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# Broadband Feasibility Study Report

**CCG CONSULTING AND FINLEY ENGINEERING**  
**APRIL 3, 2018**



# Project Goal

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To determine the financial feasibility of constructing a citywide fiber network to provide gigabit-capable broadband throughout the City.

# The Feasibility Study

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- Engineering design for citywide fiber.
- Speed tests / bill analysis.
- Review of legal issues.
- Financial business plans.
- Risks and benefit analysis.
- Timeline.
- Written report.

# Benefits of Broadband in Davis

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- Expand customer choice.
- Extend University services.
- Ubiquitous WiFi.
- Economic development – support hi-tech businesses.
- Prepare for smart city applications.
- Digital divide – provide affordable broadband for everybody.

# Potential Risks

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- Comcast expanding capabilities to 1 Gbps downloads.
- 5G might bring wireless broadband.
- MDU market already competitive.
- Likely to see some cherry-picking by ISPs of the 'best' neighborhoods.
- Triple play products (cable and phone) are eroding in market power.
- Operational risks from entering a highly technical business.

# Network Design

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- Build fiber past every resident and business.
- Includes fiber rings for redundancy.
- Selected active Ethernet technology capable today of speeds up to 10 Gbps download.
- Building to apartments is a challenge.

# Cost of the Network

At a 50% customer penetration:

Fiber	\$ 65.9 M
Drops	\$ 10.6 M
Customer Electronics	\$ 7.9 M
Other Electronics	\$ 11.9 M
Huts	\$ 2.2 M
Other Assets	\$ 1.2 M
Contingency	<u>\$ 7.0 M</u>
Total	\$106.7 M

# Why the Network is Expensive

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- 100% buried network – poles in Davis are not well-placed for fiber.
- California rules for prevailing wage adds to cost of construction
- Density of housing adds to the cost of construction.
- Municipal bidding rules make it difficult to negotiate a lower cost of construction.



# Business Models Considered

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- Single Provider – the City or one partner is the ISP.
- Open Access – allows multiple ISPs access to the network.
- Public / Private Partnership – a private entity would pay for some of the network.

# Financial Results – Single Provider

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- Most Conservative Look. With all bond debt of \$136 M it loses \$54 M over 25 years. Can work with \$37 M of other tax financing.
- Least Conservative Look. Works with \$89 M of bond debt and \$24 M of other tax revenue.
- 100% Tax-Financed Look. Could give affordable broadband to every home.

# Financial Results – Open Access

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- Would allow multiple ISPs onto network.
- ISPs would pay for some customer electronics.
- With 100% bond financing of \$118 M the project loses \$114 M over 25 years.
- Cannot find a scenario that makes this reasonable.
- Is a major challenge to attract multiple quality ISPs.

- Would include a commercial partner that helps to pay for the network.
- The City would still have to pay for most of the network.
- This would still require substantial tax-revenue to make this attractive to a partner.
- Downside is that private partners would want most or all of the 'profits'.
- This would be more feasible if the base business plan was more profitable.

# Financial Results – Sensitivity Findings

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- General obligation bonds cheaper than revenue bonds.
- Costs increases to add more customers.
- The models are sensitive to interest rates
- Broadband rate increases help model (but might not be the social goal of the City).
- Hard to predict MDU (apartment) penetration rates.

# Key Findings of the Study

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- Davis has the same kind of broadband as most cities – fast, but relatively expensive.
- There are a few broadband gaps – low income, downtown businesses.
- There are major benefits from fiber, but also numerous risks.
- High cost of construction makes this a challenge.
- Partnering with one provider looks like the best financial scenario.

# Key Findings of the Study (2)

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- Financing fiber will require some funding from tax revenues other than bonds.
- There are some intriguing scenarios for building fiber to everybody.
- Open access looks difficult to justify.
- The apartment market is already competitive and will be a challenge to penetrate.

# Recommended Next Steps

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- Residential survey to understand market demand.
- MDU (apartment) analysis to understand the market better.
- Explore the funding options – using some tax revenues.
- Choose the business model (identify partner).
- Community education / buy-in.



# Recommended Next Steps (2)

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- Consider the idea of building in phases.
- In-depth review of City practices that affect fiber costs.
- Keep an eye on broadband prices – if Comcast raises rates this becomes more feasible.

# Contacts

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