

FTTP Feasibility Financial Analysis

Spring Hill, KS

Broadband Task Force Meeting

December 12, 2017



Approaches

- Build FTTP infrastructure
 - Main focus of today’s presentation
- Build “middle-mile” infrastructure to incent private investment in wireless or last-mile FTTP
- Encourage private investment through streamlined permitting, one-touch make-ready, dig once policies, and City community outreach



FTTP Financial Analysis

- Investigates the financial implications of operating network for 20 years
- Uses the FTTP cost estimate presented last month
- Illuminates requirements to operate “cash-positive”
- Employs various assumptions based on our experience in markets nationwide
- Uses “flat model”



Key Terms

- **OSP** - Outside plant; the physical portion of a network that is constructed on utility poles (aerial) or in conduit (underground).
- **Passing** - A potential customer address (e.g., an individual home or business).
- **Take Rate** - The percentage of residents and businesses that subscribe to service.
- **CPE** - Customer premises equipment; the electronic equipment installed at a subscriber's home or business.
- **Drop** - The fiber connection from an optical tap in the PROW to the customer premises.
- **RSP** - Retail service provider; a provider who offers voice, video, data, or other services over a network.



FTTP Business Models

- **Dark FTTP Model** – City deploys OSP, leases infrastructure to private partner who “lights” fiber and provides service
 - Huntsville Model – Partner installs drops
 - Westminster Model – City installs drops
- **Open Access Model** – City deploys OSP, core electronics, and CPE; Multiple ISPs provide service over City infrastructure
- **Municipal Retail Model** – City deploys all network assets and becomes traditional service provider



Dark FTTP Model

Huntsville Model

- Full City FTTP buildout to ROW
- Private Partner (Lessee) constructs fiber drop into premises
- Private Partner (Lessee) pays City per passing
- Model not affected by take rate

Westminster Model

- Full City buildout to ROW
- City constructs fiber drop into premises
- Two-tiered payment
 - Partner (Lessee) pays City per passing
 - Partner (Lessee) pays City per active subscriber to offset drop construction cost
- Model affected by take rate



Open Access Model

- City deploys and maintains OSP
- City deploys and maintains core electronics and CPE
- City constructs fiber drop into premises
- Retail Service Provider (RSP) offers data service; manages sales, advertising, and customer support
 - Ideally multiple providers, though this may not be realistic in Spring Hill



Municipal Retail Model

- City deploys infrastructure and becomes traditional service provider
 - Deploys and maintains OSP
 - Deploys and maintains core electronics and CPE
 - Constructs fiber drop into premises
 - Provides data service; manages sales, advertising, and customer support

Responsibility for Network Elements

C = City Responsibility; P = Partner (Lessee) Responsibility; RSP = Retail Service Provider Responsibility

Business Model	OSP	OSP Maintenance	Drops	Core Electronics	CPE	Backhaul & Customer Service
Huntsville (Dark)	C	C	P	P	P	P
Westminster (Dark)	C	C	C	P	P	P
Open Access	C	C	C	C	C	RSP
Municipal Retail	C	C	C	C	C	C



Key Metrics from Cost Estimate

- OSP Cost Per Passing: \$1,700
- Average Drop Cost: \$1,592
- Residential CPE: \$630
- Business CPE: \$700
- Financing: 20-year GO bond at 3 percent; 1.06 percent issuance cost
 - Latest GO issue was 2.26% for a 15yr bond. Average of all outstanding GO debt is 3.69%
 - Depending on model, \$5.6 million to \$10.8 million necessary



Additional Assumptions

- 300 plus assumptions based on our experience in markets nationwide
 - These will be explained further in the final report
 - Pricing assumptions are critical



Huntsville Model (Dark FTTP)

- Named for model in Huntsville, AL between Huntsville Utilities and Google Fiber
- City deploys OSP
- Partner (lessee) provides electronics, constructs drop into premises, pays City per passing
- Requires \$27.75 per passing per month (3.7 times \$7.50 fee in Huntsville)
- Bond just over \$5.6 million

Huntsville Model Base Case

Income Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Total Revenues	\$74,730	\$933,730	\$933,730	\$933,730	\$933,730
Total Cash Expenses	(381,540)	(470,190)	(470,190)	(470,190)	(470,190)
Depreciation	(89,840)	(264,550)	(259,530)	(259,530)	(259,530)
Interest Expense	(57,450)	(160,330)	(118,020)	(68,970)	(12,110)
Taxes	-	-	-	-	-
Net Income	<u>\$(454,100)</u>	<u>\$38,660</u>	<u>\$85,990</u>	<u>\$135,040</u>	<u>\$191,900</u>

Cash Flow Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Unrestricted Cash Balance	\$3,840	\$158,920	\$224,460	\$290,420	\$356,660
Depreciation Reserve	<u>-</u>	<u>50,260</u>	<u>73,290</u>	<u>96,190</u>	<u>119,090</u>
Total Cash Balance	\$3,840	\$209,180	\$297,750	\$386,610	\$475,750



Westminster Model (Dark FTTP)

- Named for model used in Westminster, MD between Westminster and Ting Internet
- City deploys OSP, drops upon subscription
- Partner (lessee) provides electronics, pays City per total passings plus per-subscriber fee
- Requires 2.6 times the fees in Westminster
 - \$15.60 per passing
 - \$44.20 per subscriber
- Bond just over \$7 million

Westminster Model Base Case

Income Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Total Revenues	\$68,530	\$1,045,760	\$1,045,760	\$1,045,760	\$1,045,760
Total Cash Expenses	(381,740)	(474,100)	(474,100)	(474,100)	(474,100)
Depreciation	(93,820)	(342,720)	(337,700)	(337,700)	(337,700)
Interest Expense	(60,300)	(201,350)	(148,220)	(86,630)	(15,250)
Taxes	-	-	-	-	-
Net Income	<u>\$(467,330)</u>	<u>\$27,590</u>	<u>\$85,740</u>	<u>\$147,330</u>	<u>\$218,710</u>

Cash Flow Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Unrestricted Cash Balance	\$8,990	\$12,430	\$71,080	\$130,170	\$189,590
Depreciation Reserve	-	<u>51,400</u>	<u>77,750</u>	<u>104,000</u>	<u>130,250</u>
Total Cash Balance	<u>\$8,990</u>	<u>\$63,830</u>	<u>\$148,830</u>	<u>\$234,170</u>	<u>\$319,840</u>



Municipal FTTP Retail Model

- Used prices based on common overbuilders' prices
- \$75 connection fee
- Service Fee
 - Residential
 - **1 Gbps** symmetrical **\$90/month**
 - Business
 - Small: **1 Gbps** symmetrical **\$100/month**
 - Medium: **1 Gbps** symmetrical **\$200/month**
 - Enterprise: **1 Gbps** symmetrical (SLA) **\$1,000/month**



Municipal Retail Model

- City deploys all infrastructure, provides service, and maintains customer relationships
- Data-only Service
- In order to maintain cash flow, City must obtain and maintain a 67 percent take rate
 - Extremely high take rate in an overbuild situation
- Bond almost \$10.8 million

Municipal Retail Model Base Case

Income Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Total Revenues	\$111,525	\$2,094,600	\$2,094,600	\$2,094,600	\$2,094,600
Total Cash Expenses	(694,840)	(1,011,950)	(1,011,950)	(1,011,950)	(1,011,950)
Depreciation	(199,280)	(741,050)	(685,420)	(670,640)	(670,640)
Interest Expense	(99,000)	(308,160)	(226,180)	(132,850)	(22,980)
Taxes	-	-	-	-	-
Net Income	<u>\$(881,595)</u>	<u>\$33,440</u>	<u>\$171,050</u>	<u>\$279,160</u>	<u>\$389,030</u>

Cash Flow Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Unrestricted Cash Balance	\$25,985	\$14,155	\$33,065	\$107,085	\$182,625
Depreciation Reserve	-	<u>545,420</u>	<u>727,660</u>	<u>257,900</u>	<u>379,340</u>
Total Cash Balance	<u>\$25,985</u>	<u>\$559,575</u>	<u>\$760,725</u>	<u>\$364,985</u>	<u>\$561,965</u>



Municipal Retail Model Sensitivity

- If City adds voice and video service, necessary take rate drops to 64 percent
- If using Kansas City pricing (\$70) with a 67 percent take rate, City will have a cash flow shortage of over \$7 million after 20 years
- If using Ammon, ID pricing (\$3,000 connection fee), necessary take rate drops to 53 percent, bond drops to \$6.15 million
- If able to obtain \$5 million in startup funds, necessary take rate drops to 49 percent

**Typical take rate in overbuild market is 35 percent*



Open Access Model

- City deploys all infrastructure
- RSP provides CPE, service, and maintains customer relationships
- If all assumptions of Municipal Retail Model remain, RSPs will need to pay City \$69 per subscriber per month
- Assumes 67 percent take rate
- Bond almost \$9.5 million

Open Access Model Base Case

Income Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Total Revenues	\$86,385	\$1,567,092	\$1,567,092	\$1,567,092	\$1,567,092
Total Cash Expenses	(465,530)	(695,930)	(695,930)	(695,930)	(695,930)
Depreciation	(185,380)	(537,730)	(522,770)	(507,990)	(507,990)
Interest Expense	(90,000)	(271,050)	(198,870)	(116,830)	(20,100)
Taxes	-	-	-	-	-
Net Income	<u>\$(654,525)</u>	<u>\$62,382</u>	<u>\$149,522</u>	<u>\$246,342</u>	<u>\$343,072</u>

Cash Flow Statement	Year 1	Year 5	Year 10	Year 15	Year 20
Unrestricted Cash Balance	\$11,855	\$46,299	\$250,079	\$468,269	\$689,389
Depreciation Reserve	<u>-</u>	<u>225,840</u>	<u>478,750</u>	<u>121,670</u>	<u>355,790</u>
Total Cash Balance	\$11,855	\$272,139	\$728,829	\$589,939	\$1,045,179

- If connection fee increases to \$3,000;
necessary RSP fee will drop to \$60



FTTP Conclusions

- The challenge Spring Hill faces is its small scale
- To encourage a FTTP provider to Spring Hill, the City may need to consider funding a dark FTTP deployment
- Is there any way to procure startup funding?
 - City has advantage in long-term financing OSP
 - Larger operator can leverage its scale to help lower certain electronic and operating costs
- To advance availability of services, a potential starting point is to pursue middle-mile fiber and review City processes



Middle-Mile Fiber Approach

- Estimate to deploy middle-mile fiber is \$1.18 million initial investment plus \$12,000 per year in operation and maintenance expenses
- City needs to be willing to fund this investment without expectations of substantial lease revenues
 - Providers that might be willing to leverage City assets are looking for low-cost or free access



Wireless Approach

- Wireless will not address ubiquity, but is a possible avenue to add competitors
- Are there any assets the City can use to help a wireless provider?
 - Mounting assets
 - Permitting for a provider to install a new pole for access points
 - Negotiating with local utilities for access to existing poles for access points
 - Fiber or other backhaul (middle-mile fiber)



Attracting Providers

- The steps in obtaining provider commitments include:
 - Let it be known that City is seeking solutions
 - City makes a strong commitment to move forward
 - Refine interest through a formal solicitation process
- The likelihood of provider interest increases with a larger potential customer base



Questions?