5.1.2 CUSTOMER SPECIFIC DESIGN AND ENGINEERING SERVICES (CSDES) (L.34.1.5.1, M.2.1.4)

Qwest's Networx Customer Specific Design and Engineering Services provides systems and applications test facilities domestically and non-domestically and uses time-proven processes for delivery to Agencies.

Qwest will provide skilled, experienced, and dedicated personnel, systems and applications test facilities, and time-proven processes to deliver Customer Specific Design and Engineering Services (CSDES) to Federal Government Agencies. Qwest will provide CSDES technical support that includes, but is not necessarily limited to: requirements engineering and change control; vendor technology analysis, systems, and applications design; vendor products assessments and selection; performance and cost benefits analysis; and systems implementation and testing of network equipment and applications.

Our CSDES support will be available to Agencies domestically and non-domestically, as specified in a Statement of Work (SOW) or Task Order (TO). [redacted]. For consistent quality and depth of our CSDES, Qwest Networx Team members hold and sustain corporate certifications, including International Organization for Standardization (ISO) 9000 and Capability Maturity Model Integration (CMMI) Level 5, and bring to bear expertise in a wide range of leading-edge technologies in networks and networking (for example, optical, wireless, data, and packet; servers; Web hosting; application development; network

operations; and systems management). ***Figure 5.1.2-1*** provides an easy reference to correlate narrative requirements to our proposal response.

Figure 5.1.2-1 Responses to Narrative Mandatory Service Requirements

Req ID	RFP Section	[redacted]
33480	C.2.11.9.1.4 (1) (a)	
33481	C.2.11.9.1.4 (1) (b)	
33482	C.2.11.9.1.4 (1) (c)	
33483	C.2.11.9.1.4 (1) (d)	
33484	C.2.11.9.1.4 (1) (e)	
33485	C.2.11.9.1.4 (1) (f)	
33486	C.2.11.9.1.4 (1) (g)	
33487	C.2.11.9.1.4 (1) (h.)	
33488	C.2.11.9.1.4 (2)	
33489	C.2.11.9.1.4 (2) (a)	
33490	C.2.11.9.1.4 (2) (b)	
33491	C.2.11.9.1.4 (2) (c)	
33492	C.2.11.9.1.4 (2) (d)	
33493	C.2.11.9.1.4 (2) (e)	
33494	C.2.11.9.1.4 (2) (f)	
33495	C.2.11.9.1.4 (2) (g)	
33496	C.2.11.9.1.4 (2) (h)	
33497	C.2.11.9.1.4 (2) (i)	
33498	C.2.11.9.1.4 (3)	
33500	C.2.11.9.1.4 (4)	
33503	C.2.11.9.1.4 (5)	
33504	C.2.11.9.1.4 (5)	
33506	C.2.11.9.1.4 (6) (a)	
33507	C.2.11.9.1.4 (6) (b)	
33508	C.2.11.9.1.4 (6) (c)	
33509	C.2.11.9.1.4 (6) (d)	
33510	C.2.11.9.1.4 (6) (e)	
33511	C.2.11.9.1.4 (7) (a)	
33512	C.2.11.9.1.4 (7) (b)	
33513	C.2.11.9.1.4 (7) (c)	
33514	C.2.11.9.1.4 (7) (d)	

5.1.2.1 Technical Approach to CSDES Delivery (L.34.1.5.1, M.2.1.4 (b))

The Qwest Team approach for delivering CSDES provides skilled personnel and time-tested engineering processes for fulfilling services to Agencies.

5.1.2.1.1 Approach to CSDES Delivery (L.34.1.5.1 (a))

Qwest will respond to and work directly with Agency managers and engineers to review the technical and functional scope of needed CSDES. We will develop design recommendations based on engineering assessments of the defined performance objectives. We will then translate our findings (presented in a report format consistent with Agencies' needs) into tested and

validated solutions ready for Agency approvals and rapid implementation. The duration of this process will vary, depending upon solution scope and complexity.

Throughout the contract lifecycle, our CSDES services will employ industry-certified and time-tested systems engineering processes and standards, as well as employment of Qwest test laboratories. [redacted]

Testing done by the Qwest lab includes performance tests, conformance tests, and regression tests for new equipment as well as existing equipment in the network. Qwest's test environments [redacted]

Qwest test laboratories play a vital role in the design and engineering process. They serve as the conduit between Engineering, Planning, and Operations to ensure that new platforms are fully tested. This includes validation that any new platform, architecture, or technology introduced into

the production network will not disturb normal operations and will not cause any network-wide outages. The Qwest lab collaborates closely with internal and external teams to ensure that all introductions are successful and well supported.

[redacted]

Qwest will respond to Government SOWs by providing a schedule for service delivery and proposals with a range of carefully selected engineering service recommendations that will satisfy required goals. Such CSDES support can be acquired over a range of Networx relevant disciplines as needed by a particular SOW.

[redacted]

Each of these is representative of a subset of the industry standard systems engineering approach that consists [redacted]

[redacted]

[redacted]

The CSDES process may be considered cyclical in that, at some point in time, a deployed system becomes obsolete due to technology advances, new requirements, or other factors. This suggests the need to repeat CSDES processes, thus defining the Systems Engineering (SE) lifecycle of a particular system. There are a number of SE lifecycle models relevant to anticipated CSDES challenges. Recursive lifecycle models are best for design and deployment of new technology. [redacted] depicts the high-level, cyclical nature of SE process with recursive loops to fine-tune the end solution to meet operational requirements.

[redacted]

A key element of the SE lifecycle is the periodic formal reviews of system status; our CSDES proposals will typically suggest such reviews during and subsequent to performance. The exit criteria for the above processes are the formal status reviews with the Agency and the approval to proceed with various phases of a CSDES TO.

Network design validation is a sub-process of the design function, and simulation and testing are functions that support the development of technical specifications and validation of the design. Equipment and applications testing on a live network constitute testing of the developed solution pending formal Government acceptance testing; it represents a sub-function of the integration and test process. Engineering support cuts across all aspects of the SE process.

Network architecture design and implementation involves all aspects of the SE process. Architectures are an output product of the requirements phase of SE. The output of the requirements phase is the network architecture and a top-level network specification, which becomes the input to the design phase. The exit criterion is a formal requirements readiness review and approval. [redacted]

[redacted]

Qwest recognizes that various applicable standards will be specified in the CSDES TO. We will comply with applicable standards throughout the CSDES SOW process. We also recognize that connectivity requirements will be specified in a specific Agency's CSDES SOW. We will develop our solution to fully meet such requirements.

Figure 5.1.2-3 Qwest's CSDES Process with Phases

5.1.2.1.1.1. Requirements Gathering, Definition, and Analysis (Req_ID 33480; C.2.11.9.1.4 (1) (a))

Qwest will work with Agencies to understand the requirements and then translate them into options for network solutions or technologies. These requirements will then be documented with the definitions and alternatives for resolution. [redacted]

[redacted]

5.1.2.1.1.2. Development of Specifications (Req_ID 33481; C.2.11.9.1.4 (1) (b))

Qwest will use the agreed-upon requirements and will work to develop the specifications to meet those requirements. The work could involve hardware/software vendors or could remain internal to Qwest and the Agency if the development is done solely by Qwest. Requirements and specifications from prior projects will be used as much as possible to reduce cycle time and cost.

5.1.2.1.1.3. Development and Evaluation of Alternative Technical Approaches (Req_ID 33482; C.2.11.9.1.4 (1) (c))

Qwest will develop different alternatives for a given set of requirements and specifications. These alternatives will be evaluated based on costs, timelines, impacts to operations, and other criteria as needed. A decision matrix will then be used to select the most feasible option.

5.1.2.1.1.4. Computer Aided Design, Modeling, and/or Simulation (Req_ID 33483; C.2.11.9.1.4 (1) (d))

Part of the evaluation process will include the use of computer aided design (CAD) modeling and/or simulation. Results from any simulation testing may determine the next steps for a project. Results from testing done solely via software may not always be sufficient for evaluation. These simulated results may be augmented with lab testing via physical hardware to yield more complete analysis.

5.1.2.1.1.5. Network Design Recommendations (Req_ID 33484; C.2.11.9.1.4 (1) (e))

Based upon the Agency's requirements, network architecture options, and results of testing (simulated and physical), Qwest will develop recommendations for network design. These recommendations will be based on the decision matrix that includes cost, timelines, impacts to operations, testing results, and other criteria as jointly identified with the Agency. A recommendation review will be conducted with the Agency to validate the analysis, to determine if there are any other factors, and to determine next steps.

These network architecture options will be put into a systems engineering design package. The package will include items such as:

[redacted]

5.1.2.1.1.6. Identification of Cost and Performance Tradeoffs (Req_ID 33485; C.2.11.9.1.4 (1) (f))

Qwest will work with an Agency to ensure that the appropriate costs, performance tradeoffs, operational impacts, deployment issues, and any other pertinent factors are identified. With the in-depth knowledge and experience of our engineers and architects, much of this information has already been documented from prior projects. Leveraging this knowledge base will reduce the time and cost to identify these items.

5.1.2.1.1.7. Feasibility and Capacity Analysis (Req_ID 33486; C.2.11.9.1.4 (1) (g))

Qwest will analyze all architecture and designs for feasibility and cost of enabling the capacity. [redacted]

[redacted]

5.1.2.1.1.8. Preliminary Planning (Req_ID 33487; C.2.11.9.1.4 (1) (h))

[redacted]

5.1.2.1.1.9. Network and Related Systems Design Validation (Req_ID 33488; C.2.11.9.1.4 (2))

Qwest will evaluate designs and proposals using both simulated and physical testing. Network Systems Design Validation consists of several steps:

[redacted]

[redacted]

All of the above, combined with Qwest's multiple lab locations and interconnections, will enable us to quickly validate whether the design or proposal is feasible. In some circumstances, physical testing will need to be performed. With the wide array of equipment in the Qwest test bed, the physical testing will be accommodated with little delay or modification. In addition, Qwest has a well-proven process for integrating new platforms into the testing environments as required.

5.1.2.1.1.10. Assessment of Network Strengths, Weaknesses, and Vulnerabilities (Req_ID 33489; C.2.11.9.1.4 (2) (a))

During the planning phase, Qwest will identify all major components of the network. Based on this analysis, Qwest and the Agency will review the

different options, comparing the options' strengths, weaknesses, and vulnerabilities. After the review, Qwest and the Agency can then make the appropriate decision regarding deployment.

5.1.2.1.1.11. Capacity and Traffic Pattern Analysis on Current and Projected Traffic Loads (Req_ID 33490; C.2.11.9.1.4 (2) (b))

Critical factors in any network design include the volume of traffic and the traffic pattern. Using simulation tools, Qwest will show the Agency the impact of current and future traffic volumes on the design. [redacted] The simulations and tests will verify that the network design is adequately robust and adaptable to the changes in traffic volume.

5.1.2.1.1.12. Recommendations for Network Optimization, Simplification, or Cost Reduction (Req_ID 33492; C.2.11.9.1.4 (2) (d))

Qwest applies a Program Management approach that encompasses all aspects of the lifecycle of a program. This includes understanding the current network design and evaluating all aspects of the network, including Internet design (e.g., routing, IP addressing, and security), circuit design (e.g., physical and logical path, route diversity**,** and network redundancy) as well as all aspects of interoperability with other providers and services, and finally the ability for the network to grow to meet an Agency's expanding requirements. Qwest will respond to direct requests by an Agency to analyze and make suggestions with respect to the optimization (i.e., cost reduction, simplification, robustness). [redacted]

[redacted]

[redacted]

5.1.2.1.1.13. Identification of Critical Applications, Protocols, and Vital Data Impacting the Network (Req_ID 33493; C.2.11.9.1.4 (2) (e))

A network design is not complete without the proper understanding of the applications that are using the network. During the requirements gathering phase, Qwest will work with an Agency to identify all applications, critical and non-critical, that will be using the network. Qwest will recommend the network protocols to use to support these applications. The entire network design will be customized for these applications and the data required for proper operation. Examples include:

[redacted]

[redacted]

5.1.2.1.1.14. Network Discovery and Topology Map (Req_ID 33494; C.2.11.9.1.4 (2) (f))

Qwest will use tools and interviews to determine the network topology for an Agency. Depending on the specific Agency's security levels, Qwest will determine the appropriate mechanism to gather this topological information. [redacted] In addition, Agency network operations personnel will be key contributors to this effort. Once the topology is documented, it will become part of the network design.

5.1.2.1.1.15. Development of Strategies to Improve Reliability, Availability, and Security (Req_ID 33495; C.2.11.9.1.4 (2) (g))

As the network design is being built and continuously evaluated, Qwest will create strategies and action plans to improve the network's reliability and availability. These strategies could involve re-grooming the network facilities, adding new links, or upgrading technology. Qwest will work with the Agency's network team to make sure that the network security is being continuously evaluated and improved upon.

Qwest has performed Agency network analyses, developed strategies, made recommendations, and implemented network improvements to create a more robust infrastructure. [redacted]

Strategies include:

[redacted]

- [redacted] made to improve the availability of these devices.

5.1.2.1.1.16. Development and Validation of Current Infrastructure Drawings and Schematics (Req_ID 33496; C.2.11.9.1.4 (2) (h))

As the network topology map is being created, Qwest will work with the Agency to get the current infrastructure drawing, schematics, and network design. [redacted]

5.1.2.1.1.17. Validation of Service Interoperability with other Networks and Systems (Req_ID 33497; C.2.11.9.1.4 (2) (i))

[redacted]

Qwest regularly leverages our integration and test facilities to perform interoperability testing as well as testing of new features and technologies that may add value to an Agency's network.

5.1.2.1.1.18. Evaluation of Network Technologies Alternatives and Approaches to Meet Agency Requirements (Req_ID 33498; C.2.11.9.1.4 (3))

[redacted]

5.1.2.1.1.19. Modeling and Simulation of Applications and Network Services (Req_ID 33500; C.2.11.9.1.4 (4))

As part of our normal procedures, Qwest will perform testing of applications and services in a simulation of the Agency's environment within the Qwest labs.

5.1.2.1.1.20. Testing for Suitability and Compatibility of New Services (Req_ID 33503; C.2.11.9.1.4 (5))

[redacted]

[redacted]

5.1.2.1.1.21. Operation of New Services According to the Agency's Requirements and Objectives (Req_ID 33504; C.2.11.9.1.4 (5))

The Qwest Networx Services Verification Test Plan will detail the standard test procedures that are used by the Agency to verify that the services delivered under the contract meet the Key Performance Indicator (KPI)/Acceptable Quality Level (AQL) thresholds for the ordered service as specified in Section C.2, *Technical Requirements*, prior to delivering the ordered service to the Agency. [redacted]

Qwest will use standard acceptance testing processes to ensure that requirements are met to the Agency's satisfaction. The Agency will be included as part of the demonstration of the application.

5.1.2.1.1.22. Evaluation of the Impact of New Services upon Agency Networks (Req_ID 33506; C.2.11.9.1.4 (6) (a))

Qwest will evaluate the impact of new services on the networks through network modeling/simulation as well as lab or field trial if needed. Documentation from the tests and trials will ensure that future deployments are successful and sustainable.

5.1.2.1.1.23. Development of Transition Plans (Req_ID 33507; C.2.11.9.1.4 (6) (b))

Qwest's CSDES will provide technical support to facilitate the transition of Agency network services into a sustainable pilot or production service environment on the Agencies' networks. Based upon the requirements of the services ordered and the results of any needed site surveys, Qwest will provide technical support capabilities to facilitate transition [redacted]

Additional technical transition planning will be based upon the complexity of the Agency's project. [redacted]

[redacted]

Qwest's transition planning process and the development of Agency-specific service transition plans are based upon Qwest's Transition Methodology, as shown in [redacted]

After the transition plan is finalized, Qwest will provide the Agency with the completed transition plan, which will include a proposed service topology/architecture, technical solutions, resource requirements, timelines, and deliverables.

[redacted]

5.1.2.1.1.24. Implementation Support (Req_ID 33508; C.2.11.9.1.4 (6) (c))

Qwest provides a dedicated project management/engineering/ operations team to ensure successful implementation. Qwest will provide not only all the technical solutions/resources but also start-to-end technical support to facilitate the transition of services.

[redacted] Various optical and enterprise test equipment is employed to support the test and verification efforts to ensure service is up and operating as planned.

As shown in [redacted] the Qwest Team has clearly defined roles and responsibilities at each level within the organization to ensure success throughout the transition process.

Figure 5.1.2-4. Key Transition Personnel Roles and Responsibilities. *Qwest has clear roles and responsibilities to ensure efficient management of each transition activity.*

Roles	[redacted]
Government Services Leadership Team	[redacted]
Qwest Program Director	[redacted]
Transition Program Manager	[redacted]

Roles	Responsibilities
	[redacted]
Project Managers	[redacted]

5.1.2.1.1.25. Development of Test and Acceptance Plans and Criteria (Req_ID 33509; C.2.11.9.1.4 (6) (d))

Qwest's CSDES will provide technical support to facilitate the transition of Agency network services to a sustainable pilot or production service environment on the Agencies' networks. Based upon the requirements of the services ordered and the specifics of the approved transition plan, Qwest will develop appropriate and comprehensive test and acceptance plans and criteria. Qwest's test plans and acceptance criteria will include modeling and simulation of applications on the new network and thorough testing in a controlled test bed environment or Qwest's production network. The service acceptance plan covers the tests and acceptance criteria necessary to facilitate the transition of an Agency to new services, including user acceptance testing.

Qwest's transition planning process and the development of Agency-specific test and acceptance plans and criteria are an integral part of Qwest's Transition Methodology as shown in *Figure 5.1.2-3a*.

After the transition plan is finalized, Qwest will provide the Agency with the completed transition plan that will include a proposed service topology/architecture, technical solutions, resource requirements, test plans

and acceptance criteria, timelines, and deliverables. Qwest's methodology involves continuous Agency feedback throughout the process.

5.1.2.1.1.26. Installation of Network Hardware and Software (Req_ID 33511; C.2.11.9.1.4 (7) (a))

[redacted]

5.1.2.1.1.27. Configuration of Network Devices (Req_ID 33512; C.2.11.9.1.4 (7) (b))

[redacted]

5.1.2.1.1.28. Installation of On-Premises Cable and Network Drops (Req_ID 33513; C.2.11.9.1.4 (7) (c))

[redacted]

5.1.2.1.1.29. Testing and Acceptance Procedures (Req_ID 33514; C.2.11.9.1.4 (7) (d))

[redacted]

5.1.2.1.2 Benefits of CSDES Technical Approach (L.34.1.5.1 (b))

Figure 5.1.2-5 summarizes the features and benefits of Qwest's CSDES Solution.

Figure 5.1.2-5 Qwest Team CSDES Features. *Qwest delivers CSDES with considerable experience, skills, and processes.*

Features	Benefits	Substantiation
Focused team with single point of contact for each customer	Customer-specific responsiveness	Task order-based service provides direct Agency/provider relationship
Skilled staff with engineering discipline and bench strength for a wide range of IT and telecommunications services	Timely response with the right solution the first time	Contract to deliver on time and on a fixed cost basis
Domain expertise for many Agencies due to many years of experience	Effective solution for the Agency's business mission and practices	More than [redacted] of expertise in SE support to the Federal Government

Among the benefits of our technical approach to CSDES is that it uses the repeatable systems engineering processes that will ensure common service access and delivery, service platform and infrastructure, component framework, and service interface and integration.

Qwest's CSDES are consistent with and support the Federal Enterprise Architecture (FEA) goals, as shown in ***Figure 5.1.2-6***.

Figure 5.1.2-6. Qwest Services Relative to FEA Goals

FEA Goals	The Qwest CSDES
Improve utilization of Government information resources	Use of repeatable processes and disciplines optimizes Government resources.
Enhance cost savings and avoidance	Use of standard and robust Qwest offerings as well as utilization of established test facilities enables the reduction of cost to Agencies.
Increase cross-Agency and inter-Government collaboration	Reuse of work accomplished for one Agency may be employed for another.

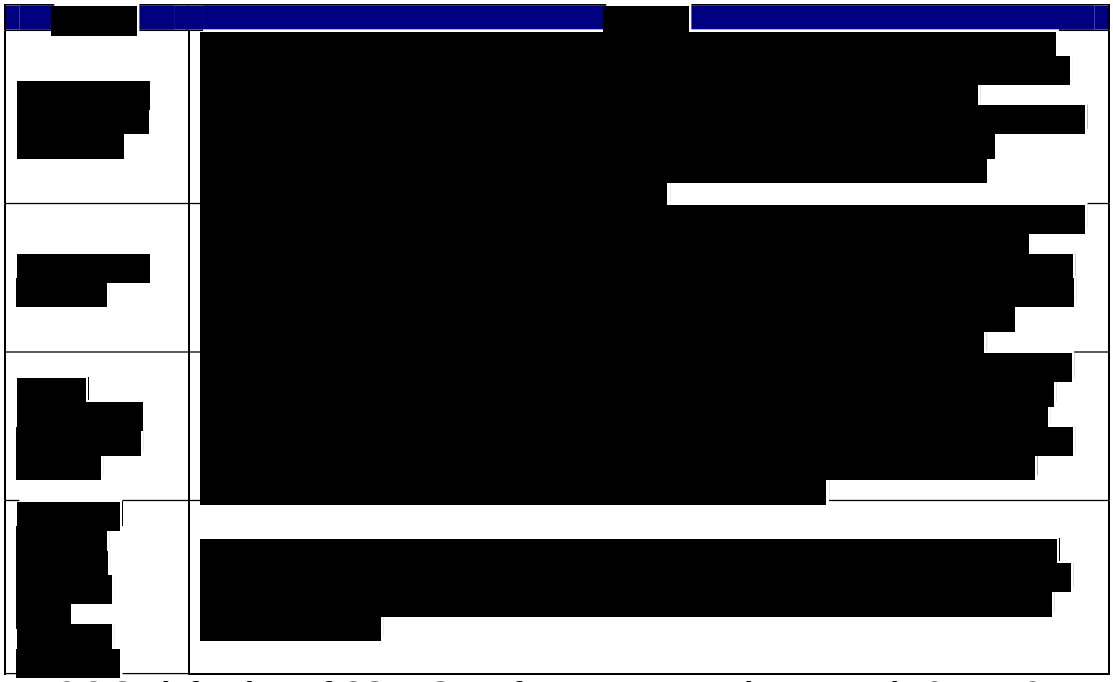
5.1.2.1.3 Solutions to CSDES Problems (L.34.1.5.1 (c))

Agency CSDES requirements vary widely and may include a range of unique network, IT, operations, and security elements. Qwest's Federal business rests on a foundation of successfully completed CSDES programs for Agencies. Qwest's experience in this service environment has led to the creation of an efficient, disciplined, and controlled approach to fulfilling Agency needs.

Qwest's CSDES approach identifies potential problems as early as possible in the program lifecycle and resolves them with the Agency before beginning implementation. A continuous cycle of program status checkpoints and validation of deliverables against documented requirements facilitates

early discovery and remediation of potential difficulties. As soon as the Qwest Team becomes aware of emerging or unanticipated problems, our SOW manager will document and discuss such issues with our CSDES Agency customer to arrive at a solution. These issues and possible resolutions will be discussed per the documented CSDES project plan. Examples of potential problems that may be encountered while fulfilling CSDES requirements are found in the [redacted] with Qwest's methods for resolving them.

Figure 5.1.2-7. Potential Problems and Solutions While Delivering CSDE[redacted]



5.1.2.2 Satisfaction of CSDES Performance Requirements (L.34.1.5.2, M.2.1.4 (c))

The Qwest Team will provide measurable performance metrics by which an Agency will be able to assess the fulfillment of CSDES project requirements.

5.1.2.2.1 CSDES Quality of Service (L.34.1.5.2 (a))

There are no pre-established CSDES performance metrics. Metrics will be established for and be indigenous to a specific SOW. Performance metrics pertaining to a CSDES solution may include assurances of technical and functional compliance and implementation expectations. Such metrics will depend on the service being provided and SOW scope and complexity. Metrics associated with an SOW solution may include such operational or performance factors as network availability, Mean Time to Repair, response time, cost efficiency, requirement modifications, action item resolution, Mean Time Between Failure, throughput, bill accuracy, Quality of Service (QoS) (i.e., latency, packet loss and jitter), and missed due dates.

Each specific performance metric or KPI will define an AQL and a plus and minus range. Throughout a CSDES SOW effort, Qwest corporate standards and processes required by various certifications, such as CMMI, will be followed to ensure optimal quality performance.

5.1.2.2.2 Approach for Monitoring and Measuring CSDES (L.34.1.5.2 (b))

Qwest's CSDES will provide comprehensive measurement and assessment of network performance based upon each Agency's unique requirements to ensure the transition to a sustainable pilot or production service operating on an Agency's network. Qwest's measurement and assessment of network performance will include, but are not limited to, routing, IP addressing, numbering plans, physical/logical redundancy and diversity, network equipment, security, interoperability, and scalability.

Based upon the requirements of the services ordered and the specifics of the approved transition plan, Qwest will develop appropriate and comprehensive performance measurements and assessment plans and criteria.

Qwest's network performance monitoring and measurement procedures allow us to deliver industry-leading network availability and reliability, as well as:

[redacted]

Qwest's transition planning process and the development of Agency-specific test and acceptance plans and criteria are an integral part of Qwest's Transition Methodology, as shown in ***Figure 5.1.2-3a***.

After the transition plan is finalized, Qwest will provide the Agency with the completed transition plan that will include a proposed service topology/architecture, technical solutions, resource requirements, test plans and acceptance criteria, timelines, and deliverables. Qwest's methodology involves continuous Agency feedback throughout the process.

5.1.2.2.2.1 Measurement and Assessment of Network Performance and Availability (Req_ID 33491; C.2.11.9.1.4 (2) (c))

As part of the analysis with the Agency, Qwest will identify metrics and methods for measurement. The performance will be measured before and after deployment. The network design will be modified as needed to gain optimal performance and ensure that all metrics are met.

5.1.2.2.2.2 Measurement and Assessment of Network Performance (*Req_ID* 33510*; C.2.11.9.1.4 (6) (e))*

As part of the transition plans (Agency-Level Transition Plan and Transition Management Plan as defined in Section F.2 of the Networx RFP), from a pilot to general deployment, the Qwest Team will document all

required methods and procedures, create an issues/resolutions list, and perform a comparison analysis of design versus implementation. The analysis will indicate whether the design works as simulated and tested, or whether any issues with the pilot will cause a modification to the network design. Depending on the SOW, the analysis could include measurements such as QoS (for example, latency, jitter, BERT), network availability, capacity, and deployment costs.

5.1.2.2.3 Verification of CSDES (L.34.1.5.2 (c))

Qwest's CSDES policy requires that every SOW will be independently reviewed by each functional group within the Qwest CPO for technical merit, management efficiency, and compliance. This review ensures that the project meets or exceeds the technical, cost, and schedule requirements defined in the SOW. It will be carried out by qualified people independent of the project, and it is the responsibility of the Project Engineer to schedule and staff the reviews. We will tailor the review process and coverage consistent with the CSDES SOW goals to ensure optimum performance. Factors bearing on this review include the relative importance and size of the project; the experience of the project staff; the technical, schedule, and cost risk; and other concerns regarding best possible SOW performance. Such reviews may range from a minimum of two checkpoints (requirements review and design validation, and review of project final report) to the creation of a standing Program Review Board with scheduled meetings and formal reporting.

The Qwest Team's Quality System Manual consists of a statement of policies, organization, and responsibilities as well as volumes of specific guidance in the areas of quality assurance for software, hardware, environmental and energy services, as well as ISO 9000. [redacted] depicts our overall Quality Assurance (QA) approach and relationships to CMMI and ISO 9000 standards.

[redacted]

Qwest Team Quality Plan: When quality standards are applied to a CSDES TO, we will draft a detailed plan to comply with such QA requirements and review them against the Qwest Team's Quality Reviews Policy. [redacted]

[redacted]

Independent Project Quality Assurance Engineer/Manager: This individual will be responsible for implementing and monitoring any CSDES TO-specific QA requirements. [redacted] The basic operating principle is that the Program/Project Manager shall not supervise the TO QA Manager. This individual will report to at least one level higher than the TO leader.

5.1.2.2.4 CSDES Performance Level Improvements (L.34.1.5.2 (d))

The AQLs and KPIs will be established by agreement between the Qwest Team and the Agency, which will further include performance improvement metrics.

5.1.2.2.5 Additional CSDES Performance Metrics (L.34.1.5.2 (e))

The Qwest Team will propose additional performance metrics based on the SOW deliverables and our common approach to systems engineering, project controls, and project management. For every project SOW, process requirements and expectations for the project are documented, metrics are defined, and baselines are established for project management and control in a project-specific QA Plan. The project-specific QA Plan is customizable to the SOW requirements and is readily adaptable to:

[redacted]

[redacted]

The QA Plan is an important tool to ensure project success through the early definition and agreement to all project parameters, such as developing project estimates, developing and maintaining project cost and schedule, and measuring project performance and progress against the SOW requirements. The QA Plan tailors our defined processes and policies to the specific requirements of the SOW and creates a project-specific framework for measuring our approach to:

[redacted]

There are no pre-established CSDES performance metrics, so the Qwest Team will coordinate with the Agency to establish a specific QA Plan for every CSDES SOW. The Qwest Team and the Agency will agree on specific AQLs and KPIs that will be used to measure overall project performance and create a clear definition of project success.

5.1.2.3 Satisfaction of CSDES Specifications (L.34.1.5.3, M.2.1.4 (d))

Qwest will provide highly credible and cost-effective CSDES solutions to Agencies.

5.1.2.3.1 CSDES Service Requirements (L.34.1.5.3 (a))

Qwest will notify any Agency of CSDES SOW service requirements or deliverables that are beyond the scope of our technical, engineering, or

project management capabilities, or that require essential systems assets (or other resources) that the Team cannot readily apply to and use for achieving satisfactory and compliant SOW performance. Under all other conditions surrounding delivery of a CSDES SOW, the Qwest Team's industry-certified systems engineering processes, procedures, standards, and general approach to satisfying SOW requirements will be uniformly applied to SOW goals in a manner fully responsive to satisfying specified requirements including technical, management, delivery, and schedule. Qwest will ensure that delivery of CSDES is according to all the Agency requirements as described in the SOW and will meet within the agreed upon deliverable schedule (C.2.11.9.1.4 (8)).

Further details of how Qwest will satisfy the CSDES technical capabilities included in RFP C.2.11.9.1.4 are provided above in Section 5.1.2.1.1 and its subsections.

5.1.2.3.2 Proposed Enhancements for CSDES (L.34.1.5.3 (b))

[redacted]

5.1.2.3.3 Network Modifications for CSDES Delivery (L.34.1.5.3 (c))

Each CSDES SOW is custom, and network impacts will be assessed on a case-by-case basis. Qwest recognizes the potential for network impacts associated with custom design efforts and will make necessary modifications to support CSDES. Historically, Qwest has succeeded in identifying and managing potential impacts and risks through application of our rigorous requirements and testing methodology.

5.1.2.3.4 Experience Delivering CSDES (L.34.1.5.3 (d))

Delivering CSDES is one of the core competencies the Qwest Team offers Agencies. A prime example of CSDES services currently being

provided is the work being performed [redacted]

that provides a range of CSDES relevant telecommunications support services. These include:

[redacted]