Wythe County Broadband Study

Andrew Cohill, Ph.D.
Design Nine, Inc.
Survey Results

- **Residential Survey**: 1,831 responses—15% response rate where 3% considered good
- **Business Survey**: 96 responses—very good for size of the county

- 93% of respondents want better Internet service.
- 44% of residents are “dissatisfied” or “very dissatisfied” with current Internet service.
- 98% of respondents believe that local Government should help facilitate better Internet access.
- 75% of respondents report they have trouble using common Internet services.
- 93% of business respondents want better Internet access.
- 98% indicated that the Internet is important to the success of their business over the next five years.
- 98% of businesses indicated that local government should help improve broadband.
- 36% indicate that availability of broadband Internet is affecting where they choose to live.
- 22% of the Wythe County businesses that responded are home-based.
- Only 21% of businesses are “satisfied” or “very satisfied” with their current Internet service.
- 68% of businesses that responded need employees to be able to work from home.
Residential Survey Results

How satisfied are you with the reliability of your internet service?

- Very dissatisfied
- Dissatisfied
- Neutral
- Satisfied
- Very satisfied

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Credit: Esri, HERE, Garmin, USGS, NGA, EPA, USDA, NFS
<table>
<thead>
<tr>
<th>Estimated Internet Access Type</th>
<th>Households using Cell Phone for Internet</th>
<th>Households with “little” broadband DSL or wireless</th>
<th>Households with Cable Modems</th>
<th>Households with no Internet or “don’t know”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household Percentage</td>
<td>9%</td>
<td>42%</td>
<td>32%</td>
<td>17%</td>
</tr>
<tr>
<td>Number of households</td>
<td>1,078</td>
<td>5,033</td>
<td>3,835</td>
<td>2,037</td>
</tr>
<tr>
<td>Average monthly telecom expenditures</td>
<td>Cell Phone for Voice/Internet $90 Cable/satellite TV: $65 bundle</td>
<td>Cell Phone $70 Phone: $13 Satellite TV: $60 Broadband Internet: $45</td>
<td>Cell Phone $70 Phone: $15 TV $43 Broadband Internet $45</td>
<td>Cell Phone, no Internet, $70 Cable/satellite TV: $65</td>
</tr>
<tr>
<td>Monthly Cost of Services</td>
<td>$155</td>
<td>$188</td>
<td>$173</td>
<td>$135</td>
</tr>
<tr>
<td>Annual household cost</td>
<td>$1,860</td>
<td>$2,256</td>
<td>$2,076</td>
<td>$1,620</td>
</tr>
<tr>
<td>Annual cost all households</td>
<td>$2,005,954</td>
<td>$11,354,132</td>
<td>$7,960,547</td>
<td>$3,300,118</td>
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<tr>
<td>30 year expenditure</td>
<td>$60,178,626</td>
<td>$340,623,965</td>
<td>$238,816,397</td>
<td>$99,003,546</td>
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<tr>
<td>Total residential expenditures</td>
<td></td>
<td></td>
<td></td>
<td>$738,622,534</td>
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<tr>
<td>Total Estimated Cost of Hidden Fees</td>
<td></td>
<td></td>
<td></td>
<td>$108,888,371</td>
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<tr>
<td>Total Business Costs</td>
<td></td>
<td></td>
<td></td>
<td>$42,228,000</td>
</tr>
<tr>
<td>Total expenditures</td>
<td></td>
<td></td>
<td></td>
<td>$889,738,904</td>
</tr>
</tbody>
</table>
Findings

- Many residents and businesses lack even minimally adequate broadband
- Fixed point wireless broadband important to improving access, creating competition
- County should not be in the Internet business, should not compete with the private sector
- County role should be limited to providing basic infrastructure for private sector providers
- Look for opportunities for public/private partnerships
- Grant funds may be available to meet some of the needs
How to Improve Access and Affordability

- Make existing tower space improvements to attract more WISPs
- Adjust price structure for access to towers
- Evaluate need for new towers in areas of high need and no existing towers
- Evaluate creating shared backhaul network between towers
  - Lower WISP capital costs
  - Create redundant ring for more redundancy and reliability
  - Could support improved K12 school reliability
  - Could support public safety voice/data uses
- Estimated 88% of county covered with fixed point wireless
- Some towers are in or could be located in HUD-eligible grant areas
- Sixteen towers provide excellent coverage
- Some existing towers may be available
**Community Poles**

Tall Utility Poles are one way that communities are lowering infrastructure costs, and avoiding lengthy permitting processes involved in installing a tower.

**CPE - Customer Premise Equipment**

A radio and antenna will be installed at each customer’s home.

**Typical Building Attachment**

Rooftop installations can be utilized to save money. A Community Pole will provide coverage from access points.

**Typical Pole** - A 60’ wooden utility pole or small tower can be installed to extend broadband to a wider area.

In narrow topographies, not all sites will require 3 APs.
Attracting WISPs

- **Work with wireless and wireline ISPs**
  - Modest application fee for tower access, use fixed monthly lease fee
  - Use a single tower space agreement for all providers
  - Offer a grace period of three to six months to allow WISPs to build subscriber base
  - Include performance requirements to encourage good service from WISPs

- **Keep structural analysis costs as low as possible**
  - Some localities charge high engineering analysis fees

- **Provide space at base of towers for WISP equipment**

- **Keep electric service fees as low as possible**
  - Shared generator access is desirable

- **Consider single lease agreement that includes all towers**
  - Provides more incentive to offer service throughout Wythe County
Getting Started

- County should not be in the Internet business, should not compete with the private sector
- Focus on improved wireless broadband access in the short term
- Long term goal should be some fiber to the home in some areas
  - Critical to attracting and retaining businesses, a younger workforce
- Fund for success
  - Grants could supply much of the funding needed
- Manage expectations
- Get started with what is possible now
  - Don’t wait
- Develop public/private partnerships with service providers
- Look for opportunities to leverage public safety opportunities