

Appendix A

Detailed Project Requirements

2.2.1 Network Infrastructure

- Support for 802.11b and 802.11g access throughout the coverage area
- Support for best-effort service, 1 Mbps per subscriber upstream and downstream
- 95% in-street (outdoor) coverage
- 90% in-building (indoor) coverage
- Support for a mixed wireless and wired backhaul solution
- Support for the use of City-owned assets
- Support for pole, roof and wall mounting
- Compliance to IP56/NEma4 dust and water ingress
- Support for ambient temperature ranges of -40 C to +50 C
- Support for logical segmentation of the network for different "domains" of users
- Support for designating certain areas for open, free access
- Support for in-motion subscribers at up to 60 Mph
- Support for unilateral inbound roaming relationships
- Support for unilateral outbound roaming relationships
- Sufficient capacity to support subscriber projections and service levels through contract term
- Scalable to support additional users, capacity and functions
- Support for IPv4 and IPv6 addressing
- Support for traffic prioritization
- Backup power support for up to 8 hours
- Fault tolerance mechanisms to mitigate single points of failure
- Guaranteed reliability of 99.9% for Wi-Fi tier of the network
- Guaranteed reliability of 99.999% for backhaul tier of the network
- Support for optional "peering points" with other service providers
- Support for providing advanced subscriber services from backhaul tier of the network
- Physical security for all critical network components
- Support for MAC address filtering
- Support for 64 and 128-bit WEP encryption
- Support for TKIP encryption
- Support for AES encryption
- Support for WPA standard
- Support for 802.1x using EAP and RADIUS
- Support for suppression of ESSIDs
- Support for multiple ESSIDs
- Support for mapping ESSIDs to VLANs
- Support for filtering of traffic by IP address, subnet, TCP port and other mechanisms
- Support for VPN tunneling
- Support for encryption of all control and network management traffic

2.2.2 Architecture and Design

- An overall architecture for the System
- A detail design for the System
- A detailed wireless spectrum plan
- A detailed integration plan for all components of the System
- A description of the core business processes
- A plan describing how reliability requirements and service levels will be met
- A plan describing the tools and processes for post installation testing and verification of performance

A description of deliverables to be provided to WP post-installation
A detailed implementation plan, statement of work, project schedule and milestone payment schedule
A final as-built plan supplied in ESR1 coverage or shapefile format

2.2.3 Installation

Installation of all components of the System
Coordination on access to assets, permits, etc.
Ramp up and activation of all technology and processes required for the System
Configuration and integration of all components of the System
Adherence to all FCC guidelines for wireless equipment, installation, configuration, etc.
Tuning services as required throughout the System for the entire contract term

2.2.4 Telecommunications Provisioning

All leased telecommunications services required for Wi-Fi egress points
All leased telecommunications services required for connection of Wi-Fi egress points back to Internet PoP
Provisions for alternate peering points over time
Description of how capacity estimates were derived, using Kbps/user or oversubscription rates

2.2.5 Network Monitoring and Management

Basic adherence to ISO network management functions
Performance Management
Configuration Management
Accounting Management
Fault Management
Security Management
Support for event notifications
Support for group management of System components
Built-in configuration database
Support for SNMP
Graphical representation of System components
Support for configurable ACLs
Ability to "drill down" on System components
Ability to auto-discovery new devices in the System
Support for wireless proxy agents
Support for statistical reporting
Support for remote management and updates to remote System components

2.2.6 Network Maintenance and Upgrade

Plan for how maintenance and upgrade will be addressed
Provisions for spare inventory, upgrade cycles, capacity upgrades, etc.
Risk mitigation for network obsolescence
Provisions for refresh of entire System within seven years
Minimal disruption of service during upgrades
Backwards compatibility for existing applications, services and devices
Product roadmaps for all vendor equipment used in the System

2.2.7 Operations Support Systems

Support for multiple service providers (SPs)
Ability to define flexible wholesale service plans, pricing and ratings based on usage or flat rates
Ability to support flexible service policies for time and quality of service
Design, deployment and management of a subscriber portal for the System

Ability to support co-branding of portal
Ability to support wholesale billing, receivables collections and settlement with SPs
Ability to support inbound and outbound roaming relationships
Ability to define basic access and other value added service plans
Ability to perform usage tracking, customer reporting and usage policy enforcement
Interoperability with RADIUS-based public access points and gateways

2.2.8 Customer Service and Technical Support

Support for tier-two customer service and technical support
Support for issues from tier-one agents dealing with billing, invoice and/or settlement
Support for issues from tier-one agents dealing with technical problems reported by subscribers
A toll free number for tier-one agents
Support for 7x24x365 hours
Support for problem reporting and resolution via email, Web and interactive messaging
Dedicated technical expert available to WP 7x24x365 by phone and/or pager
Proactive notifications to SPs for network problems, outages and other issues
Development and maintenance of a library of FAQs
Secure managed database of all SP information, call tracking detail, resolutions, etc.
Creation of routine and ad-hoc reporting on issues, wait times, abandoned calls, etc.
Support for three-party calls from SPs and their subscribers
Support for total call management
Elaboration on SLAs proposed
Elaboration on additional features and/or functions proposed
Definition of preliminary call and/or process flows
Elaboration on and additional knowledge management features proposed

2.2.9 Software Hosting and Facilities

Secure facility with controlled entry
Climate controlled for all equipment requirements
Backup power to maintain availability for 24 hour interruption
24x7x365 monitoring
Backup and recovery tools and processes
Proactive capacity planning
Problem avoidance and change management tools and processes

2.2.10 Program and Project Management

Designation of executive sponsor throughout contract term
Designation of primary single point of contact
Delivery of routine program and project status reports
Designation of issue escalation path with names, contact information, etc.