Broadband Feasibility Study Report

CCG CONSULTING AND FINLEY ENGINEERING
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Project Goal

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

- 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

- 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

- 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

- 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:

<table>
<thead>
<tr>
<th>Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber</td>
<td>$65.9 M</td>
</tr>
<tr>
<td>Drops</td>
<td>$10.6 M</td>
</tr>
<tr>
<td>Customer Electronics</td>
<td>$7.9 M</td>
</tr>
<tr>
<td>Other Electronics</td>
<td>$11.9 M</td>
</tr>
<tr>
<td>Huts</td>
<td>$2.2 M</td>
</tr>
<tr>
<td>Other Assets</td>
<td>$1.2 M</td>
</tr>
<tr>
<td>Contingency</td>
<td>$7.0 M</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$106.7 M</strong></td>
</tr>
</tbody>
</table>
Why the Network is Expensive

- 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

- 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

- 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

- 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.
Financial Results – Public Private Partnership

- 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

- 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

 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)

- 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

- 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)

- 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

Doug Dawson, President, CCG Consulting
blackbean2@ccgcomm.com
(202) 255-7689

Mark Mrla, Finley Engineering
mmrla@finleyusa.com
(507) 777-2255