Portland, Maine
Milestone 2
## Introduction

- SiFi Networks Role and Introduction
- U.S Broadband Market and Economic Development
- Smart City
- The Three Layer Model
- The Network Design and Construction
- The Survey results
- Sustainable Options
- Project Viability and Next Steps
Introduction

• SiFi Networks are a developer – take delivery, financial and operational risk
  • Long term investment
  • Long term sustainability
  • Future proof network
  • Operational and retail flexibility

• SiFi Networks have a highly experienced team including world leading partners
Conclusion: State of U.S Broadband

The USA is ranked **#16** in the world for broadband connectivity. Source: Broadband Now

The USA leaves over **38 million** Americans underserved

Average connection speed of only **12.6Mb/s**

Per capita GDP that is 1.1 percent higher than communities with little to no availability of gigabit services

Home values increase by 3.1% in areas with fiber
Chattanooga Economic Development

- Nokia lead network design
- Over 66,000 connected customers
- Over 60% penetration
- Between 2800 and 5200 new jobs
Reykjavik, Iceland

- Open Access Network
- SiFi Networks’ Founder instrumental in its creation
- 70,000 homes passed
- Over 40% take rate
- 6 Service Providers Including tier 1’s such as Vodafone
- Cash flow positive and generates in excess of €5m per annum
Portland Requirements

- Municipal buildings – 101
- Traffic Light Control Boxes – 113
- Parking Kiosks – 55
- Fire Call Boxes – 606
- Bus Stops – 47
- Flood Warning Detection
- Bridge Freezing Detection
- School District to the Home
- Smart Grid/Metering
How do we get there?
The 3 layer model:

- Infrastructure/FTTx/SmartCity Layer
- Independent Operational Layer
- Service Provider Layer
Design Overview – for both sustainable options

- All business and municipal fed diversely
- 31,564 residential units
- 4,500 business units
- 1,079 municipal Smart City demand points
- 2.5m ft of construction
- 2-2.5 year build (winter = 4.5 month shut down = 34 week construction season)
- Approximately 60% microtrenched 40% directional drilled
- 100% underground solution (no aerial)
- Options proposed with islands to be built in a later phase of deployment
FiberCity™ Portland

Connected light post

Traffic light and intersection management
- Vehicle traffic flow monitoring
- Parking space vacancy monitoring
- Pedestrian monitoring
- Vehicle turnover monitoring and profiling

Real time video analytics
- Crowd behavior detection/analysis
- Pedestrian counter
- Proximity sensors

Notification light

Device management

Digital street sign
- Navigation and directions
- Traffic monitors
- Alerts
- Advertising

Digital signage

Connectivity
- GPS, Wi-Fi, Bluetooth, GPRS/3G/4G, Ethernet, RS2 35 40 offline, LTE

Concealed speakers
- Announcements
- Music

Push to talk emergency

Client dashboard
- Temperature
- Humidity
- Pressure
- Noise
- Vibration
- Vehicle speed
- Water flow
- Gas leakage

Environmental & seismic sensors
IoT – LoRa Storm Drain

The instrument measures the time it takes for a sound pulse to travel from the transducer to the level of water (or bottom) and then for the echo to return. Because we know the speed of sound in air (1086 ft/sec or 331 m/sec), the distance to the target can be accurately calculated.
Key Survey Findings

- Time Warner is the ISP for 85% of respondents
- Likely significant cord cutting due to a significant number who do not appear to have additional services (TV/phone), whether through primary ISP or Secondary provider
- At least half of respondents were not satisfied with Internet speed, reliability and overall service by their ISP
- 72% of respondents were dissatisfied with cost; only 9% satisfied
- 69% of respondents would consider paying more for faster service. This suggests that customers do not perceive they are receiving value.
- 85% of respondents indicated that they supported or very strongly supported the City’s involvement in improving Internet services.
Key Survey Findings Cont’d

- Based on the available information, Tilson estimates that a new entrant to the Portland market could potentially obtain a possible take rate of 38.5%.

- Ultimate take rate achieved however, depends on myriad factors not known at this time, including:
  - New entrant’s offering, price, speed, video offerings, marketing, ease of installation, and market movement, in particular, upgrades to the existing cable platform.
Support for City Involvement

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- Over 85% of respondents provided a response of 4 or greater
- Nearly 70% indicated that they very strongly supported the City assisting in Internet improvements
- Only 3.5% of respondents indicated that they were not supportive of the City’s working to improve Internet service (rating of 1 or 2)
- Just over 10% (141 out of 1,319) indicated neither a strong support nor disapproval
Options:

• Municipal Model
  o Citywide including downtown area excluding islands
    o Challenges faced in construction in these areas
  o Smart City connections
  o SiFi Networks and private partners - Construction, Operations, Service Provision
  o City Ownership/lease obligation
  o Result – Sustainable, Return on Capital achieved and long term operational stability achieved with anticipated take rates
  o Capital Lease payment is guaranteed by private sector ISPs accessing the network:
    o Year 1-3 = $0
    o Year 4 = $1,000,000
    o Year 5 = $2,000,000
    o Year 6 = $5,395,000
Options:

- **100% Private Model:**
  - Unsustainable without municipal Smart City service agreement in place
  - Return on Capital targets not met to satisfy private capital markets

- **Hybrid Model (no long term lease):**
  - Citywide build including downtown (excluding islands)
  - SiFi Networks owned operated and maintained
  - Smart City IRU and managed services agreement
    - Smart City connectivity
    - 30 Year Smart City Managed Services Agreement
  - Result – Sustainable, Return on Capital achieved and long term operational stability achieved with anticipated take rates
  - Smart City Managed Service Agreement for 30 years of $428,000 per annum
    - This Smart City infrastructure if built in the future would cost Portland in excess of $30m
Benefits

- All homes and business can access regardless of demographics
- Smart City infrastructure to increase efficiencies and reduce City costs
- No operational burden on the City – SiFi Networks shall take responsibility
- Increase in property values
- GDP growth possible 1.1% as the average in other communities
- Economic development and businesses attracted to the City
- A world leading network
- Very low take rate required to cover cost (29.5%)
- Zero construction risk, development risk and all operations and maintenance risks
- ISPs signed on to cover revenue and demand generation risk
- Internet speed increase of between 20-100 times faster than current speeds
- New and more affordable services offered as the City and SiFi enable competition
Viability

- Based on significant due diligence SiFi Networks can evidence a confident business case for a FiberCity network in Portland through Private and Public finance
- Both options create significant growth and Quality of Life improvement for the City
- Increase in property values throughout the city likely as a direct result
- GDP growth of 1.1% can be attributable to citywide Fiber networks vs cities without

BUT

- Timing is critical, a municipal model would likely have to commence construction in 2018, whereas the Hybrid model could commence construction in the early summer of 2017
Conclusion

• Demand is well supported by Tilson’s survey to levels well in excess of a breakeven position
• Design shows favorable network architecture will exceed reliability required for institutions and public safety
• Three ISPs willing and able to guarantee the minimum revenue requirement
• Operational efficiencies are achieved in Portland through a citywide build
• Good Backhaul links to provide a scalable internet connection
• Only a third of the community required to subscribe by year 5
• When factoring in impact on property values, GDP growth, job creation and Smart City applications, Cities upside is outstanding
Conclusion Cont.

- Recommended next steps
- Decision on proceeding based on Municipal or Hybrid option
- Municipal Model:
  - Meetings scheduled with legal/bond counsel
  - Formal proposal and agreements drafted for council approval
  - Network construction commencement Spring 2018.
- Hybrid Model:
  - Development Agreement signed granting access to rights of way
  - Managed Service Agreement for Smart City agreed
  - Construction Commencement Summer 2017