7.0 WIRELESS AND SPECIAL SERVICES

7.1 CELLULAR/PERSONAL COMMUNICATIONS SERVICE (CPCS) (L.34.1.7)

> ***Qwest's Cellular/Personal Communications Service (CPCS) solution brings domestic and non-domestic mobile service that includes data-optimized capabilities for the wireless user.***

Qwest offers the Federal Government a mature, robust wireless service solution with nationwide coverage and the latest advanced features. Qwest achieves high Quality of Service (QoS) through constant monitoring and rapid response to network issues.

Figure 7.1-1 provides an easy reference to correlate narrative requirements to our proposal response.

Figure 7.1-1 Responses to Narrative Mandatory Service Requirements

Comp_Req_ID	RFP Section	RFP Requirement	Proposal Response
8227	C.2.14.1.1.4 (3)	The following Cellular/ Personal Communications Service capabilities are mandatory unless indicated otherwise: Offerings may include data optimized capabilities including EvDO, HSDPA, or equivalent standards.	7.1.3.1.1

Qwest has been providing both voice and data services over the PCS band since 1996. Qwest offers national and international services with numerous roaming agreements.

███████████████████████████████████ We have processes in place to accommodate future network growth well before capacity problems would become noticeable.

7.1.1 Technical Approach to Cellular/Personal Communications Service Delivery (L.34.1.7.1)

Qwest's commitment to wireless technology is evident in the evolution of our wireless products and services. In 1996, we deployed a 1.9 Megahertz (MHz) PCS in the 14 states where Qwest is the Incumbent Local Exchange Carrier (ILEC). ███████████████████

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While continually improving our wireless PCS voice service, we also addressed the demand for reliable high-speed wireless data services through the deployment of CDMA 1X data products. Additionally, Qwest has deployed Evolution Data Optimized (EvDO) and aggressively developing strategies for Wireless Fidelity (WiFi) and Worldwide Interoperability for Microwave Access (WiMax) services to meet customer's needs.

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████████████████████ Through our subcontract, Qwest offers a nationwide, wireless voice and data CPCS product. A description of the Qwest service offering can be found in the technical stipulated requirements of the J-Tables.

7.1.1.1 Approach to Cellular/Personal Communications Service Delivery (L.34.1.7.1(a))

Qwest offers a nationwide, wireless voice and data CPCS product ███████ ██████ ███████ ██████ ██████ ████ This arrangement allows Qwest to offer a high quality nationwide CDMA

network, ██

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       Qwest also supports Agencies with a worldwide roaming capability outside of the home CDMA network. These Agencies will use a dual mode handset for worldwide roaming.

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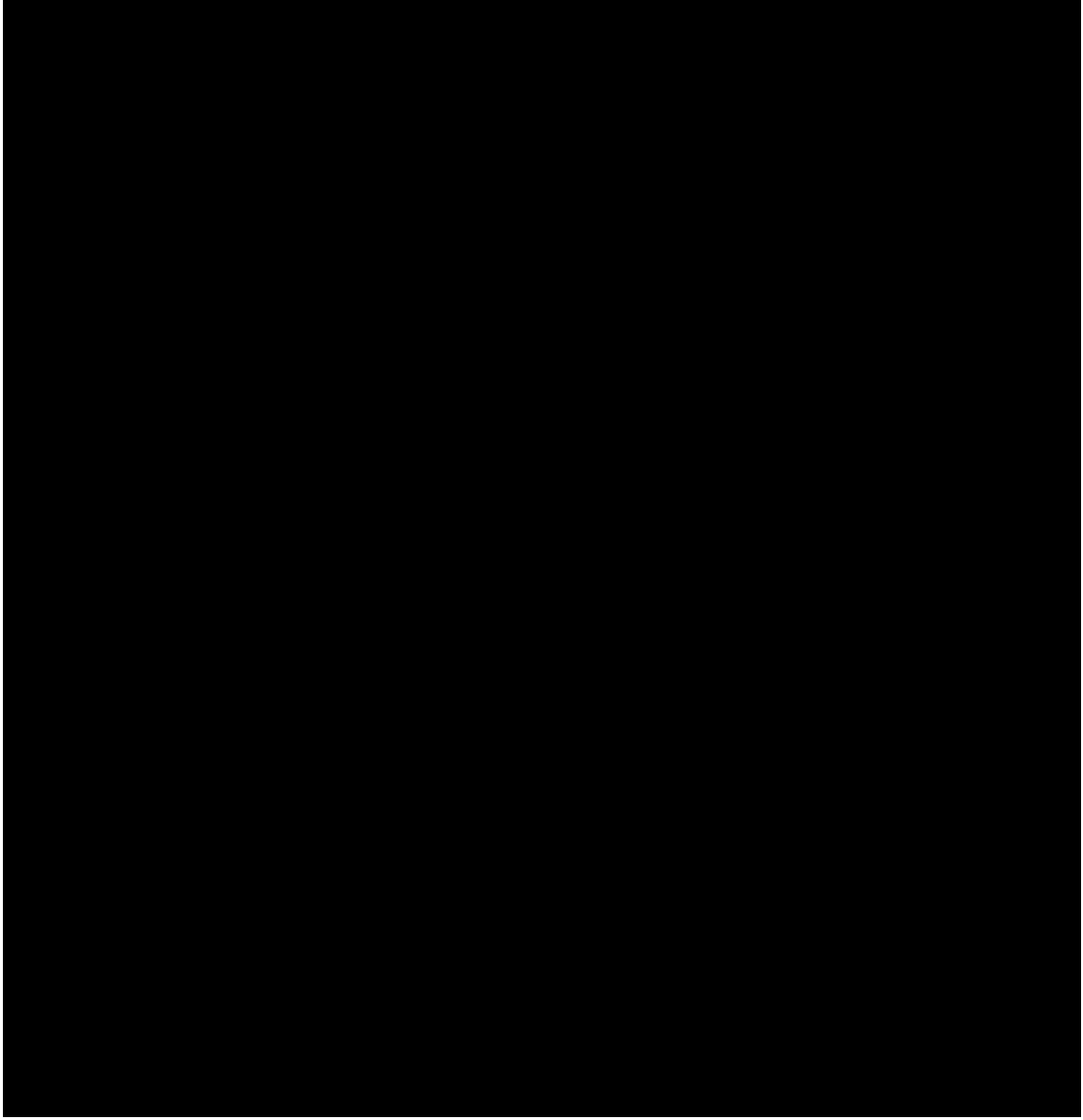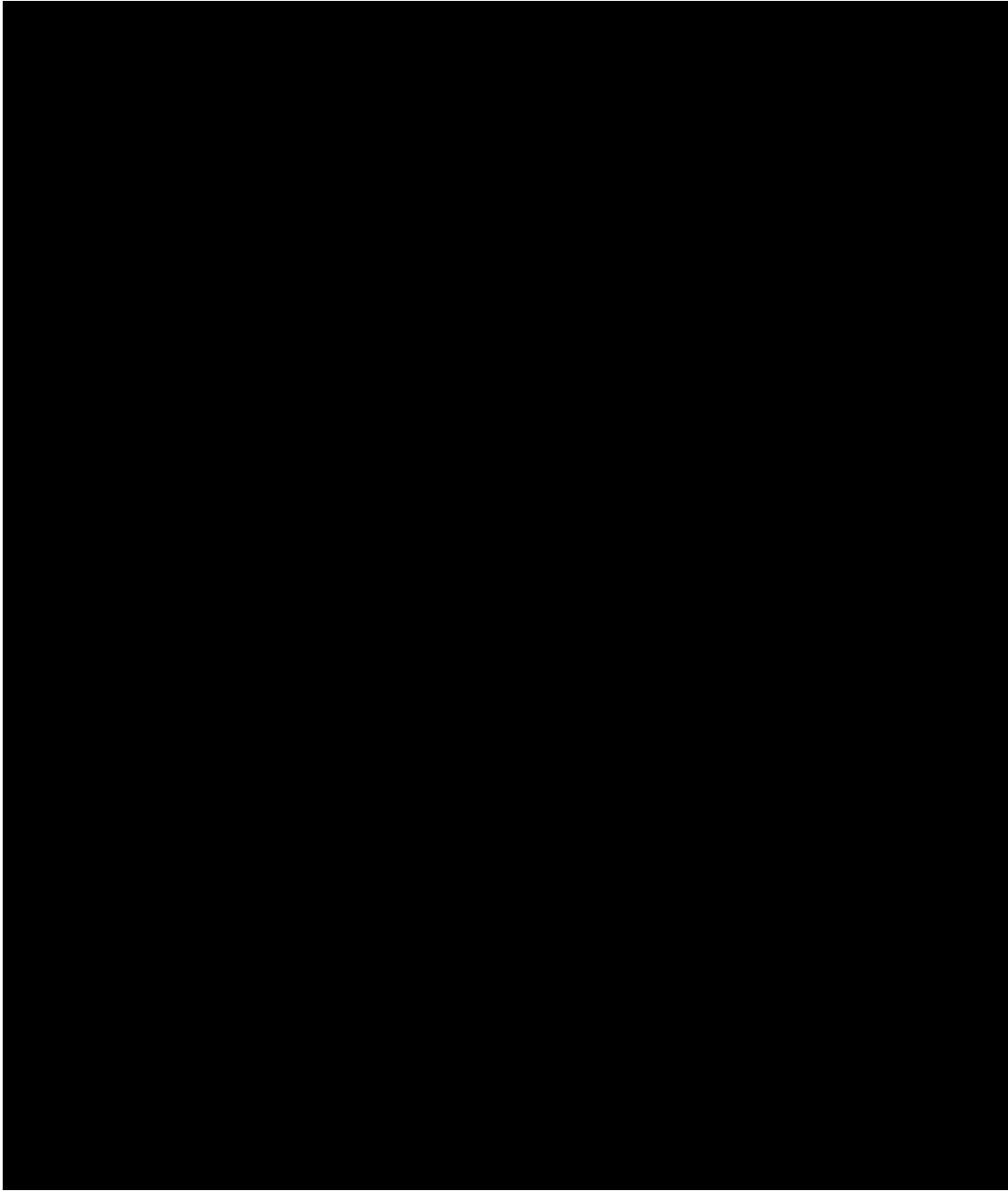
Qwest has complete and autonomous control of ordering, sales, customer care, billing, and Key Performance Indicator (KPI)/Acceptable Quality Level (AQL) requirements to ensure the highest quality network experience for Agencies. With these elements in place, Qwest can focus on delivering this critical wireless service to the Government.

Qwest is able to offer the Government outstanding network quality and reliability while delivering a high level of quality customer service. Qwest requires its wireless carrier to ensure that network delivery is of the utmost value; therefore, Qwest offers Agencies exceptional service quality as outlined in *Figure 7.1.1-4*.

Figure 7.1.1-4. Quality Performance Monthly Reporting. This reporting will also be provided to the Government on a quarterly basis.

Network			
Availability (Voice Service)	███	███	███
Time to Restore (TTR)	███	███	███
Time to Restore (TTR)	███	███	███

CDMA uses spread spectrum technology that provides Agencies with maximum availability to the network while minimizing both blocked and dropped calls. Qwest uses CDMA technology because it offers numerous benefits from an Agency and a network perspective. CDMA One (2G) provides a clear and straightforward path to 3G wireless services. Thus, CDMA One is the foundation of Qwest's migration path to CDMA2000, the first phase of which (1xRTT) was implemented in the Qwest network in 2002. ███████████████████████████████████████

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7.1.1.2 Benefits of Cellular/Personal Communications Service Technical Approach (L.34.1.7.1(b))

Through our performance-based contract with our network provider, we can assure the Government that network delivery is of the highest quality and availability at all times. **Figure 7.1.1-5** summarizes the features and benefits the Government will receive through Qwest CPCS service.

Figure 7.1.1-5. Features and Benefits of the Qwest Cellular Service

Feature	Benefit		
Worldwide connectivity	Vast footprint for Agency users.	███████	
Robust and secure CDMA technology	Agencies enjoy minimum network down time and increased wireless information security.	███████	
Network capacity	Fewer blocked calls for Agency users.	███████	
Network quality	Agency callers experience fewer dropped calls.	███████	

Figure 7.1.1-6 provides a summary of Qwest Support of the Federal Enterprise Architecture (FEA) Objectives.

Figure 7.1.1-6. Qwest Support of the FEA Objectives

FEA Objective	How Qwest Service Supports the Objective
Improve utilization of Government information resources	Qwest's CPCS service provides a means for communication and information exchange while mobile.
Enhance cost savings and avoidance	Selecting Qwest as a single supplier with a single point of contact will facilitate the reduction of administrative costs as well as reducing the total cost of wireless service to Government Agencies.
Increase cross-Agency and inter-Government collaboration	Qwest CPCS advanced data services allow for mobile access within and between Agencies which can improve response times and increase collaboration.

7.1.1.3 Solutions to Cellular/Personal Communications Service Problems (L.34.1.7.1(c))

Figure 7.1.1-7 summarizes Qwest's solutions to potential problems encountered in the delivery of wireless service.

Figure 7.1.1-7. Qwest Solutions to Problems Encountered Delivering Cellular Service

Potential Problem	▮▮▮▮
Blocking due to overloaded trunking circuits on local and long distance networks owned and operated by other telecommunications companies (telcos).	▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮
Blocked and dropped calls	▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮
Number portability - The transitioning (porting) of wireless numbers from one carrier to another can be difficult and complex. Any issues in the process can result in downtime and temporary loss of service for Government customers.	▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮

7.1.1.4 Cellular/Personal Communications Service Architecture Design and Benefits (L.34.1.7.1(d))

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7.1.1.5 Cellular/Personal Communications Services Architecture Attributes (L.34.1.7.1(e))

The Qwest Team ██████████████████████ CDMA technology to provide secure, reliable data communications. The digital technology and architecture of CDMA offer fundamental compatibility with typical applications for access to corporate networks and databases, as well as the traditional Internet or World Wide Web access. █████████████

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██████████████ In addition to meeting the CDMA technology security standards, Qwest protects the privacy and security of our customers.

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EvDO Rev A will provide additional capability to converge services by enabling the QoS required for real-time services such as VoIP and communications video over wireless data. This QoS subsequently enables real-time services to be converged on an IP Multimedia Subsystem (IMS) core as both wireline and wireless services merge to a common session control infrastructure.

7.1.2 Satisfaction of Cellular/Personal Communications Services Performance Requirements (L.34.1.7.2)

The following subsections describe Qwest's approach for delivering QoS with respect to performance metrics and our approach for monitoring and measuring performance.

7.1.2.1 Cellular/Personal Communications Services Quality of Service (L.34.1.7.2(a))

Qwest meets all requirements AQL requirements as shown in **Figure 7.1.2-1**.

Figure 7.1.2-1. Key Performance Indicators

KPI	Service Level	Performance Standard (Threshold)	AQL	████████
Availability (Voice Service)	Routine	99.5 percent	≥ 99.5 percent	█████████
Time To Restore (TTR)	Without Dispatch	4 hours	≤ 4 hours	██████
	With Dispatch	8 hours	≤ 8 hours	███████

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Radio Frequency (RF) technicians in each market are typically responsible for day-to-day optimization. If during the normal optimization activity, Tier 2 assistance is needed to resolve a network issue, the coordination is performed with its Core RF Team to provide additional assistance and evaluation. RF technicians are available to resolve any CPCS customer coverage issues in their respective markets.

7.1.2.2 Approach for Monitoring and Measuring Cellular/Personal Communication Services (L.34.1.7.2(b))

The following network performance measures and KPIs are measured:

- Network availability

- Time to Repair (TTR)

Qwest will provide the Government with the appropriate service reports on the 20th of each month. Qwest will supply additional data as requested by the Government to allow the Government to measure the performance of the CPCS.

7.1.2.3 Verification of Cellular/Personal Communications Services (L.34.1.7.2(c))

Network optimization and repair is coordinated in each major metropolitan area by local engineers in order to maintain network quality and capacity parameters within KPIs requirements. Local technical resources also ensure an efficient Mean Time to Repair (MTTR) and perform in-market drive tests to keep the network optimized. These processes ensure Agency employees will always be able to make and receive quality wireless calls within the specified KPIs.

7.1.2.4 Cellular/Personal Communications Service Performance Improvements (L.34.1.7.2(d))

Qwest proposes to meet KPIs and AQLs for CPCS. In the event an Agency has a specific business need or application problem Qwest is willing

to discuss service enhancements. Qwest will operate in good faith to engineer a CPCS solution to serve unique Agency needs by leveraging our vast CPCS product portfolio, which includes a variety of SED providers and specific CPCS solutions. Qwest will be able to serve Agency's business needs through a special combination of vendor solutions and talented engineering capabilities.

7.1.3 Satisfaction Cellular/Personal Communications Service of Specifications (L.34.1.7.3)

The Qwest ███████████████████████████ network is compliant with the IS-2000 standard for 1xRTT technology and the mobile IP standard.

7.1.3.1 Satisfaction of Cellular/Personal Communications Service Requirements (L.34.1.7.3(a))

Qwest fully complies with all mandatory stipulated and narrative capabilities, features, and interface requirements for CPCS. The following Sections 7.1.3.1.1 through 7.1.3.1.3 summarize Qwest's response to the CPCS capabilities listed in RFP C.2.14.1.1.4, features of RFP C.2.14.1.2, and interfaces of RFP C.2.14.1.3. These sections are intended to provide the technical description required per L.34.1.7.3(a) and do not limit or caveat Qwest's compliance in any way.

7.1.3.1.1 Satisfaction of CPCS Capability Requirements (L.34.1.7.3(a); C.2.14.1.1.4)

Figure 7.1.3-1.Qwest's Technical Approach to CPCS Capabilities

ID	Technical Capability	Technical Capability Description	

GS00T07NSD0002

ID	Technical Capability	Technical Capability Description	███████████████
1	Voice Calls	CPCS shall have the capability to originate and receive voice calls from mobile phones, fixed wireline networks, and satellite-based networks.	████████████
2	Roaming	CPCS shall allow the user to roam between compatible wireless (e.g., CDMA, Global System for Mobile communications (GSM), etc.) networks.	████████████
3	Packet Data	Packet-mode data transfer shall support a data rate in the range of 128 Kbps to 384 Kbps or higher while indoors or traveling at up to 65 miles per hour. This category of service shall provide "always on" connections. Offerings may include data optimized capabilities including EvDO, High Speed Downlink Packet Access (HSDPA), or equivalent standards. (Req_ID 8227)	████████████
4	E911	The contractor shall comply with Wireless Enhanced 911 (E911) rules including Phases I and II as stipulated by the Federal Communications Commission. Refer to http://www.fcc.gov/911/enhanced/	████████████
5	Wireless Priority Service	Wireless Priority Service (WPS) shall allow authorized National Security and Emergency Preparedness (NS/EP) personnel to gain access to the next available wireless radio channel in order to initiate calls during an emergency when channels may be congested. WPS is invoked by dialing *272 prior to the destination number on wireless terminals that have subscribed to WPS. Refer to http:/wps.ncs.gov/. Refer also to Section C.5, for NS/EP requirements.	████████████
6	Wireless Modem Cards	The contractor shall provide wireless modem cards for mobile terminals if required by an Agency. The cards provided shall support the mobile terminals needed by the Agency and shall include, but not be limited to, Type II PCMCIA and those required for PDAs.	████████████
7	Mobile Terminals	If required by an Agency, the contractor shall provide and support commercially available mobile terminals with the characteristics and features needed.	████████████

ID	Technical Capability	Technical Capability Description	
8	Mobile Terminals	If required by an Agency, the contractor shall provide commercially available mobile terminals that support device access control and data protection including, but not limited to: a. Integrated authentication b. Authorization c. Virus scanning d. Encryption capabilities (resident on terminal device)	
9	Network Performance	(Optional) The contractor's wireless network performance (including, but not limited to, maximum latency and bit error rate) shall enable the use of National Security Agency-approved Type 1 encryption devices.	

7.1.3.1.2 Satisfaction of CPCS Features Requirements (L.34.1.7.3(a); C.2.14.1.2.1)

Figure 7.1.3-2.Qwest's Technical Approach to CPCS Features

ID#	Feature	Description	
1	Caller ID	Caller ID shall display the name and number (when available) of the person calling. It may also display the name of the person if stored *a priori* in the wireless terminal memory. Call can usually be returned by pressing one button.	
2	Caller ID Blocking	Caller ID Blocking shall prevent the subscr ber's wireless phone number from being transmitted. This shall be supported in two ways: a) Block on a per-call basis, or b) Block all calls (with the option to de-activate on a per-call basis).	
3	Call Forwarding (CF) – Busy or No Answer Condition	This feature shall forward incoming calls to another phone number whenever the subscriber is busy or no answer occurs after a specified time. When forwarding calls to destinations outside of calling plan area (e.g. international numbers), additional charges may apply.	
4	Call Forwarding - Unconditional	This feature shall automatically forward incoming calls to another phone number until deactivated. When forwarding calls to destinations outside of calling plan area (e.g. international numbers), additional charges may apply.	
5	Call Waiting	This feature shall alert the subscriber of another incoming call while currently engaged with an active call. The subscr ber will hear a short tone indicating that a call is waiting.	

ID#	Feature	Description	
6	In-building Repeaters	The contractor shall provide in-building repeaters (or other solutions) as required by Agencies to improve wireless capacity and coverage in in-door facilities.	
7	Information Services	The contractor shall provide information services including, but not limited to: • Weather reports (Optional) • News summaries (Optional) • Traffic advisory (Optional) • Directory assistance (Optional) • Web browsing	
8	Reserved	Reserved	
9	International Wireless Voice Service Roaming	The contractor shall support voice service roaming internationally between different service provider wireless networks to include GSM and CDMA networks. The contractor shall specify the necessary mobile terminals needed.	
10	International Wireless Data Service Roaming	The contractor shall support data service roaming internationally between different service provider wireless networks to include GSM and CDMA networks. The contractor shall specify the necessary mobile terminals needed.	
11	Multimedia Messaging Service (MMS) [Optiona]	MMS shall provide mobile terminal-originated and mobile terminal-terminated point-to-point multimedia messaging: MMS shall support content types including – but not limited to: 1. Text in Unicode format 2. Speech in Adaptive Multi-rate format 3. Pictures in Joint Photographic Experts Group (JPEG) 4. Pictures in Graphics Interchange Format (GIF) 5. Video Streaming in ITU Recommendation H.263 format The contractor shall propose, describe, and provide MMS of l kely interest to Agencies.	

ID#	Feature	Description	
12	Short Messaging Services (SMS) – Basic Functionality	SMS shall provide: 1. Mobile terminal-originated and mobile terminal-terminated 2. Group Messaging to allow a subscriber to specify as many as 25 members comprising a SMS mailing list. Furthermore, a subscriber can specify up to 10 different Group Messaging lists. 3. Support for broadcast services. [For example, an Agency may send broadcast messages to large, targeted audiences who subscribe to specific information, such as government economic data and regulatory news.] SMS shall support the following capabilities relevant to the reception and submission of short messages: 1. Message Expiration – Message delivery re-attempts and storage for unavailable recipients shall be supported. A message expiration time will govern how many re-attempts will be made. The expiration time shall be set on a per-message or per-account basis. Priority – A priority scheme allowing urgent messages to differentiated from normal messages shall be supported. Urgent messages shall take priority over normal messages, regardless of the arrival time at the SMS Center (SMSC). 2. Message Escalation – The SMSC stores the message for a period no longer than the expiration time (it is assumed that the escalation time is smaller than the expiration time associated with the message) and, after said escalation time expires, the message will be sent to an alternate message system such as a paging network or email server. 3. Message Acknowledgement/Delivery Confirmation SMS shall: 1. Support an Interworking and Interoperability Function (IIF) to allow the sending/receiving of short messages between subscribers served by American National Standards Institute (ANS)I-41 (e.g., TDMA and CDMA) and GSM networks. 2. Interwork with Internet E-mail (Simple Mail Transfer Protocol (SMTP)/ Multipurpose Internet Mail Extensions (MIME) to allow SMS subscribers to send and receive postings from any Internet mail address, e.g. subscriber@gsa.gov. 3. Interwork with paging services to allow SMS subscribers to be access ble via existing paging interfaces. SMS shall support notification services. The contractor shall propose, describe, and provide notification services of likely interest to Agencies. [Examples of notification services include: 1. Email notification, which indicates that email messages are present in an email mai box. 2. Reminder/calendar services, which enable reminders for meetings and scheduled appointments. 3. Voice notification, which indicates that voice mail and/or facsimile messages are present in a voice mailbox.]	

ID#	Feature	Description	
13	SMS - Interworking with Instant Messaging (IM)	The contractor shall provide inter-working with IM. This capability entails using a current instant messaging screen name and sending instant messages with a 2-way text messaging device. This feature supports the portability of a "buddy list," permitting the subscriber to see who's online, then getting alerts when other colleagues or associates sign on. This feature is an add-on to SMS-Basic Functionality.	
14	Three-way Calling	Three-way Calling shall enable a subscriber to conduct a three-way conversation using the wireless terminal.	
15	Voice-Activated Dialing (Network-hosted) [Optiona]	Voice-activated dialing shall initiate outgoing calls via voice commands. Feature shall support: 1. Storage of up to 1000 contacts 2. Addition and editing of contact via service provider Web site 3. Importing contacts as needed from Agency applications such Microsoft Outlook Express or Lotus Notes	
16	Voice Mail	Voice mail features shall include, but not be limited to: 1. Personal voice mail greeting – in the recorded words of the subscriber. 2. Security features including an access code required to retrieve messages. 3. Recorded messages can be up to three (3) minutes in length. 4. New and not-yet-retrieved messages are stored for a minimum of 72 hours. 5. Stores up to 20 saved messages for up to 14 calendar days. 6. Toll-free access to voice mail system for subscribers. 7. A notification is sent to wireless terminal as soon as a message is left in subscriber's mailbox.	
17	Walkie-talkie functionality [Optiona]	Walkie-talkie functionality will enable subscribers to connect directly with other users by pressing a button on their wireless terminal. The service will indicate (via an icon on their handset) whether a user on their calling list is available. Business colleagues or work teams shall be able to set-up and manage group calling lists. This feature shall support groups of up to 10 participants. Users can create up to 50 group lists and store 100 individual contacts.	

7.1.3.1.3 Satisfaction of CPCS Interface Requirements (L.34.1.7.3(a); C.2.14.1.3.1)

Figure 7.1.3-3.Qwest Provided Interfaces for CPCS

UNI Type	Interface Type and Standard	Payload Data Rate or Bandwidth	Protocol Type	SED Make and Model (or equivalent)
Specific to 2.5G and 3G				
1	Air Link for mobile phone: (Std: GSM and IS-136 TDMA)	Up to 116 Kbps	1. Transparent 2. IPv4 3. IPv6 when offered commercially by the contractor	Qwest will provide GSM capable handsets and terminals as required.
2	Air Link: (Std: CDMA 1xRTT)	Up to 144 Kbps	1. Transparent 2. IPv4 3. IPv6 when offered commercially by the contractor	Qwest will provide 1xRTT capable handsets and terminals as required.
3	Air link: 1.8-2.5 GHz (Std: 3G WCDMA)	Up to 384 Kbps	1. Transparent 2. IPv4 3. IPv6 when offered commercially by the contractor	Qwest will provide 1xRTT capable handsets and terminals as required.
4	Air Link: (Std: CDMA EvDO)	Up to 500 Kbps	1. Transparent 2. IPv4 3. IPv6 when offered commercially by the contractor	Qwest will provide EvDO handsets and terminals as required. EvDO is based on network availability.
5	Air Link: (Std: WCDMA-(HSDPA) [Optiona] Service Level	Up to 14.4 Mbps	1. Transparent 2. IPv4 3. IPv6 when offered commercially by the contractor	EvDO Rev capabilities will be provided as the network migrates.

7.1.3.2 Proposed Enhancements for Cellular/Personal Communications Services (L.34.1.7.3(b))

Qwest constantly works to enhance its services in support of the Government. Qwest will continue to make specific information available on a regular basis about planned enhancements to capabilities, features, and interfaces as required.

7.1.3.3 Experience with Cellular/Personal Communications Service Delivery (L.34.1.7.3(c))

Qwest began by building an all-digital nationwide network based on CDMA technology in 1996, and began a formal evolution strategy to Third Generation (3G) technology in 2001. Qwest's use of scalable, backward-

compatible CDMA technology enabled the network upgrade to be made with relative ease, and at a considerable expense savings compared to other carriers. Unlike analog or GSM/ General Packet Radio Service / Enhanced Data for GSM Evolution technologies, CDMA is suitable for both voice and data communication. As a result, Qwest was the first to market again in 2002 as the first carrier to offer nationwide 3G service. Qwest's 3G network upgrade doubled its call capacity on a national scale, while offering wireless data capabilities at speeds better than conventional dial-up across its entire nationwide platform.

Qwest has successfully delivered the mandatory required wireless services described in Section C.2.

Qwest has provided wireless voice and data services since 1996. Qwest not only sells to consumers, but also has major accounts in the commercial and Government sectors.

7.1.4 Robust Delivery of Cellular/Personal Communications Services (L.34.1.7.4)

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7.1.4.2 Cellular/Personal Communications Services Methodologies for RF Optimization (L.34.1.7.4(b))

To test its network, the Qwest Team has an ongoing process of collecting drive test data. During these drive tests, signal strength,

coverage, and overall customer call quality are evaluated for each network area under study. The Qwest Team uses a weighting scheme to normalize the data and evaluate each of its markets, not only from a network performance perspective, but in comparison to the other operating carriers. This data will be provided to the Government every six months.

The Qwest Team has RF technicians in each market who are responsible for day-to-day optimization. They are available to resolve any CPCS customer coverage issues. If during the normal optimization activity, second tier assistance is needed to resolve a network issue, the provider coordinates with its Core RF Team to provide additional assistance and evaluation.

7.1.4.3 Cellular/Personal Communications Service Measure and Engineering Practices (L.34.1.7.4(c))

The Qwest Team's Disaster Recovery (DR) Plan is based on the four phases of disaster preparedness as defined by the Federal Emergency Management Agency: mitigation, preparedness, response, and recovery.

- Mitigation refers to the activities actually eliminating or reducing the chance of a disaster's occurrence or its effects. For example, the reinforcing of towers to reduce the effects of high winds or the addition of larger fuel tanks on generators to increase running times and reduce refueling.

- Preparedness is pre-planning responses and working to increase available resources to manage situations effectively. Preparedness plans are designed not only to maintain network connectivity, but strive to minimize dangers to employees. This phase will also include the training of personnel and the testing of recovery plans to enhance response capabilities and to familiarize personnel with plan objectives.

- <u>Response</u> is the activity occurring during and immediately following an emergency. During this phase, corporate response teams are dispatched to the affected area to assist in the coordination of recovery efforts.

- <u>Recovery</u> is the final phase of the disaster preparedness planning process. Recovery continues until all systems return to normal or near normal.

Network Management Control: The Qwest Team has designated space within the Network Management Control complex to become the focal point for all DR operations. The War Room is staffed 24x7x365 until call processing is returned to the pre-disaster level**.** This area is a mini-Network Operations Control Center (NOC), which will handle all issues related to the recovery operation. The NOC will continue normal monitoring of the rest of the network to ensure call processing continues throughout the network.

DR Teams: In the event of a man-made or natural disaster, preplanned DR teams are mobilized. These teams consist of subject matter experts at the corporate, regional, and market levels. If necessary, the DR teams are deployed to the disaster area to assist on a 24-hour basis until call processing is returned to the pre-disaster level.

Individual Market Readiness: Each market performs a risk assessment survey to assist in the mitigation and preparedness process for development of the market's unique DR plan. The disaster preparedness planning team assists individual markets in tailoring the Qwest Team's DR plan to the specific needs and vulnerabilities of the market's location and environment as requested. The risk assessment survey includes the market locations vulnerabilities to natural disasters (severe weather, earthquakes,

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fire) and physical location, entry procedures, security measures, backup power availability, and site directions.

The Qwest Team's DR program includes proactive steps such as developing emergency contact lists including telephone numbers, mutual aid agreements, local vendor information, and state and local official contact numbers. Our disaster representative in each market contacts state and local emergency management officials to ensure access to equipment locations during post-DR operations. In situations where local authorities are restricting access to an area, including our facilities, we have a representative to the National Coordinating Center and have established a process for escalating the access on our behalf.

Market managers maintain portable generators to power base transceiver stations in the event that local commercial power fails. Most provider switch sites are constructed to a building-within-a-building plan to provide additional protection. All switches are provided with battery backup and permanent, on-site generators with a minimum 48 hours of fuel.

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7.1.4.4 Cellular/Personal Communications Services Fraud Prevention and Privacy (L.34.1.7.4(d))

The Qwest Team's goal is to prevent and react quickly to a fraud situation to minimize any exposure and losses. Qwest will alert Agencies to new trends in telecommunications fraud, and provide Agencies with up-to-date strategies for protecting itself against the various forms of telecom fraud.

The Qwest Team employs a state-of-the-art fraud detection system to protect Agencies from fraudulent activity on its account(s). The fraud center proactively and aggressively monitors wireless traffic to ensure Agencies receive the highest level of service. Our detection parameters include elements that may be an indicator of unauthorized usage, such as volume of calling, abnormal number of minutes, and international calling.

An Agency can direct the Qwest Team to establish special handling procedures to perform notification of suspected fraudulent use. Qwest will attempt to verify certain calling activity with the Agencies prior to deactivating.

7.1.4.5 Cellular/Personal Communications Services Policy and Options on Commercial Advertising (L.34.1.7.4(e))

The Qwest Team has installed robust anti-spam gateways that use a multi-step process to detect and block unsolicited bulk email. Incoming SMTP messages from unknown mail servers are first subject to a grey listing policy which has proven very effective in preventing messages from spam solicitors. ███████████████████████████████

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Inbound messages that are scored as spam are quarantined and regularly inspected by our engineers and can be released for delivery if the message is determined to not be spam.

The Qwest Team's policy is to white list and not do content filtering on email originating from our wireless business customers. Legitimate portals such as MSN and Yahoo that regularly send out SMS alerts to subscribers are also white listed. Qwest's anti-spam gateways are flexible enough to allow Agency-specific changes to this policy.

7.1.4.6 Cellular/Personal Communications Services Security and Reliability (L.34.1.7.4(f))

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7.1.4.7 Cellular/Personal Communications Services Number Portability (L.34.1.7.4(g))

The Qwest Team will begin the wireless transition process for each Agency, as we do with all transitions—through detailed advanced planning. Qwest will begin by determining the status of the agreement with the current wireless provider to avoid early cancellation fees. Qwest will stress not to cancel the current agreement or risk losing the number that is to be ported. During planning, Qwest will determine if switching providers will require a new phone. During planning Qwest will need the following key information:

- The phone number to be ported

- Name and address exactly as it appears on the current incumbent service bill

- Current account number with incumbent provider

- The available customer account information

The ability to keep a number is limited to the local service area. This means that the Agency user cannot move to another city and keep the same number.

The request to port numbers can be completed at any time for any number of phones. ▮▮

7.1.4.8 Infrastructure Security Enhancements for Cellular/Personal Communications Services (L.34.1.7.4(h))

EvDO and IP Multi-Media System (IMS) are the two primary technology introductions expected. Initially, EvDO's CDMA technology will provide data authentication and protection that is compatible with almost all

Virtual Private Networks, so Agency traffic can be transmitted without compromising security.

7.1.4.9 Approach to Cellular/Personal Communications Services Network Convergence (L.34.1.7.4(i))

The Qwest Team has many years of experience as a proven provider of convergence technologies and solutions. Agencies can depend on Qwest to safely and smoothly converge voice, data, and video network applications into one integrated communications platform that is scalable and reliable. The Qwest Team's network has the capacity and advanced capabilities to support today's mission-critical applications such as voice services and VoIP, as well as bandwidth-intensive Layer 2 and 3 business applications. For years, our state-of-the-art IP network has been transferring voice, video, and data across the globe for today's leading enterprise businesses.

The Qwest Team's network vision continues to evolve. The Qwest Team is actively working in the Alliance for Telecommunications Industry Solutions (ATIS) Focus Group on Next-Generation Network for Fixed-Mobile Convergence and the IMS architecture. The Team holds the Technology and Operations chair position in ATIS, an ANSI-accredited standards organization. The Qwest Team is actively working with the best-in-class vendors, both nationally and internationally, to provide the best performing, lowest-cost solutions to support a seamless wireline-wireless converged service architecture, as well as optimal bridge solutions between legacy and next generation services.

The Qwest Team works through standards forums to define key interoperability control points. ███████████████████████████

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This transition network solution will enable a seamless wireline-to-wireless

convergence across the multiple access infrastructure elements utilizing a common control plane. The common control plane bridges existing services, with next generation, Internet-enabled, Webcentric services. The Qwest Team is also moving forward with IMS technologies such as the HSS, Session Capability Interaction Manager OSA/Parlay Gateway. These technologies will be used to provide user-centric services that operate across access methods to allow users to receive services at the time and place of their choosing.

7.1.4.10 Approach to Cellular/Personal Communications Service 2.5G-to-3G Migration (L.34.1.7.4(j))

The Qwest Team will continue This enables the Qwest Team to make a smooth transition in a substantially more cost effective and timely manner than our competitors.