Bowdoinham
ConnectMe Planning & Design

A Multi-Phase Public/Private Approach
- to meet the needs of under-served residents
- & expand broadband alternatives throughout Bowdoinham

Presentation to Select Board – 1.29.19
Contents:

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• Fiber Distribution Options & Build Costs
• Funding Options & LCI Business Model
• LCI Broadband Product Options
• LCI next phase – building direct fiber transmission
• Future funding – ConnectMe & RUS
• Next Steps for Bowdoinham
Scope of Work

- Focus on a design for fiber optic network in the Town of Bowdoinham, that will be funded and built out over multiple years.

- **Minimum standard** (consistent with Maine's new Broadband Action Plan - June 2018)
  - Target -- 100 x 10 Mbps is the new overall broadband target
  - Unserved – defined as less than 25 x 3 Mbps
  - Goal – future capability of 1 gigabit (up & down) or greater if desired.

- Plan and design will include:
  - middle mile network mapping,
  - street level mapping,
  - multi-year construction plans and cost estimates
  - business model (multi-year estimated annual revenue & operating costs)
LCI Project Team

• Executive Team Members:
  o Rick Manning, VP Business Development & Engineering
  o Alan Hinsey, Director of Marketing & Sales
  o Seth Robertson, Controller

• Engineering/Network Design Team Members:
  o John Pfahler, IT Manager
  o Benjie Ladabour, Network Engineer
  o Jim Corbett, Network Engineer
Planning & Design Project Phases

• Project Initiation with LCI Team & Bowdoinham staff
• Review and refresh as needed previous survey data collected
• Fiber Transmission Options research
• Backhaul and Middle Mile design work
• Street Level Fiber distribution strategy and mapping
• Develop construction plans and costs estimates
• Sustainable Business Model analysis
• Meetings with Bowdoinham officials:
  • Numerous phone and onsite meetings during design phase
  • Draft document review with Town Mgr. Econ Devel Dir & Sel. Bd Chair
  • Met with Dresden Broadband Cmte, Bowdoinham staff & LCI
  • Met with Heather Johnson (DECD Commissioner designate), Brooke Johnson (ConnectME), LCI & Bowdoinham staff
Fiber Transmission Options:

Short Term:
1. **Use existing Power Distribution Corridors** - Not an available option

2. **Collocate in Consolidated CO (Richmond) – 10 Gig Lit Service**
   - $4,000/mo + $700/mo Colo cost
   - Would only provide one path thru Bangor (not redundant)

3. **Collocate in Consolidated CO (Richmond) – 1 Gig Lease Internet**
   - $2,316/ mo (1 yr term) + $700/mo Colo cost -Cheaper if multi-yr terms
   - Lease 1 Gig for service to Unserved areas while provider is building own fiber to region

4. **Collocate in Consolidated CO (Richmond) – 1 Gig Lit Service**
   - $1,848/mo + $700/mo Colo cost - Cheaper if multi-yr terms
   - Would provide one path to our 10 gig NNI (Network to Network Interface) in Wiscasset

Long Term: **Provider build transmission – thru Dresden to Richmond CO**

3 Options being considered –
- Rte 218 Alna – thru Dresden to Richmond CO
- Rte 27 Wiscasset – thru Dresden to Richmond CO
- Rte 128 Woolwich – thru Dresden to Richmond CO
LCI building direct Fiber transmission

1. Rte 218 Alna – thru Dresden – to Richmond CO
   - Approx $547,000 ($187,000 + $360,000)
   - 320 homes passed
     - 120 homes ConnectMe eligible

2. Rte 27 Wiscasset – thru Dresden – to Richmond CO
   - Cost unknown at this time
   - 63 known unserved in Dresden

3. Rte 128 Woolwich – thru Dresden – to Richmond CO
   - Cost unknown at this time
   - 51 known unserved in Dresden
LCI – 3 Direct Fiber Build Options to Explore

Richmond CO

Dingly & Beechnut
White Rd
Carding Machine Rd
River Rd & Pleasant St
Abbadagadastett & Center’s Point

20 unserved
63 unserved
51 unserved
195 unserved
100 unserved
8 unserved
8-10 unserved

Dresden

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Imagery Date: 5/4/2018 44°02'57.68" N 69°41'59.91" W elev 0 ft eye at 12.85 mi
Local Fiber Distribution Options

- Richmond Main St feeder (220 homes)
- GREEN: ConnectMe areas
  - Dingley Rd + Beechnut Ridge (45 homes)
  - White Rd (35 homes)
  - Carding Machine Rd (34 homes)
  - River Rd + Pleasant St (81 homes)
- Yellow: Post Rd area (258 homes)
- Red: Ridge Rd area (335 homes)
- Blue: Brown’s Pt Rd area (631 homes)
- Purple: Bay Rd area (433 homes)
## Fiber Local Distribution Bld Cost

<table>
<thead>
<tr>
<th>Area</th>
<th># Unserved</th>
<th># Served</th>
<th>Make Ready &amp; Build Cost</th>
<th>Cost per Homes Passed</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ConnectMe areas</strong>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dingley (Beechnut)</td>
<td>45</td>
<td>0</td>
<td>$164,428.00</td>
<td>$2,442.93</td>
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<tr>
<td>White Rd</td>
<td>35</td>
<td>0</td>
<td>$ 86,730.00</td>
<td>$2,376.86</td>
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<tr>
<td>Carding Machine</td>
<td>34</td>
<td>0</td>
<td>$ 83,190.00</td>
<td>$2,550.88</td>
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<tr>
<td>River Rd (Pleasant)</td>
<td>81</td>
<td>0</td>
<td>$109,032.00</td>
<td>$2,029.98</td>
</tr>
<tr>
<td>Yellow (Post Rd area)</td>
<td>0</td>
<td>258</td>
<td>$243,300.00</td>
<td>$ 943.00</td>
</tr>
<tr>
<td>Red (Ridge Rd area)</td>
<td>0</td>
<td>335</td>
<td>$283,600.00</td>
<td>$ 847.00</td>
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<tr>
<td>Blue (Brown’s Pt area)</td>
<td>0</td>
<td>631</td>
<td>$297,900.00</td>
<td>$ 472.00</td>
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<tr>
<td>Purple (Bay Rd area)</td>
<td>0</td>
<td>433</td>
<td>$234,800.00</td>
<td>$ 543.00</td>
</tr>
<tr>
<td><strong>Total Fiber Bld cost</strong></td>
<td>195</td>
<td>1,852</td>
<td>$1,502,980.00</td>
<td>$ 743.25</td>
</tr>
</tbody>
</table>

*ConnectME area builds include build cost for Richmond Main St feeder build

LCI O.P.E.N. fiber network

Total FTTP Cost: $3,345,280.00

$900/install
## Local Fiber Distribution & New Customer Install Cost

### Bowdoinham ConnectMe

<table>
<thead>
<tr>
<th>Roads</th>
<th>Unserved</th>
<th>Served customers</th>
<th>Feet</th>
<th>Fiber Count</th>
<th>Fiber Build/ft</th>
<th>Make Ready/ ft</th>
<th>Splicing per ft</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>River Rd (&amp; Pleasant St)</td>
<td>81</td>
<td>100</td>
<td>40,700</td>
<td>144</td>
<td>$3.30</td>
<td>$0.39</td>
<td>$0.35</td>
<td>$164,428.00</td>
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<tr>
<td>Carding Machine Rd</td>
<td>34</td>
<td>40</td>
<td>24,500</td>
<td>96</td>
<td>$2.80</td>
<td>$0.39</td>
<td>$0.35</td>
<td>$86,730.00</td>
</tr>
<tr>
<td>White Rd</td>
<td>35</td>
<td>40</td>
<td>23,500</td>
<td>96</td>
<td>$2.80</td>
<td>$0.39</td>
<td>$0.35</td>
<td>$83,190.00</td>
</tr>
<tr>
<td>Dingley Rd (&amp; Beechnut Ridge Rd)</td>
<td>45</td>
<td>40</td>
<td>30,800</td>
<td>96</td>
<td>$2.80</td>
<td>$0.39</td>
<td>$0.35</td>
<td>$109,032.00</td>
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<tr>
<td><strong>Fiber build cost</strong></td>
<td>195</td>
<td>220</td>
<td>119,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>$443,380.00</td>
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<td><strong>New customer install cost</strong></td>
<td>98</td>
<td>55</td>
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<td>$137,250.00</td>
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</table>

### Distribution Build Cost assumptions

- Fiber count: 144 
  - $3.30 per Kft
  - $2.80 per ft
  - $2.40 per ft
- Splice & enclosures: $41,445/119,500ft = $0.35
- Make Ready: $47,000/119,500ft = $0.39

### New Install cost assumptions

- Install cost (ONT/ Drop/ Labor) per unit: $900.00
- 50% take unserved - 25% take served: $152.5

### Project Funding Option:

- **Bowdoinham (TIF)**: $350,000 60.3%
- **ConnectME**: $100,000 17.2%
- **LCI**: $130,630 22.5%
- **Total**: $580,630 100%

### ConnectME - Avg Cost per Unserved Home passed

$512.82
## LCI Business Model and Assumptions – Short Term (1-3yrs)

### LCI Business Model - 1 Gig Lit Lease and Colloacation in Richmond CO

<table>
<thead>
<tr>
<th></th>
<th>50%</th>
<th>97.5</th>
<th>Total take</th>
<th>152.5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Take rate ConnectME (Unserved)</td>
<td>50%</td>
<td></td>
<td></td>
<td>97.5</td>
</tr>
<tr>
<td>Take rate (Served)</td>
<td>25%</td>
<td></td>
<td></td>
<td>55</td>
</tr>
<tr>
<td>Minimum product 50 x 10Mbps</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 gig Lit - MRC cost (12 mo term)</td>
<td>$2,548.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCI's annual cost - 1 Gig</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LCI CoLo - NRC</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### LCI Net Revenue

- **Annual:** $60,833
- **Monthly:** $5,069

### LCI Pre-Sell Goal (prior to fiber build):

- 50% of take rate: 76.25 Units
LCI Broadband Product Options

- **50 x 10 Mbps** - $49.95/month
- **100 x 20 Mbps** - $69.95/month
  - $100 install fee
  - 3 yr Price Lock Agreement

**Tier 1**

- **50 hrs DVR & 1 Stream** - $79.99/month

**Tier 1 - Family Plan**

- **50 hrs DVR & 3 Streams** - $85.99/month
  - App- based Live Streaming TV
  - 40 popular cable channels in Tier 1
    - including all Locals, MPBN, NESN, Sports Boston
    - All HD
    - Additional Channels available in Tier 2 package
    - Premium Channels available (HBO, Showtime, etc)
    - Additional Streams & DVR hrs. available

**Phone - $19.95/month**

- 1 residential line
- 1,000 mins long dist. (US & Canada)
  - Call waiting, Caller ID, Call Forwarding
  - Keep current phone #
Future funding – ConnectMe & RUS

- **ConnectME – next round: $475,000**
  - probably $400,000 for Infrastructure – statewide)
  - Apps available end of Feb – decisions announced in May

- **ConnectME – FY 2019-2020: Unknown at this time**
  - But ... 2 Broadband bonds are in front of Legislature (would be administered by ConnectME)
    - a $20 mil bond & a $100 mil bond – maybe one will make it to voters in Nov
    - Also – there may be direct budget funding to ConnectME to increase it’s grant program
      (even if bond funds do not come through)

- **RUS (Rural Utilities Service) of the USDA**
  - federal grants, loans, and grant/loan combos
  - $600 mil “e-Connectivity” broadband pilot program nation-wide 2019
Next Steps for Bowdoinham

• Make decision re Spring 2019 ConnectME application process.

• If Bowdoinham decides to go forward with a ConnectME application
  – & IF they decide to partner with LCI, we will need to begin
    the joint application process as soon as possible.

• Bowdoinham (town officials, businesses, residents, etc)
  • Will need to actively support the joint ConnectME effort.
  • Assist with Pre-sell marketing
  • Assist and support LCI’s efforts to secure RUS funding
  • Support LCI’s efforts to secure other ConnectME funding
    that will allow LCI to build fiber transmission directly to the region.