use?
- What are the potential obstacles to them using the City's services?

Step 4 - Prioritize the stakeholder groups based on project goals

- Is there an understanding of their communications preferences?
- Do they belong to organizations?
- Do they have a technical background?
- Are they in existing contracts?
- When could they take service?

A little creativity can go a long way when building relationships with stakeholders. Outreach begins with basic building blocks like fact sheets and open houses. The City will continue outreach success by finding creative connections between stakeholders and unique ways to create awareness and build support as the project continues the build-out.

Build Relationships with the Business Community

The City will conduct significant outreach to the business community, which may include:

- Contact retailer associations in the service area - business owners will have interest in how broadband can advance and expand the market for their goods and services.
- Sponsor a vendor fair by a small business association or chamber of commerce.
- Focus on identifying small disadvantaged businesses.
- Partner with economic development organizations.
- Emphasize this critical benefit of broadband infrastructure projects.

- Sponsor small business workshops on entrepreneurship.
- Include sessions on how the internet can help small businesses build sales.

Build Support in the Communities Impacted by Construction Activities

The City will work with local communities where construction is in progress to ensure residents and businesses understand potential community impact. Some programs may include:

- Establish non-internet-based opportunities such as toll-free numbers that allow stakeholders to ask questions, especially about construction projects. This will help reduce frustrations due to underground and overhead construction of new facilities in neighborhoods.
- Submit articles and updates to neighborhood newsletters. Many housing developments and communities distribute monthly or quarterly newsletters to residents. Include news about project progress. Sponsor a town hall meeting or visit a neighborhood community advisory group before construction begins.
- Provide a City-appointed point of contact for residents, businesses and others to contact in the event of construction issues that impact the local community. Ensure that the construction contractor also provides a general foreman that can address these issues quickly and remediate any community impact issues.

8.7 Sales Campaigns

Once the outreach has been performed, the Marketing Plan has deployed, and the phone starts to ring, it's time to engage customers and capture the business. The Sales Department is responsible for converting the leads marketing generates into sales. Great selling skills and product knowledge is imperative. Customer service and sales means making sure customers are aware of what solutions the City can provide that solve the customers' problems. It is critical that customer service and sales staff take the time to ask questions and provide solutions.

8.7.1 Overview

Lakeland has compiled a detailed market analysis providing the following: competition, markets served, products and pricing. Using this information as benchmarking, Lakeland should construct its product/service offerings, bundles and priority of service roll-out areas. Lakeland should construct detailed marketing elements that support the financial and business model. The following must be identified, with specific goals, measurements and tracking processes.

8.7.2 Sales Goals

The City will establish weekly, monthly and quarterly sales goals. These goals should initially be based on the financials and take rates set through this Business Plan, and in the future based on the actual take rates established once original milestones are reached.

Public outreach goals should be scheduled for 12-month intervals around community events, holidays and other special events or occasions. Public relations and outreach will be essential as the City launches, and as it continues to reach milestones. The City will engage the community, stay

informed of events such as community organization meetings, and be involved with chambers of commerce and small business organizations.

The sales and marketing team must always be informed of any expansion goals and roadmaps. It is important that marketing, sales and construction plans be fully integrated so that pre-sales opportunities can be identified and captured. Neighborhood door hangers and direct mail will be used to boost the excitement around each new neighborhood that is in construction.

Budgets for sales and marketing are established in the financial plan. The first two years of budgets should include sufficient activities to “blitz” the market with the City product offerings across all media channels.

8.8 Establish Great Customer Experiences

To establish and maintain a great customer experience and exceptional level of service, the City’s Sales and Marketing team will understand and add value to each customer touch point. The sales (outside and inside) customer services representatives (CSRs) will be provided with continuous training in customer relations and customer satisfaction techniques. The technical support personnel’s online and phone interactions with customers will reflect the City’s respect for the customer always, even when the customer may not be correct. Customer experience training should be expected for all City personnel that interact with customers, including field technicians, who have direct interaction with customers.

It’s extremely important that the customer experience supersedes the traditional experience customers receive from broadband providers. Customers that expect a frustrating experience but receive a pleasant experience will stay loyal to the City’s services and spread the word in the local community.

8.8.1 Product Launch Planning

Once the City has finalized its deployment plan, it will plan to launch its services to the market. How the community first sees the City’s services will make a critical impact in its overall success. The following elements are important to the City’s product launch strategy:

8.8.2 Product Launch Elements

The City will highlight the benefits of its services, rather than taking the approach of selling their features. The City must maintain a thorough understanding of the existing marketplace and details of the competitors’ offerings, as this will help guide the market position and value proposition, as well as develop and market its value statements.

The Product Launch Plan will include the following:

- Set goals and objectives
- Identify advertising options
- Develop a Media/Public Relations Plan to support the launch
- Establish the budget for each specific launch

- Prepare marketing messaging that highlights the value proposition
- Develop tactics for the Marketing Plan - when, where, how?
- Ensure branding concepts stay consistent throughout all messaging
- Begin copywriting product names and branding
- Develop creatives - brochures, product specs, cut sheets, website content around product and marketing themes.

Prior to its launch, the City will undergo a finalization stage during which leadership will make all final decisions before launch, including selecting and finalizing the branding and logo. The team will need to agree on all logo elements, including color, shape, and size, and authorize use policies. The team will also consider establishing copywriting and trademarking for the logo and company messaging.

8.8.3 Recruit Pilot and Beta Test Customers

As part of the middle ground between service operations and marketing activities, there is an opportunity to reach select customers through a pilot and beta test phase. The City will select a group of “friendlies,” or test customers that can begin beta testing the service ahead of a full launch.

For fiber deployment, during this temporary phase as the network is nearing completion in early zones or along select routes, operations staff will perform a soft launch of system services and internal processes for customers who choose to participate.

Friendlies typically receive free or discounted service with the understanding that many functions may not yet fully operate or be completely stable. The customer feedback and experience to the City’s operational staff during this beta test phase will be extremely valuable as adjustments and improvements are made to various aspects before the official launch of services. An agreement containing language as provided should be signed by the customer acknowledging the arrangement. A sample of such an agreement is provided below.

Sample Lakeland Pilot or Beta Test Site Agreement

Date _____

Contract# _____

This agreement outlines the terms and conditions between customer _____, and Lakeland for beta installation and testing of new products and services. In consideration for special pricing and/or terms, customer agrees to allow Lakeland to install and activate products and services for the purpose of field testing new products and services. Customer agrees to cooperate fully with Lakeland in testing and agrees to provide both information and reasonable access to premises to facilitate the beta test. The beta test is to continue for a period of no less than four weeks after installation.

Lakeland has completed alpha testing of the product and services offered, and believes that the product or service is stable and can be used in a commercial application. If at any time the customer believes that the product or service is detrimental to the customer, the customer may request the product or service be discontinued without any liability of any kind on behalf of Lakeland or the customer. If the customer requests the discontinuation of the product or service, the customer agrees to return all equipment with exception of any in-house permanent wiring, which is billable upon the termination of the product or service. At the end of the test period, customer may request that the product and service remain in service and become a standard product and service offered by Lakeland, at published rates minus any agreed upon special "beta discount" as outlined in Schedule A.

Non-Disclosure: Customer agrees that certain products, methods and practices maybe of a confidential nature and agrees not to disclose this information without the express written permission of Lakeland.

Signed, Lakeland _____ Signed, Beta Customer _____

SCHEDULE A: *List product or service name, scheduled date of installation, equipment provided, scheduled ending date of the beta test and all pricing, special discounts, or terms and conditions.*

8.8.4 Launch Tactics

The City will utilize pre-launch teaser campaigns to drive initial demand. Examples include “Have you seen our Gig?” or “Help us create a Gig-a-thon!” or “Don't be left Gigless!” The frequency of the teaser campaign will be the key to effectively launching digital business and residential services and driving sales. Customers must often be reached a minimum of three to four times in a relatively short period for a message to sink in. The City will to prepare a compelling offer to break through the noise. This campaign should be timed with each phase of fiber construction, according to the deployment plan.

To reach all potential customers, the City should use traditional and new marketing tools. Traditional tools include direct mail, newsletters, bill inserts, billboards and print. Some newer marketing tools include digital tools like micro-sites, e-mail blast and social media events, as well as media/public relations, TV and radio. The City should also consider marketing its new services on Surf Lakeland Wi-Fi throughout the City.

It will be important for the City’s marketing and launch campaigns to drive action to its sales office and website. Some tactics will include:

- Micro-site focused on the products
- Lobby literature and signage
- Trucks and vehicles branding
- Convert part of the public community room into a business products demo area
- Plan/sponsor events like gaming sessions, technology fairs and business incubators

8.8.5 Key Advertising Copy Points

As The City develops its advertisements, it needs to maintain consistency with its Marketing and Sales Plan’s branding specifications. The City will develop and refer to its products by a product name and category and avoiding use of tech terms such as Voice over IP or VoIP. The City will plan to embrace words such as new, value, more, better, convenience, digital and productive, and avoid use of obscure technology and details on how the technology works. Ads should use short, engaging, feature descriptions meant to build interest. Remember to keep it simple; the goal is to generate calls and website visits.

9.0 Operations Plan

The Operations Plan provides direction on how the City will manage the broadband business, including systems, processes, personnel, management and tools necessary to support the City’s broadband goals. This plan will allow Lakeland to prepare to expand the existing fiber network and evolve into becoming a broadband operator via an established City enterprise fund.

9.1 High-Level Governance

The broadband business would be structured as a separate and distinct Enterprise Fund of the City of Lakeland Municipal Corporation, functioning as a separate department. Enterprise Funds are allowed under Florida law and are a common practice in Florida and nationwide. Some examples of city enterprise fund departments are water and sewer, public golf courses, sanitation, recycling and garbage collection services, parking garages and services.

The enterprise fund structure would create a “separation of books” to allow the broadband business to record, track and report on revenues and expenses of the fund, separately from the general fund. The enterprise fund would maintain its own chart of accounts, accounting policies and procedures to track revenues and expenses.

This would provide the structure to more easily comply with Florida State statutes, ensuring that separate accounting records were maintained for the broadband operations. This “brightline” would also enable the City to more easily create the necessary cost allocation documentation in cases when resources of Lakeland Electric could be utilized, where appropriate.

9.2 Billing and Operating Support Systems

Billing Support and Operating Systems (OSS/BSS) are complex information technology systems that are central to the management of the daily operations of the company. These systems are wide-ranging in scope, complexity and cost. A typical OSS/BSS will encompass various modules to manage customer information, service and pricing configurations, service order management, work scheduling, trouble ticketing, network facilities and fiber management, equipment warehousing and tracking, and customer billing as detailed below.

Due to the uniqueness of broadband operations and the anticipated scale of Lakeland subscribers, the City will procure a stand-alone system purpose built for broadband encompassing all the functions described below rather than attempting to integrate into existing systems with Lakeland Electric. Given the large scale of the potential buildout, it will be more cost effective and enable greater capabilities than trying to leverage Lakeland Electric’s existing operational systems.

However, OSS/BSS will be interfaced with the City’s financial systems for consistency and overall reporting to the City’s general ledger. This will allow for the City to receive key broadband enterprise fund financial information and reports in its existing financial systems for tracking, reporting and compliance purposes.

9.2.1 Customer Information System

A Customer Information System (CIS) is a centralized management platform that stores all customer information, usually including billing information, services provided, contact details and account history, and may also include a Customer Relationship Management (CRM) platform or related elements. CISs and CRMs work together to provide operational departments a complete picture of all interactions with the customer as well as their account details.

The CRM platforms that will be implemented by The City allow agents and managers to track customer contacts as well as facilitate proactive communication in sales and retention efforts. Beyond simply storing contact information, The City's broadband CRM platform will provide methods for scheduling tasks to be completed (promises made to the customer), provide customizable sales targets and reporting, collaboration tools for employees, and document storage for marketing materials and dashboards and reports to show overall activity. The CRM will be integrated into OSS/BSS modules to enable sales, marketing, customer service, service and order provisioning to share customer information.

9.2.2 Account Verification (CPNI, FTC Red Flags Rule)

The City will comply with all account verification practices to validate potential subscribers. Account verification is an essential step when communicating with customers. For in-person transactions, especially when selling new services, this is usually done by verifying a government issued identification. When interacting with a customer via the telephone, a combination of account passwords and security questions is used. It is critical to collect account passwords and answers to security questions when the account is created, and that they meet security standards.

The U.S. FTC also has rules for verifying customer identity for services providers. These rules are known as the Red Flags Rule. While not all service providers are required to follow Red Flags Rules, the City will use them as a best practice to validate accounts. The purpose of the rules is to ensure that customer information remains secure and that no fraudulent activity is allowed.

All City employees that interact with customers will undergo FTC Red Flag training to identify common methods of committing fraud and deception. These include, but are not limited to, inconsistencies between submitted information by the customer, unusual account activity after the customer requests a change of billing address, multiple accounts using the same Social Security Number or use of fake identification documentation.

Customer Proprietary Network Information (CPNI) is the collective data that is stored within a broadband system about a customer and their activities. This includes transactional data about customer calls. It is important that these records are not inadvertently or intentionally released to an unauthorized party. Inadvertent release may occur when an employee does not verify the identity of a caller inquiring about the records. An intentional release may occur when records are improperly sold or shared with third parties without the customer's explicit consent.

Consider the following example scenario:

“A caller claims to be the account holder. The caller knows the account holder’s name, address and telephone number when asked. The agent fails to properly verify the identity of the caller and proceeds with the interaction. The caller asks the agent about call records to a long-distance number from the previous month, claiming that a billing error has occurred. The agent reviews the logs and shares them with the caller, including the date and time of the calls. – What the agent does not realize is that the caller is actually a disgruntled former spouse of the account holder. Because names, addresses and phone numbers are easily known or discovered by anyone, these pieces of data are not sufficient to verify the identity of the caller. The caller now has information about the actual customer that would normally only be available to them or law enforcement after a proper subpoena process.”

- More information can be found at: <https://www.fcc.gov/consumers/guides/protecting-your-privacy>

The City will create a formal plan and training program to ensure compliance with CPNI rules.

- More information can be found at: <https://www.ftc.gov/tips-advice/business-center/guidance/fighting-identity-theft-red-flags-rule-how-guide-business>

9.2.3 Account Overview

The City will implement OSS/BSS software that utilizes central account dashboards containing a high-level overview of all services, recent payment history, trouble reports, alerts and notices, and special instructions. It is typical for this type of dashboard to be displayed to the employee automatically when the account is accessed, usually after the account verification process.

While it is important to provide a wide variety of data to the employee, it is critical for dashboards that are automatically opened to be very quick-loading and responsive to searches and navigational clicks. Even a delay of a few seconds can add up to hours of lost productivity for employees over time. It is also desirable to have the ability to alter such dashboards easily. It is common for service providers to refine dashboards after launch and as needs change.

9.2.4 Services Details

Each customer will have a variety of services that are active and inactive, especially for long-established accounts. The OSS/BSS system will provide detailed information regarding these services to employees to quickly track customer issues, new orders and changes. The data needs to include:

- Service name
- Service code
- Service location (customers may service multiple locations on the same account)
- Service status (active, inactive, non-payment suspend, write-off/collections)
- Date activated and/or date deactivated
- Quantity, price, promotion information

Regardless of location, the primary purpose of the system will be to provide as much information about the services to the employee as possible, without an overabundance of needless information. The City's OSS/BSS system will also help the employee create "what-if" scenarios to help the customer understand how adding, changing or disconnecting a service would affect their account and bill. This would also include any available promotions or service bundles available to the customer.

9.2.5 Account Notes and History

City CSRs, field personnel and installers will all need to input information in the BSS associated with a customer account. This may include service order details, trouble ticket history and billing records. It is important from a data-reporting standpoint to store data in specific modules if the information is of a known and predictable type; however, there will always be general information that will need to be stored with the account that does not fit into specific modules.

The BSS system will also provide general account notes used for storing information about the account that is not specifically associated with one of the other activities or modules. Employees will be trained to never use general account notes for storing sensitive customer information such as passwords or social security numbers.

9.2.6 Bill Presentation and History

The City will be prepared to field customer calls regarding their current billing status and billing history. The City's BSS will provide quick and easy-to-access view of current and past bills, with bill recall functions to ensure customers don't experience delays. This way, any discrepancy can be investigated with the customer. Along with copies of the bills, The City will have full reporting available on all payments as well as the details of each payment (date, type and amount). This will also include any past-due amounts and a clear explanation of fees and charges.

9.2.7 Online Customer Portal

The City will procure a software package to support online customer portals. At a minimum during startup, the system will need to include customer sign-on modules, billing and account history modules, online payment modules and customer profile modules. As the City's network grows, other modules and functions can be added to the portal, such as self-provisioning and real-time changes to account packages.

9.2.8 Billing

The City will procure a broadband billing system to manage all customer billing functions for its services. Although Lakeland Electric currently maintains billing systems for its electric services, utilizing this system to support a large broadband deployment may not deliver the full set of capabilities that the City will need to support broadband billing, particularly for variable rate services such as television and telephone. Therefore, a stand-alone billing system is required, which can then interface to other Lakeland Electric and City systems through programming interfaces.

The core modules and functions that the broadband billing system will require include:

- Usage based billing
- Bundle discounting and promotions
- Recurring monthly, one-time, fractional or prorated billing
- Billing arrears, past-due, collections and write-off management
- Refunds and credits
- Deposits tracking
- Tax calculation and application
- Regulatory reporting

Exact billing runs and formats will be developed in a final implementation plan and once a billing system vendor is selected.

9.2.9 Address Management

The City will need to load accurate and complete address data into its BSS. This data includes information about which services are available and on what date. The following list of fields represents a typical dataset, but is not inclusive of all possible data that may be needed:

- Detailed address (usually stored as separate fields)
- Mapping X, Y coordinates (dependent on mapping system)
- GPS latitude and longitude
- Dispatch area (to help route technicians in the field)
- Business, residential indicator
- Multiple Dwelling Unit (MDU) name, Homeowner Association (HOA) name
- Network wire-center or point of presence name
- Serviceability flags (typically boolean flags for each service type offered. For example, if services are available at the address, the data field would be TRUE)
- Overhead or underground delivery method (for scheduling locates)
- Tax area, census tract/block fields
- Competitor information (names of other service providers available at the address)
- Foreign keys to other systems (optional links to back office systems for data warehousing operations)

The City will also comply with and load its Master Street Address Guide (MSAG) for 911. This is critical for interfacing with the E911 systems for accurate reporting and locating.

9.2.10 Facilities Assignment

During the service delivery process, network facilities will need to be assigned to each specific customer. This process can occur during the build-out of the network if all passed locations have a unique network assignment that will only be used for that location. If the network facilities assignment is completed after build-out, it will be necessary to have a qualified employee complete the assignment before service activation can be finished. Alternatively, facilities assignment can be automated completely or partially depending on availability and accuracy of mapping and network

data. For this and other reasons, it is very important that “as-built” plant records are properly documented by all construction crews.

For passive optical networks (PON), facilities assignment will likely include the fiber port at the splitter block (LCC), fiber ID and NAP ID. Additionally, some logical assignments will likely need to be made, which will need to be determined closer to construction and final installation.

9.2.11 Automatic Provisioning of Services

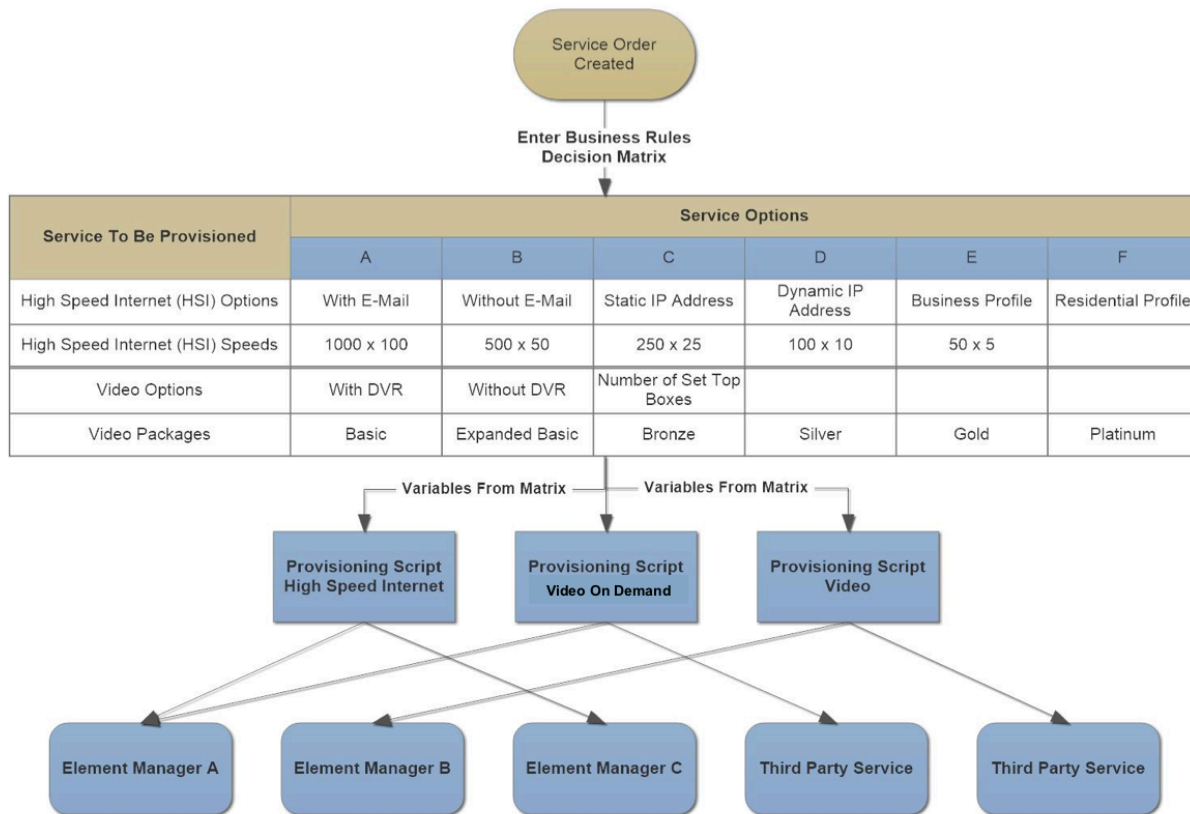
Given the large scale of the City’s broadband deployment, an automatic provisioning system will be required to support large amounts of new customer signups. Auto-provisioning will allow order takers more efficiently input orders into the system and assign the appropriate facilities to them. It will also reduce the chance for provisioning errors, which are often found when manual provisioning systems are utilized.

The City’s auto-provisioning system will utilize the facilities assignment database created for fiber splits and GPON ports to assign resources to customers, based on what they order. Because these systems perform scripted actions, any deviation in expected inputs will likely cause failure or provisioning mistakes. Qualified IT resources will need to monitor and manage the auto-provisioning system to ensure that customers are assigned resources accurately.

From the technical perspective, automatic provisioning systems will be integrated into the overall BSS/OSS. Business rules determine which set of actions will need to be performed and usually call upon independent scripts. These scripts are each specifically coded for connecting to and configuring various element managers (control systems for logical network elements). These connections vary but are usually through secure APIs.

The figure below illustrates the key flows that will apply to the City’s auto-provisioning system. Speeds and services shown in the figure are only samples.

Figure 22: Example of a High-Level Flow of Automatic Provisioning



9.2.12 Outside Plant Mapping and Documentation

The City will procure a separate fiber management systems (FMS) to work in conjunction with other network documentation repositories and systems to provide a clear and complete picture of the outside plant network. The FMS is most often associated with a mapping solution and may be an add-on module to standard Geographic Information Systems (GIS), using ESRI or CAD software. The FMS utilizes a relational database to store detailed information along with mapping data. The key attributes of the FMS will include:

- Land base (physical road structure, rail, geographic and political boundaries, and sometimes topographical information within your service area)
 - Preferably, this information will contain detailed metadata information about structures and other data points. Typically, county governments and utilities can provide GIS data for this purpose.
 - This may also include satellite photography.
- Pole ownership (assumption is that any poles utilized will be owned by Lakeland Electric)
- Underground enclosures or pull boxes (locations, capacity and type)
- Third-party easement information (for engineering and locates after construction)
- Self-owned easement information (links to contract agreements and information)
- Pole attachment information (capacity, current load, owners, attachment cost)
- Over-lashing information

- Fiber type (fiber count, stranded, self-supported, aerial, underground)
- Splice information (A to Z connections)
- Network Access Points (NAP), drop attachments with splice data
- Customer premise network attachment location and data, including the premises “drop” route
- Other network elements (LCCs, POPs, etc.) with splice and network details
- Foreign keys to Address Management System, CIS, etc.

9.2.13 Equipment Tracking

To accurately and efficiently track equipment, the City will procure an equipment tracking system to manage physical and logical resources within all equipment. The main purposes of the equipment tracking system are to store details about the equipment such as serial numbers and manufacture date, software version, current location, service history, return and repair information, and provide information to other modules of the OSS, such as automatic provisioning systems.

The following list of fields represents many of the most important data types needed for the City’s equipment tracking system:

- Manufacturer name
- Model name and revision (often manufacturers will have multiple revisions of the same device and keep the same model names)
- Manufacture date
- Warranty in-service date, out date
- MAC address (may have multiple)
- Serial number
- Internal inventory number or code (can be a key to an external inventory system)
- Location (warehouse, distribution center, returned to manufacturer)
- Trouble report information (can be linked to trouble tickets to track issues)
- Return authorization (RA), return merchandise authorization numbers
- Return date
- In service/out of service
- Software revision

9.2.14 Trouble Ticketing

The City will procure a dedicated trouble-ticketing system to track customer incidents and effectively resolve them. The ticketing systems will be fully integrated into the overall OSS/BSS solution. The following features are required for the City’s ticketing system:

- Provide data fields
 - Customer name
 - Customer service address
 - Customer contact information (telephone number, email)
 - Date/Time of ticket creation
 - Name or username of employee creating the ticket

- Severity of incident (low, medium, high, critical)
- Incident type (usually stored with multiple levels of granularity)
- Initial notes (usually a freeform text field)
- Ticket assignment (individual, group or tier), assignment date/time
- Escalation data
- Additional notes, resolution notes
- Resolution type (sometimes stored with multiple levels of granularity)
- Date/time of ticket resolution
- Name or username of employee resolving the ticket
- Follow-up flag or notes (used to interface with CRM/CIS)
- Allow for interfacing with other systems to populate customer and network data
- Allow for escalation of tickets to other groups or departments
- Allow for adequate reports to be created for KPI data
- Allow for agents to review previous ticket data to familiarize themselves with the customer and incident history

The ticketing system will need to interface via API to the CIS, FMS, equipment tracking, and scheduling modules. Ideally, all relevant information to the incident being tracked in the ticket will be readily provided (through links) or even pushed to the CSR in the same interface.

9.2.15 Scheduling and Service Order Flow

Scheduling systems are one of the most important subsystems of any OSS. Two primary areas of need are scheduling employee resources for service delivery (construction and activation) and trouble resolution. The City will procure a scheduling and work order system that integrates the CIS, provisioning and billing systems, enabling employees in the field to have a real-time, or near real-time, access to back office systems, usually through simplified applications designed for mobile users.

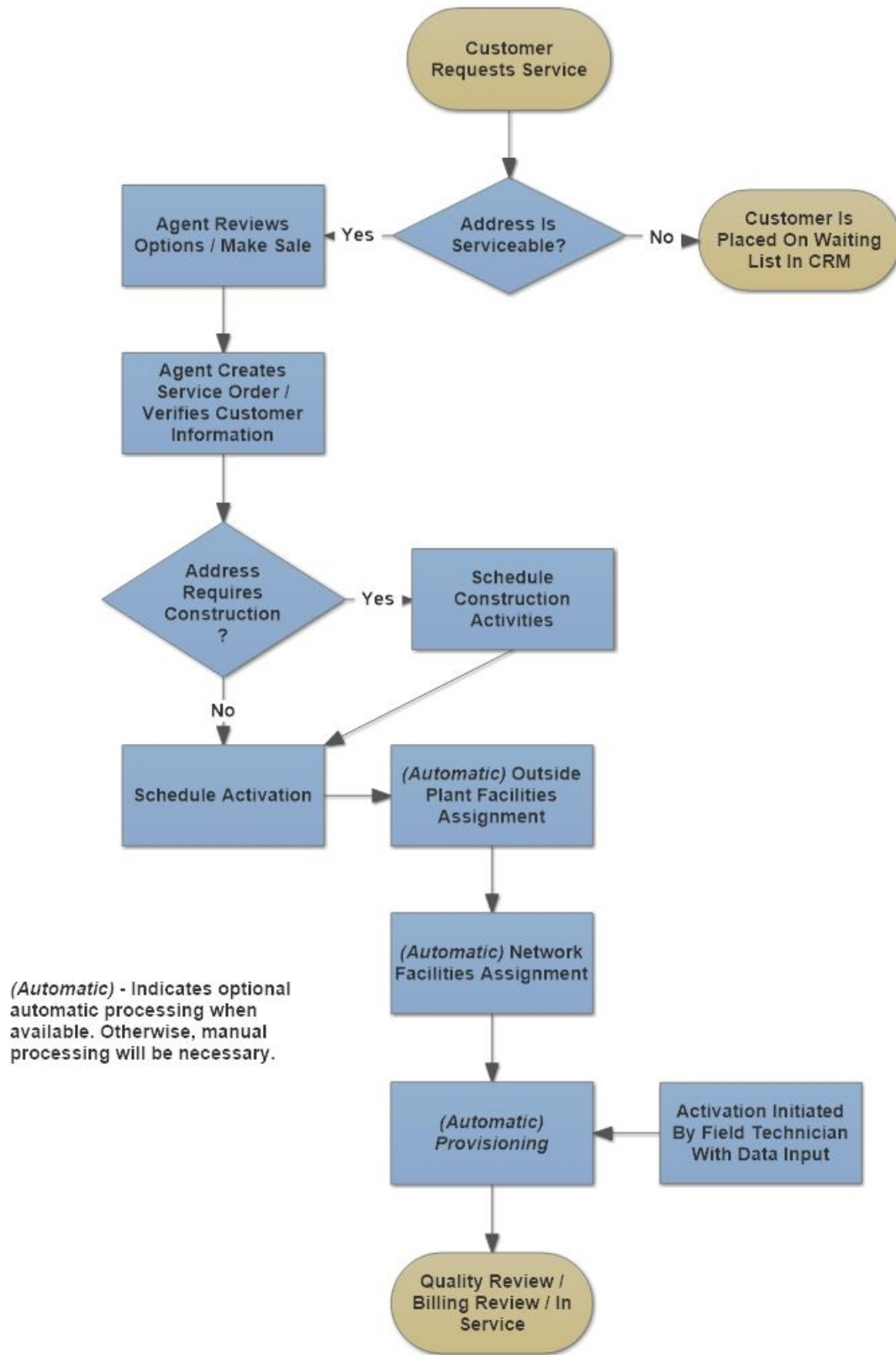
Service Order Scheduling

Firstly, the City's scheduling system will be integrated with the CIS and automatic provisioning systems. During the service order entry process, it is highly desirable for CSR and dedicated sales staff, to have visibility into available construction and activation schedules, allowing them to communicate with customers when services are available. From a customer satisfaction standpoint, it is a competitive advantage to be able to provide a specific date and time to a new customer. This, of course, creates a high expectation with the customer that must be fulfilled.

During the service order processing, several decision steps will occur to route the order through various departments. Ideally, through the use of an address management system in conjunction with the FMS and facilities assignment, all needed information will be known during this process to accurately schedule all parts of construction and activation of services.

Figure 23, on the following page, displays the service order process flow.

Figure 23: Service Order Process Flow



9.3 BSS/OSS Selection and Implementation

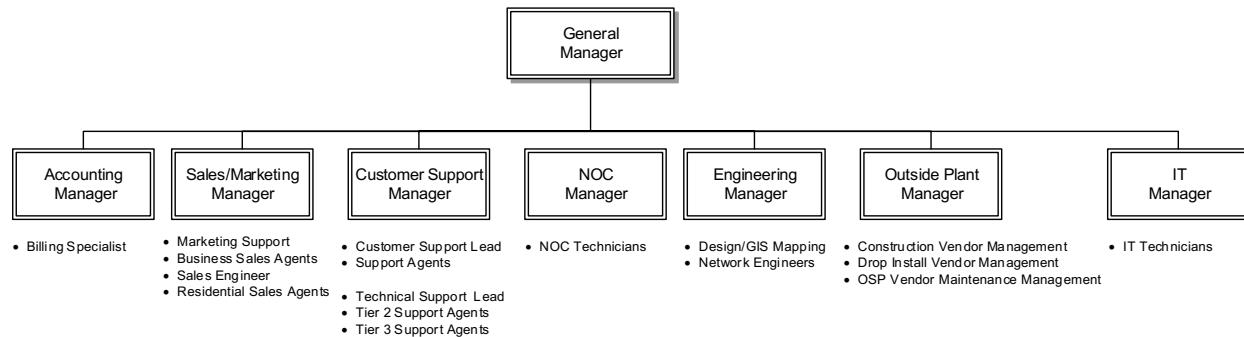
The City will issue a Request For Proposals (RFP) containing all the functions desired in a BSS/OSS solution. The RFP will be published through industry standard procurement channels and sent directly to well-known industry vendors. RFP responses will be evaluated by a City selection team and desired vendors will be subsequently interviewed for final selection. This procurement is expected to take between 3-4 months. On selection of the most responsive BSS/OSS vendor, the City and vendor will develop an Implementation Plan for the deployment of the solution, which will tie together the vendors software, the City's equipment and service platforms and the City's accounting and finance systems. Steps in this process include:

- Acquire the necessary hardware to support OSS/BSS
- Acquire all needed third-party services through RFP processes
 - Internet provider
 - VoIP provider
 - Video provider
- Creation of workflows and processes for all back-office processes
 - Orders for moves, adds, changes, disconnects (MACDs)
 - Trouble tickets
 - Billing
 - Payments and credits
- Propagation of data where possible. For example,
 - Populate CIS data and service address modules using existing electric system data
 - Populate existing fiber network specifications into fiber management system
- Set up OSS/BSS system structured for Lakeland
 - Service configurations, pricing, and promotions
 - Trouble ticket system with codes and solutions
 - Processing criteria
 - Billing cycles
 - Bill printing
 - Payment and non-payment processing
 - E911 interface
 - Accounting (Chart of Accounts)
 - IVR pathing for customer interface. Lakeland Broadband will be integrated into Lakeland's existing IVR system
 - Management and operational reporting
- Customize web portal
- Train staff on use of OSS/BSS modules
- Testing of processes through in-house and test customers
- Formal rollout to Lakeland community

9.4 Management Team Structure

Below is the proposed functional organizational structure for Lakeland’s broadband initiative. The managers depicted should be hired early in the process in order to allow each area to establish policies and procedures for operational efficiency. The attached Staffing Plan worksheet in Excel provides key dates for new hires.

Figure 24: Proposed Functional Organizational Structure



9.4.1 Staffing Considerations for Support Tiers

The City’s staffing plan for customer support provides 24/7 coverage for residential and commercial services. Personnel will scale with the growth of the customer base so that the City maintains full coverage across all shifts and sufficient CSRs are available to support the volume of calls into the call center.

The City will subdivide technical support employees into tiers based on experience and knowledge level. The number of tiers will vary, but two- and three-tiered departments are most common. Conceptually, less experienced employees occupy tier 1 followed by more senior employees in tiers 2 and 3.

For regular customer contacts (exceptions possibly being complex commercial customers or other unique situations) via telephone, email and chat, tier 1 personnel will handle most of the offered call volume. Customer requests handled at tier 1 will involve basic customer education scenarios, limited troubleshooting and simple fixes such as rebooting of equipment and automated re-provisioning when available. One of the major performance indicators of tier 1 teams is the percentage of first-touch call resolution, as detailed through the Key Performance Indicators (described in the following sections).

When tier 1 employees are unable to resolve customer questions or problems, escalation of the ticket (formal electronic incident tracking document) is necessary. These escalations can occur in a variety of ways, depending on which performance metrics have emphasis within the City’s operations. For example, if customer satisfaction and first-touch resolution performance indicators are prioritized, warm-transfers (transferring the call between agents with overlap occurring to explain the situation to the receiving employee while the customer listens via 3-way call technology) of customer calls may be utilized to minimize customer frustration. This method requires a larger number of higher tier employees to be available to receive these calls instead of a more passive

method; however, this design allows for higher customer satisfaction ratings, a competitive differentiator of the City’s service.

Hours of Operation

The City will staff its call center and support operations 24/7/365. When scaling technical support services during growth phases from initial startup to maturity, efficient staffing is difficult due to the limited number of inbound contacts. If the growth phases are compressed this is not an issue, as it will allow time for staff to gain in knowledge and experience while working at a less intensive pace. Regardless, a minimum of about 7-10 agents, plus key supervisors are necessary to operate 24 hours per day.

Figure 25 illustrates 24-hour coverage on a three shift schedule. Note that the “Senior Employee” will work a shift that best covered during peak hours as well as vacant shifts when the other employees are not available due to sickness or vacation. This shift is 12 hours, and would start early morning or early evening, and would result in some overtime hours for each employee every other week (36 hours, then 48 hours). Some overtime can be minimized by having the “Senior Employee” cover gaps between shift-change from day to night. These schedules would normalize to eight-hour shifts with growth of the operation by adding additional agents to the CSR pool.

Typical shift change time would be set between 5am to 7am with considerations of other operational needs. These needs may include the need to minimize disruption during high customer contact hours, new-customer activation schedules or other department’s shift change schedules. One final consideration for choosing the shift-change time is the availability of supervisors to meet with employees. It is recommended to have at least 30 minutes’ overlap time with each employee and supervisors. It is not desirable to have shift schedules that prevent any employee from having access to leadership on a regular basis.

Figure 25: Technical Support 24/7/365 Schedule

	Week A							Week B						
	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Employee A		Day Shift	Day Shift	Day Shift	Day Shift				Day Shift	Day Shift	Day Shift			
Employee B	Night Shift	Night Shift	Night Shift	Night Shift				Night Shift	Night Shift	Night Shift				
Employee C						Day Shift	Day Shift	Day Shift				Day Shift	Day Shift	Day Shift
Employee D					Night Shift	Night Shift	Night Shift				Night Shift	Night Shift	Night Shift	Night Shift
Sr. Employee		As Needed	As Needed	As Needed	As Needed	As Needed			As Needed	As Needed	As Needed	As Needed	As Needed	As Needed

9.5 Physical Workspace Layout

The call center will be arranged to allow CSRs and technical support reps to be seated near their team leaders. This will facilitate better interaction between team members and increase ad-hoc training opportunities. In addition to the layout of cubicles, it is critical that small communal meeting rooms are provided near work areas. For team leaders and employees without private offices, these small meeting rooms serve as valuable spaces to discuss private matters, conduct performance evaluations or simply to have a quiet space to work.

While workspaces are often varied due to physical space limitations, there are several general guidelines the City will use for its office space for technical support employees. The call center should promote a quiet, efficient, professional atmosphere, whereby each employee has enough room to work comfortably without disruptions from neighboring employees. As departments scale in size, noise mitigation becomes especially important.

In recent years, open-office designs have been increasing in popularity. However, it should be noted that many researchers have found that employee productivity and satisfaction is reduced in these types of environments. It may be tempting to utilize large, open spaces to fit as many desks as possible into a call center, but long-term issues will likely overshadow any reduction in setup costs.

Mitigating these issues is not difficult but does require planning and a commitment of capital. Although individual offices are not often feasible for technical support departments, cubicles with high walls and proper layout can offer a level of privacy and comfort. A common concern when installing high cubicle walls is that it may prevent easy supervision of employees. This issue is easily avoided with proper ACD monitoring and standard metrics reporting. Additionally, by providing employees with their own space and encouraging self-actualizing behavior, employees can be empowered to learn more, drive a customer-focused atmosphere and maintain a positive company culture.

Noise reduction and privacy can be accomplished with specialized sound-absorbing materials within the call center. These can be in the form of wall panels and specialized ceiling tiles. Other strategies include adding office plants, limiting meetings held in the area and the use of stereo (both ears), noise-cancelling headsets for telephone agents. Above all, maintaining an attitude of quiet with all employees will greatly help overall noise levels.

Some opportunities to utilize the City's existing Lakeland Electric call center were identified. First, the ACD and IVR systems could scale to include the broadband enterprise. This plan anticipates using such resources rather than procuring new IVRs and ACDs. The ACD will need to have separate queues and queue management to support the broadband enterprise and keep call routing separate from electric. The City could also utilize Lakeland Electric CSRs for general-purpose account and billing support for the broadband enterprise, essentially the non-technical aspects of servicing customers. This would allow the City to reduce CSR costs by sharing resources with Lakeland Electric. Cost allocation for these staff would be required and the City must ensure that these resources can handle both electric and broadband call flows without being overwhelmed.

9.5.1 Call Center Team Structure and Hierarchy

Operational teams will have some basic features to increase productivity and cohesion. Junior employees will have access to senior employees, team leaders will have a reasonable amount of direct reports and performance will be measured on the individual and team level on a regular basis.

The overall size of a department will be determined by the volume of work assigned. In the case of a contact center (technical support or customer service), this should be based on how many inbound calls, emails, chat requests or other messages are attempted to be delivered (offered). Regardless of the overall size of the department, team sizes will not vary greatly in most cases.

Each team will consist of approximately seven employees with one team leader. As the department scales in size, this number may change. However, increasing the size of the team beyond ten members will likely result in a reduction of KPI adherence, training opportunities and overall performance.

Desk Equipment

Below is the basic equipment needed to maintain productivity for employees working in the City's broadband call center environment.

- Current generation PC, refreshed once per three to four years
- Docking ports for PCs to allow for quick relocation of agents when necessary
- Dual or triple monitors
- High quality ergonomic chair with chair mat
- Sit/stand desk with standing anti-fatigue mat
- Dual ear, noise cancelling headset
- Locking drawer for personal items, especially important for shared desks

Dashboards

There are two basic strategies for pushing metrics and real-time data to employees. The first strategy is to use large dashboards (usually flat panel TVs connected to computers) that can be placed around the office area to provide visibility to employees. While this strategy may give a sense of comfort to management and visitors, employees engaged in their work may rarely look at these dashboards. A possible exception to this may be common areas such as breakrooms or waiting areas next to elevators. The second strategy is to provide dashboard and metric information directly to the employee via a company intranet, employee portal, or automatic email report. While not guaranteed, employees may be more likely to consume the data when presented to them closer to their workspace.

For the City, a desktop-based dashboard will be implemented either through the selected OSS/BSS or through a third-party solution. This will allow both line employees and management to see real-time updates of orders, trouble tickets and performance metrics.

Test Systems

Test systems and test equipment are critical for training new employees and refreshing seasoned agents. Technical support employees will need equipment to test problem scenarios and identify system outages and bugs. Ideally, any test equipment will be provisioned and configured in the exact same manner as customer services. For services with tiers, such as video, provide as many tiers to employees as practical.

Another strategy for improving familiarity with services is to adopt the strategy of "eating your own cooking." This simply means to employ the same products that are sold to customers in the City's internal operations. This may be more practical with some services than with others. However, when possible, it provides employees with detailed knowledge of the products without formal training. One major factor in determining the feasibility of this strategy is the level of robustness of business-class services that are offered to customers.

Video service used for testing can be provided to employees in one of two basic methods. The first method is to have centrally located, shared TVs with appropriate customer premise equipment attached. Each employee that is adjacent to the TV would be given a remote control to test features and assist with walking-through complicated menu options while in contact with customers. The second method would be to use headless (not attached to a monitor or TV) set top boxes attached to streaming systems, such as those made by the company Slingbox. With this option, employees would connect to the video product via their PCs. Just as with the first option, enough systems will be provided to reduce conflict between employees needing to use the systems at the same time.

For higher tier technical support employees, internet services can be provided for testing quite easily by configuring a wireless network attached to customer premise equipment in the office. When needed, employees can switch to this network. It should be noted that any access to this network would allow an employee to bypass internal firewalls and controls in place to block inappropriate activity online.

9.6 Standard Operating Procedures

9.6.1 Call and Email Handling

Handling inbound customer contacts is one of the most important tasks that the City will undertake. Broadband call volumes are considerably higher than electric call volumes and the broadband call center will handle tens and even hundreds of thousands of inbound requests from customers in a year. Because of this, efficiency and proficiency are vitally important. For many customers, the only interaction the City's customers will have after their services are installed are with CSRs. Therefore, these agents represent the Lakeland brand in a very real way.

Lakeland will develop a service methodology that covers call flows and quality assurance/quality control along with measurement metrics to assist with mentoring personnel to deliver the best customer experience possible.

Inbound Customer Support

The following steps are an outline of expected service support calls:

1. Customer calls published phone number and is routed through Lakeland Electric's IVR
2. Inbound call is queued through the ACD, greetings are automatically played:
 - a) A typical greeting will announce the City's opening message, name of the department reached, appreciation for the customer's time and continued business, and notification of any call recording programs (as required by law).
3. Call is connected with an available agent.
4. Agent greets the customer and announces themselves by first name.
5. Agent asks for the customer's name and service address or customer number:
 - a) Depending on which method is most effective in the BSS/OSS platform, the information asked may change.
6. Agent locates the correct account. Agent asks the customer to supply the account password and/or security questions.
7. Agent confirms customer identity and then asks the customer how they may be helped:
 - a) If the customer has a simple question or needs to be transferred to another department:
 - i) Agent answers and then tells customer what actions will be taken, if any.
 - ii) If complete, agent thanks the customer and then completes action (example: transfer call).
 - iii) Agent notes the account with a brief summary of the call.
 - b) If customer has a trouble report:
 - i) Agent starts/creates trouble ticket.
 - ii) Agent establishes symptoms of the problem.
 - iii) Agent defines the scope of the problem.
 - iv) Agent identifies any changes that have taken place.
 - v) Agent identifies the most probable cause of the problem.
 - vi) Agent identifies best solution to problem, anticipates any issues that may arise from solution, and implements solution.
 - vii) Agent tests the solution to see if result is acceptable.
 - viii) Agent records detailed notes into trouble ticket.
 - ix) Agent completes the trouble ticket according to policy.
 - x) Agent completes the call with the customer according to policy (thanking customer, asking for any other issues to resolve, etc.). <END OF PROCEDURE>
 - c) If trouble is not resolved by agent:
 - i) Agent documents all actions taken in the trouble ticket.
 - ii) Agent explains to the customer that the ticket will be escalated and sets appropriate expectations for follow-up actions and communication.
 - iii) Agent escalates the ticket according to procedure and policy. <END OF PROCEDURE>

Customer Interactions

All interactions with customers will have the following characteristics and will be documented in the City's service methodology.

- Agent qualities:
 - Upbeat tone of voice
 - Caring and empathy conveyed
 - Acknowledgement of customer statements and questions, and not allowing dead air after the customer speaks
 - Addressing all customer concerns
 - Setting proper expectations (especially important for escalations)
 - Taking ownership for the problem
 - Active listening
 - Controlling the pace and length of the call
 - Proactively communicating with customer while placed on hold (silence for no more than two minutes at a time)
- All applicable policies and procedures are followed (hold, greetings, closings, escalation, etc.)
- Efficient troubleshooting occurs, including resolution
- CPNI, Red Flags, identity verification procedures are followed
- Trouble ticket is completed with all required information
- Follows through on any commitments

9.6.2 Trouble Ticket Documentation

A documentation system is simply a repository for all company standard operating procedures, customer specific information, reference data and all other electronic material. In the context of the technical support department, as much information as possible should be presented to the agent automatically. For this reason, simple file servers or hosted file storage platforms may not adequately serve employees. The ideal system is integrated into other information systems such as the trouble ticketing system, customer relationship management platform and customer information system.

For standard operating procedures, checklists and customer specific information, it is especially important to provide direct links to the agent or when possible, automatically push the data when appropriate. This can take the form of on-screen information windows as well as automatically filling data within form fields.

9.6.3 Interactive Voice Response (IVR)

For the purposes of broadband customer service and support, Lakeland Electric's IVR and ACD systems could be utilized for call routing and queuing rather than purchasing new systems. The IVR would be employed to help route inbound calls into specific call queues (see ACD section for more information), or even perform basic triage by asking the caller questions and then presenting common solutions. Lakeland can partition its existing IVR and provide dedicated support numbers that land within that IVR instance to manage the broadband call center.

While ramping up operations, and for low-volume departments, a simple menu presented to the caller may be sufficient and even desirable. Options may include separating calls by department or service (voice, data, video, home automation, etc.). It is important to consider how the IVR will interact with the ACD to provide the fewest number of options while providing the needed granularity. More advanced IVR systems may be able to provide options for an open-ended question and answer interactions to limit the complexity of menu options. For example, the IVR may ask the caller, "Which service are you calling about today?" The caller may then respond with a variety of answers that would be matched to a predefined list of recognized responses. Regardless of how an IVR is configured, customer satisfaction will always be considered when implementing an IVR. Customers may become frustrated if IVR menus are overly complex, long or confusing.

9.6.4 Troubleshooting Toolbox

When a broadband technical support agent receives a customer contact, the depth and scope of the problem is initially unknown. This agent will need to have a vast range of knowledge and experience to be effective at resolving the customer's issue. Some employees will be more organized in collecting information and tools than others. Therefore, it should not be assumed that each agent will be efficient when working with customers in real time. Efficiency is partly derived from having all necessary information and tools at the ready, and when possible, automatically provided when needed.

A basic troubleshooting toolbox is simply a collection of links to Standard Operating Procedures (SOPs), knowledgebase documents and troubleshooting tools. This can be a simple intranet webpage or integrated into the trouble ticketing system. Such a toolbox will include automatic diagnostic tools that can query Customer Premise Equipment (CPE), relevant network interfaces, billing system details and outage tracking systems. Together, this analysis will provide the agent with a snapshot of the overall health of the service for the customer. By interfacing with multiple subsystems, a robust toolbox removes the complexity and unnecessary time involved with manual troubleshooting. Additionally, with a secure front-end for these subsystems, access to them can be restricted to a smaller group of employees.

9.6.6 Troubleshooting Steps

Effective troubleshooting is often considered to be solely based on experience or intuition. While these factors certainly help, consistent use of established troubleshooting steps ensure that problems are resolved efficiently and with minimal unintended consequences. Tier 1 (basic tech support) will be insourced and handled by CSRs, while tier 2 and 3 technical support may be outsourced. Lakeland will utilize the following processes to determine technical support tiers, resourcing and insourcing/outsourcing functions:

1. **Establish Symptoms**

Often, a person with a problem will not convey a full set of symptoms or none at all. When supporting a general customer base, different customers will report problems in many different ways. A more technologically savvy customer may not describe symptoms at all; they may simply state their conclusion as to the cause of the problem. This may or may not be based on sound reasoning or a complete picture of the situation. Other customers may only state the most obvious symptom, assuming the agent knows about others. Oftentimes, customers will assume a problem is similar to a past problem and announce a course of action needed. It is important to interrogate to establish all relevant symptoms of the problem. This will be done in relation to a known baseline for the service (in general or for the specific customer). After asking the customer for a description of the symptoms, make sure to then ask if there are any other symptoms. Open-ended questions like this may take some extra time; however, when this step is completed effectively, a great deal of time can be saved later.

The troubleshooting process will be significantly different between residential and business customers, and processes will be defined to handle each type of customer.

2. **Define Scope**

Once the symptoms have been established, the overall scope of the problem needs to be determined. This will be done in relation to the symptoms. The following questions will be answered when defining scope: What services are affected? What equipment is affected? What is the timeframe of the problem? Is the problem intermittent or persistent? Is the problem affecting any other customers?

3. **Record Any Changes**

Many problems are a result of a condition that has changed. The customer will be asked if any changes have taken place at the service location. These may include equipment being moved, accidental damage, construction or remodeling work, changes to system settings, changes in service or service level. It is also important to investigate possible changes of which the customer may not be aware. For example, network maintenance recently occurring may be causing the problem. Known changes will be considered closely along with the scope of the problem.

4. **Determine the Probable Cause**

After step three, the agent will evaluate all information. This includes notices of maintenance and outages, to then make an informed decision as to the probable cause of the problem. Once this is complete, several possible causes may be found. They will be considered in order of most likely to least likely.

5. **Find a Solution, Evaluate Risks, Implement**

After the likely cause is determined, the agent will then find an acceptable solution. In some cases, multiple solutions may be possible. In this case, the least impactful, least risky option will be selected with all other variables being equal (time, cost, etc.). Once found, the proposed solution will be evaluated for possible risks and unintended consequences. If these are determined to be acceptable, the solution will be implemented.

6. **Test the Solution**

Once the solution is implemented, it is important to test the effectiveness in the context of the original problem. How the problem originally manifested will be considered. For example, if a problem was reported as occurring intermittently, this testing may need to be completed over a set time and the results reported at a later point. If the solution was not successful, or if the solution caused unintended consequences, the agent will evaluate the need for undoing the changes made. If this is needed, the changes should be undone, and a new solution identified. If the original problem was resolved but a new problem created (and the new problem is less impactful), the troubleshooting process should continue from the beginning.

7. **Document**

Once the problem is resolved and fully tested, all information gathered during the process will be recorded. This will likely be in the form of a trouble ticket. Notes will be reviewed for clarity and accuracy. The agent will also determine if a new process or procedure will be recommended for creation, or an alteration made to an existing process or procedure be recommended.

9.6.7 Ticket Escalation and Troubleshooting

The formal interaction between the tiers of technical support can be referred to as the escalation process. In this process, a formal handoff of ownership of a task or incident is given from one agent to another. Because of the inherent difficulties of communication and tasks assignment tracking, it is important for this process to follow the City's standard operating procedure and utilize formal documentation, usually in the trouble ticketing system.

Methods of Escalation

The basic types of escalation are the warm-transfer, cold-transfer and escalation that requires the customer to be called back. For escalations between tier 1 and tier 2, the ideal type of escalation is the warm transfer. In this scenario, once the agent has exhausted the defined procedure for the incident type, they inform the customer that an escalation is needed. At this moment, the agent places the customer on hold for a short time while a tier 2 agent is reached, usually through an internal-only ACD queue.

Once the agent is reached, a brief explanation of the situation is given by the tier 1 agent to the tier 2 agent. This will also include the customer's name and or ticket number. After this brief interaction, the customer is brought into the conversation (three-way call). The tier 1 agent introduces the customer to the tier 2 agent by name and explains that they have given this new agent all relevant information. The tier 2 agent greets the customer and assures them that they will do everything possible to resolve the issue. The final act of the tier 1 agent is to ask the customer for permission to leave the call.

Cold-transfer escalations are executed by simply transferring the customer into an ACD queue for the next highest tier of support. While this method is not as customer oriented, it is often more efficient because the escalating agent is not required to spend time waiting for the higher tiered agent along with the customer. In this method, all relevant information is relayed to the next agent through the trouble ticketing system. Ideally, cold-transfer escalations would only be used during high call volumes because of some customer's poor response to the cold-transfer method.

The final method of escalating an incident is to do so without transferring the customer to a higher tier of support. This method is usually reserved for escalating from tier 2 to tier 3 because incidents that are at this level tend to be difficult and long to resolve. It is important to utilize a reliable method for setting reminders to contact the customer at regular intervals in order to update them on progress. This is especially important for larger business customers and may be required for customers with specific Service Level Agreements (SLAs). Typically, the trouble ticket system or the CRM module of the BSS/OSS will have functionality to set reminders and/or queue outbound calls into the ACD if an integration exists.

Escalation from Tier 1 to Tier 2

Depending on the size of the technical support department, the process of escalating tickets between tier 1 and tier 2 will likely account for the vast majority of ownership handoff between support teams. For small support departments (less than 25-30 total agents), the role of tier 1 and tier 2 may need to be combined into a single role for agents. This is usually because it is difficult to have sufficient staff across all shifts and have adequate coverage for inbound customer contacts.

For tier 1 agents, it is important to utilize standard checklists for the majority of known likely problems that are handled. These checklists should not be full sets of instructions; rather, they will only serve as a recipe of resolution or reminder list for a particular incident. Ideally, these checklists are integrated into the trouble ticketing system and automatically presented to the agent after the incident type is selected from a cascading list. Before the ticket is escalated, each item of the list should be completed, or a reason given if not. Team leaders at this tier of support will likely spend

a significant amount of time reviewing tickets for effective troubleshooting and use of the checklists, as well as refining and improving the checklists as needed.

One strategy that can help improve the success of escalations out of tier 1 is to set a policy that all escalations must be approved by an on-duty team leader. This can create a bottleneck if team leaders are not sufficiently staffed for a shift, or if the volume of tickets is more than can be handled. Therefore, a policy such as this should be considered with caution. A hybrid approach may be more effective. Instead of a team leader reviewing all tickets, incidents that are handled by junior or new employees can be reviewed prior to escalation. Similarly, if an agent is having difficulty with a troubleshooting technique or thoroughness of work, the team leader can require escalation approval for a time.

Escalation from Tier 2 to Tier 3

Because agents working in a tier 2 support role are expected to have additional skills, experience and knowledge beyond tier 1 agents, their actions will likely be less structured. Agents at this level will likely have at least partial access to network subsystems and provisioning interfaces. Therefore, agents will not be solely relying on specific checklists and ridged procedure to troubleshoot problems. This should not preclude the use of checklists as they are recommended at any level of support. Agents in a tier 2 role will likely require more time to handle calls than tier 1 and may even have the need to end the call with the customer and call them back after performing remote testing and troubleshooting.

Once all prescribed troubleshooting steps are taken by the tier 2 agent, the agent must decide if the ticket should be escalated to tier 3, dispatched to a field technician for further investigation and onsite troubleshooting, or placed in a hold/review status so that a tier 2 team leader can review the incident. If the customer is still in contact with the agent, the agent should inform the customer as to the next course of action and set the proper follow-up expectations with them. If escalation to tier 3 is necessary, it is typical for this escalation to occur by assigning the ticket ownership to that group.

Incident Handling at Tier 3 and De-escalation

In a typical technical support chain, tier 3 is the highest tier of support and therefore responsible for final resolution of escalated incidents. Agents at this tier typically have many years of experience and possess full access to all network subsystems and provisioning interfaces. Troubleshooting procedure at this tier is often a case-by-case process, guided more by policy and outcome goals than specific SOPs and checklists. It is possible that incidents escalated to tier 3 agents may take many hours or days to resolve; therefore customer communication is critical as well as keeping notes in the trouble ticket updated.

If resolution to a problem is not achieved by the tier 3 agent, it may be necessary to request assistance from subject matter experts, engineers, third-party contracted support, or hardware/software vendors and manufacturers. It is important for tier 3 agents to retain the ultimate ownership (responsibility) of the ticket to provide continuity to the customer and other support tiers.

When evaluating an incident via a trouble ticket escalation, the tier 3 agent may not have sufficient information to continue troubleshooting the problem. There are two options for a policy to address

this situation. The first option is that the tier 3 agent can be required to take ownership of the incident, regardless of the substance or form of the information provided in the ticket. With this policy, the tier 3 agent may need to contact the customer directly to gain the needed information.

The second option is to allow tier 3 agents to de-escalate tickets back to a tier 2 agent or an available team leader. With this policy, tier 2 agents may be encouraged to provide more thorough information and perform more detailed troubleshooting. However, by de-escalating the ticket, additional time may be expended that can negatively impact the customer. In either scenario, deficiencies with escalation process or information provided in tickets should be addressed by team leaders using specific examples and in a timely manner.

9.6.8 Key Performance Indicators (KPIs)

Key Performance Indicators (KPIs), also called metrics, are a type of measuring tool used by management to evaluate the success rate of predefined goals or performance standards. KPI goals are typically set by accepted industry standards or, in some cases, a specific government regulation. It is typical to alter KPI goals over time to drive continuous improvement efforts or to adjust for a change in circumstance beyond management's control.

Refinement of a KPI goal is especially important when the KPI is first implemented. Because historical data may be limited, set goals may either be unrealistic or too easily achieved. KPIs should be viewed as a tool to help understand complex systems. They should always be considered along with other factors as KPIs are completely dependent on input data accuracy, sound collection methodology and reporting. Lakeland maintains KPIs in its existing call center and will develop KPIs for the broadband call center operations to track performance of CSRs and other resources.

A typical method for reporting KPI data is to collect data at the individual agent level and then summarize and combine that data for team-based reporting. Further summarization can then be performed to combine multiple team KPIs into department level reports and so on. Standard reporting best practices should be used when summarizing data. Avoidance of pitfalls such as averaging data that is already averaged (individual agent level average data that would then be averaged at the team level) is important. When summarizing data, it is better to report the rate of compliance with a KPI goal. This way, regardless of the granularity, data accuracy is not lost. See sections below for more details.

Reporting on KPI goals for management is often a time consuming and difficult process. It is important to have experienced employees with the ability to manage a tremendous amount of data that is available from modern information technology systems. For technical support departments, as well as customer service centers, one of the primary sources of data is the Automatic Call Distribution (ACD) system. Modern ACDs typically generate hundreds of rows of data per employee per day. It is important to work with ACD vendors to understand what standardized reporting is already available and how it may be incorporated.

Another important consideration is how KPIs are measured from a statistical perspective. As stated previously, average numbers should be used with caution. Because outlier data may indicate a serious problem with a specific team or agent, outliers need to be visible and possibly highlighted.

For this reason, use of statistical medians, quartiles and minimum/maximum values may be preferred to simple averages. As an example, consider the data represented in Figure 26. Note that the average wait time for both days, Monday and Tuesday, are similar. However, Monday has a call (number 10) that is significantly higher than the norm. A team leader may wish to investigate this outlier to determine the cause.

Figure 26: Performance Indicators Relating to Call Wait Times

Inbound Call Handling Time

Monday	
Call Number	Wait Time
1	0:25
2	0:10
3	0:45
4	0:56
5	1:12
6	2:45
7	0:05
8	0:45
9	1:19
10	24:47
11	0:34
12	0:42
13	0:34
14	0:09
15	0:11
16	1:29
17	1:20
18	0:51
19	0:21
20	0:18

Average Wait Time
1:59

Median Wait Time
0:44

		Differences
Minimum	0:05	0:05
1st Quartile	0:20	0:15
Median	0:44	0:23
3rd Quartile	1:14	0:30
Maximum	24:47	23:33



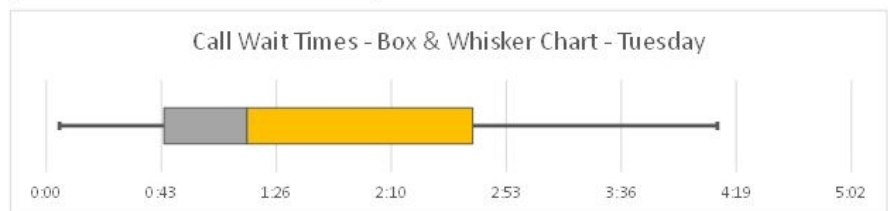
Inbound Call Handling Time

Tuesday	
Call Number	Wait Time
1	4:12
2	3:37
3	0:45
4	0:56
5	1:12
6	2:45
7	0:05
8	0:45
9	1:19
10	3:55
11	0:34
12	0:42
13	0:34
14	2:44
15	2:34
16	1:29
17	1:20
18	0:51
19	0:21
20	2:39

Average Wait Time
1:40

Median Wait Time
1:15

		Differences
Minimum	0:05	0:05
1st Quartile	0:44	0:39
Median	1:15	0:31
3rd Quartile	2:40	1:25
Maximum	4:12	1:32



With actual data, outliers may not be as obvious, but they can indicate serious problems such as understaffing on certain shifts, deficiencies in training or support systems or even service outages. Additionally, presenting actual numbers in addition to simple summary chart data is important in any report to allow the reader to clearly see outliers. Alternatively, more complex charts can be used to represent statistical data as in the example. This chart style is called the Box and Whisker chart. With this single chart, minimum, first quartile, median, third quartile, and maximum values are represented.

For KPI reporting that tracks individual employee performance, outlier data is also very important. Consider data representing Quality Assurance Scores for John Doe in Figure 27. While the employee typically has good performance, the calls reviewed on January 16th and 19th were below the set standard of 90%. The score of 45% may represent a serious issue, worthy of further scrutiny by a supervisor. For this reason, when data is summarized for management, values beyond simple averages are important. In the summary data, the employee’s Compliance Rate is highly visible as well as the Lowest Score. These numbers indicate a potential problem that the Average and Median Scores do not.

Figure 27: Quality Assurance Report Example

Quality Assurance Score Report		
John Doe		
QA Score Goal	90%	
Date	Score	Team Leader Note
4-Jan	95.0%	
7-Jan	92.0%	
10-Jan	100.0%	
13-Jan	99.0%	
16-Jan	88.0%	
19-Jan	45.0%	Call reviewed with employee.
22-Jan	90.0%	
25-Jan	94.0%	
28-Jan	97.0%	
31-Jan	100.0%	
3-Feb	99.0%	
6-Feb	95.0%	
9-Feb	90.0%	
12-Feb	92.0%	
15-Feb	95.0%	
Compliance Rate	13/15	
Compliance %	86.7%	
Average Score	91.4%	
Median Score	95.0%	
Lowest Score	45.0%	
Highest Score	100.0%	

9.6.9 Individual Agent-level KPIs

As with all KPIs, agent level KPIs are one of many leadership tools that will be used to help agents improve performance, thereby increasing customer satisfaction. It is critical that all KPIs and their respective goals are communicated effectively with staff. For highly effective employees, positive feedback may help to maintain job satisfaction levels and encourage further development. For employees with performance issues, accurate KPI data can help reinforce specific actions that the employee can take to improve. Additionally, KPI results can be included in regular employee performance evaluations if used by the company.

In ideal conditions, KPI reporting on an individual agent level should be made available to each employee frequently and be simple to understand. Furthermore, as will all KPIs, each measurement will be clearly tied to overall mission objectives.

Agent Availability Time

Agent availability time is the measurement, usually as a percentage or ratio, of how much time the employee is logged into the ACD system, ready to receive incoming or make outbound customer contacts. This measurement can indicate both the adherence to break policies as well as ensure that the agent is not spending an improper amount of time away from their primary role. Any goals that are set for this KPI will take into consideration the agent's shift, technical experience and tier in the support chain. For example, an agent that is working in a tier 2 or 3 role may require more time for resolving issues (troubleshooting) while unavailable to take on additional incidents than an agent working in a tier 1 role.

Quality Assurance Score

Quality assurance (QA) score, also called quality control (QC) score, is the measurement of the agent's adherence to the predefined standards for handling customer contacts. Items typically scored are how well the agent greets the customer, confirms customer identity, establishes the scope of the issue or request, identifies the likely resolution, implements the resolution, tests to ensure the issue is resolved, documents the solution, effectively communicates with the customer during the process, follows escalation procedures, and other important factors that ensure a satisfied customer. QA scores are usually tallied with the assistance of a checklist and weighted point system. During ramp-up, QA scores may be reported by team leaders or other supervisor staff. For larger departments, this function may be consolidated into a single job role.

9.6.10 Team Level KPIs

Team level KPIs are used to ensure that each team is performing within the defined acceptable range for major mission roles. Team KPIs can be used to measure performance against set targets or as a comparison between teams performing similar work. It should be noted that even though multiple teams may have similar roles, differences in shift schedule, queue balancing, and customer makeup can affect performance. For example, a team that works Monday through Friday, 8am to 5pm may receive more contacts from commercial customers than a team that works after hours or on weekends. This may result in more complex problems being offered to the team in comparison to another.

Team level KPIs are also a primary method to measure the performance of team leaders and supervisors. Decreasing performance over time can be an indicator of an ineffective team leader, while increasing performance can indicate effective leadership. It is recommended that team level KPIs are measured at a weekly interval and summarized at a monthly interval for upper management.

First-Touch Resolution

First-touch resolution is the measurement of how many customer incidents that are resolved during the initial contact. This is often measured by tracking the number of tickets that were resolved without any escalation as a percentage of the total number of tickets. While higher percentages generally indicate better performance, there are some pitfalls to avoid. Most important is to ensure that employees are not artificially increasing first-touch resolution numbers by inadequately resolving problems that result in the customer reporting the issue again. Furthermore, ensuring that employees are recording all incidents is important. This is easily confirmed by tracking the number of opened tickets with the number of handled contacts (phone calls, emails, chat sessions, etc.).

Escalation Percentage

Escalation percentage is the measurement of how many customer incidents that are offered to the team are ultimately escalated out of the team. This is usually measured by tracking the number of tickets that are created or assigned to the team that are resolved without escalating the ticket to another team or department. Generally, lower percentages are preferred. However, teams that have extremely low escalation percentages may not be following ticket handling procedures correctly. This could occur when a ticket is marked as complete but in fact the problem remains unresolved. Regular review of ticket details through a quality assurance program can help mitigate issues such as this.

For teams that are responsible for tier 1 support, escalation percentages may be higher than teams involved in higher tiers of support. Therefore, it is usually best to use this metric as a comparison between teams performing similar work.

Quality Assurance Score

Quality assurance (QA) score, also called quality control score, is the total measurement of all individual agent level KPI QA scores for the team. This score is usually measured as a total number of agent scores that follow target goals as a percentage. For example, if the individual agent level KPI target for QA is 90%, the team level KPI target could be represented by the number of agents that are currently meeting or exceeding the individual target divided by the total number of agents. Depending on how many individual QA scores are generated per week, this KPI may need to be reported on a monthly interval.

Additional Team Level KPIs

In addition to the specific KPIs discussed in previous sections, any Individual Agent Level KPI can be totaled and or summarized for team level reports.

9.6.11 Customer Login System

For any customer-facing systems that present the customer with information or communications channels, it is important for technical support to have at least some access to support the customer. It is extremely important to have a policy that does not allow employees to request login credentials (usernames and passwords) for any systems, even if they are provided by the City. Therefore, it is necessary to provide tools for the agents to be able to support broadband customers with these systems. For example, if a customer portal is provided to the customer, technical support agents will need to be able to determine if the customer has an account and has it set up properly.

This will be accomplished by having administrator tools that give the agent the information, or by allowing the agent to log into the system as the customer (without needing their password). An advantage of logging in as the customer is that it shows the agent the exact experience that the customer is presented. Privacy of personal information will be strongly considered if this method is used. Customer e-mails, recorded voicemails and payment information will be obscured and disallowed from the employee.

9.7 Network Operations Center (NOC)

9.7.1 NOC Operations Considerations and Best Practices

When operating a 24/7/365 NOC, the City will require adequate staff to handle the expected volume of work, including routine service outages and disruptions. As a network grows, routine issues may increase, but it is also typical for mature networks to have relatively fewer disruptions in comparison to newer networks.

Because of this, it is possible for the overall workload of support and NOC personnel to not increase at a linear rate in relation to network size or customer count. In addition to on-duty NOC staff, a rotation of on-call personnel will be scheduled. The overall number of staff having on-call duty will need to be determined after analyzing typical workloads and frequency of unplanned outages.

The City will also schedule NOC personnel during shifts when their specific skillset is best utilized. Shifts during weekdays will likely have a different pace and variety of work in relation to overnight shifts. This is due to the types of customers reporting problems (such as business customers that are only open during the day), certain types of activity on the network (such as outside plant construction and maintenance), and scheduled network maintenance (typically completed during a maintenance window early in the morning).

Employees working at night will likely need to support network engineers during planned maintenance events and will also need to be more self-sufficient due to the lower levels of staff available. As with technical support, the minimum number of employees needed to effectively staff a 24/7/365 NOC is five.

9.7.2 Network Management

The most important function of a NOC is to monitor and record information for immediate dissemination or later review. Functional network management systems must be used to allow real-time management of network outages including alarms and location detection.

For outage events, the City will procure a dedicated logging system that uses incident tracking (trouble ticketing). This system will also provide the employee with mass communications channels as well as knowledgebase and service level agreement requirements. Outage incidents will be opened, documented and formally closed by appropriate staff to ensure proper handling and communication outside of the department. An additional step of assigning closure of incidents to only senior staff or leadership can be taken by policy, if desired.

For routine information logging, the method is less critical as long as the system used is indexable, searchable and distributable. Events in this category include routine system log aggregation and reporting, routine system health check reporting, shift summary reporting and after-action reports.

During the build out phase of the network, Lakeland will issue an RFP for a fully functional network management system with the objective of having the system implemented and tested prior to a soft launch of the broadband services. Features of the for the network management system are provided in the Appendices to this Plan.

9.7.3 Physical Layout

While the physical layout of an office space is always important for the health and well-being of employees, layout of a NOC is critical to its overall mission. There are two basic strategies for designing a NOC, both have their advantages and associated costs.

The most iconic layout for NOCs is to arrange personnel so that they are all facing a large display wall that provides critical real-time information to the staff. In this layout, staff would have workstations in rows (as many as are necessary), sometimes with a stadium style slope to the room. Combined with audible alarms, the job of the display wall is to inform the staff of critical alarms and information. This will include custom dashboards, interactive maps, weather and news feeds, monitors for video service and emergency alert systems. The displays at the front of the room will be of sufficient size to be legible from the back of the room.

The size of the NOC will be determined based on the City's final choice of deployment plans. Depending on the City's final selection, the NOC may require between 500 – 1,000 sq ft of office space.

10.0 Network Design & Costing

THIS PAGE INTENTIONALLY LEFT BLANK
THE FINAL NETWORK DESIGN & COSTING WILL BE INCORPORATED BASED ON THE CITY'S
SELECTED DEPLOYMENT OPTION

11.0 Financial Plan

THIS PAGE INTENTIONALLY LEFT BLANK
THE FINAL FINANCIAL PLAN WILL BE INCORPORATED BASED ON THE CITY'S SELECTED
DEPLOYMENT OPTION

12.0 Business Risk Analysis

THIS PAGE INTENTIONALLY LEFT BLANK
THE FINAL BUSINESS RISK ANALYSIS WILL BE INCORPORATED BASED ON THE CITY'S SELECTED
DEPLOYMENT OPTION

13.0 Implementation Plan Framework

This section provides high-level tasks, processes and plan for the implementation of Lakeland's broadband business, providing a framework that describes how Lakeland will execute its Business Plan. Subsections below provide a detailed tasking plan that covers all implementation functions of the network and operations.

13.1 Project & Construction Management Framework

- Project Administration; Executive in Charge; PM-CM Manager
- Project Implementation Plan
 - Create initial project implementation plan
 - Project coordination, tracking, and updating
 - Issues tracking
 - Discuss and finalize project specifics
- Project Meetings
 - Hold bi-weekly management meetings
 - Hold bi-weekly status client meetings
 - Hold bi-weekly status internal meeting
 - Miscellaneous emails, discussions, tasks, email logs, project management
 - Participation in hiring interviews
- Create Necessary RFPs and Participate in Bidding Process
 - Construction and Material
 - Inside wiring and maintenance only
 - Network equipment and Data Center
 - Wholesale carrier internet service provider (ISP)
 - Network monitoring and management software
 - Operational and business support system (OSS/BSS), if necessary
- Broadband Project Manager
 - Construction management
 - Coordination with Lakeland electric standards
 - Inspections
 - As-builts – Need to utilize NISC – ESRI-based
- Inventory Management and Accounting
 - Broadband project manager will interface with Lakeland's internal staff
 - Work order management
 - Inventory management
 - Project accounting
- Internal Tasks
 - Create Internal Workflow Master Plan
 - Internal travel, materials, time management
 - Required licenses and permits and certifications

13.2 Network Design

- Detail Engineering Network Design
 - Work with Lakeland GIS team to ensure design standards are followed
 - Create dummy design and incorporate into Lakeland GIS to ensure standards are met
 - Identify what locations need dedicated fiber
 - Make-ready and pole inspections
 - Field review of fiber layout and node location
- Milestone #1 (approximately 30% complete)
 - Provide any preliminary plats, easements etc.
 - Perform field review, field crews on site, aerial field work
 - Collect necessary information for permitting agencies, environmental impact
 - Create inventory from existing splice bundles
 - Perform outside plant walkout and staking to validate design
 - Update design based upon field review
 - Complete and submit permits
- Identify Requirements for Easement and Property Access
 - Actual fees for permits will be paid
 - Submit detailed road crossing permits
 - Contact pole owner(s) to instigate pole process
 - Submit pole loading and attachment application
 - Easements, bridge attachments, river and creek bed boring, as necessary
 - Create construction GIS/CAD prints-backbone, distribution network, etc.
 - Decision point to order materials or wait until design is complete
 - Submit design proposal to Lakeland for review
 - Update design based upon Lakeland review
- Milestone #2 (approximately 60% complete)
 - Define other construction plans
 - Construction traffic control, and storm water runoff prevention
 - Sequencing of construction drawings
- Make Readies
 - Make ready walk out and documentation
 - Make ready engineering
 - Submit make ready work orders
 - Make ready timeline and monitor status
 - Remediation strategies for difficult make ready
- Perform fiber network capability calculations for 1 Gigabit DWDM
 - Attenuation
 - Dispersion
- Detailed Project Cost Estimates by Backbone and Distribution Zones
 - Tab design prints
 - Labor by service performed in unit of measure format
 - Material in unit of measure format
 - Create unit summary, descriptions/quantities/part numbers, etc.

- Develop general notes and specifications
- Contact/send final notice letter to aerial and underground utility owners
- Review detail cost estimates to be included in OSP RFP
- Provide detailed aerial and underground design for PE review
- Provide post construction detailed aerial and underground design in GIS format
- Deliver CAD file and PDF files for construction to jurisdictions
- Submit design for PE review
 - Format network design, as-builds
 - Create signature block on face page of design for City's approval
- Core
 - Distribution
 - Access
 - Service
 - Prepare and update engineering design documents
 - Base and background mapping
 - Create strand maps
- Wireless
 - Propagation study
 - Line and antenna engineering
 - Vertical asset acquisition or lease
 - Fiber backhaul planning
- Obtain Lakeland approval signature on design
- Contact MDU & HOA's others with Service Agreement interest
 - Confirm fibers in counts for high density

13.3 Engineer's Estimates & Financial Plan Inputs

- Receive feeder/distribution construction estimates
- Receive drop construction estimates
- Receive headend, core, edge, OLT, ONT equipment estimates
- Receive set-top box and other home equipment estimates
- Receive billing, provisioning, work order and ticketing system estimates
- Receive data center and facility estimates
- Receive wholesale and content rates
- Incorporate into financial plan and test models
- Validate any changes to the financial plan and adjust as needed

13.4 Construction

- Prepare site locations
 - Receive material
 - Install cabinets
 - Safety training
 - Safety manual
 - Supplemental Lakeland safety training
 - Electric specific training
- Begin construction
 - Personnel attire, vehicles, behavior
 - Lakeland engineer to approve in-field construction changes
 - Monitor schedule
- Inspection
 - Periodic inspections during construction
 - Compliance to design specifications
 - Review proposed field changes and create change orders as needed
 - Send construction prints as completed weekly to Design Team
- Close Out Construction
 - Coordination services
- Back Office
 - Regulatory reporting
 - Determine needed reports
- Accounting Readiness
 - Establish chart of accounts
 - Assist Client with broadband into accounting system
 - Create timesheets
- Affiliate Transaction Reporting
 - Identify all affiliate transactions
 - Task accounting setup
 - Reporting structure for regulatory
 - Determine way to allocate overheads
- Inventory Accounting
 - Determine stock numbers
 - Broadband to separate from electric inventory system
 - Transfer existing fiber network costs to broadband books

13.5 Start-up

- Start-up Costs
 - Determine date when start-up costs begin
 - Determine allocation and tracking of resources between broadband and electric, in compliance with regulatory bodies
 - Transfer accumulated sick and annual leave
 - Determine how to manage retirement work orders
 - Develop procedures for flex spending accounts
 - Determine what billing platform will be used
 - Determine how to bill broadband on customer bills
 - Determine how to allocate client billing and postage costs
 - Determine what assets need to be tagged
 - Determine how to account for ONT's
- Cost Allocation Manual
 - Final procedures and resources documented in compliance with regulatory authorities
- Create Depreciation Tables
 - Build depreciation tables
 - Establish revenue accounting procedures
 - Define management's report requirements
 - Create management reports
- Human Resources Readiness
 - Determine internal vs outsource positions
- Research Outsource Options
 - Areas and functions; availability; costs; term
- For Internal Positions
 - Complete internal job descriptions
 - Send to Civil Service Department, if necessary
- Hire Personnel
 - Open and advertise position
 - Workspace, computers, security
 - Interview process
 - Choose hire, offer extended, offer accepted
 - Determine start date
- Workplace Environment

13.6 Customer Service Readiness

- Wireless Testing and support plan
- Customer Service
 - Assign CSR to workstation, orientation
 - Assign passcodes and e-mails, etc.
- Determine and Document Workflows for All Product and Order Type Combinations
- Develop workflow matrix: products and packages, order types and departments
 - Develop how orders flows between departments
 - Determine necessary steps within each department based on product
 - Determine default turnaround times from each department by product
 - Determine order flow delivery platform (e-mail- internal LAN- other)
 - Develop order tracking and audit protocols
- Establish CSR Responsibilities
 - Pre-order activities
 - Coordinate with sales
 - Establish hand off process
- Repair – Trouble Activities
 - Establish local and toll-free number
 - Utilize Lakeland’s existing IVR and ACD
 - Develop landing page for Lakeland’s website
 - Construct prices schedule for field services, if offered
 - Trouble call handling procedures
 - Establish after hours’ service plan
 - Determine and document workflow
- Credit and Collections Activities
 - Determine and document workflow
 - Training
- Software Platforms for Operational and Business Support System (“OSS / BSS”)
 - Gather RFP requirements and determine RFP structure
 - Prepare RFP, determine response period
 - Issue RFP
 - Vendor Q&A and meeting
 - Evaluate RFP responses
 - Vendor client reference
 - Recommend vendor award
 - Approval of vendor, award contract
 - Contract review and signature
 - Order material (if necessary)
 - Establish delivery schedule
 - Receive material
 - Assist in configuring and implementing software with vendor
- Billing Functions
 - Determine applicable taxes, surcharges and fees for the various services
 - Determine bill cycle dates

- Billing customers for services
- Issuing credits for service level issues
- Reporting on new, current and terminated services
- Managing any taxable products or services (where required)
- For Operational and Business Support System (OSS / BSS)
 - Web portal creation
- Product and Rate Development Readiness
 - Define product line and product pricing
- Conduct Product Line and Pricing Meeting with Applicable Parties
 - Internet services
 - Television services
- Propagate Product Line and Pricing Internally
 - Determine who needs what information
 - Provide pricing to marketing for website and other releases
- Revisit Pricing Prior to each Launch
 - Provide confirmation to marketing (ongoing)

13.7 Operations

- OSP Operations
 - Last-mile network construction, provisioning, activation, maintenance, and repair
 - Accept and process new service orders, maintenance, and repair tickets
 - Assigning work orders to a network designer and OSP field tech
- Vendor Selection – Fiber Drop Installation
 - Gather RFP requirements and prepare RFP
 - Internal review of RFP
 - Determine response period
 - Issue RFP
 - Vendor Q&A meeting- if desired
 - Evaluate RFP responses
 - Check vendor references - if desired
 - Recommend vendor
 - Client approval of vendor
 - Contract period and signature
- Vendor Selection - Inside Wiring and On-Going Maintenance (Fiber & Wireless)
 - Gather RFP requirements and prepare RFP
 - Internal review of RFP
 - Determine response period
 - Issue RFP
 - Vendor Q&A meeting- if desired
 - Evaluate RFP responses
 - Check vendor references - if desired
 - Recommend vendor
 - Client approval of vendor
 - Contract period and signature
- Network Monitoring – Issue Resolution for Network Management Software and System
 - Gather RFP requirements and determine RFP structure and prepare RFP
 - Determine response period
 - Client internal review
 - Issue RFP
 - Vendor Q&A meeting
 - Evaluate RFP responses
 - Vendor client reference
 - Recommend vendor award
 - Approval of vendor and award contract
 - Contract review and signature
 - Order material (if necessary)
 - Establish delivery schedule
 - Receive material
 - Training on NOC systems
- Creation of Troubleshooting Processes
 - Identify network engineers early and hire internally

- Responding to errors and alarms, network management systems
- Taking service calls from subscribers
- Identifying and resolving issues in a timely manner
- Proactively communicating with customers when issues occur
- Dispatching field and other personnel to repair physical plant issues
- Monitoring existing and new services
- Managing capacity in the broadband network
- Testing and Rollout
- Select, Install and Test Beta Clients and Billing Run
 - Select up to five for first pilot rollout (small and medium)
 - Get signed contractual test agreements
 - Create test plans for each customer
 - Monitor and communicate with pilot customers for satisfaction - feedback
- Internal Testing Broadband Services
 - Create test plan and setup test area in data center
 - Test distribution and access network
 - Test internet
 - Deploy to test environment, test customers in pilot
- Official Roll Out
 - Create rollout plan
 - Conduct post-rollout review

13.8 Data Center Standup

- Data Center
 - Determine exact list of needed network equipment
 - Gather RFP requirements and prepare RFP
 - Internal review of RFP
- Provide Floor Plan and Electrical Capabilities of each Prospective Location
 - Sites review (existing and prospective locations)
 - Research remote huts/building
 - Proposal(s) for Data Center and remote building locations
 - Determine response period
 - Issue RFP
 - Vendor Q&A meeting- if desired
 - Evaluate RFP responses
 - Check vendor references - if desired
- Create RFPs For Data Center Based on Best Solution Above
 - Construction or refurbishment
 - Transfer switches, breakers, power supplies
 - Redundant backup power
 - All other necessary electrical devices
 - Wiring diagrams with associated bonding and grounding requirements
 - HVAC and fire suppression
- Security

- Fencing and entrance
 - Cameras and monitoring
- Internal Structure
 - Cable management, cable trays, cages, raceways, racks
 - Assist in selection of and negotiation with vendors
 - Monitor vendor installations through completion
- Network Equipment and Implementation
 - Rack-stack and turn-up
 - Configure core and distribution
 - Configure DNS, firewalls and management network
 - Configure servers and storage
 - Setup test area in data center
 - Create operational policies
 - Test interfaces with network vendors
 - Define vendor report status reports
- Vendors for Wholesale Internet Service Provider (ISP)
 - Client internal review
 - Proposal period
 - Evaluate RFP responses
 - Vendor client reference - if desired
 - Client approval of vendor
 - Establish delivery schedule
- Vendors for Voice-Over-IP (VOIP) Service
 - Client internal review
 - Proposal period
 - Evaluate RFP responses
 - Vendor client reference - if desired
 - Client approval of vendor
 - Establish delivery schedule
- Vendors for Streaming TV Platform
 - Client internal review
 - Proposal period
 - Evaluate RFP responses
 - Vendor client reference - if desired
 - Client approval of vendor
 - Establish delivery schedule
- For Domain Name System (DNS) Servers and Service
 - Award contract
 - Contract review and signature
- For IP Address Space and Autonomous System Number (ASN)
 - Award contract
 - Contract review and signature
- Identify Component Selections and Procurement Strategies for Core Router
 - Award contract
 - Contract review and signature
- For Firewalls

- Award contract(s)
- Contract review and signature
- For Miscellaneous Switches
 - Award contract(s)
 - Contract review and signature
 - Receive material
- For Servers
 - Award contract(s)
 - Contract review and signature
 - Order material (if necessary)
 - Receive material
- For Storage Network
 - Award contract
 - Contract review and signature
- For Distribution and Access Network
 - Award contract
 - Contract review and signature
 - Establish delivery schedule
 - Order material and equipment (if necessary)
 - Receive material and equipment

13.9 Sales & Marketing

- Develop Contractual Agreements
 - Provide a MDU agreement template
 - Create, approve and edit non-disclosure agreement
 - Create, approve and edit master service agreement
 - Create, approve and edit service level agreement
 - Create, approve and edit acceptable use policy
 - Attorney reviews and approves contractual agreements
- Forms Checklist
 - Survey forms, sales forms and sales flow document
 - Prioritize prospect list
 - Public facilities and governments: county and city facilities, public safety
 - Education: K12, universities, colleges
 - Health care: hospitals, physician groups, imaging centers
 - Data center and disaster recovery enterprises
 - Private ISPs, LECs, mobile carriers with fiber backhaul needs
 - Enterprises engaged in e-commerce with critical up-time requirements
 - Any business that needs to transport video, images, multi-site LAN
 - AMI-SCADA and smart-grid needs
 - Multi-family residential and student housing
- Provide Marketing and Sales Strategies
 - Pricing and bundling strategies
 - Complete marketing and sales plan with calendar and roll out schedule

- Market analysis, advertising strategy, website plan and social media plan
- Sales techniques and training
- Printing and creative design, suggest marketing materials

13.10 Pilot Development and Phase Rollout

- Action Steps and Plan for Pilot Deployment
 - Develop a menu of products and service offerings
 - Design a simple brochure with product description and benefits
 - Compile a price list for services, with terms and conditions
 - Implement a promotional offer for phase 1 customers
 - Identify who will be selling and interfacing with the customers
 - Consider a buyout program for customers under a contract
 - Establish Gigabit pricing and begin marketing as a “Gigabit City”
 - Constant debriefing and analysis of customer feedback and be willing to adjust
- Action Steps and Plan for Phase 2 Deployment
 - All processes and market knowledge from Pilot phase rolled into Phase 2
 - Phase 2 should be an all-out blitz with pre-selling and a marketing campaign
- Repeat for subsequent phases