

Fiber Business Plan

Public Utilities Department

Riverside City Council

February 23, 2016

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Project Overview

1. Data Collection and Review
2. Develop Preliminary Broadband Roadmap
3. Benchmark Development and Comparison
4. Market Assessment

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Project Overview

5. Assess Current RPU Telecom Infrastructure and Goals
6. Conduct stakeholder outreach
7. Identify current RPU fiber customers, fiber paths in use, summarize current revenues
8. Business Model Analysis and Recommendations

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Current State of Broadband in Riverside

- Several Providers in Market Today:
 1. AT&T
 2. Charter Communications
 3. Time Warner Cable (TWC)
 4. Level 3

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Current State of Broadband in Riverside

- Infrastructure
 1. DSL and Cable are overwhelmingly available
 2. Dedicated fiber offerings are selectively available
 3. Very limited fiber distribution technology

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Current State of Broadband in Riverside

- Surveys – 128 Businesses
 1. 75%: SMB - <50 employees
 2. 27%: current services did not meet their needs – speeds and reliability
 3. 74%: experienced moderate, severe, or total disruption
- K-12
 1. Districts currently receive fiber service through lease agreements

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Current State of Broadband in Riverside

- UCR
 1. Maintains connectivity from CENIC – 100Gbps
 2. Leases dark fiber from RPU – likely to continue
- Healthcare
 1. Uses market's vendors; desire more bandwidth

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RPU's Current Assets and Fiber Business

- Current assets
 1. RPU maintains extensive fiber routes throughout the region
 2. Conduit available selectively throughout the area
- Revenues
 1. 6 fiber customers - \$455,000 annual revenue
- Costs
 1. \$35,000 annual staff allocation
 2. \$10,000 maintenance supplies and materials

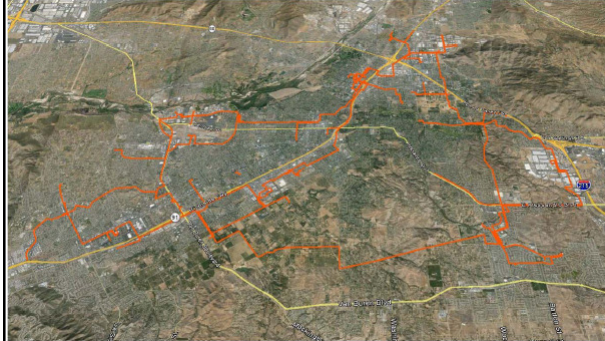
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RPU's Current Assets and Fiber Business

Figure 5-2: RPU's Existing Fiber Network

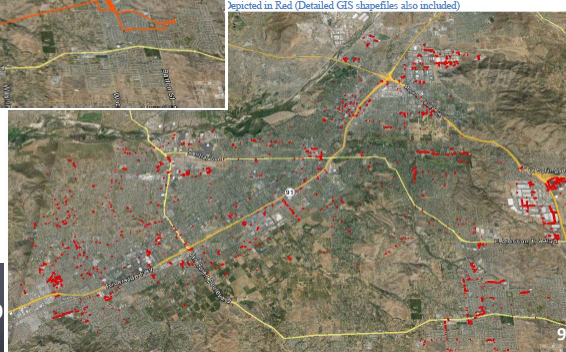


RPU Fiber Network

Depicted in Red (Detailed GIS shapefiles also included)

RPU available conduit

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Current Issues with RPU's Network and Business Model

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

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Opportunity Assessment

- What Impact can RPU have on Local Broadband
 1. Improving Affordability
 2. Enhancing Economic Development
 3. Increasing Adoption
 4. Improving Public Efficiency and Effectiveness
 5. Reducing Taxpayer Spend
 6. Reducing Lead Times for Installation
 7. Supporting Reliability and Performance

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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

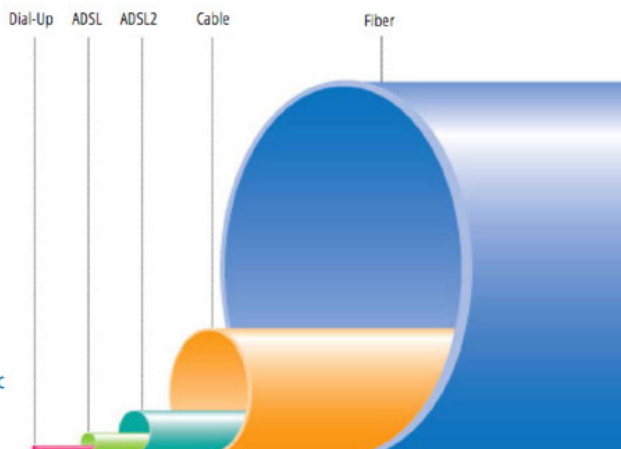
- Second Generation DSL
- Shared Technology

Cable – 150Mbps

- DOCSIS 3.0
- Shared Technology

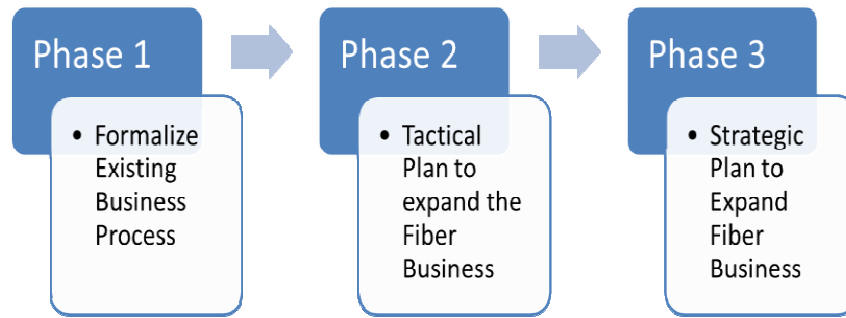
Next-Generation Fiber-Optic

- PON, Active Ethernet
- Shared and Dedicated Technology



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RPU Roadmap



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Phase I: Formalize Existing Business

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

Brand and Market Dark Fiber as a Service

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Phase II: Tactical Plan to Expand Current Offering

1. Determine RPU Policies for Expanding Dark Fiber
2. Develop Pricing Policies for Expanding Dark Fiber
3. Define Operational, Staffing and Financial Requirements
4. Consider Establishing an Enterprise Fund
5. Implement Operations and Staffing
6. Increase the Inventory of Available Fiber
7. Develop the Marketing and Sales Program
8. Establish Metrics for Success

Identify Expansion Opportunities

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Phase III: Strategic Expansion of the Fiber Business

1. Evaluate the Impact of RPU's Current Fiber Business
2. Identify New Opportunities
3. Explore Additional Business Models
 - a. Open-Access
 - b. Direct Provider
 - c. Public-Private Partnership
4. Consider Public-Private Partnerships

Consider Expansion Under New Business Model

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Potential Business Model: Open-Access

1. Phase III Strategic Expansion Could Include Open-Access Business Model
 - a. Lit-Transport Service – No Retail Services
 - b. Partner with local providers to use RPU's Lit service
 - c. Enables competition across a common fiber infrastructure
 - d. Provides multiple new providers to the market

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Potential Business Model: Open-Access

2. Potential Build out Areas Include:
 - a. Innovation Corridor
 - b. Hunter Park Tech Corridor
 - c. Riverwalk Tech Park
 - d. Manufacturing Park

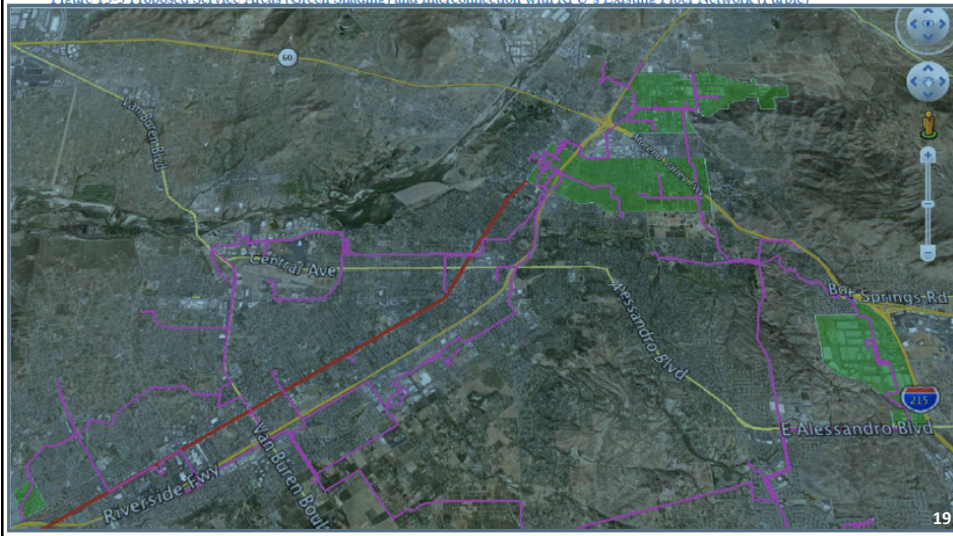
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Potential Business Model: Open-Access

Figure 13-3 Proposed Service Areas (Green Shading) and Interconnection with RPU's Existing Fiber Network (Purple)



Potential Business Model: Open-Access

Figure 13-5 Feeder Distribution Buildout in Hunter Tech Park

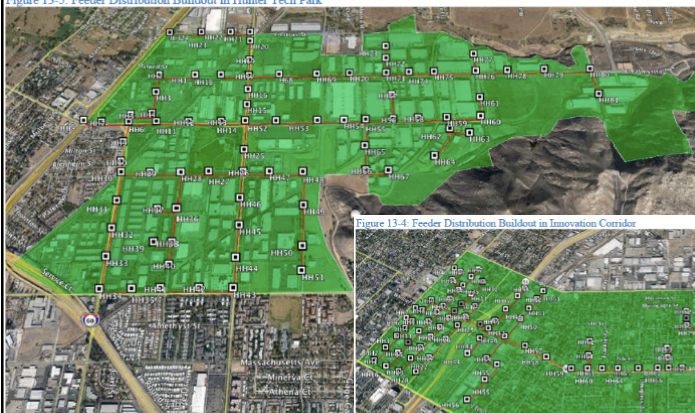
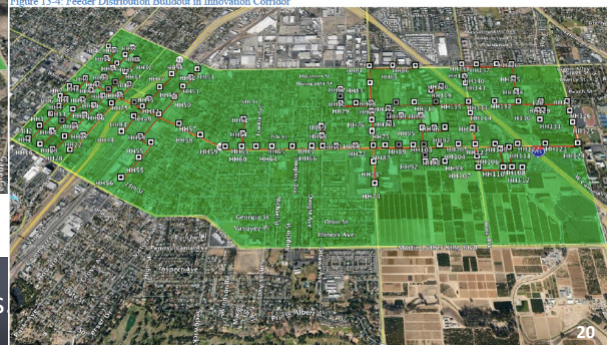


Figure 13-4 Feeder Distribution Buildout in Innovation Corridor



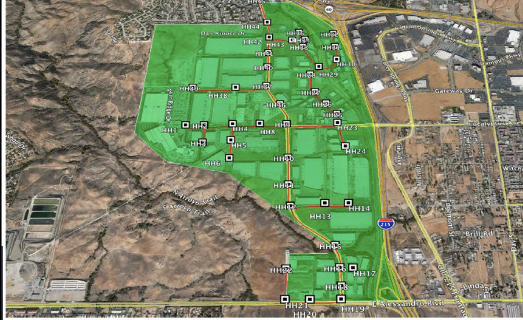
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Potential Business Model: Open-Access

Figure 13-7: Feeder Distribution Buildout in Riverwalk Tech Park



Figure 13-6: Feeder Distribution Buildout in Manufacturing Park



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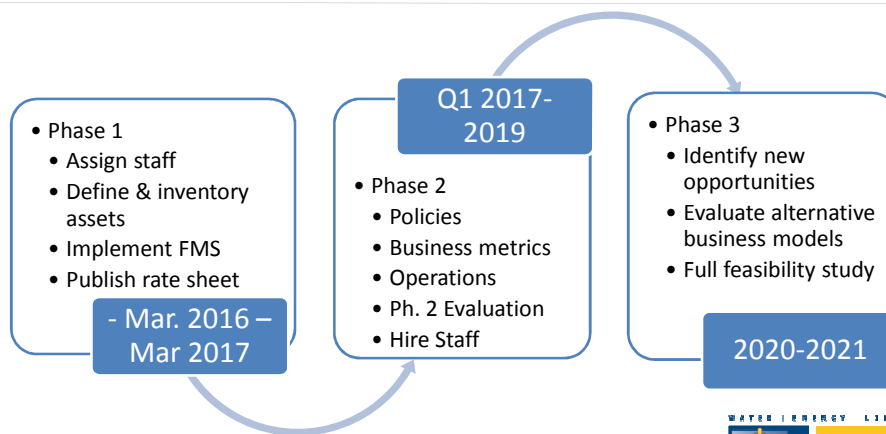
Next Steps

1. Refine the Roadmap based on City Council feedback
2. Finalize study
3. Begin Phase I implementation



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Implementation Timeline



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Recommendations

That the City Council:

1. Receive and file the report prepared by Magellan Advisors outlining the recommended Fiber Business Plan for Riverside Public Utilities;
2. Provide feedback to staff on policy considerations relative to availability and expansion of broadband services in Riverside; and,
3. Approve in concept the roadmap for dark fiber deployment within the community.
4. Approve implementation of Phase 1

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