

Advantages & Disadvantages to Each Proposed Approach by CTC Technology & Energy

Approach	Advantages	Disadvantages	Example	Comment
A. City Offers Retail Services City owns and operates the FTTP network (OSP and electronics) and provides retail services	City controls when and how its residents and businesses get served	Extremely difficult to maintain positive cash flow; may require significant support from general fund and contributions from households or other sources	Chattanooga TN (municipal electric utility)	Extremely high risk (financial and operational)
	City controls service performance attributes	Requires City to become retail provider, a role with which it has no experience		Model is more difficult (operations, financing, and cash flow) when the City is not associated with a municipal electric utility
	City owns infrastructure OSP	Requires City to become network operator, a role with which it has no experience		All FTTP models impacted by the high cost in western portion of city due to the low household density
		Requires periodic replacement of electronics (City responsibility)		Substantial funding from households to support buildout costs in western portion of the city likely required
		Extremely high cost to deploy FTTP in western portion of the city		
		Requires City to become a registered CLEC in MO for pole attachments (an Ameren requirement) or do all construction underground		City legal input required
B. City Enables Open Access City owns and operates FTTP (OSP and electronics) and provides open access services	City controls when and how its residents and businesses get served	Extremely difficult to maintain positive cash flow (may require significant support from general fund and contributions from households or other sources)	UTOPIA (11 Utah municipalities)	Extremely high risk (financial and operational)
	City controls service performance attributes	Requires City to become network operator, a role with which it has no experience		U.S. efforts have struggled to attract providers to participate
	Offers consumers multiple retail providers	In U.S. markets, few examples and limited success		Model requires a substantial number of providers to work (based on examples in Europe)
	City owns infrastructure OSP	Providers have different take-rate objectives than FTTP owner and operator (providers will profit at much lower take-rates than what the operator needs to cover costs)		All FTTP models impacted by the high cost in western portion of city due to the low household density
	City not required to provide retail service	Requires periodic replacement of electronics (City responsibility)		Substantial funding from households to support buildout costs in western portion of the city likely required
		High cost to deploy FTTP in western portion of city		
		Requires City to become a registered CLEC in MO (for pole attachments) or do all construction underground		City legal input required

Approach	Advantages	Disadvantages	Example	Comment
C. City Enables Open Access Provider City owns and operates FTTP (OSP); third party owns and operates electronics and provides open access services	City has influence of service performance attributes	Extremely difficult to maintain positive cash flow (may require substantial support from general fund and contributions from households or other sources)	Ammon ID	Extremely high risk (financial and operational)
	Offers consumers multiple retail providers	Providers have different take-rate objectives than FTTP owner and operator (providers will profit at much lower take-rates than what the operator needs to cover costs)		Uses a \$3,000 connection fee per household to help fund construction and requires at least 60 percent participation before deployment
	City owns infrastructure OSP	Model not proven it can be replicated (in terms of attracting ISPs and other attributes)		All FTTP models impacted by the high cost in western portion of City due to the low household density
	City has partial control over where OSP is deployed	Risk increases if City required to guarantee revenue to Network Operator		Substantial funding from households to support buildout costs in western portion of the City likely required
	City not required to provide retail service	Requires city to become a registered CLEC in MO (for pole attachments) or do all construction underground		City legal input required
D. City Leases Dark FTTP City owns and operates FTTP (OSP); third party owns and operates electronics and provides retail services	City has influence over service performance attributes	Provider payment to access dark FTTP unlikely to cover cost of debt service and operating costs of the dark FTTP	Huntsville AL and Westminster MD	High risk (financial)
	City owns infrastructure OSP	Model not proven it can be replicated (in terms of ability to attract ISPs and other attributes)		In Huntsville, the third party (Google) owns the drops. In Westminster the City owns the drops (Ting provides service)
	City has controls (partially) where OSP is deployed	High cost to deploy FTTP in western portion of City		All FTTP models impacted by the high cost in western portion of City due to the low household density
	City not required to provide retail service	City required to become a registered CLEC in MO (for pole attachments) or do all construction underground		Substantial funding from households to support buildout costs in western portion of the City likely required
				City legal input required
E. City Leases Dark Middle Mile City owns and operates fiber middle-mile; third party owns and operates last mile (OSP and electronics) and provides retail services	Reduces City's financial requirements over FTTP	Provider payment to access dark middle mile unlikely to cover cost of debt service and operating costs of the middle mile fiber	Holly Springs NC and Wake Forest NC	Moderate risk (attracting last-mile providers)
	City not required to provide retail service	Model not proven it can be replicated (in terms of ability to attract ISPs and other attributes)		Ting is retail provider in Holly Springs and Wake Forest
	City owns middle-mile fiber	Providers likely to build to only selected neighborhoods (not ubiquitous coverage) – due to high cost to deploy FTTP in western portion of City		All FTTP models impacted by the high cost in western portion of City due to the low household density
		City required to become a registered CLEC in MO (for pole attachments) or do all construction underground		Substantial funding (to last-mile provider) required from households to support buildout costs in western portion of the city likely required to achieve ubiquitous coverage
				City legal input required

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F. Offer Cash Incentives City provides financial incentives to private provider	Relatively low cost (when compared to middle mile options)	Potential legal restrictions or hurdles (can City make contribution and not own asset?)		Moderate to low risk (enforcing negotiated requirements) Spectrum (formerly Charter) provided a proposal to Wildwood based on this approach in 2011 City legal input required
	Has potential of meeting core objectives (availability and performance) with lower cost than middle-mile fiber	Depends upon ISP decisions on when and where to build (contract requirements might reduce this disadvantage)		
	City not required to provide retail service	No direct recovery of investment		
G. Expand Wireless Assets Expand placement of poles and other assets for WISPs and seek to streamline permitting and other processes for underground fiber placement	Minimizes City's financial requirements	Minimal impact to availability of broadband in Western portion of City		High risk (reaching objectives) Low risk (financial)
	City not required to provide retail service	Unlikely to meet all availability and performance objectives		
		Wireless has long term limitations of coverage and performance in western portion of City		
		Limited influence on availability of ubiquitous broadband		
H. Continue on Same Path Continue as-is & look at streamlining permitting and other processes for underground fiber placement	Minimizes City's financial requirements	Minimal impact to availability of broadband in Western portion of City		High risk (reaching objectives) Low risk (financial)
	City not required to provide retail service	Unlikely to meet all availability and performance objectives		
		Wireless has long term limitations of coverage and performance in western portion of City		
		Limited influence on availability of ubiquitous broadband		