Community Broadband Planning and Strategy

Joanne Hovis, President
December 2020
Agenda

Technology

Process and planning

Best practices
Economic Foundations

- Canals
- Railroads
- Electricity
- Telephony
- Highways
- Broadband
## Satellite broadband: orbit and latency

<table>
<thead>
<tr>
<th>Orbit</th>
<th>Broadband speed</th>
<th>Latency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Geostationary</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Hughes</td>
<td>• 2 to 30 Mbps down</td>
<td>600+ ms</td>
</tr>
<tr>
<td>• Viasat</td>
<td>• Far less up</td>
<td></td>
</tr>
<tr>
<td>22,236 mi</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Low earth orbit</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• StarLink (SpaceX)</td>
<td>?</td>
<td>25+ ms</td>
</tr>
<tr>
<td>• Telesat</td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Project Kuiper (Amazon)</td>
<td>up to 1,200 mi</td>
<td></td>
</tr>
</tbody>
</table>
Data Speed Capacity

- Fiber-to-the-Premises
- Cable Modem DOCSIS 1 to 3.0
- DOCSIS 3.1
- DSL
- Dial-Up

- 3G/4G (Through LTE)
- 5G
- GEO Satellite
- LEO Satellite
- TV White Spaces

Legend:
- In most markets
- In select markets
- In early stages of deployment
Minimum Time Required for Downloading andUploading a 5 GB File

- **3G Wireless**: >2.4 Days, >10 Hours
- **T1**: >9.4 Hours, >9.4 Hours
- **4G Wireless**: >7.5 Hours, >75 Minutes
- **DSL (ADSL2+)**: >19.7 Hours, >1.7 Hours
- **Cable Modem (Docsis 3.0)**: >90 Minutes, >9 Minutes
- **DS3**: >19 Minutes, >19 Minutes
- **Fiber (100 Mbps)**: >9 Minutes, >9 Minutes
- **Fiber (1 Gbps)**: >53 Seconds, >53 Seconds
- **Fiber (10 Gbps)**: >5 Seconds, >5 Seconds

**Legend**:
- Red: Upload Time
- Blue: Download Time
Requirements, goals, & priorities

Map service footprint, including unserved areas

Design & cost estimates (total cost of ownership)

Partner strategy

Financial model

Market/demand research

Finance & grant strategy

Business plan

Execution
Rigorous process enables consideration of multiple solutions for technology, scale, phasing, timeline, & risk allocation.
Rigorous process enables consideration of multiple arrangements

- Community-owned & operated
- Community lease from private entity
- Public-Private Partnership
  - Concessionaire P3
  - Community dark fiber, private leasing

- Community-based (ubiquitous) or demand-driven
- Allocate function, risk based on capability & efficiency
- Market sounding
Broadband grants & funding opportunities

CARES Act funding
• Federal and state distribution

Federal grants
• US Department of Agriculture
• US Department of Commerce

State grant programs

FCC funding programs
• E-rate, Lifeline, Health Care Connect
• Rural Digital Opportunities Fund