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INTRODUCTION

This is a briefing and overview on CTC Technology and Energy's and IMG Rebel's report procured and prepared for the Fiber for San Francisco initiative. To further San Francisco's broadband goals, the report outlines recommendations and a procurement strategy for the design and deployment of a citywide fiber network. The report provides analysis of potential models for municipal fiber networks, cost estimates and models for an universal, open-access network, and options for San Francisco to consider and pursue for project cost reductions and construction efficiencies.

The Problem:

- 12% of residents, over 100,000 San Francisco residents lack Internet access at home.
- 15% of public school students lack Internet access at home - the digital divide is approximately 30% for African-American and Latino public school students.
- Cost of broadband services continues to be the biggest barrier to access for low-income San Franciscans.
- The private market has little to no incentive to prioritize providing service to communities most impacted by the digital divide.
- Under President Trump, Congress and the FCC have rolled back privacy protections and are seeking to dismantle current net neutrality safeguards.
- Currently, San Francisco lacks any local control over Internet service and the ability to regulate Internet speeds, prices, equity, privacy regulations, and net neutrality standards.
- The vast majority of San Franciscans have at best only two options for Internet service - Comcast and AT&T.
- A number of pending and potential mergers and acquisitions will result in the "monopolization" of Internet service, reducing competition rather than improving it.

The Solution:

- To close the digital divide, provide more choice and competition, and affordable Internet service prices, the City seeks to ultimately own their municipal fiber network and procure a life-cycle contract to design, build, finance, operate, and maintain our citywide municipal fiber network that provides fiber-based Internet service directly to every home and business.



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- San Francisco's fiber network should (1) be universal throughout the City - available to everybody in San Francisco, (2) be open-access - meaning any qualified entity who wants to provide service to residents and businesses should be able to do so, and (3) provide a subsidy for low-income San Franciscans for free or reduced-cost Internet.

Why Fiber:

- Older networks that provide Internet service over aging copper, or coaxial networks, are outdated and cannot keep pace, or be upgraded to keep pace with the speeds of fully-fiber networks.
- Compared to older networks, fiber provides the highest speeds and greatest data capacity, and the gains will increase exponentially, all without having to rebuild a new network in the future.
- Industry experts believe fiber will remain the industry standard for the next generation of broadband services for the foreseeable future.

Models for the City to Consider and Pursue:

- **Purely Public:** While this model would meet the City's goal of universal Internet access, it is considered high risk because of the uncertainties around how the City will fully finance the project, create and operate a new retail and commercial Internet service enterprise, and assume all of the risk for construction, operation, performance, maintenance, customer service, and take rates needed for the ongoing financial viability of the network.
- **Public-Private Partnership:**
 - **Dual P3 (Lit & Dark Fiber) Network:** This model would provide Internet access on a universal basis and provide the most competition in the market, but, creates a more expensive and complex network to design, procure, and deploy. In this model, the City would lease Internet access to lessees who would be able to resell this access.
 - **Dark Fiber Only P3 Network:** This model would provide Internet access on a universal basis, provide more competition than the current market, and is less expensive and complex for the City to design, procure, and deploy compared to the dual network approach. In this model, the City would lease access to fiber without any Internet equipment ("dark fiber"), which the lessee would provide.
- **Purely Private:** The report concludes, based on conversations with major Internet providers in San Francisco that no private entity will build an open-access, universal fiber network.



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Conservative Total Costs for Fiber Network Models (In descending order):

- **Dual Network:** \$1.8-1.9 billion.
- **Purely Public:** \$1.29-1.43 billion in financing need, plus (i) a \$20 million loan, plus (ii) annual staffing costs of a new City department, plus (iii) ongoing annual operating and maintenance subsidies, plus (iiii) a take rate of 47-53% for residential and commercial Internet service. Anything less would be subsidized by taxpayers.
- **Dark Fiber Network:** \$1.4-1.5 billion.
- **Low-Income 100% Subsidy:** For 15% of San Francisco's population, \$33 million.

Fiber for San Francisco Next Steps Towards Project Completion

- **Host a Market Sounding/Industry Day:** The City will host a general market sounding/industry day the week of November 13, 2017 to hear directly from interested private parties about potential ways to provide market innovations or efficiencies within the City's stated parameters and requirements for the network.
- **Host a Market Sounding/Industry Specific ISP Day:** The City will host a market sounding/industry day targeted towards retail and commercial ISPs shortly after Thanksgiving in order to potentially secure up-front revenues that can reduce overall project costs and work towards agreements to provide services over the City's network.
- **Engage in a Robust, Public, Competitive Procurement Process:** Shortly after the completion of the market sounding/industry days, the City will draft and issue a request for quotation (RFQ), which will lead ultimately to a request for proposal (RFP) to a short-list of bidders from the RFQ to deliver the best outcome, at the lowest cost, for the taxpayers and City and County of San Francisco.

CONCLUSION

Everyone in San Francisco deserves access to fast and affordable Internet. The release of this report brings San Francisco within striking distance of being the first, large urban area in the United States to complete a municipal fiber network of this unparalleled size and scale. Mayor Lee and Supervisor Farrell are committed to closing the digital divide, for this and every future generation of San Franciscans, providing more choice and competition in the market, and delivering higher quality Internet services at more affordable prices for every San Franciscan through this project.