

Building Smarter Communities

Riverside Public Utilities Fiber Business Model



Project Overview

- Data Collection
 - Review existing data, report and studies
- Develop Preliminary Broadband Roadmap
 - Identify immediate objectives and long term goals
 - Methods of adding value to the services delivered by RPU
 - Identify potential for additional revenue
 - Identify opportunities to support RPU/City economic development goals
- Benchmark Development and Comparison
 - Summarize several municipal fiber business models deployed by peer organizations
- Market Assessment
 - Assess the current market potential for RPU fiber services
 - Evaluate current/planned developments and districts
 - Evaluate RPU's current and future networking needs
 - Evaluate networking needs of community anchors
 - Identify availability and service levels of private providers
 - Geographical analysis of potential customers

Project Overview



- **Assess Current RPU Telecom Infrastructure and Goals**
 - Review inventory of RPU owned and controlled assets
 - Conduct stakeholder outreach – interviews included:
 - Chamber, Businesses and Business Groups
 - Healthcare
 - K-12
 - Higher Education
 - Government and Community Support
 - Riverside Municipal Departments
 - Service Providers
 - Identify current RPU fiber customers, fiber paths in use, summarize current revenues
- **Business Model Analysis and Recommendations**
 - Document available options, including a comparison to benchmarked municipal networks
 - Develop a reference business model, including rates, CAPEX and OPEX.
 - Cost/benefit analysis as appropriate for RPU
 - Develop of a recommended business model and approach

Current State of Broadband in Riverside



- **Several Providers in Market Today:**
 - AT&T
 - Charter Communications
 - Time Warner Cable (TWC)
 - Level 3
- **Infrastructure**
 - DSL and Cable are overwhelmingly available
 - Dedicated fiber offerings are selectively available
 - Very limited fiber distribution technology

Current State of Broadband in Riverside



- Surveys – 128 Businesses
 - 75% were SMB - <50 employees
 - 27% stated current services did not meet their needs – speeds and reliability
 - 74% have experienced moderate, severe, or total disruption
- K-12
 - Districts currently receive fiber service through lease agreements
- UCR
 - Maintains connectivity from CENIC – 100Gbps
 - Leases dark fiber from RPU – will continue to do so
- Healthcare
 - Uses market's vendors. Could always use more bandwidth

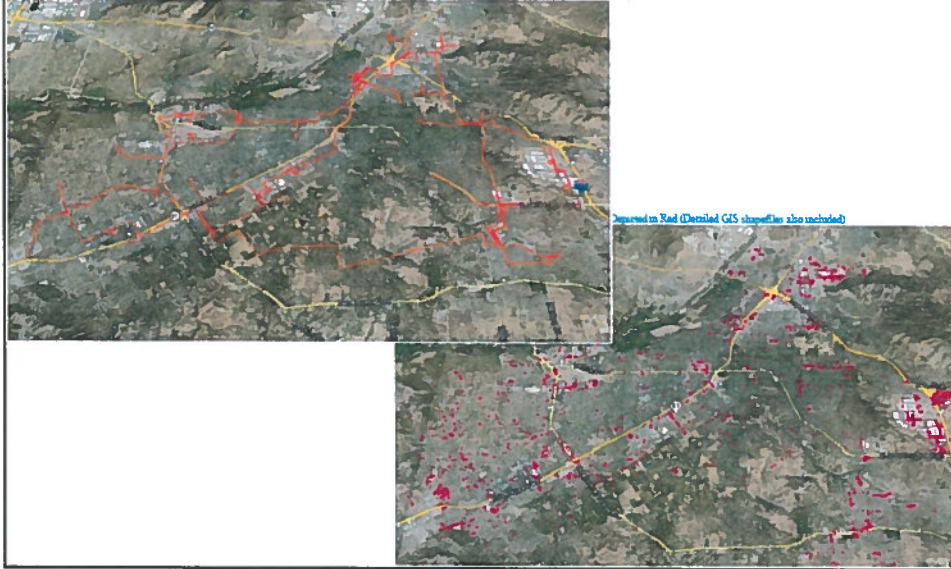
RPU's Current Assets and Fiber Business



- Current assets
 - RPU maintains extensive fiber routes throughout the region
 - Conduit available selectively throughout the area
- Revenues
 - 5 fiber customers - \$420k annual revenue

RPU's Current Assets and Fiber Business

Figure 5-2: RPU's Existing Fiber Network



Current Issues with RPU's Network

- **Costs for Construction**
 - Current construction methods – extremely high costs
 - Conduit available selectively throughout the area
- **Electric and Broadband Asset Separation**
 - Networks been built to support delivery of electricity
 - Broadband assets are collocated with electric assets
 - Use of Qualified Electrical Workers is required
- **Segments with minimal fiber capacity**
 - Some fiber routes contain minimal fiber capacity

Opportunity Assessment

- What Impact can RPU have on Local Broadband
 - Improving Affordability
 - Enhancing Economic Development
 - Increasing Adoption
 - Improving Public Efficiency and Effectiveness
 - Reducing Taxpayer Spend
 - Reducing Lead Times for Installation
 - Supporting Reliability and Performance

Why is Fiber Important to Riverside?

Figure 2-2: Comparing the Capacity of Regular Broadband to Next-Generation Broadband

Dial-Up – 56Kbps

- Legacy Technology
- Shared Technology

ADSL – 10Mbps

- First Generation of DSL
- Shared Technology

ADSL2 – 24Mbps

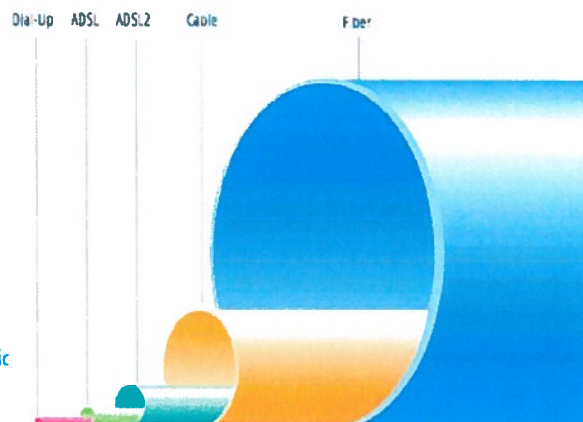
- Second Generation DSL
- Shared Technology

Cable – 150Mbps

- DOCSIS 3.0
- Shared Technology

Next-Generation Fiber-Optic

- PON, Active Ethernet
- Shared and
- Dedicated Technology



RPU Roadmap

Figure 1-1: Summary of RPU Roadmap

Phase 1 Formalize RPU's Existing Fiber Business	Phase 2 Tactical Plan to Expand the Fiber Business	Phase 3 Strategic Plan to Expand the Fiber Business
<ol style="list-style-type: none"> 1. Assign an Internal Project Manager 2. Document the Inventory of Available Assets 3. Implement a Fiber Management System 4. Review and Standardize Agreements for Fiber Leasing 5. Set Policy to Treat Fiber as a Telecom Asset, Not an Electric Asset 6. Develop Pricing Policies for Fiber Leasing 7. Publish RPU's Rates and Terms 	<ol style="list-style-type: none"> 1. Establish Achievable Goals for the Fiber Business 2. Identify Immediate Needs and Opportunities 3. Determine RPU Policies for Expanding Dark Fiber 4. Develop Pricing Policies for Expanding Dark Fiber 5. Define Operational, Staffing & Financial Requirements 6. Consider Establishing an Enterprise Fund 7. Implement Operations and Staffing 8. Increase The Inventory of Available Fiber 9. Develop the Marketing and Sales Program 10. Establish Metrics for Success 	<ol style="list-style-type: none"> 1. Evaluate the Impact of RPU's Current Fiber Business 2. Identify New Opportunities 3. Explore Additional Business Models 4. Consider Public-Private Partnerships 5. Learn from Other Organizations 6. Conduct a Feasibility Study

Phase I: Formalize Existing Business

- Assign an Internal Project Manager to Fiber Business
- Document the Inventory of Available Assets
- Implement a Fiber Management System
- Review and Standardize Agreements for Fiber Leasing
- Treat Fiber as Telecom Asset, Not an Electrical Asset
- Develop Pricing Policies for Fiber Leasing
- Publish RPU's Rates and Terms

Brand and Market Dark Fiber as a Service

Phase II: Tactical Plan to Expand Current Offering



- Establish Achievable Goals for the Fiber Business
- Identify Immediate Needs and Opportunities
- Determine RPU Policies for Expanding Dark Fiber
- Develop Pricing Policies for Expanding Dark Fiber
- Define Operational, Staffing and Financial Requirements
- Consider Establishing an Enterprise Fund
- Implement Operations and Staffing
- Increase the Inventory of Available Fiber
- Develop the Marketing and Sales Program
- Establish Metrics for Success

Identify Expansion Opportunities

Phase III: Strategic Expansion of the Fiber Business



- Evaluate the Impact of RPU's Current Fiber Business
- Identify New Opportunities
- Explore Additional Business Models
 - Open-Access
 - Direct Provider
 - Public-Private Partnership
- Consider Public-Private Partnerships
- Learn from Other Organizations
- Conduct a Feasibility Study

Consider Expansion Under New Business Model

Potential Business Model: Open-Access

- Phase III Strategic Expansion Could Include Open-Access Business Model
 - Lit-Transport Service – No Retail Services
 - Partner with local providers to use RPU's Lit service
 - Enables competition across a common fiber infrastructure
 - Provides multiple new providers to the market
- Potential Build out Areas Include:
 - Innovation Corridor
 - Hunter Park Tech Corridor
 - Riverwalk Tech Park
 - Manufacturing Park

Potential Business Model: Open-Access

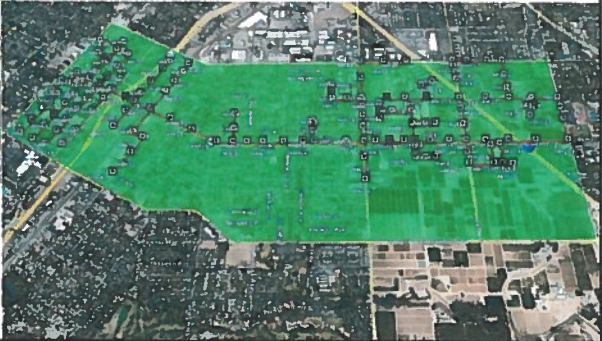


Potential Business Model: Open-Access

Figure 13.3: Feeder Distribution Buildout in Hunter Tech Park



Figure 13.4: Feeder Distribution Buildout in Innovation Corridor



Potential Business Model: Open-Access

Figure 13.7: Feeder Distribution Buildout in Riverwalk Tech Park



Figure 13.6: Feeder Distribution Buildout in Manufacturing Park



Next Steps



- Work with the RPU Team to Refine the Roadmap
- Finalize Study
- Begin to Implement Phase I of the Roadmap

Questions?