

1 the State of Utah has in the Utah Contract, including the same rights to any
2 indemnity or to recover any costs. By signing and entering into this Agreement, the
3 City certifies that they have obtained all of the acknowledgements and approvals
4 required by state or local law or regulation, and will immediately notify Contractor of
5 any change in its eligibility to purchase under the Utah Contract. Contractor
6 reserves the right to terminate this Agreement if at any time it is determined that the
7 City is not eligible to purchase under the Utah Contract;

8 B. Contractor shall sell, furnish and deliver to the City, mobile
9 devices and cellular and data service plans of substantially the same type and kind
10 purchased under the Utah Contract. And City shall pay for the mobile devices and
11 cellular and data service plans in an annual amount not to exceed, including tax and
12 fees, Eight Hundred Fifty Thousand Dollars (\$850,000), at the rates or charges
13 provided in the Utah Contract. To the extent that the Utah Contract and this
14 Agreement are inconsistent, the following priority shall govern: (1) this Agreement
15 and (2) the Utah Contract.

16 C. Payment for the mobile devices and cellular and data service
17 plans purchased from Contractor by the City shall be made by the City on delivery
18 to and acceptance of the mobile devices and cellular and data service plans by the
19 City and submittal of an invoice to the City. Payment is due thirty (30) days after
20 the date of the invoice.

21 D. The term of this Agreement shall commence at midnight on
22 April 1, 2021, and shall terminate at 11:59 p.m. on August 11, 2024, with the option
23 to renew for as long as the NASPO contract is in effect, at the discretion of the
24 City Manager provided, however, that this Agreement shall not extend beyond the
25 terms of the Utah Contract.

26 E. All warranties shall accrue to the City of Long Beach.

27 2. Neither this Agreement nor any money that becomes due to
28 Contractor under this Agreement may be assigned by Contractor without the prior written

1 consent of the City Manager or his designee which shall not be unreasonably withheld.

2 3. Any notice given under this Agreement shall be in writing and
3 personally delivered or deposited in the U.S. Postal Service, return receipt, and shall be
4 delivered or mailed to Contractor at the relevant address first stated above, and to the City
5 at 411 West Ocean Boulevard, Long Beach, California 90802 Attn: City Manager. Notice
6 shall be deemed given five days after deposit in the mail.

7 4. The terms appearing on the Utah Contract are incorporated in this
8 Agreement.

9 5. Contractor shall cooperate with the City in all matters relating to self-
10 accrual of use tax. Contractor shall contact the City Treasurer for additional information
11 regarding self-accrual.

12 6. This Agreement and all documents which are incorporated by
13 reference in this Agreement constitute the entire understanding between the parties and
14 supersede all other agreements, oral or written, with respect to the subject matter of this
15 Agreement.

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OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
411 West Ocean Boulevard, 9th Floor
Lana Beach, CA 90802-4664

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IN WITNESS WHEREOF, the parties have caused this document to be duly executed with all formalities required by law as of the date first stated above.

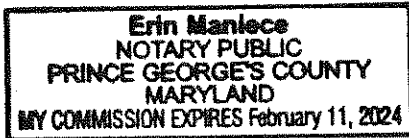
CELLCO PARTNERSHIP DBA VERIZON WIRELESS

_____, 2021

By *Clifton Miller Jr.*
Name Clifton Miller Jr.
Title Director, State & Local Contracting (WLS)
Verizon Business Group

Erin Manlece 6/15, 2021

By _____
Name _____
Title _____



"Contractor"

CITY OF LONG BEACH, a municipal corporation

June 25, 2021

By *Linda J. Takam*
City Manager

"City"

EXECUTED PURSUANT
TO SECTION 301 OF
THE CITY CHARTER

This Agreement is approved as to form on June 24, 2021.

CHARLES PARKIN, City Attorney

By *[Signature]*
Deputy

OFFICE OF THE CITY ATTORNEY
CHARLES PARKIN, City Attorney
411 West Ocean Boulevard, 9th Floor
Lona Beach, CA 90802-4664

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EXHIBIT "A"
Contract No. MA-152-1 ("Utah Contract")



STATE OF UTAH COOPERATIVE CONTRACT

I. CONTRACTING PARTIES: This contract is between the Utah Division of Purchasing and the following Contractor:

Cellco Partnership d/b/a Verizon Wireless

Name

10170 Junction Drive

Street Address

Annapolis Junction

MD

20701

City

State

Zip

Vendor# 94253A Commodity Code#: 72551,91579 Legal Status of Contractor: For-Profit Corporation

Contact Name: Doug Robertson Phone Number: 949-249-8700 Email: doug.robertson@verizonwireless.com

2. CONTRACT PORTFOLIO NAME: NASPO ValuePoint Wireless Data, Voice, and Accessories.

3. GENERAL PURPOSE OF CONTRACT: Wireless Data, Voice, and Accessories.

4. PROCUREMENT: This contract is entered into as a result of the procurement process on FY 2019, Solicitation# CJ 18012

5. CONTRACT PERIOD: Effective Date: Monday, August 12, 2019. Termination Date: Sunday, August 11, 2024 unless terminated early or extended in accordance with the terms and conditions of this contract.

6. Administrative Fee (if any): 0.25% on Corporate/Government Responsible (CRU) accounts and 0.10% on Individual Responsible ORV.

7. Prompt Payment Discount Details (if any): 5 Year contract that may be extended an additional 5 years.

8. ATTACHMENT A: Master Terms and Conditions

ATTACHMENT L: Network Technology Questionnaire

ATTACHMENT B: Scope of Work

ATTACHMENT M: New Product Request Form

ATTACHMENT C: Cost Sheet

ATTACHMENT N: New Product Log

ATTACHMENT G: Plan Description

ATTACHMENTS: Security Disclosures

ATTACHMENT H: Award Category 1 Reporting Template

ATTACHMENT V: Award Category Sheet

ATTACHMENT I: Award Category 2 Reporting Template

ATTACHMENT W: Award Category Sheet

ATTACHMENT J: Award Category 3 Reporting Template

Any conflicts between Attachment A and the other Attachments will be resolved in favor of Attachment A.

9. DOCUMENTS INCORPORATED INTO THIS CONTRACT BY REFERENCE BUT NOT ATTACHED:

a. All other governmental laws, regulations, or actions applicable to the goods and/or services authorized by this contract.

b. Utah Procurement Code, Procurement Rules, and Contractor's response to solicitation #CJ18012.

10. Each signatory below represents that he or she has the requisite authority to enter into this contract.

IN WITNESS WHEREOF, the parties sign and cause this contract to be executed. Notwithstanding verbal or other representations by the parties, the "Effective Date" of this Contract shall be the date provided within Section 5 above.

CONTRACTOR

DIVISION OF PURCHASING

08/09/2019

Contractor's signature

Date

Director, Division of Purchasing

Date

Todd Loccisano, VP - Contract Management

Type or Print Name and Title



Attachment A: NASPO ValuePoint Master Agreement Terms and Conditions

1. Master Agreement Order of Precedence

a. Any Order placed under this Master Agreement shall consist of the following documents:

- (1) A Participating Entity's Participating Addendum ("PA");
- (2) NASPO ValuePoint Master Agreement Terms & Conditions;
- (3) A Purchase Order and/or an attached Specifications or Statement of Work (SOW) for Category 3 of the Solicitation
- (5) Contractor's response to the Solicitation, as revised (if permitted) and accepted by the Lead State.
- (6) The Solicitation, NASPO ValuePoint - Wireless Data, Voice, and Accessories # CJ18012.

b. These documents shall be read to be consistent and complementary. Any conflict among these documents shall be resolved by giving priority to these documents in the order listed above. Contractor terms and conditions that apply to this Master Agreement are only those that are expressly accepted by the Lead State and must be in writing and attached to this Master Agreement as an Exhibit or Attachment.

2. Definitions

Acceptance is defined by the Uniform Commercial Code (UCC) or the applicable state commercial code to the extent required by law. Acceptance shall not occur before the completion of delivery in accordance with the Order, installation if required, and a reasonable time for inspection of the Product.

Contractor means the person or entity delivering Products or performing services under the terms and conditions set forth in this Master Agreement.

Corporate/Government Responsible (CRU) accounts means Products purchased by a Purchasing Entity under this Master Agreement.

Embedded Software means one or more software applications which come preloaded on Equipment by the manufacturer, but does not include SaaS or subscription software subject to a separate license agreement.

Equipment means any device and accessory sold under this Master Agreement.

Intellectual Property means any and all patents, copyrights, service marks, trademarks, trade secrets, trade names, patentable inventions, or other similar proprietary rights, in tangible or intangible form, and all rights, title, and interest therein.

Individual Responsible (IRU) Accounts means purchases made by employees of a Participating State or Purchasing Entity for personal use.

Lead State means the State centrally administering any resulting Master Agreement(s).

Master Agreement means the underlying agreement executed by and between the Lead State and the Contractor, as now or hereafter amended.

NASPO ValuePoint is the cooperative contracting arm of the National Association of State Procurement Officials (NASPO), a non-profit organization formed in 1947 to promote public procurement throughout the country. NASPO ValuePoint facilitates administration of the NASPO cooperative group contracting consortium of state chief procurement officials for the benefit of state departments, institutions, agencies, and political subdivisions and other eligible entities (i.e., colleges, school districts, counties, cities, some nonprofit organizations, etc.) for all states, the District of Columbia, and territories of the United States. NASPO ValuePoint is identified in the Master Agreement as the recipient of reports and the NASPO ValuePoint administrative fee; and may perform contract administration functions relating to collecting and receiving reports and fees, as well as other contract administration functions, as assigned by the Lead State.

NASPO ValuePoint Administrative Fee means the payment based on the amount of CRU and IRU Account gross sales less any discounts, credits, taxes, fees, and shipping. The NASPO Administrative Fee for IRU Accounts shall be calculated based only on Products purchased and receiving a discount under this Master Agreement.

Order or Purchase Order means any written purchase order, sales order, contract or other document used by a Participating Entity or Purchasing Entity to order the Products. Purchase Orders shall not have additional terms and conditions that are not required by law or regulation. Purchase Order terms and conditions that conflict with this Master Agreement or a Participating Addendum will be considered void.

Participating Addendum means a bilateral agreement executed by a Contractor and a Participating Entity incorporating this Master Agreement and any other additional Participating Entity specific language or other requirements, e.g. ordering procedures specific to the Participating Entity, entity-specific terms and conditions, or as mutually agreed upon between the Parties.

Participating Entity means a state, or other legal entity, properly authorized to enter into a

Participating Addendum.

Participating State means a state, the District of Columbia, or one of the territories of the United States that is listed in the Request for Proposal as intending to participate. Upon execution of the Participating Addendum, a Participating State becomes a Participating Entity; however, a state listed in the Request for Proposal is not required to participate.

Product means any Equipment, software (including Embedded Software), software as a service ("SaaS"), documentation, professional services, service or other deliverable supplied or created by the Contractor pursuant to this Master Agreement. The term Products, supplies and services, and products and services are used interchangeably in these terms and conditions.

Purchasing Entity means a state (as well as the District of Columbia and U.S territories), city, county, district, other political subdivision of a State, and a nonprofit organization under the laws of some states, authorized or otherwise eligible to place an order under the terms of this Master Agreement, that issues a Purchase Order against a Participating Addendum and this Master Agreement.

Statement of Work (SOW) means a document that details the work of Category 3 Products and clarifies deliverables, costs, and timelines.

NASPO ValuePoint Program Provisions

3. Term of the Master Agreement

a. The initial term of this Master Agreement is for Five (5) years from the last date of signature of this Master Agreement. This Master Agreement may be extended beyond the original contract period for up to Five (5) additional years at the Lead State's discretion and by mutual agreement and upon review of requirements of Participating Entities, current market conditions, and Contractor performance.

b. The Master Agreement may be extended by mutual agreement for a reasonable period of time in adherence to the Lead State's Procurement Code, if in the judgment of the Lead State a follow-on, competitive procurement will be unavoidably delayed (despite good faith efforts) beyond the planned date of execution of the follow-on master agreement. This subsection shall not be deemed to limit the authority of a Lead State under its state law otherwise to negotiate contract extensions.

4. Amendments

The terms of this Master Agreement shall not be waived, altered, modified, supplemented or amended in any manner whatsoever without prior written agreement of the Lead State and Contractor.

5. Participants and Scope

a. Contractor may not deliver Products under this Master Agreement until a Participating Addendum or other documentation acceptable to the Participating Entity and Contractor is executed. Additional methods of ordering may be utilized if agreed to by the Lead State, NASPO and the Contractor in writing. The NASPO ValuePoint Master Agreement Terms and Conditions are applicable to any Order by a Purchasing Entity, except to the extent altered, modified, supplemented or amended by a Participating Addendum or Statement of Work (or included in a Purchase Order, as expressly required by a Purchasing Entity's laws or regulations). By way of illustration and not limitation, this authority may apply to unique delivery and invoicing requirements, confidentiality requirements, defaults on Orders, governing law and venue relating to Orders by a Participating Entity, indemnification, and insurance requirements. Statutory or constitutional requirements relating to availability of funds may require specific language in some Participating Addenda in order to comply with applicable law. The expectation is that these alterations, modifications, supplements, or amendments will be addressed in the Participating Addendum or, with the consent of the Purchasing Entity and Contractor, may be included in the ordering document (e.g. purchase order or contract) used by a Purchasing Entity to place the Order.

b. Use of specific NASPO ValuePoint cooperative Master Agreements by state agencies and political subdivisions are subject to the approval of the respective State Chief Procurement Official. Other Participating Entities (including cooperatives) authorized by individual state statutes to use state contracts including Native American government tribes and non-profit organizations, may be subject to the approval of the respective State Chief Procurement Official and/or their respective procurement rules. Issues of interpretation and eligibility for participation are solely within the authority of the respective State Chief Procurement Official.

c. Obligations under this Master Agreement are limited to those Participating Entities who have signed a Participating Addendum and Purchasing Entities within the scope of those Participating Addenda. Unless prohibited under law or regulation, States or other entities permitted to participate may use an informal competitive process to determine which Master Agreements to participate in through execution of a Participating Addendum. Financial obligations of Participating Entities who are states are limited to the orders placed by the departments or other state agencies and institutions having available funds. Participating Entities who are states incur no financial obligations on behalf of other Purchasing Entities. Contractor shall email a fully executed PDF copy of each state Participating Addendum to PA@naspovaluepoint.org to support documentation of participation and posting in appropriate NASPO data bases.

e. Participating Addenda shall not be construed to amend the following provisions in this Master Agreement between the Lead State and Contractor that prescribe NASPO ValuePoint Program requirements: Term of the Master Agreement; Amendments to the Master Agreement; Participants and Scope; Administrative Fee; NASPO ValuePoint Summary and Detailed Usage Reports; NASPO ValuePoint Cooperative Program Marketing and Performance Review; Right to Publish; Price and Rate Guarantee Period; and Individual Customers. Any such language shall be

void and of no effect.

f. Participating Entities, which are not states, may under some circumstances sign their own Participating Addendum. To the extent required by NASPO ValuePoint's cooperative purchasing program, or as otherwise may be required by applicable law, Participating Entities may be subject to the consent to participation by the Chief Procurement Official of the state where the Participating Entity is located. Requests for such participation are to be made through NASPO ValuePoint. Any permission to participate through execution of a Participating Addendum or placement of a purchase order, is not a determination that procurement authority exists in the Participating Entity; each entity must ensure that it has the requisite procurement authority to execute a Participating Addendum or to place an order under the Master Agreement.

g. Resale. "Resale" means any payment in exchange for transfer of Products or assignment of the right to services. Subject to any specific conditions included in the solicitation or Contractor's proposal as accepted by the Lead State, or as explicitly permitted in a Participating Addendum, Purchasing Entities may not resell Products. Absent any such condition or explicit permission, this limitation does not prohibit: payments by employees of a Purchasing Entity for Products for official use only; sales of Equipment to the general public or the Purchasing Entity's employees as surplus property in compliance with the Purchasing Entity's Surplus Property Program; and fees associated with inventory transactions with other governmental or nonprofit entities consistent with a Purchasing Entity's applicable laws and regulations, Participating Addendum, Purchase Order and/or User Agreement. Purchasing Entities are responsible for any taxes associated with the resale of surplus property. Any sale or transfer permitted by this subsection must be consistent with license rights granted for use of intellectual property.

If fraud or abuse is discovered (e.g., such as a repeated pattern of purchasing discounted devices with service and disconnecting the service prior to the termination of the order or purchasing an excessive number of accessories compared to the number of active lines on the account), Contractor reserves the right to charge the full retail value for the Equipment and terminate the Participating Addendum and/or Order.

6. Administrative Fees

a. The Contractor shall pay to NASPO ValuePoint, or its assignee, a NASPO ValuePoint Administrative Fee of 0.25% on Corporate/Government Responsible (CRU) accounts and 0.10% on all Individual Responsible (IRU) accounts no later than sixty (60) days following the end of each calendar quarter. The NASPO ValuePoint Administrative Fee shall be submitted quarterly and is based on all sales of products and services for both Corporate/Government Responsible (CRU) and Individual Response (IRU) accounts under the Master Agreement (less any charges for taxes or shipping). The NASPO ValuePoint Administrative Fee is not negotiable.

b. Additionally, some states may require an additional fee be paid directly to the state only on purchases made by Purchasing Entities within that state. For all such requests, the fee level, payment method and schedule for such reports and payments will be incorporated into the

Participating Addendum that is made a part of the Master Agreement. The Contractor may adjust the Master Agreement pricing accordingly for purchases made by Purchasing Entities within the jurisdiction of the state. All such agreements shall not affect the NASPO ValuePoint Administrative Fee percentage or the prices paid by the Purchasing Entities outside the jurisdiction of the state requesting the additional fee.

7. NASPO ValuePoint Summary and Detailed Usage Reports

In addition to reports required by this solicitation or otherwise agreed to by the Parties, the Contractor shall provide the following NASPO ValuePoint reports.

a. Summary Sales Data. The Contractor shall submit quarterly sales reports directly to NASPO ValuePoint using the NASPO ValuePoint Quarterly Sales/Administrative Fee Reporting Tool found at <http://calculator.naspovaluepoint.org>. Any/all sales made under this Master Agreement shall be reported as cumulative totals by state for Government Responsible accounts. A separate report shall be submitted and reported as cumulative totals by state for Individual Responsible (IRU) Accounts. Even if Contractor experiences zero sales during a calendar quarter, a report is still required. Reports shall be due no later than forty-five days (45) days following the end of the calendar quarter (as specified in the reporting tool).

b. Detailed Sales Data. Contractor shall also report detailed sales data using the format provided in Attachments H, I, J and K. Reports are due on a quarterly basis and must be received by the Lead State and NASPO ValuePoint Cooperative Development Team no later than forty-five (45) days after the end of the reporting period. Reports shall be delivered to the Lead State and to the NASPO ValuePoint Cooperative Development Team electronically through a designated portal, email, CD-ROM, flash drive or other method as determined by the Lead State and NASPO ValuePoint. Detailed sales data reports shall include sales information for all sales under this Master Agreement.

c. Reportable sales for the summary sales data report and detailed sales data report includes sales to employees for personal use where authorized by the solicitation and the Participating Addendum. Report data for employees should be limited to ONLY the state and entity that are participating under the authority of (state and agency, city, county, school district, etc.) and the amount of sales. No personal identification numbers, e.g. names, addresses, **social security numbers or any other numerical identifier**, may be submitted with any report.

d. Contractor shall provide NASPO ValuePoint with an executive summary each quarter that includes, at a minimum, a list of states with an active Participating Addendum and states that Contractor is in negotiations with for a NASPO Participating Addendum. NASPO ValuePoint and Contractor will determine the format and content of the executive summary. The executive summary is due forty-five (45) days after the conclusion of each calendar quarter.

e. Timely submission of these reports is a material requirement of the Master Agreement. The

Lead State and NASPO ValuePoint shall have a perpetual, irrevocable, non-exclusive, royalty free, non-transferable right to modify, copy, and otherwise use reports, data and information provided under this section. Any sharing of the data with anyone other than the entities listed in Section f. below requires the Contractor's written authorization.

f. All Participating Entities and Purchasing Entities are deemed to have consented to the release of any required reporting information to the Lead State, their respective Participating State and NASPO ValuePoint (including information generally deemed Customer Proprietary Network Information (CPNI) for purposes of monitoring the contract and calculating the fees that are due and payable to NASPO ValuePoint for administering the contract. Participating Entities and Purchasing Entities have a right to decline to release this information, however, they may not purchase under the Master Agreement if they choose to do so.

8. NASPO ValuePoint Cooperative Program Marketing, Training, and Performance Review

a. Contractor agrees to work cooperatively with NASPO ValuePoint personnel. Under a non-disclosure agreement, Contractor agrees to present plans to NASPO ValuePoint for the management and promotion of the Master Agreement.

b. Contractor agrees, absent anything to the contrary outlined in a Participating Addendum, to consider a Purchasing Entity's proposed terms and conditions, as deemed important to the Purchasing Entity, for possible inclusion into the customer agreement. Contractor will ensure that their sales force is aware of this contracting option.

c. Contractor agrees to participate in an annual contract performance review at a location selected by the Lead State and NASPO ValuePoint, which may include a discussion of marketing action plans, target strategies, marketing materials, as well as Contractor reporting and timeliness of payment of administration fees.

d. Contractor acknowledges that the NASPO ValuePoint logos may not be used by Contractor in sales and marketing until a logo use agreement is executed with NASPO ValuePoint.

e. The Lead State expects to evaluate the utilization of the Master Agreement at the annual performance review. Lead State may, in its discretion, cancel the Master Agreement pursuant to section 28 herein, or not exercise an option to renew, when Contractor utilization does not warrant further administration of the Master Agreement. The Lead State may exercise its right to not renew the Master Agreement if vendor fails to record or report revenue for three consecutive quarters, upon 60-calendar day written notice to the Contractor. Cancellation based on nonuse or under-utilization will not occur sooner than one year after award (or execution if later) of the Master Agreement. This subsection does not limit the discretionary right of either the Lead State or Contractor to cancel the Master Agreement pursuant to section 28 herein or to terminate for default pursuant to section 30 herein.

f. Contractor agrees to notify the Lead State and NASPO ValuePoint of any contractual most-favored-customer provisions in any Cooperative Purchasing Agreements that may affect the promotion of this Master Agreements or whose terms provide for adjustments to future rates or pricing based on rates, pricing in, or Orders from this master agreement. Upon request of the Lead State or NASPO ValuePoint, Contractor shall provide a copy of any such provisions. For the purposes of this paragraph, Cooperative Purchasing Agreement shall mean a cooperative purchasing program facilitating public procurement solicitations and agreements using a lead-agency model. This does not include contracts with any federal agency or any federal contract.

9. Right to Publish

Except for publicly available information, throughout the duration of this Master Agreement, Contractor must secure from the Purchasing Entity and/or Lead State (based on which entity holds the public record) prior approval for the release of information. This limitation does not preclude publication about the award of the Master Agreement or marketing activities. The Contractor shall not make any representations of NASPO ValuePoint's opinion or position as to the quality or effectiveness of the services that are the subject of this Master Agreement without prior written consent. Failure to adhere to this requirement may result in termination of the Master Agreement for cause.

10. Price and Rate Guarantee Period

Contracted prices represent ceiling prices for the supplies and services offered. Bid prices must remain firm for the full term of the Master Agreement. Requests for price increases must include sufficient documentation supporting the request which shall not be effective unless approved by the Lead State in writing. No retroactive adjustments to prices or rates will be allowed.

11. Individual Customers

Except to the extent modified by a Participating Addendum or SOW, each Purchasing Entity shall follow the terms and conditions of the Master Agreement and applicable Participating Addendum and will have the same rights and responsibilities for their purchases as the Lead State has in the Master Agreement, including but not limited to, any indemnity or right to recover any costs as such right is defined in the Master Agreement and applicable Participating Addendum for their purchases. Each Purchasing Entity will be responsible for its own taxes, charges, fees, and liabilities. The Contractor will apply the charges and invoice each Purchasing Entity individually.

Administration of Orders

13. Ordering

- a. The Contractor will have an ordering system that will allow for ordering documents to include the Purchasing Entity's purchase order number, this Master Agreement number or other ordering number.
- b. Purchasing Entities may define entity or project-specific requirements and informally

compete the requirement among companies having a Master Agreement on an "as needed" basis. This procedure may also be used when requirements are aggregated or other firm commitments may be made to achieve reductions in pricing. This procedure may be modified in Participating Addenda and adapted to the Purchasing Entity's rules and policies. The Purchasing Entity may in its sole discretion determine which Master Agreement Contractors should be solicited for a quote. The Purchasing Entity may select the quote that it considers most advantageous, cost and other factors considered.

c. Each Purchasing Entity will identify and utilize its own appropriate purchasing procedure and documentation. Contractor is expected to become familiar with the Purchasing Entities' rules, policies, and procedures regarding the ordering of Products, supplies and/or services contemplated by this Master Agreement.

d. Contractor shall not begin work without a valid Purchase Order or other appropriate commitment document under the law of the Purchasing Entity.

e. All Orders pursuant to this Master Agreement, at a minimum and where applicable, may include the following:

Packing Slip (with shipment)

- Item Summary
 - Product description
 - SKU
 - IMEI
 - ICCID
 - Retail Price
- Line Details
 - Mobile Number
 - User Name
 - Contract Term
- Quantity
- Price
- Subtotal charges
- Ship to Address
- Order Number
- Location Code
- Date order was placed
- Date order was processed
- Ship date
- Package ID

Order Summary Details (Delivered by Email)

- Order Number

- Order Status
- Order Type
- Order Created by
- Order Date
- Ship Date
- Bill to Entity name and address
- Ship to name and address (may enter Purchasing Entity ordering information in text)
- Payment method
- Shipping courier
- Tracking number
- Mobile Number
- Device ID
- SIM ID
- User Name
- Product description
- Quantity
- Plan and feature details
- Total charges

f. All communications concerning administration of Orders placed shall be furnished solely to the authorized purchasing agent within the Purchasing Entity's purchasing office, or to such other individual identified in writing in the Order.

g. Orders must be placed pursuant to this Master Agreement prior to the termination date. Contractor is reminded that financial obligations of Purchasing Entities payable after the current applicable fiscal year are contingent upon agency funds for that purpose being appropriated, budgeted, and otherwise made available.

h. Notwithstanding the expiration, cancellation or termination of this Master Agreement, Contractor agrees to perform in accordance with the terms of any Orders then outstanding at the time of such expiration, cancellation or termination.

14. Shipping and Delivery

- a. All deliveries shall be F.O.B. destination with all transportation and handling charges paid by the Contractor. Responsibility and liability for loss or damage shall remain with the Contractor until final inspection and acceptance, when responsibility shall pass to the Purchasing Entity except as to latent defects, fraud, and Contractor's warranty obligations. Any portion of an order to be shipped without transportation charges that is backordered shall be shipped without charge.
- b. Unless otherwise instructed or not practicable, all deliveries will be "Inside Deliveries" as designated by a representative of the Purchasing Entity placing the Order. Inside Delivery refers to a delivery to other than a loading dock, front lobby, or reception area. Specific

delivery instructions will be noted on the order form. Any damage to the building's interior, scratched walls, damage to the freight elevator, or other damage caused by the Contractor during the delivery of Products purchased under this Master Agreement will be the responsibility of the Contractor. If damage does occur, it is the responsibility of the Contractor to immediately notify the Purchasing Entity placing the Order. The Purchasing Entity shall immediately notify the Contractor of any suspected damage by the Contractor's agent.

- c. All new Products purchased under this Agreement must be delivered in the manufacturer's standard package. Costs shall include all packing and/or crating charges. Cases shall be of durable construction, good condition, properly labeled and suitable in every respect for storage and handling of contents. Each shipping carton shall be marked with the commodity, brand, quantity, item code number.

15. Laws and Regulations

Any and all Products offered and furnished shall comply fully with all applicable Federal and State laws and regulations.

16. Inspection and Acceptance

The inspection and Acceptance section below shall not apply to Category 3 Products from the solicitation. The inspection and Acceptance for Category 3 Products shall be described in a separate exhibit or contractual document and agreed to between the Purchasing Entity and the Contractor.

- a. This section is not intended to limit rights and remedies under the applicable state commercial code or UCC.

b. All Products are subject to inspection at reasonable times and places before Acceptance, which shall not exceed 30 days from the date of delivery. Upon inspection and if the Purchasing Entity finds Products furnished to be incomplete or in non-compliance with bid specifications, the Buyer may reject the Products and require Contractor to correct them without charge. If Contractor is unable or refuses to correct such Products within a reasonable amount of time, the Purchasing Entity may cancel the Order in whole or in part. Nothing in this paragraph shall adversely affect the Buyer's rights including the rights and remedies associated with revocation of acceptance under the applicable state commercial code or UCC. Contractor shall provide prepaid shipping labels for all Products returned under this paragraph.

- c. The warranty period shall begin upon Acceptance.

d. If the Product is not Accepted after inspection, a Purchasing Entity may, at its discretion, reject the Product within the inspection time period described in paragraph b of this section. Upon rejection, the Contractor will have fifteen (15) calendar days to cure. If after the cure period, the Product still has not been Accepted, the Purchasing Entity may, at its option: (a) declare Contractor to be in breach and terminate the Order; (b) demand a similar replacement Product

from Contractor at no additional cost to Purchasing Entity; or, (c) continue the cure period for an additional time period agreed upon by the Purchasing Entity and the Contractor. Contractor shall provide packaging and prepaid shipping labels for Products not Accepted. No charges for Products rejected shall be paid until Acceptance has taken place.

17. Payment

Payment after Acceptance is due within 30 days following the date the Product is delivered or installed, or the date a correct invoice is received, whichever is later, unless otherwise specified within the Order. After 45 days the Contractor may assess overdue account charges up to a maximum rate of one percent per month on the outstanding balance, unless a different late payment amount is specified in a Participating Addendum, Order, or otherwise prescribed by applicable law. Payments will be remitted by mail or electronic funds transfer (EFT). Payments may be made via a State or political subdivision "Purchasing Card" with no additional charge.

18. Warranty

The Warranty section below shall not apply to Category 3 Products from the solicitation. The Warranty for Category 3 Products shall be described in a separate exhibit or contractual document, agreed to between the Purchasing Entity and the Contractor and no less than one (1) year.

Unless specified in any other contract document pursuant to this Master Agreement, this Warranty section governs. The Contractor warrants for a period of one year from Acceptance that: (a) the Product will perform according to all specific claims that the Contractor made in its response to the solicitation, (b) the Product is suitable for the ordinary purposes for which such Product is used, (c) the Product is suitable for any special purposes identified in the solicitation or for which the Purchasing Entity has reasonably relied on the Contractor's skill or judgment, (d) the Product is designed and manufactured in a commercially reasonable manner, and (e) the Product is free of material defects. Upon breach of the warranty, the Contractor will repair or replace (at no charge to the Purchasing Entity, including, packaging and prepaid shipping labels) the Product whose nonconformance is discovered and made known to the Contractor. The rights and remedies of the parties under this warranty are in addition to any other rights and remedies of the parties provided by law or equity, including, without limitation, actual damages, and, as applicable and awarded under the law, to a prevailing party, reasonable attorneys' fees and costs.

19. Title of Product

Upon Acceptance and payment by the Purchasing Entity, Contractor shall convey to Purchasing Entity title to Equipment free and clear of all liens, encumbrances, or other security interests. Transfer of title to the Equipment shall include an irrevocable and perpetual license to use any Embedded Software in Equipment purchased. If Purchasing Entity subsequently transfers title of the Equipment to another entity, Purchasing Entity shall have the right to transfer the license to use the Embedded Software with the transfer of Equipment's title. A subsequent transfer of this Embedded Software shall be at no additional cost or charge to either Purchasing Entity or

Purchasing Entity's transferee.

20. License of Embedded Software

Contractor grants to the Purchasing Entity a non-exclusive, royalty free, perpetual license to use the Embedded Software to achieve the purposes of the Master Agreement.

General Provisions

21. Insurance

a. Unless otherwise agreed in a Participating Addendum, Contractor shall, during the term of this Master Agreement, maintain in full force and effect, the insurance described in this section. Contractor shall acquire such insurance from an insurance carrier or carriers licensed, authorized or permitted to conduct business in each Participating Entity's state and having a rating of A-, Class VII or better, in the most recently published edition of A.M. Best's Insurance Reports. Failure to buy and maintain the required insurance may result in this Master Agreement's termination or, at a Participating Entity's option, result in termination of its Participating Addendum.

b. Coverage shall be written on an occurrence basis. The limits shall be as indicated below:

(1) Commercial General Liability including premises operations, independent contractors, products and completed operations, blanket contractual liability, personal injury), advertising liability bodily injury (including death) and property damage, with a limit of \$1 million per occurrence and \$2 million general aggregate; unless otherwise required by State law.

(2) Workers Compensation in compliance with the statutory requirements of the state(s) of operation and Employers Liability with a limit of \$1 million each accident/disease/policy limit insurance requirements.

c. Contractor shall pay premiums on all insurance policies. Upon receipt of notice from its insurer(s) Contractor shall provide thirty (30) days' prior written notice of cancellation to a Participating Entity.

d. Prior to commencement of performance, Contractor shall provide to the Lead State a certificate of insurance reasonably acceptable to the Lead State that (1) includes the Participating States identified in the Request for Proposal as additional insureds as their interest may appear under this Agreement, (2) the blanket additional insured endorsement, (3) provides that written notice of cancellation shall be delivered in accordance with the policy provisions, and (4) provides that the Contractor's liability insurance policy shall be primary, with any liability insurance of any Participating State as secondary and noncontributory. Unless otherwise agreed in any

Participating Addendum, other state Participating Entities' rights and Contractor's obligations are the same as those specified in the first sentence of this subsection except the endorsement is provided to the applicable state.

e. Contractor shall furnish to the Lead State copies of certificates of all required insurance in a form sufficient to show required coverage within thirty (30) calendar days of the execution of this Master Agreement and prior to performing any work. Copies of renewal certificates of all required insurance shall be furnished within thirty (30) days after any renewal date to the applicable state Participating Entity. Failure to provide evidence of coverage may, at the sole option of the Lead State, or any Participating Entity, result in this Master Agreement's termination or the termination of any Participating Addendum, respectively.

f. Coverage and limits shall not limit Contractor's liability and obligations under this Master Agreement, any Participating Addendum, or any Purchase Order.

22. Records Administration and Audit

a. The Contractor shall maintain books, records, documents, and other evidence pertaining to this Master Agreement and Orders placed by Purchasing Entities under it to the extent and in such detail as shall adequately reflect performance and administration of payments and fees. Contractor shall permit the Lead State to examine, copy and/or transcribe Contractor's books, documents, papers and records directly pertinent to this Master Agreement or Orders placed by a Purchasing Entity under it for the purpose of making audits, examinations, excerpts, and transcriptions to assure compliance with the terms hereof or to evaluate performance hereunder. This right shall survive for a period of five (5) years following termination of this Agreement or final payment for any Order placed by a Purchasing Entity against this Agreement, whichever is later, or such longer period as is required by the Purchasing Entity's state statutes, to assure compliance with the terms hereof or to evaluate performance hereunder.

To the extent required by law, the federal government (including the U.S. Comptroller General), and any other duly authorized agent of a governmental agency may audit, inspect, examine, copy and/or transcribe Contractor's books, documents, papers and records directly pertinent to this Master Agreement or Orders placed by a Purchasing Entity under it for the purpose of making audits, examinations to assure compliance with the terms hereof or to evaluate performance hereunder. This right shall survive for a period of five (5) years following termination of this Agreement or final payment for any Order placed by a Purchasing Entity against this Agreement, whichever is later, or such longer period as is required by the Purchasing Entity's state statutes, to assure compliance with the terms hereof or to evaluate performance hereunder.

b. Upon notification and within a reasonable amount of time and without limiting any other available remedies, the Contractor shall reimburse the Lead State, Participating Entity, or Purchasing Entity for any overpayments inconsistent with the terms of the Master Agreement or Orders; or the Purchasing Entity or NASPO ValuePoint for underpayment of Contractor's Administrative Fees.

c. The rights and obligations herein exist in addition to any quality assurance obligation in the Master Agreement requiring the Contractor to self-audit contract obligations. Contractor agrees to keep and maintain full, true, and complete billing records, books, and documents as are necessary to fully disclose to the Lead State or the United States Government, or their authorized representatives, upon audits or reviews, sufficient information to determine compliance with this Agreement and all state and federal regulations and statutes.

d. Participating Entities' Rights. Contractor will provide each Participating Entity with reasonable access to Contractor's billing records, invoices, and price plan details related to the corresponding Participating Entity's payment and participation in the Master Agreement.

23. Confidentiality, Non-Disclosure, and Injunctive Relief

a. Confidentiality. Contractor acknowledges that it and its employees or agents may, in the course of providing a Product under this Master Agreement, be exposed to or acquire information that is confidential. Any and all information of any form that is marked as confidential, or information which the Contractor believes to be Customer Proprietary Network Information (CPNI) pursuant to federal law (specifically, 47 USC 222(h)), or Personally Identifiable Information (PII) obtained by Contractor or its employees or agents in the performance of this Master Agreement is confidential information of Purchasing Entity ("Confidential Information"). Any reports or other documents or items (including software) that result from the use of the Confidential Information by Contractor shall be treated in the same manner as the Confidential Information. Confidential Information does not include information that (1) is or becomes (other than by disclosure by Contractor) publicly known; (2) is furnished by Purchasing Entity to others without restrictions similar to those imposed by this Master Agreement; (3) is rightfully in Contractor's possession without the obligation of nondisclosure prior to the time of its disclosure under this Master Agreement; (4) is obtained from a source other than Purchasing Entity without the obligation of confidentiality, (5) is disclosed with the written consent of Purchasing Entity or; (6) is independently developed by employees, agents or subcontractors of Contractor who can be shown to have had no access to the Confidential Information.

b. Non-Disclosure. Contractor shall hold Confidential Information in confidence, using at least the industry standard of confidentiality, and shall not copy, reproduce, sell, assign, license, market, transfer or otherwise dispose of, give, or disclose Confidential Information to third parties or use Confidential Information for any purposes whatsoever other than what is necessary to the performance of Orders placed under this Master Agreement. Contractor shall advise each of its employees and agents of their obligations to keep Confidential Information confidential. Contractor shall use commercially reasonable efforts to assist Purchasing Entity in identifying and preventing any unauthorized use or disclosure of any Confidential Information. Without limiting the generality of the foregoing, Contractor will use commercially reasonable efforts to promptly notify the Purchasing Entity, applicable Participating Entity, and the Lead State and assist in investigating and assessing the extent and nature of the unauthorized disclosure. Notification is made based on statutory or contractual requirements. Contractor shall, at its expense to the extent caused by Contractor or their agent, cooperate with Purchasing Entity

in seeking injunctive or other equitable relief in the name of Purchasing Entity or Contractor against any such person. Except as directed by Purchasing Entity, Contractor will not at any time during or after the term of this Master Agreement disclose, directly or indirectly, any Confidential Information to any person, except in accordance with this Master Agreement, and that upon termination of this Master Agreement or at Purchasing Entity's request, Contractor shall turn over to Purchasing Entity, or certify the destruction of, all documents, papers, and other matter in Contractor's possession that embody Confidential Information. Notwithstanding the foregoing, Contractor may keep one copy of such Confidential Information necessary for quality assurance, audits and evidence of the performance of this Master Agreement.

c. Injunctive Relief. Contractor acknowledges that breach of this section, including disclosure of any Confidential Information, will cause irreparable injury to Purchasing Entity that is inadequately compensable in damages. Accordingly, Purchasing Entity may seek and obtain injunctive relief against the breach or threatened breach of the foregoing undertakings, in addition to any other legal remedies that may be available. Contractor acknowledges and agrees that the covenants contained herein are necessary for the protection of the legitimate business interests of Purchasing Entity and are reasonable in scope and content.

d. Purchasing Entity Law. These provisions shall be applicable only to extent they are not in conflict with the applicable public disclosure laws of any Purchasing Entity.

e. The rights granted to Purchasing Entities and Contractor's obligations under this section shall also extend to NASPO ValuePoint's properly marked Confidential Information. To the extent permitted by law, this provision does not apply to disclosure to the Lead State, a Participating State, or any governmental entity exercising an audit, inspection, or examination pursuant to section 22. To the extent permitted by law, Contractor shall notify the Lead State of the identity of any entity seeking access to the Confidential Information described in this subsection.

f. Participating Entities are deemed to have consented to the sharing of CPNI and account information with the Lead State and NASPO ValuePoint as a condition of utilizing this contract with its associated pricing. Said information will only be used for purposes of calculating the administrative fees to which NASPO ValuePoint may be entitled for administering this contract. Where such information is required by any Participating State, which may impose its own administrative fee, such information may also only be used by it for purposes of calculating the administrative fee to which it may be entitled.

24. Public Information

This Master Agreement and all related documents are subject to disclosure pursuant to the Purchasing Entity's public records laws.

25. Assignment/Subcontracts

- a. Contractor shall not assign, sell, transfer, subcontract or sublet rights, or delegate responsibilities under this Master Agreement, in whole or in part, without the prior written approval of the Lead State.
- b. The Lead State reserves the right to assign any rights or duties, including written assignment of contract administration duties to NASPO ValuePoint and another State.

26. Changes in Contractor Representation

The Contractor must notify the Lead State of changes in the Contractor's key administrative personnel (listed in the Contractor's Solicitation response) managing the Master Agreement in writing within 10 calendar days of the change. The Contractor agrees to propose replacement key personnel having substantially equal or better education, training, and experience that was possessed by the key person proposed and evaluated in the Contractor's proposal. Changes in key personnel are subject to the written consent of the Lead State, which shall not be unreasonably withheld.

27. Independent Contractor

The Contractor shall be an independent contractor. Contractor shall have no authorization, express or implied, to bind the Lead State, Participating States, other Participating Entities, or Purchasing Entities to any agreements, settlements, liability or understanding whatsoever, and agrees not to hold itself out as agent except as expressly set forth herein or as expressly agreed in any Participating Addendum.

28. Cancellation

Unless otherwise stated, this Master Agreement may be canceled by either party upon 60 days written notice prior to the effective date of the cancellation. Further, any Participating Entity may cancel its participation upon 30 days written notice, unless otherwise limited or stated in the Participating Addendum. Cancellation may be in whole or in part. Any cancellation under this provision shall not affect the rights and obligations attending orders outstanding at the time of cancellation, including any right of a Purchasing Entity to indemnification by the Contractor, rights of payment for Products delivered and accepted, rights attending any warranty or default in performance in association with any Order, and requirements for records administration and audit. Cancellation of the Master Agreement due to Contractor default may be immediate.

29. Force Majeure

Neither party to this Master Agreement shall be held responsible for delay or default caused by fire, riot, unusually severe weather, other acts of God, or war which are beyond that party's reasonable control. The Lead State may terminate this Master Agreement after determining such delay or default will reasonably prevent successful performance of the Master Agreement.

30. Defaults and Remedies

a. The occurrence of any of the following events shall be an event of default under this Master Agreement:

- (1) Nonperformance of contractual requirements; or
- (2) A breach of any material term or condition of this Master Agreement; or
- (3) Any certification, representation or warranty by Contractor in response to the solicitation or in this Master Agreement that proves to be untrue or materially misleading; or
- (4) Institution of proceedings under any bankruptcy, insolvency, reorganization or similar law, by or against Contractor, or the appointment of a receiver or similar officer for Contractor or any of its property, which is not vacated or fully stayed within thirty (30) calendar days after the institution or occurrence thereof that impairs Contractor's ability to perform under the contract; or
- (5) Any default specified in another section of this Master Agreement.

b. Upon the occurrence of an event of default, the Lead State shall issue a written notice of default, identifying the nature of the default, and providing a period of 15 calendar days in which Contractor shall have an opportunity to cure the default.

Upon the occurrence of an event of default for Category 3 Products, the Lead State shall issue a written notice of default and identify the nature of the default. Contractor shall have sixty (60) days to cure, unless otherwise agreed by the Purchasing Entity and the Contractor in light of the circumstances.

The Lead State shall not be required to provide advance written notice or a cure period and may immediately terminate this Master Agreement in whole or in part if the Lead State, in its sole discretion, determines that it is reasonably necessary to preserve public safety or prevent immediate public crisis. Time allowed for cure shall not diminish or eliminate Contractor's liability for damages.

c. If Contractor is afforded an opportunity to cure and fails to cure the default within the period specified above in Section b, Contractor shall be in breach of its obligations under this Master Agreement and the Lead State shall have the right to exercise any or all of the following remedies:

- (1) Exercise any remedy provided by law;
- (2) Terminate this Master Agreement and any related Orders or portions thereof;
- (3) (Intentionally Omitted);
- (4) Suspend Contractor from being able to respond to future bid solicitations;
- (5) Suspend Contractor's performance; and
- (6) Withhold payment until the default is remedied.

d. Unless otherwise specified in the Participating Addendum, in the event of a default under a Participating Addendum, a Participating Entity shall provide a written notice of default as described in this section and shall have all of the rights and remedies under this paragraph regarding its participation in the Master Agreement, in addition to those set forth in its Participating Addendum. Unless otherwise specified in a Purchase Order, a Purchasing Entity shall provide written notice of default as described in this section and have all of the rights and remedies under this paragraph and any applicable Participating Addendum with respect to an Order placed by the Purchasing Entity. Nothing in these this Master Agreement Terms and Conditions shall be construed to limit the rights and remedies available to a Purchasing Entity under the applicable state commercial code or UCC.

e. In the event a Purchasing Entity is using Products in a way that is prohibited under this Master Agreement, the Contractor shall provide fifteen (15) days written notice to the Purchasing Entity and to the Lead State of the prohibited activity, with specificity, and of its intent to cancel the Order in whole or in part, during which time the Purchasing Entity may cure the prohibited activity. If after fifteen (15) days the Purchasing Entity does not cure the prohibited activity, the Contractor may cancel the Order in whole or in part.

In the event a Purchasing Entity is suspected of using Products or services in a way not contemplated under this Master Agreements and detrimental to the Contractor, the Contractor may suspend any Products affected under this paragraph in whole or in part, entered into as a result of this Master Agreement. Upon suspension, the Contractor shall work with the Lead State, Participating State and Purchasing Entity to reach and document the resolution, including but not limited to Amending the Master Agreement, as may be agreed to by the Contractor and the Lead State.

Further, any Participating State may cancel its participation upon thirty (30) days written notice, unless otherwise limited or stated. Cancellation may be in whole or in party. Any cancellation under this provision shall not affect the rights of any Participating Entity to indemnification by the Contractor, Contractor's rights of payment for goods/services delivered and Accepted, NASPO ValuePoint's rights to payment of Administrative Fees, and each party's rights attending any warranty or default in performance in association with any order.

31. Waiver of Breach

Failure of the Lead State, Participating Entity, or Purchasing Entity to declare a default or enforce any rights and remedies shall not operate as a waiver under this Master Agreement or Participating Addendum. Any waiver by the Lead State, Participating Entity, or Purchasing Entity must be in writing. Waiver by the Lead State or Participating Entity of any default, right or remedy under this Master Agreement or Participating Addendum, or by Purchasing Entity with respect to any Purchase Order, or breach of any terms or requirements of this Master Agreement, a Participating Addendum, or Purchase Order shall not be construed or operate as a waiver of any subsequent default or breach of such term or requirement, or of any other term or requirement under this Master Agreement, Participating Addendum, or Purchase Order.

32. Debarment

The Contractor certifies that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction (contract) by any governmental department or agency. This certification represents a recurring certification made at the time any Order is placed under this Master Agreement. If the Contractor cannot certify this statement, attach a written explanation for review by the Lead State.

33. Indemnification

a. The Contractor shall defend, indemnify and hold harmless NASPO and NASPO ValuePoint, the Lead State, Participating Entities, and Purchasing Entities ("Indemnified Parties"), from and against claims, damages or causes of action including reasonable attorneys' fees and related costs, for any death, injury, or damage to tangible property arising directly from negligent act(s), error(s), or omission(s) or willful misconduct of the Contractor, its employees and agents relating to the performance under the Master Agreement.

b. Indemnification – Intellectual Property. The Contractor shall defend, indemnify and hold harmless Indemnified Party, from and against claims, damages or causes of action by third parties, including reasonable attorneys' fees and related costs, finally awarded or agreed upon in settlement by Contractor arising out of the claim that the Product or its use, infringes Intellectual Property rights ("Intellectual Property Claim") of another person or entity.

Exception. Contractor will not be liable for claims, damages or causes of action by third parties that are directly attributable to the negligent or willful misconduct of the Lead State, Participating Entities, Purchasing Entities, NASPO and/or their respective employees, officers, and agents.

c. Resolution of Claims and/or Termination of Product. With respect to any pending or threatened Intellectual Property Claim, Verizon may in its discretion and at its own expense obtain for Customer the right to continue using the Product, or alternatively replace or modify the Product, so that the replaced or modified Product is non-infringing but materially functionally equivalent. For Category 3 Products, "materially functional equivalent" shall mean the ability for end points and relevant systems in use by Purchasing Entities at the time of the Intellectual Property Claim to continue to interoperate and integrate with the Contractor's SaaS. If achievement of the foregoing is not commercially reasonable, Verizon may, in its sole discretion, terminate the affected Product or remove the affected Product, without liability of either party to the other for such termination, except for Customer's obligation to pay all charges for the affected Product incurred up to the time of such termination, and Verizon's obligation to return to Customer any amounts pre-paid for services which were not rendered.

Exclusive Remedy. Section b. provides the sole remedies Indemnified Party, and the exclusive obligations of Verizon and its Affiliates, in connection with any third party claim, action, suit or other demand asserted against Indemnified Party which asserts infringement or misappropriation of such third party's intellectual property rights or is otherwise described in this Section.

d. Control of Defense- If the Contractor promptly and reasonably investigates and defends any Intellectual Property Claim, it shall have control over the defense and settlement of it; however, the Indemnified Party must consent in writing for any money damages or obligations for which it may be responsible (and such consent shall not be unreasonably withheld).

If the Contractor fails to pursue the defense of the Intellectual Property Claim, the Indemnified Party may assume the defense of it and the Contractor shall be liable for all reasonable costs and expenses, including reasonable attorneys' fees and related costs, incurred by the Indemnified Party in the pursuit of the Intellectual Property Claim.

The Party controlling such defense shall keep the other party advised of the status of such action, suit, proceeding or claim and the defense thereof and shall consider recommendations made by the other party with respect thereto.

Cooperation among the Parties:

The Indemnified Party shall furnish, at the Contractor's reasonable request and expense, information and assistance necessary for Contractor's defense of the action or proceeding.

The Indemnified Party may, at its option and expense, also retain counsel of its choice to participate in any action or proceeding with respect to such Claim; and Contractor and its legal counsel shall cooperate with the Indemnified Party and its legal counsel in providing such information as the Indemnified Party may reasonably request, in support of its defense. For the avoidance of doubt, however, if Contractor has agreed to defend the Claim, it shall have ultimate control over the defense of such Claim.

34. No Waiver of Sovereign Immunity

This section applies to a claim brought against the Participating Entities who are states only to the extent Congress has appropriately abrogated the state's sovereign immunity and is not consent by the state to be sued in federal court. In no event shall this Master Agreement, any Participating Addendum or any contract or any Purchase Order issued hereunder, or any act of the Lead State, a Participating Entity, or a Purchasing Entity be a waiver of any form of defense or immunity, whether sovereign immunity, governmental immunity, immunity based on the Eleventh Amendment to the Constitution of the United States or otherwise, from any claim or from the jurisdiction of any court.

35. Governing Law and Venue

a. The Master Agreement shall be governed by the law of the state serving as Lead State. The construction and effect of any Participating Addendum or Order against the Master Agreement shall be governed by and construed in accordance with the laws of the Participating Entity's or Purchasing Entity's State.

b. Venue for any claim, dispute or action concerning the terms of the Master Agreement shall be in the state serving as Lead State. Venue for any claim, dispute, or action concerning any Order placed against the Master Agreement or the effect of a Participating Addendum shall be in the Purchasing Entity's State.

c. If a claim is brought in a federal forum, then it must be brought and adjudicated solely and exclusively within the United States District Court for (in decreasing order of priority): the Lead State for claims relating to the procurement, evaluation, award, or contract performance or administration if the Lead State is a party; a Participating State if a named party; the state where the Participating Entity or Purchasing Entity is located if either is a named party.

36. Assignment of Antitrust Rights

Contractor irrevocably assigns to a Participating Entity who is a state any claim for relief or cause of action, identified by the Participating Entity, which the Contractor now has or which may accrue to the Contractor in the future by reason of any violation of state or federal antitrust laws (15 U.S.C. § 1-15 or a Participating Entity's state antitrust provisions), as now in effect and as may be amended from time to time, in connection with any goods or services provided in that state for the purpose of carrying out the Contractor's obligations under this Master Agreement or Participating Addendum, including, at the Participating Entity's option, the right to control any such litigation on such claim for relief or cause of action. Breach of this clause will not constitute a breach of, or invalidate any other part, provision or clause of this contract.

37. Contract Provisions for Orders Utilizing Federal Funds

Pursuant to Appendix II to 2 Code of Federal Regulations (CFR) Part 200, Contract Provisions for Non-Federal Entity Contracts Under Federal Awards, Orders funded with federal funds may have additional mandatory contractual requirements or certifications that are applicable to the Contractor and must be agreed to at the time the Order is placed or upon delivery. These federal requirements may be proposed by Participating Entities in Participating Addenda and Purchasing Entities for incorporation in Orders placed under this Master Agreement.

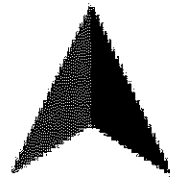
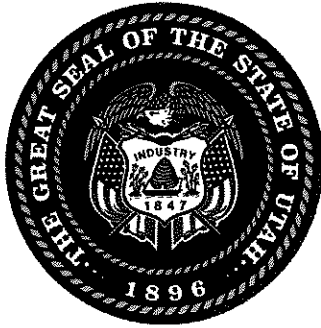
38. Entire Contract and Modification.

This Master Agreement and its integrated attachment(s) constitute the entire agreement of the parties and such are intended as a complete and exclusive statement of the promises, representations, negotiations, discussions, and other agreements that may have been made in connection with the subject matter hereof. The terms of this Master Agreement shall not be

waived, altered, modified, supplemented, or amended in any manner whatsoever without prior written approval of the Lead State.

39. Signatures in Counterpart.

This Master Agreement may be signed in any number of counterparts, each of which shall be an original, but all of which together shall constitute one in the same instrument.



NASPO
ValuePoint

MA152-1

Wireless Data, Voice, and Accessories

Attachment B

Scope of Work

Section 1: General

1.1 Background

The purpose of this Master Agreement is to provide Wireless Data, Voice, and Accessories for all Participating States. The Master Agreement may be used by state governments (including departments, agencies, institutions), institutions of higher education, political subdivisions (i.e., colleges, school districts, counties, cities, etc.), the District of Columbia, territories of the United States, and other eligible entities subject to approval of the individual chief procurement official and compliance with local statutory and regulatory provisions. The initial term of the master agreement shall be 5 (Five) years with renewal provisions for an additional 5 (Five) as outlined in Section 3 of the NASPO ValuePoint Master Terms and Conditions (Attachment A).

1.2 Order of precedence

Per the NASPO ValuePoint Master Terms and Conditions, Participating Addenda (called "PA") will have precedence over the Master Agreement within the participating jurisdiction.

1.3 Green Awards

End users of the Master Agreement may have requirements to purchase products and services that adhere best practices of sustainability and environmental consciousness. Contractor should anticipate addressing these needs as they arise in the Participating Addendum process.

1.4 E-Rate

To the extent the services offered are subject to the E-rate discount program, all award Contract Vendors must commit to participation in the Federal Communication Commission's E-rate discount program established under authority of the Federal Telecommunications Commission Act of 1996. Participation in, and implementation of, this program must be provided without the addition of any service or administration fee by the Contract Vendor.

1.5 Net Neutrality

Recent changes by the Federal Communications Commission in their rules related to the issue of Net Neutrality have increased state's interest in promulgating their own law, rule and policies on this topic. This solicitation will have no requirements related to Net Neutrality for the Master Agreements. It is anticipated, that this issue will be pertinent in the Participating Addendum process. Potential participating entities will be made aware of this consideration by the Lead State in a reasonable fashion.

Section 2: Categories of Award

2.0 Overview of Award Categories

The products and services for this contract are awarded in 3 (three) categories. These categories are:

Category 1- Cellular Wireless Services: This category will cover the basic cellular wireless transport services for voice, data and messaging, as well as any new basic transport services that may be introduced for applications like those defined for Internet of Things (IoT) applications. "Cellular wireless transport" is defined to mean carrier provided wireless services that employ a radio access network based on technologies defined by the Third Generation Partnership Program (3GPP). We are requesting pricing for both traditional cellular plans that include a subsidized mobile device as well as bring your own device (BYOD) plans where the user will supply their own mobile device and require only network service from the carrier.

Category 2- Equipment and Accessories: This category includes any equipment or accessories operating over cellular carrier provided network services or intended for use with cellular connected devices.

Category 3- Turnkey Wireless and IoT Solutions that are offered as a product: This category includes any of the wireless or IoT solutions or applications being offered as a complete product by the cellular wireless carriers or any other Contractor(s).

2.1 Category 1- Cellular Wireless Services

This category will cover the basic cellular wireless transport services for voice, data and messaging, as well as any new basic transport services that may be introduced for applications like those defined for Internet of Things (IoT) applications. "Cellular wireless transport" is defined to mean carrier provided wireless services that employ a radio access network based on technologies defined by the Third Generation Partnership Program (3GPP). We are requesting pricing for both traditional cellular plans that include a subsidized mobile device as well as bring your own device (BYOD) plans where the user will supply their own mobile device and require only network service from the carrier.

This Award Category is for National Award only.

2.1.1 Definitions

3rd Generation Partnership Project (3GPP) The international standards body that covers cellular telecommunications network technologies (<http://www.3gpp.org>).

3G Third generation of wireless mobile telecommunication technology as defined by the 3rd Generation Partnership Project (3GPP).

4G Fourth generation of wireless mobile telecommunication technology as defined by the 3rd Generation Partnership Project (3GPP).

5G Fifth generation of wireless mobile telecommunication technology as defined by the 3rd Generation Partnership Project (3GPP).

Bandwidth Throttling The mechanism a service provider uses to reduce the data network capacity available to a user of its wireless services.

Bandwidth Throttling Threshold In "unlimited" cellular data plans, the data volume at which the carrier begins instituting bandwidth throttling for the balance of the billing period.

Bring Your Own Device (BYOD) Plans where the user will supply their own mobile device and require only network service from the carrier.

Cellular Wireless Carrier: A wireless carrier that owns the majority of its infrastructure and operates a mobile wireless network primarily utilizing standards developed by the 3GPP.

Cellular Voice A wireless voice telephone service offered by the cellular carriers.

Cellular Wireless Carrier-provided wireless services that employs a radio access network based on technologies defined by the 3rd Generation Partnership Program (3GPP).

Coverage Area The geographic area in which a carrier provides service. When located within this area, a subscriber with a compatible device should be able to access usable wireless services on that carrier's network or its partner networks.

FirstNet FirstNet is a government subsidized wireless network specifically designed for the needs of public safety users; access to FirstNet services will be limited to defined categories of users related to public safety. FirstNet was created under the Middle Class Tax Relief and Job Creation Act of 2012.

Individual Responsible (IR) Plan Discount Individual Responsible Accounts (“IRU”) are accounts for products and services between Contractors awarded a contract under this solicitation and individuals who are employees of eligible users of the Master Agreement. IRU accounts are for the personal use of individual employees of eligible end users of the Master Agreement.

Corporate/Government Responsible (CRU) Plan CRU plans are plans that are purchased by end users of the Master Agreement that is awarded from this solicitation.

Land Mobile Radio (LMR) Terrestrial-based, wireless communications systems, generally operating in the frequency range below 1 GHz, and commonly used by emergency responders to support voice and low-speed data communications.

Mission Critical Push-to-Talk (MCPTT) A new standard for public safety PTT systems (starting with 3GPP Rel. 13) that also operates over the cellular carriers’ wireless networks and supports, among other capabilities, the ability for wireless stations to discover and communicate directly with other system users without relaying those transmissions through a cellular base station.

LTE (Long-Term Evolution) A 3GPP standard for high-speed cellular wireless communications.

Mobile Messaging The ability to compose and exchange electronic messages that may include text, audio, video and other symbols between two or more users of mobile phones, tablets or other devices.

Public Safety The functions of government, which ensure the protection of citizens, persons in their territory, organizations, and institutions against threats to their well-being.

Push-to-Talk (PTT) A method of wireless voice communications using a momentary button to switch the wireless device from voice reception mode to transmit mode; in a cellular PTT system, all transmissions are relayed over the carrier’s radio channels and through a server installed in the carrier’s network infrastructure. Transmissions are received by all stations within range of that particular radio channel and are part of that broadcast group.

Quality of Service (QoS) Mechanisms employed in packet switching networks that allows them to prioritize certain classes of traffic over others thereby providing better performance for those preferred classes with regard to transit delay, jitter (variation in transit delay), and packet loss.

Short Message Service (SMS)/Multimedia Messaging Service (MMS) Wireless services offered by the cellular carriers allowing users to exchange short text (SMS) or audio/video files (MMS). These services are differentiated from other messaging services like Apple Messages and WhatsApp by the fact that they are offered by the cellular carriers and are typically charged as a separate item on the service plan along with voice and data.

Subsidized Plan Cellular plans where the carrier will provide a phone, or tablet at a subsidized price.

Wireless The transmitting of signals using radio waves instead of wires.

Wireless Carrier A provider of wireless communications services that owns or controls all the elements necessary to sell and deliver services to an end user including radio spectrum allocation, wireless network infrastructure, back haul infrastructure, billing, customer care, provisioning computer systems and marketing and repair organizations.

Wireless Data A communication service offered by mobile carriers that allows users to access the internet and other data services via its wireless networks using a smartphone, tablet or other cellular-connected mobile device.

Wireless Plan A bundled subscription offering from a cellular carrier providing some combination of services.

Wireless Priority Service (WPS) A government-directed emergency phone service managed by the Department of Homeland Security's Office of Emergency Communications (OEC). Like FirstNet for data services, WPS provides priority network access to wireless voice service (2G or VoLTE) exclusively to defined categories of qualified subscribers.

2.1.2 Subsequent Network Characteristics and Technology

This solicitation covers the addition of new technology and methods that are substantively similar to existing 3G, 4G, and 5G Network characteristics.

2.1.3 Plans

Contractors will define the rate plans to be available under the Master Agreement that results from this solicitation and must provide all details of every plan offered in Attachment G. At a minimum plan details should include the items listed in Attachment G if applicable.

Subsidized Plans

Subsidized plans are those that include a device to connect to the wireless network as a part of the monthly plan cost.

Bring Your Own Device Plans

Bring your own device plans are those that require the user to provide a device for connection to the cellular network or to pay for a device separately from the monthly service plan.

2.1.4 Legacy Plans

Plans covered by the predecessor Master Agreements administered by the State of Nevada (Contract No. 1907)("Legacy Plans") for purchasing entities who are currently enrolled will be included within the scope of the Master Agreements awarded by this solicitation. All Legacy Plans must be described on Attachment G: Plan Coverage Attachment.

Discontinuance of Plans

Contractor will maintain plans if they are being used. Contractor may discontinue any plan or feature that has not had any active subscribers for at least the previous 90 days. Contractor to provide a minimum of 90 days notice to Lead State if a Plan is to be discontinued to end users.

2.1.5 Service Requirements

Designated Sales Point of Contact

Each Master Agreement awarded by this solicitation shall have a designated point of contact for sales purposes.

Designated Customer Service Point of Contact

Each Master Agreement awarded by this solicitation shall have a designated point of contact for Customer Service escalation purposes.

Designated Contract Manager

Each Master Agreement awarded by this solicitation shall have a designated point of contact who manages the contract and may be contacted by administrators of the Master Agreement or PAs.

2.1.6 Pricing Requirements

Subsidized Device Plans

Plans covered by the predecessor Master Agreements administered by the State of Nevada (Contract No. 1907) that offered phones at no cost are to be included by the Master Agreements awarded by this solicitation if the Contractor is awarded under this solicitation. For any new plans offered under this contract, Proposers have the flexibility to include a subsidized phone in the plan cost or to require the user to provide a device or pay for it separately.

Financing

Financing is allowed under the Master Agreement, but may be subject to each PA as some jurisdictions may not allow Financing.

Individual Responsible (IRU) Plan Discount

Pricing Discounts for Individual Responsible plans by public employees are to be stated on the Cost sheet. See Section 5.

Waiver of Service Activation Fees

Service Activations Fees will not be allowed under the Master Agreements that derive from this solicitation.

Number Porting

Carrier must provide wired or wireless number porting to/from the mobile device with no charges or penalty.

Upgrade

Users must be able to upgrade or downgrade their service plan at any time with no limits and no restarting of service line contract terms.

Cancellation Fees

Carrier must provide for any participating entity the ability to cancel at least 25% of the active lines of service under contract (subsidized device) in any given year with no early termination fees or other cancellation fees.

Carrier must not assess any cancellation fee or early termination fee for any lines of service that are provided under a Bring Your Own Device option where subsidized equipment is not included in the monthly rate plan cost.

Activation and Billing

Carrier must not commence billing for a device until completion of an order and activation request is executed by the participating entity representative, the user or another individual designated by the participating entity representative. Specific billing and activation procedures may be refined within Participating Addenda.

Cost Sheet

Contractor must populate the cost sheet Attachment C. The plans identified in Attachment C are to be offered to end users and will be included in Attachment G. Contractor must also indicate a discount for plans available under the master agreement that results from this solicitation., that are not entered into Attachment C.

Plan Description

Contractor must include detailed descriptions of all new rate plans approved by the lead state by fully populating Attachment G with complete details related to each plan and feature offered under this contract.

Presentation

Contractors should propose plans that can be easily understood without complex restrictions and terms. Scoring will reflect the degree of concise and impactful plans – from flexibility and cost perspectives.

2.1.7 Internet of Things (IoT) Services

Data plans related to Internet of Things services are covered by this award category. Please describe your Internet of Things offering as it relates to Attachment L, Network Technology Questionnaire in your proposal.

2.1.8 Public Safety/Wireless Priority Service

2.1.8 PUBLIC SAFETY CATEGORY

The Wireless Services Provider (Contractor) will describe how their proposal if and how they intend to provide an exclusive, dedicated broadband network for public safety communications to public safety entities and first responders.

Contractor will describe if and how they would provide for a dedicated network exclusive for use by emergency response providers such as Federal, State, and local emergency public safety, law enforcement, emergency response, emergency medical (including hospital emergency facilities), and related personnel, agencies, and authorities; including Native American Tribes (Sovereign Nations) or authorized tribal organization and rural communities, unincorporated town or village, or other public entity.

Carriers will describe how their proposed services will have the ability to provide the most comprehensive, reliable coverage and highest priority for emergency communications, such as:

- Broadband LTE network allowing first responders and other public safety personnel to send and receive voice, data, video, images, push-to-talk and text without concerns about network congestion.
- Mobile Devices
- Mobile Device Management, to include Maintenance and Replacement
- Public Safety Applications and Solutions
- Assured Priority and Preemption when needed
- Network Security

Interoperability:

Interoperability is critical to all public safety agencies, therefore; The Wireless Service Provider (the Contractor), will describe how they enable comprehensive public safety broadband interoperability at all levels including the sharing of priority and preemption protocols, applications, and mission critical Push-to-Talk (MCPTT) communications and off-air device to device communications during an emergency situation.

Deployable Access:

The Wireless Service Provider (the Contractor) will describe how they will provide cellular connection in areas where service does not exist or where service fails during emergency circumstances. The Wireless Service Provider will describe how they provide dedicated access to Satellite Cell on Wheels and Portable Emergency Communications.

The Wireless Service Provider (Contractor) will describe additional deployable equipment for dedicated access in areas where service does not exist or where service fails during emergency situations.

Optional Services:

Additional Public Safety Services sold under the NASPO ValuePoint Master Agreement other than the requirements listed, must be properly reviewed and approved by the lead state.

Option to Terminate:

The NASPO ValuePoint Master Agreement is an additional procuring mechanism. The Wireless Service Provider (the Contractor) must agree; if a Public Service Entity chooses to utilize the

NASPO ValuePoint Master Agreement, the procuring agency has the option to terminate their agreement at any time without added fees or penalties for cancellation.

The Lead State may cancel the Public Safety/Wireless Priority Service portion of the Category 1 Scope at any time. If the Lead State chooses to cancel the Public Safety/Wireless Priority Service portion of Category 1 Scope, it will provide contractors with 180 days notice.

No other Terms and Conditions, End User Agreements, or any other terms will be offered with the new product or service unless it is included in the Master Agreement.

2.2 Category 2- Equipment and Accessories

This category includes any equipment or accessories operating over cellular carrier provided network services or intended for use with cellular connected devices.

This Award Category is for National Award only.

2.2.1 Definitions

Accessories Any equipment, component or add-on accessory intended for use with cellular connected devices.

Equipment Any device operating over cellular carrier provided network. Does not include servers, desktops or laptop computing devices.

Cellular Devices Any phones or other equipment used to connect over wireless services offered by cellular carriers (Category 1).

2.2.2 Eligible Equipment and Accessories

Those products eligible as equipment and accessories under this solicitation, currently includes and may be expanded as technology advances:

- Basic Cellular Devices
- Smartphones - iOS, Android, Other
- Stand Alone, Integrated or USB Dongle Cellular Modems
- Wi-Fi/Cellular Routers
- Tablets that are cellular-network connected
- Other equipment with a primary purpose for communicating over the cellular carrier network, currently including:
 - Sensors

- Cellular-enabled Video cameras
- Accessories:
 - Replacement Batteries
 - Cases & related accessories
 - Screen Protectors
 - Chargers
 - Cords / cables
 - Signal Boosters / antennae
 - Headsets and speakers for use with wireless devices

2.2.3 Service Requirements

Condition of Equipment and Accessories

All equipment and accessories provided under this contact must be new, unused and properly functioning when received by participating entity if priced as a new product.

Superseded, used, returned, or reconditioned items will be accepted if labelled as such in the sales order.

Trial Period

Contractor may allow for a designated trial period for testing/evaluating equipment and accessories without additional charges or fees if applicable. Contractor will describe the timeframe for the 'trial period' and procedures for implementing this policy in the sales invoice or purchase order.

Return of Equipment and Accessories

Any equipment or accessories that are not properly functioning when received by the participating entity must be replaced by the contractor with new and properly functioning equipment or accessories within 5 business days of the defective equipment or accessories being reported to the contractor.

Participating entities shall not be responsible for any costs related to the return and/ or replacement of any equipment or accessories that are returned due to quality problems, duplicate shipments or other shipping errors, outdated products or other issues related to non-compliance with terms of this agreement. Contractors must confirm in writing to the end user when returns are received.

Participating entities shall not be assessed restocking fees or any other fees for items trialed and then returned as unacceptable for any reason.

Contractor will allow for equipment and accessory purchases at all retail stores open to the public. Sales personnel at retail stores will be aware of pricing from the Master Agreement that results from this solicitation.

2.2.4 Pricing

Cost Sheet

See Attachment C for details for Award Category 2.

Financing

Financing is allowed under the Master Agreement, but may be subject to each PA as some jurisdictions may not allow Financing.

Individual Responsible (IRU) Plan Discount

Pricing Discounts for equipment and accessories offered to public employees with Individual Responsible plans are to be stated on the Cost sheet (Attachment C). See section 5 for additional details.

Shipping

Contractor if a Carrier must activate service on new equipment within 72 hours of request or shipping.

2.3 Category 3 – Internet of Things and other Turnkey Wireless Applications

This category includes any of the wireless or IoT solutions or applications being offered as a complete product by the cellular wireless carriers or any other Contractor(s).

This Award Category may be for National Award, or Regional Award at the indication of the Contractor in their proposal. Contractors will indicate this preference in Attachment W.

Awards will be made in each individual sub-category of Category 3, not for Category 3 as a whole. An award in one sub-category does not entitle a vendor to offer products or services in any other subcategories for which they were not specifically awarded.

2.3.1 Definitions

Turnkey Wireless Solution For the purposes of this solicitation a Turnkey Wireless Solution is an integrated, on premise or hybrid system that includes three broad elements:

- End Points physical objects (things like sensors, cameras, end point devices, etc.) that contain embedded technology to sense or interact with their internal state or external environment and the ability to communicate with a remote application
- Network Services a wireless communication network providing M2M communication services or some other method of data transport connecting the dedicated physical objects with
- Back Office Systems applications and central or back end systems (servers, software, operating systems, storage, etc.).

2.3.2 Turnkey Wireless Solutions

A Proposal shall fully disclose what is included in the Turnkey Wireless Solutions, including all operational components, training, services, equipment, licenses, third party agreements, any and all fees and performance guarantees.

Products and services offered by carriers/Contractors under Legacy Plans that are now part of Category 3 awards under this solicitation will be part of the contracts that result from this solicitation if the carrier/Contractors has also been awarded under that Category and Sub-category.

For example: MDM products under legacy plans may only be offered under the new Master Agreement if the Contractor is awarded under the MDM subcategory of Category 3 awards.

If an Contractor is not awarded a product under an Award Category 3 subcategory, but has provided a product or service under Legacy Plans, the Contractor may continue to offer the product to end users already under contract. The product may not be offered to new end users unless the Contractor has won award of the subcategory.

Turnkey Wireless Solutions Single Contract The provider offering a Turnkey Wireless Solutions may utilize subcontractors and partners to provide various elements of the system, but the system including all licensing rights will be covered by a single contract between the end user that purchases the system and the provider who is awarded a master agreement for this category of award.

Limited Related Service The provider shall provide support services as needed to install, maintain and enhance the system over the life of the system. These Limited Related Services shall be included in the system pricing. Installation services may be capped in proportion to the project at hand. The Proposal shall describe all related services that are included in the Turnkey Wireless System. The purchasing entity shall have the option to purchase additional services at pricing offered by the proposer and provide an hourly rate related to the project for the Additional Consulting or Integration Services.

Additional Consulting or Integration Services

- a. The purchasing entity shall have the ability to purchase consulting or integration services from the provider.
- b. Consulting Services – In Category 3, “Consulting Service” means planning, assessment and other professional consulting services provided by the Contractor related to the public entities planning, design, assessing, operating or maintaining an IoT solution.
- c. Additional Services – In Category 3, “Integration Service” means the process of making new IoT devices, data, platforms and applications, as well as existing IT assets (for example, business applications, data, mobile, SaaS and legacy systems) work well together in the context of implementing end-to-end IoT business solutions. Integration services are not part of turnkey system or limited related service, but may be acquired from the provider or from a separate integration service provider at the sole discretion of the purchasing entity.

Limited Related Service and Additional Consulting or Integration Services will be billed at an Hourly rate will be included on the Cost Sheet (Attachment C) and will be included in the Master Agreement. The Hourly rate will be a blended rate and will encompass all related cost for these additional services.

2.3.3 Category 3 Subcategories of Award

See Attachment V for Category 3 Subcategory Definitions.

Right to Refresh

This category of master agreements (Turnkey Wireless Solutions) may be reopened and refreshed at the sole discretion of the Lead State at any time. The refresh may allow additional Turnkey Wireless Solutions offering in the broad scope or by specifically identified sub categories. The

Lead State reserves the right to change the methodology for award for all or any subcategories at the time of the refresh/reopen of the solicitation. Awards for Award Category 3 in any refresh solicitation will be given the same contract term as the initial award.

Data Protection

The provider shall:

- a. Specify the best available standards-based encryption technologies and options to protect sensitive data, depending on the particular service model that you intend to provide under this Master Agreement, while in transit or at rest.
- b. Describe whether or not it is willing to sign relevant and applicable agreements that may be necessary to protect data with a Purchasing Entity.
- c. Describe how it will only use data for purposes defined in the Master Agreement, participating addendum, or related service level agreement.
- d. Specify its data disposal procedures, policies and destruction confirmation process

Subcontractors

Providers must explain for each Turnkey Wireless Solutions offered if they intend to provide it directly or through the use of Subcontractors. Any Subcontractor that a Provider chooses to use in fulfilling the requirements of the solicitation must also meet all Administrative, Business and Technical Requirements of the RFP, as applicable to the solutions provided in this category.

- a. Contractor must describe the extent to which it intends to use subcontractors to perform contract requirements. Include each position providing service and provide a detailed description of how the subcontractors are anticipated to be involved under the Master Agreement.
- b. If the subcontractor is known, provide the qualifications of the subcontractor to provide the services; if not, describe how you will guarantee selection of a subcontractor that meets the experience requirements of the RFP.
- c. Include a description of how the Contractor will ensure that all subcontractors and their employees will meet all Statement of Work requirements.

2.3.4 Security For each Turnkey Wireless Solutions proposed include both a security disclosure statement.

Contractors for Award Category 3 must submit answers to Attachment S.

2.3.5 Client Infrastructure Impact and Support

Contractors will be willing to provide a description of the Impact and Support on End User infrastructure upon request Assessment what impacts the Turnkey Wireless application will have on the infrastructure used by purchasing entity, including the client's network, data storage and client owned and operated endpoints before installation. Contractor will at the time of purchase identify any support required by the purchasing entity to support the proposed Turnkey Wireless Solutions.

2.3.6 Client Infrastructure and Support

Unless the purchasing entity waives the requirement, the Contractor shall provide a description of the Impact and Support on the End User infrastructure. This shall include an assessment of impacts the Turnkey Wireless application will have on the infrastructure used by purchasing entity, including the client's network, data storage and client owned and operated endpoints before installation. The description shall also identify any resources required by the purchasing entity to support the proposed Turnkey Wireless Solutions.

2.3.7 Pricing Requirements

Cost Sheet

See Attachment C for details for Award Category 3.

No other Terms and Conditions, End User Agreements, or any other terms will be offered with the new product or service unless it is included in the Master Agreement at formation or by Amendment.

Section 3: Adding New Products and Services

The Lead State anticipates establishing a process for regular communication with contractors and addition of new products and services. Addition of new products will be treated differently based on which category of award covers the product or service.

3.1 General Requirements

The Lead State, along with the sourcing committee of this Solicitation will review and add new products and services to the Master Agreements outlined below. The Lead State reserves the right to modify this process to ensure open, transparent and reasonable review of proposed new products and services.

3.2 New Products added under Award Category 1

For new service plans under Award Category 1, Carriers may add new plans as they become available to end users, so long as the plans are added to Attachment G, Contract Coverage Attachment, at the next quarterly update and therefore incorporated into the Master Agreement. If the new plans are not added to Attachment G at the next quarterly update, they will not be included within the scope of the Master Agreements that result from this solicitation. Once plans are incorporated into the Master Agreement in this manner, they are subject to the termination restrictions in section 2.1.4.

3.3 New Products added under Award Category 2

Contractors may add new products under Award Category 2 at any time as long as they fall within the scope of that award category. The Lead State reserves the right to make the determination of whether a product falls within award category 2.

3.4 New Products added under Award Category 3

For new products under Award Category 3, Contractors must submit a request to the Lead State and sourcing team for consideration using Attachment N. All new products under Award Category 3 will be allowed only through amendment of the Master Agreements that result from this solicitation.

After consultation with the sourcing team, the Lead State may choose to include the new product under the Master Agreements by amendment. The Contractor will provide an updated Attachment G at the next quarterly update for public distribution.

3.4.1 New Product Request Form

The New Product Request form will be submitted to the Lead State to request any new products or services under Award Category 3(See Attachment M).

Proposed additional terms and conditions, end user agreements or related materials to be used with the new product must be included with the New Product Request form to be considered for addition to the Master Agreement. Terms and Conditions for additional products/services may be negotiated by the Lead State before addition.

3.4.2 New Product Request Log

All new added products and services under Award Category 3 will be included on Attachment N, Request Log sheet that will include Lead State recommendations and observations. This log will be included in the contract file and will be available for public view.

3.4.3 Quarterly Amendments

The Lead State expects to conduct quarterly amendments of the Master Agreement to add new products and services under Award Category 3. The Lead State reserves the right to amend, or not amend the Master Agreement at any time.

Terms and Conditions not included in the addition of new products for Award Category 3 will not be part of any agreement with end users. Contractors will present end users only with the Terms and Conditions agreed to by the parties in the Master Agreement Amendment.

3.4.4 Terms and Conditions Compliance with Master Agreement

All Products offered under Award Category 3 shall comply fully with all applicable Federal and State laws and regulations. The Order of Precedence clause in the NASPO ValuePoint Master Agreement Terms and Conditions and/or Participating Addendum will control in the event of any conflict between the NASPO ValuePoint Master Agreement and/or Participating Addendum and the Product Terms and Conditions. Any third-party product provider must agree to the Master Agreement Terms and Conditions.

3.5 Quarterly Call/Meeting

The Lead State expects to have a call with contractors every quarter to discuss the status of the contracts, discuss proposed new products and services, and any other issues that may arise regarding the contract. These calls/meetings will be scheduled at mutually agreed upon times.

3.6 Terms and Conditions Compliance with Master Agreement

Any and all Products offered and furnished under any award category shall comply fully with all applicable Federal and State laws and regulations. The Order of Precedence clause in the NASPO ValuePoint Master Agreement Terms and Conditions and/or Participating Addendum will control in the event of any conflict between the NASPO ValuePoint Master Agreement and/or Participating Addendum and the Product Terms and Conditions. Any third-party product provider must agree to the Master Agreement Terms and Conditions.

Section 4: Individual Responsible Account Discounts

4.1 Individual Responsible Account Definition

Individual Responsible Accounts (“IRU”) are accounts for products and services between Contractors awarded a contract under this solicitation and individuals who are employees of eligible users of the Master Agreement. IRU accounts are for the personal use of individual employees of eligible end users of the Master Agreement. IRU discount offerings are not required by Contractors but are scored as a Technical Scorable Criteria for Award Category 1.

All other plans used under this contract by eligible end users are Government/Corporate Responsible Plans (CRU).45.2 Corporate Responsible Account Definition

Corporate Responsible Accounts (“CRU”) are accounts for end users of the Master Agreement.

4.3 Discount for Individual Responsible Account offerings

Contractors will indicate what, if any discount they allow for IRU accounts under this Master Agreement. This discount is entered in their Costsheets (Attachment C) and be included in the Master Agreement.

Section 5: Reporting

5.1 General Requirements

5.1.1 Reporting shall be provided in the format required by NASPO ValuePoint:

6.1.1.1 Attachment H (Award Category 1)

6.1.1.2 Attachment I (Award Category 2)

6.1.1.3 Attachment J (Award Category 3)

5.1.2 Attachment G: Contract Coverage Attachment

Contractors under the Master Agreement that results from this contract will submit quarterly Attachment G to the Lead State. This attachment is intended to encapsulate the

plans, services and offerings of the contractor. This would include any legacy and current offerings, including the plans entered on Attachment C. (anything that would be covered by the Master Agreement).

For Award Category 1, all legacy plans that have a discount under the Current Nevada Master Agreement must continue the discount to be covered by the Master Agreement that results from this solicitation. All legacy plans that do not have a discount under the Current Nevada Master Agreement may continue to have no discount under the Master Agreement that results from this solicitation

Attachment G must be submitted by Contractors awarded under Award Category 1, Award Category 3 and Award Category 4.

5.1.3 Individual participating entities may request specific equipment sales summaries, which shall be provided at no cost.

Upon request, provide reporting elements and/or management reports related to usage for services that are available and would optimize the participating entity's ability to assess utilization and cost.

Be able to provide custom reports as may be requested by individual participating entities. Describe in general, the level of sophistication and complexity, custom usage report data that you can provide to the participating entities. Vendors should provide a sample report with their proposal.

Upon request, provide subscribers with usage reports which include full itemization of call details (such as the information on the Contractor's standard bill for consumer accounts) to enable verification of usage including: (1) call date, call number call length, call time, and (2) plan cost, per minute charges, overage cost, additional features charges and other fees, etc.

5.2 Quarterly Call/Meeting

Contractors must be available for a quarterly meeting by phone, video conference, or in person to discuss contract concerns, developments and any upcoming additional products or services related to reporting.

5.4 Usage Reports (Other States)

Other States and participating entities may have alternate reporting requirements and will be addressed by their Participating Addendum.

Section 6: Pricing Landing Page

6.1 General

NASPO ValuePoint will develop a pricing landing page (webpage) to display contractor pricing in several key areas on an ongoing basis. It is anticipated that the end users will be able to use this Pricing Landing page as a tool to aid in pricing and negotiating plans and device accessory purchases from all awarded contractors. Contractors are expected to provide certain required fields for the Pricing Landing Page. This Section applies only to Category 1 awards.

6.2 Pricing Landing Page Requirements

6.2.1 General Requirements

The Pricing Landing Page will consist of a webpage to allow for quick reference of plans, equipment, accessories and services offered by contractors. Contractors may update the required fields at their discretion whenever they wish. The fields must be populated by contractors.

6.2.2 for Carriers/Contractors (Awarded under Category 1)

At the onset of the contract, Carriers/Contractors will be required to enter in pricing plans for the following scenarios that are found in Attachment C (Costsheet):

- Plans that include a subsidized device in the monthly rate plan cost
 - Basic phone with unlimited voice and messaging
 - Smartphone - 4 Gig of data, unlimited voice & messaging
 - Smartphone - 300 minutes of voice, unlimited data & messaging
 - Smartphone - unlimited data, voice & messaging
 - data only - low - 150 kb
 - data only - moderate - 4 Gig
 - data only - unlimited data
- Plans that require user to supply the device or pay for it separately
 - Smartphone - 4 Gig of data, unlimited voice & messaging
 - Smartphone - unlimited data, voice & messaging
 - Tablet - 1 Gig of data
 - Tablet - shares data with other devices
 - data only - low - 150 kb
 - data only - moderate - 4 Gig
 - data only - unlimited data

These categories have been identified as representing the rate plans and services that are most commonly purchased by NASPO Participating Entities. The categories may be changed as desired by the contractor by submitting updates to NASPO ValuePoint.

6.3 Pricing Landing Page Features

Pricing information

The Lead state will develop a required reporting based on the 14 scenarios listed in Attachment C for the landing page. The lead state reserves the right to determine requirements.

Disclaimers

Clear disclaimers to end users that all pricing reflects contractors best estimates for hypothetical use cases and does not represent local fees, taxes and potential discounts available at specific locations

Point of Contact Information

Sales, Customer Service and Contract Administration point of contact information for ease of reference

Current Offers

Current Discounts, Offers, and Specials available to end users. This would be done on a national basis. Disclaimers for reasonable variance will be allowed at the discretion of the lead state.

Section 7: Administration of Contracts

7.1 Quarterly Amendment

The Lead State anticipates it will provide for regular quarterly amendments to the Master Agreement if there is a need to add new products or services. (Section 4). The Lead State at its discretion may elect to amend the Master Agreement at any time.

7.2 Quarterly Call

The Lead State and sourcing team intend to hold quarterly calls to facilitate new products/services, discuss the administration of the Master Agreements, and all other applicable aspects of the master agreement.

7.3 Annual Meeting

Contractors must be available for an annual meeting in person to discuss continuing administration of the contract. The Lead State anticipates meeting once a year in person to facilitate more in depth communication. The location of in-person meetings will be in The Salt Lake City area, or elsewhere at the discretion of the Lead State.

7.4 Published Documents

The Lead State intends to publish all new product/service request forms, new product logs, and any sourcing committee recommendations and notes related for reference. End users may use these documents to aid in their purchasing decisions.

MA152-1 Attachment C Costsheet

Award Category 1

Subsidized Device Scenarios					Bring Your Own Device Scenarios					
Scenario	Description rate provides a device along with the rate plan. Pricing is for 1 device/plan as applicable per scenario.	rate (\$ per month)	Usage Weight	Weighted Cost	Scenario	Description assume customer provides own device separately. Pricing is for 1 device/plan as applicable for scenario.	rate	Usage Weight	Weighted Cost	OFFEROR NOTES Describe plan attributes and characteristics per the instructions*.
1	basic phone - unlimited voice & messaging	\$25.00	0.115	\$2.88	8	Smartphone - 4 Gig of data, unlimited voice & messaging	\$30.00	0.01	\$0.25	<p>*monthly rate covers 1 user for network access on a current in stock subsidized basic phone</p> <p>*unlimited voice talk minutes in the U.S.</p> <p>*unlimited messaging from the U.S. to other countries</p> <p>*15GB data allowance, does not rollover.</p> <p>*Data is pooled with non-Legacy data allowance based plans on the account (Basic, Smartphone-4GB, 150KB/4GB-Data Only, and 1GB Tablet)</p> <p>*data overrate rate: \$10/GB</p> <p>*No domestic roaming or domestic long distance charges</p> <p>*Coverage includes the Verizon Wireless network</p>
2	Smartphone - 4 Gig of data, unlimited voice & messaging	\$45.00	0.055	\$2.48	9	Smartphone - unlimited data, voice & messaging	\$35.00	0.01	\$0.30	<p>*monthly rate covers 1 user for network access on a current in stock subsidized Smartphone</p> <p>*unlimited voice talk minutes in the U.S.</p> <p>*unlimited messaging from the U.S. to other countries</p> <p>*4GB of 4G data allowance, does not rollover</p> <p>*Data is pooled with non-Legacy data allowance based plans on the account (Basic, Smartphone-4GB, 150KB/4GB-Data Only, and 1GB Tablet)</p> <p>*mobile hotspot included (utilizes plan's data allowance)</p> <p>*data overrate rate: \$10/GB</p> <p>*No domestic roaming or domestic long distance charges</p> <p>*Coverage includes the Verizon Wireless network</p>
3	Smartphone - 300 minutes of voice, unlimited data & messaging	\$40.00	0.357	\$14.28	10	Tablet - 1 Gig of data	\$15.00	0.01	\$0.15	<p>*monthly rate covers 1 user for network access using a non-subsidized tablet</p> <p>*15GB of 4G data allowance, does not rollover</p> <p>*Data is pooled with non-Legacy data allowance based plans on the account (Basic, Smartphone-4GB, 150KB/4GB-Data Only, and 1GB Tablet)</p> <p>*Mobile hotspot included (utilizes plan's data allowance)</p> <p>*data overrate rate: \$10/GB</p> <p>*No domestic roaming charges</p> <p>*Coverage includes the Verizon Wireless network</p>
4	Smartphone - unlimited data, voice & messaging	\$50.00	0.048	\$2.40	11	Unlimited Data plans on the account (no Throttling) that are used by First Responders	\$39.99	0.01	\$0.00	<p>*monthly rate covers 1 user for network access on a current in stock subsidized Smartphone</p> <p>*unlimited voice talk minutes in the U.S., does not rollover</p> <p>*unlimited messaging from the U.S. to other countries</p> <p>*Unlimited 4G data allowance (Verizon will reduce speeds should 25GB of data usage be reached in the current monthly/bill cycle)</p> <p>*Mobile hotspot included (Verizon will reduce data speeds should 25GB of data usage be reached in the current monthly/bill cycle)</p> <p>*Video applications will stream at 480p</p> <p>*No domestic roaming or domestic long distance charges</p> <p>*Coverage includes the Verizon Wireless network</p>
5	data only - low - 150 kb	\$10.00	0.014	\$0.14	12	data only - low - 150 kb	\$1.00	0.01	\$0.01	<p>*monthly rate covers 1 user for network access on a current in stock subsidized mobile broadband device (e.g. MiFi, aircard, Jetpack)</p> <p>*15GB of 4G data allowance, does not rollover</p> <p>*Data is pooled with non-Legacy data allowance based plans on the account (Basic, Smartphone-4GB, 150KB/4GB-Data Only, and 1GB Tablet)</p> <p>*Mobile hotspot included (utilizes plan's data allowance)</p> <p>*data overrate rate: \$10/GB</p> <p>*No domestic roaming charges</p> <p>*Coverage includes the Verizon Wireless network</p>
6	data only - moderate - 4 Gig	\$30.00	0.04	\$1.20	13	data only - moderate - 4 Gig	\$25.00	0.01	\$0.25	<p>*monthly rate covers 1 user for network access on a current in stock subsidized mobile broadband device (e.g. MiFi, aircard, Jetpack)</p> <p>*4GB of 4G data allowance, does not rollover</p> <p>*Data is pooled with non-Legacy data allowance based plans on the account (Basic, Smartphone-4GB, 150KB/4GB-Data Only, and 1GB Tablet)</p> <p>*Mobile hotspot included (utilizes plan's data allowance)</p> <p>*data overrate rate: \$10/GB</p> <p>*No domestic roaming charges</p> <p>*Coverage includes the Verizon Wireless network</p>
7	data only - unlimited data	\$39.99	0.287	\$11.48	14	data only - unlimited data	\$34.99	0.01	\$0.38	<p>*monthly rate covers 1 user for network access on a current in stock subsidized mobile broadband device (e.g. MiFi, aircard, Jetpack)</p> <p>*Unlimited 4G data allowance (Verizon will reduce speeds should 25GB of data usage be reached in the current monthly/bill cycle)</p> <p>*Mobile hotspot included (Verizon will reduce data speeds should 25GB of data usage be reached in the current monthly/bill cycle)</p> <p>*No domestic roaming charges</p> <p>*Coverage includes the Verizon Wireless network</p>

MA152-1 Wireless Voice, Data and Accessories Attachment C: Costs

Award Category 2 Costsheet

Vendor Name:

Verizon Wireless

Item Number	Item Description	Manufacture/Brand	Model	Price Per Unit	MSRP	Category Percentage off of MSRP (if applicable)	Average Cost
1	Cases	Otter Box	Defender Series for iPhone 6/6s	\$37.49	\$49.99	25.00%	\$28.74
		Otter Box	Commuter Series for iPhone 6/6s	\$26.24	\$34.99	25.00%	
		Inciplio	DualPro for iPhone 8/7/6s/6	\$22.49	\$29.99	25.00%	
2	Screen Protectors	ZAGG	InvisibleShield Glass for iPhone 8/7/6s/6	\$29.99	\$39.99	25.00%	\$22.49
		Verizon	Tempered Glass Protector for IP8/IP7/IP6/IP6s Plus	\$18.74	\$24.99	25.00%	
		Verizon	Hybrid Glass Screen Protector for Samsung Galaxy S7	\$18.74	\$24.99	25.00%	
3	Chargers	Xentris	2.4 Apple Lighting Wall Charger	\$22.49	\$29.99	25.00%	\$24.99
		Xentris	2.4A Micro USB Push Button Travel Charger	\$22.49	\$29.99	25.00%	
		Xentris	USB-C Power Delivery 2.0 Travel Charger	\$29.99	\$39.99	25.00%	
4	Headsets for use with wireless devices	Plantronics	M70 Bluetooth Mono Headset	\$22.49	\$29.99	25.00%	\$19.99
		Skullcandy	ink'd 2.0 in-ear w/mic 1 Black/Black	\$14.99	\$19.99	25.00%	
		Verizon	3.5mm Push To Talk Stereo Headset	\$22.49	\$29.99	25.00%	
5	Speakers for use with wireless devices	JBL	Clip 2 Portable Bluetooth Speaker, Black	\$44.99	\$59.99	25.00%	\$64.99
		Jabra	Freeway Bluetooth In-Car Speakerphone	\$74.99	\$99.99	25.00%	
		JBL	Flip 4 Black	\$74.99	\$99.99	25.00%	
6	Basic Cell Phone			\$0.00			\$0.00
7	Push to Talk Device			\$0.00			\$0.00
8	SmartPhones			\$0.00			\$0.00
9	Tablets			\$0.00			\$0.00
10	Cellular Modems stand alone, integrated or USB			\$0.00			\$0.00
11	MIFI Hot Spots			\$0.00			\$0.00
12	WiFi Cellular Routers			\$0.00			\$0.00
13	IoT Sensors			\$0.00			\$0.00
14	Cellular-enabled video cameras			\$0.00			\$0.00
15	Cords / cables			\$0.00			\$0.00
16	Signal Boosters / Antennas			\$0.00			\$0.00
Total							\$161.20

ILU Discount Offering

Offerors are encouraged to offer an Individual Liable (ILU) Discount defined in Section 5 of the Scope of Work (Attachment B). This information will also be scored as a technical scorable criteria (Attachment E). Please Provide a percentage off, if applicable and include a description of what plans, or part of plans this discount will apply to. This information will become part of any Master Agreement that results from this solicitation.

Description	Percentage Off (%)	What aspects of plans does this discount apply to? Please be specific.
Percentage off discount rate offered to ILU accounts as defined by the Scope of Work	25%	off the retail price of qualifying accessories

MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet

Category 3A: Fleet Management Costsheet

VENDOR Verizon Connect NWF Inc. (Formerly Networkfleet)

Monthly Recurring Cost

Description	minimum quantity of vehicles	monthly fee	total annual cost (qty x fee x 12)	OFFEROR NOTES Describe plan attributes and characteristics per the instructions*
Basic Fleet Management	10	\$29.00	\$3,480.00	The Verizon solution features a GPS-tracking system that provides location and tracking data to help you manage your entire fleet in a new, more efficient manner. Our solution includes wireless fleet management services that improve fleet operating efficiency by reducing fuel consumption, maintenance expenses, insurance costs, fleet size, and vehicle emissions while increasing productivity and levels of service. The solution also includes a number of tools that empower near real-time management of vehicles and drivers to boost your fleet's performance.
	100	\$29.00	\$34,800.00	
	500	\$29.00	\$174,000.00	The proposed solution includes our 5500 series device which is designed to enable the customer to connect with every aspect of their vehicle operations. The 5500 series hardware offers affordable wireless coverage, transmitting vehicle location, performance, diagnostics, and sensor event information for your fleet.
	1000	\$29.00	\$348,000.00	Our solution offers 24/7 visibility into fleet assets, which allows fleet managers to easily locate vehicles in real-time and view specific vehicle data such as current location, mileage, speed, fuel consumption, and diagnostic trouble codes — increasing response time and reducing operating costs. VCN is a universal solution, compatible on all light, medium, and heavy vehicles, and consists of an in-vehicle unit and an online application.
	5000	\$29.00	\$1,740,000.00	The 5000 product line features two different automotive grade hardware devices: The 5500 is compatible with Light and Heavy Duty vehicles with an OBD-II diagnostic link connector (cars and light trucks 1996 and newer) or J1708/J1939 6-pin or 9-pin diagnostic link connector (heavy trucks 1988 and newer).
Total Annual Recurring Cost			\$2,300,280.00	

The monthly fee above is based on the cost of the device and harness divided over 12 months, plus the cost of the subscription service for a 5500 device. VCN does not currently sell the total solution based on a monthly fee. The hardware must be purchased separately up front, and then VCN bills the monthly subscription fee. These individual costs are shown below and should become the pricelist for the solution. Discounts for customers ordering 600 or more devices on the initial order with 12 months of service will be provided with a discount to the current price.

Service Requirements

Description	requirements
Basic Fleet Management	<ul style="list-style-type: none"> *Solution to track, monitor & dispatch vehicles while collecting information on vehicle location & operation *must have option to connect to vehicle's On Board Diagnostic-II (OBD-II) port *Ability to monitor vehicle location *Provide location-based vehicle dispatch support *Collect information on driver performance *Real time and historical reporting via secure, centralized portal *Ability to set up alerts based on customer defined parameters

Installation & Set Up Costs

Description	minimum quantity of vehicles	cost per vehicle	Total Set Up Cost	OFFEROR NOTES Details of Installation and Set Up of customer's instance
Total One Time Cost for Installation, Set Up and Basic System Administrator Training	10	\$65.00	\$650.00	VCN provides training to its customers in various formats: <ul style="list-style-type: none"> • Onsite training • Live Webinar trainings • Links to On-Demand Video trainings • Link to On-Demand Video Tutorial trainings • Unlimited access to User Guides • Product Spec Sheets/Feature Documents • Technical Information/Documentation Pre-Implementation Training: Installation Guides, On-Demand videos and video tutorials are available under the support tab in the Customer's portal
	100	\$65.00	\$6,500.00	
		500	\$65.00	\$32,500.00

	1000	\$65.00	\$65,000.00	\$300.00. Implementation Training: The City's Major Account Manager schedules and provides this training to the City's selected employees.
	5000	\$65.00	\$325,000.00	Post-Implementation Training: Unlimited access to the portal's Installation Support tab. Customers also have access to a professional installation technician. VCN will meet the City's objectives by providing adequate training to ensure that the City's employees are able to install the GPS units and implement the service and allow the City to capture the necessary data from your fleet.
Total Installation and Set Up Cost			\$429,650.00	
Installation & Set Up Requirements				
Description		requirements		
Installation, Set Up and Basic System Administrator Training		*Set up and configuration of customer's instance in provider's hosted environment. *install each device in vehicle and connect to OBD-II		

MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet

Category 3B: Mobile Device Management Costsheet

VENDOR		Verizon Wireless (Solution: IBM MaaS360)		
Monthly Recurring Cost				
Description	minimum quantity of licenses	monthly fee	total annual cost (qty x fee x 12)	OFFEROR NOTES Describe plan attributes and characteristics per the instructions*.
Basic Mobile Device Management cost per device	10	\$2.25	\$270.00	IBM MaaS360 Essential Suite Per Device Unified Endpoint Management (UEM) License : IBM MaaS360 offers a comprehensive, highly secure platform that manages and protects Devices and Things (smartphones, tablets, laptops, desktops,), People and Identity (authentication, authorization, Single Sign On, secure use access), Apps and Content combined with cognitive technology. The Essential License features include: Device Management, App Management, Patch and Update Management, Identity Management, Advisor, Container App, and Mobile Expense Management. * Price shown reflects a discount of 25%.
	100	\$2.25	\$2,700.00	
	500	\$2.25	\$13,500.00	
	1000	\$2.25	\$27,000.00	
Total Annual Recurring Cost			\$43,470.00	

Service Requirements		
Description		requirements
Basic Mobile Device Management		*central control to enroll, configure, secure, monitor and manage all enrolled devices (iOS, Android, Blackberry, Windows) *Ability to configure and update devices over-the-air *Ability to push and update custom apps to devices over-the-air *Enforce security and compliance policies *Secure Mobile Access to corporate resources *Provide Secure Container for corporate apps and data on each device *Ability to remote wipe entire device and / or only apps and data in secure container

Installation & Set Up Costs				
Description	minimum quantity of licenses		Total Set Up Cost	OFFEROR NOTES Details of Installation and Set Up of customer's instance
Total One Time Cost for Installation, Set Up and Basic System Administrator Training	10		\$0.00	No set up or deployment fee, included in license fee
	100		\$0.00	No set up or deployment fee, included in license fee
	500		\$0.00	No set up or deployment fee, included in license fee
	1000		\$0.00	No set up or deployment fee, included in license fee
Total Installation and Set Up Cost			\$0.00	

Installation & Set Up Requirements		
Description		requirements
Installation, Set Up and Basic System Administrator Training		*Set up and configuration of customer's instance in provider's hosted environment. *At least one remote meeting with customer's designated system administrator to complete set up and provide knowledge transfer.

Scorable Cost **\$43,470.00**

**MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet
Category 3B: Mobile Device Management Costsheet**

VENDOR		Verizon Wireless (Solution: Mobile Iron)		
<i>Monthly Recurring Cost</i>				
<i>Description</i>	<i>minimum quantity of licenses</i>	<i>monthly fee</i>	<i>total annual cost (qty x fee x 12)</i>	<i>OFFEROR NOTES</i> Describe plan attributes and characteristics per the instructions*.
Basic Mobile Device Management cost per device	10		\$0.00	A Minimum of 25 Mobile Iron Cloud Licenses are required for initial order/installation.
	100	\$4.50	\$5,400.00	MobileIron Enterprise Mobility Management (EMM) Cloud - Gold Bundle per Device: The MobileIron EMM solution is a mobile security platform that secures data-at-rest on mobile devices, in applications, and in cloud storage, as well as data-in-motion as it moves between corporate networks, devices, and storage repositories. The Gold License features include: Apple DEP, Android for Work, Email Access, Secure Enterprise Gateway, Enterprise App Store / Basic Container (Apps@Work), Content Catalog (50files/25MB each), access/annotate/share corporate documents (Docs@Work), Containerization of Applications at rest (AppConnect), Secure Browser (Web@Work). Price shown reflects a discount of 25%.
	500	\$4.50	\$27,000.00	
	1000	\$4.50	\$54,000.00	
Total Annual Recurring Cost			\$86,400.00	

<i>Service Requirements</i>	
<i>Description</i>	<i>requirements</i>
Basic Mobile Device Management	*central control to enroll, configure, secure, monitor and manage all enrolled devices (iOS, Android, Blackberry, Windows) *Ability to configure and update devices over-the-air *Ability to push and update custom apps to devices over-the-air *Enforce security and compliance policies *Secure Mobile Access to corporate resources *Provide Secure Container for corporate apps and data on each device *Ability to remote wipe entire device and / or only apps and data in secure container

<i>Installation & Set Up Costs</i>				
<i>Description</i>	<i>minimum quantity of licenses</i>		<i>Total Set Up Cost</i>	<i>OFFEROR NOTES</i> Details of Installation and Set Up of customer's Instance
Total One Time Cost for Installation, Set Up and Basic System Administrator Training	10			
	100			
	500	MiCore Gold Installation	\$3,000.00	Cloud installation includes support and maintenance and is a one time set up fee for up to 5,000 devices, and is an optional service.
	1000			
Total Installation and Set Up Cost			\$3,000.00	

<i>Installation & Set Up Requirements</i>	
<i>Description</i>	<i>requirements</i>
Installation, Set Up and Basic System Administrator Training	*Set up and configuration of customer's instance in provider's hosted environment. *At least one remote meeting with customer's designated system administrator to complete set up and provide knowledge transfer.

Scorable Cost **\$89,400.00**

Consultative Hourly Rate (this rate will be included in the contract)	\$0.00
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Category 3C: Mobile Integration Costsheet

VENDOR		Verizon Wireless (Solution: OneTalk)		
Monthly Recurring Cost				
<i>Description</i>	<i>minimum quantity of licenses</i>	<i>monthly fee</i>	<i>total annual cost (qty x fee x 12)</i>	<i>OFFEROR NOTES</i> Describe plan attributes and characteristics per the instructions*.
Basic Mobile Integration cost per device	10	\$25.00	\$3,000.00	One Talk is a business telephone system that combines landline and mobile phone capabilities into a fully integrated mobile and office solution providing a single telephone number with the same mobile and landline features. Feature capability includes: Simultaneous Ring Service, OneTalk Basic Voicemail, 6-way Conference, Anonymous Call Rejection, Automatic Callback, Call Barge, Call Forwarding, Call Hold, Call Move, Call Park & Retrieve, Call Transfer, Call Waiting, Caller ID Blocking, Do Not Disturb, Extension Dialing, Internal Calling ID, Line Sharing, Remote Call Pickup, Text Integrated Messaging, Video Calling. One Talk Price Plan includes 100MB of data: \$10.00. One Talk Primary Mobile Device Number (MDN): \$15.00. Monthly Fee = One Talk Plan (\$10.00) + OneTalk Primary MDN (\$15.00).
	100	\$25.00	\$30,000.00	
	500	\$25.00	\$150,000.00	
	1000	\$25.00	\$300,000.00	
Total Annual Recurring Cost			\$483,000.00	

Service Requirements		
<i>Description</i>		<i>requirements</i>
Basic Mobile Integration		As a minimum, solutions meeting this criteria will provide: <ul style="list-style-type: none"> •Single Number Reach or the ability for a user to be reached at a single business telephone number. •Calls to that single telephone number would ring at both the user's desk phone or mobile device either through simultaneous and/or sequential ringing. • Single Voicemail Box for calls to that single business number.

Installation & Set Up Costs				
<i>Description</i>	<i>minimum quantity of licenses</i>		<i>Total Set Up Cost</i>	<i>OFFEROR NOTES</i> Details of Installation and Set Up of customer's instance
Total One Time Cost for Installation, Set Up and Basic System Administrator Training	10			
	100			
	500			
	1000			
Total Installation and Set Up Cost			\$0.00	

Installation & Set Up Requirements		
<i>Description</i>		<i>requirements</i>
Installation, Set Up and Basic		*Set up and configuration of customer's mobile service with integration to wired service.

Scorable Cost	\$483,000.00
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Consultative Hourly Rate (this rate will be included in the	\$0.00
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MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless (Solution FFM)

	<i>Product Name</i>	<i>Product Description</i>	<i>Characteristics of Product</i>	<i>Percentage Off Discount (X)*</i>	<i>Notes</i>
	Field Force Manager (FFM) Basic	FFM provides a web management application to give you the visibility into what's happening in the field with your business. FFM helps solve business challenges in organizations that have employee on the move.	Features include: <ul style="list-style-type: none"> • Worker Maps • Industry-Smart Setup Wizard • Geofencing • Stop/Travel Reporting • GPS Alerts • Webservice integration APIs • Worker Monitor Alerts • Enhanced Navigation • Location aware time sheets • Mobile Forms (digital) • Integrated Messaging • Simplified Job Dispatch • Job Monitor Alerts • Turn-turn-turn driving Directions (text-based) 	23%	<ul style="list-style-type: none"> • Monthly Access Price \$34.99 • Feature is available for a device with a voice and data package or a data plan • The Percentage Off Discount will be applied to the above listed Monthly Access prices
				0	

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: (Proposed Discount % / Maximum Proposed Discount %) * Total Cost Points Available.

Conservative Hourly Rate (this rate will be included in the contract)	\$0.00
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MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless (Solution FFM)

<i>Product Name</i>	<i>Product Description</i>	<i>Characteristics of Product</i>	<i>Percentage Off Discount (%)*</i>	<i>Notes</i>
Field Force Manager (FFM) Basic	FFM provides a web management application to give you the visibility into what's happening in the field with your business. FFM helps solve business challenges in organizations that have employee on the move.	Features include: <ul style="list-style-type: none"> • Worker Maps • Industry-Smart Setup Wizard • Geofencing • Stop/Travel Reporting • GPS Alerts • Webservice Integration APIs • Worker Monitor Alerts • Enhanced Navigation • Location aware time sheets • Mobile Forms (digital) • Integrated Messaging • Simplified Job Dispatch • Job Monitor Alerts • Turn-turn-turn driving Directions (text-based) 	23%	<ul style="list-style-type: none"> • Monthly Access Price :\$34.99 • Feature is available for a device with a voice and data package or a data plan • The Percentage Off Discount will be applied to the above listed Monthly Access prices

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: [Proposed Discount % / Maximum Proposed Discount %] * Total Cost Points Available.

Consultative Hourly Rate (this rate will be included in the contract)	\$0.00
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MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet

Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless (Solution FFM)

	Product Name	Product Description	Characteristics of Product	Percentage Off Discount [%]*	Notes
	Field Force Manager (FFM) Basic	FFM provides a web management application to give you the visibility into what's happening in the field with your business. FFM helps solve business challenges in organizations that have employees on the move.	Features include: <ul style="list-style-type: none"> • Worker Maps • Industry-Smart Setup Wizard • Geofencing • Stop/Travel Reporting • GPS Alerts • Webservice integration APIs • Worker Monitor Alerts • Enhanced Navigation • Location aware time sheets • Mobile Forms (digital) • Integrated Messaging • Simplified Job Dispatch • Job Monitor Alerts • Turn-turn-turn driving Directions (text-based) 	23%	<ul style="list-style-type: none"> • Monthly Access Price :\$34.99 • Feature is available for a device with a voice and data package or a data plan • The Percentage Off Discount will be applied to the above listed Monthly Access prices
				0	

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: (Proposed Discount % / Maximum Proposed Discount %) * Total Cost Points Available.

Consultative Hourly Rate (this rate will be included in the contract)

\$0.00

MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless

Product Name	Product Description	Characteristics of Product	Percentage Off Discount (%)*	Notes
Intersection Safety Analytics - 1 Intersection	Intersection Safety Analytics with City Hub and Phase Data for 1 Intersection	*Intersection Safety Analytics pricing includes: - 4 Video Node 4K's - 4 City Hubs - Installation - Connectivity, lighting control and Intersection Safety Analytics services over the term of the agreement - Phase data from the traffic controller - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix*	23%	The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change. Intersection Safety Analytics with City Hub includes the following per intersection: - 4 VN4Ks - 4 CHs - Installation of all Video Nodes and City Hubs - Integration of traffic phase data - Wireless connectivity, lighting control, and Intersection safety analytics services over the term of the agreement - Warranty and Break/fix cost covers manufacturer defects only; up to 5 year term - Field Service dispatched if a device is not functional after verification that it is a HW failure (and not caused due to lack of power/non device specific issue)
Intersection Safety Analytics - 5 Intersections	Intersection Safety Analytics with City Hub and Phase Data for 5 Intersections	*Intersection Safety Analytics pricing includes: - 20 Video Node 4K's - 20 City Hubs - Installation - Connectivity, lighting control and Intersection Safety Analytics services over the term of the agreement - Phase data from the traffic controller - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix		Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 24x7 Power Available - LED Luminaries Present with Nema Socket - 1 VN4K per pole - EDI conflict card is already present at the traffic cabinet, additional charges will apply if a new EDI card needs to be installed - Permits and associated fees will exist and are not included - Structural Analysis Excluded - M/WBE requirements excluded - Assumes Mounting on existing and available poles - No traffic control required - Electrical available at pole - Holiday work days excluded - No union labor, no prevailing wage - Base cost assumes 120v electrical - Excludes Service Upgrades - Environmental analysis excluded - Includes shipping in the continental United States
Intersection Safety Analytics - 10 Intersections	Intersection Safety Analytics with City Hub and Phase Data for 10 Intersections	*Intersection Safety Analytics pricing includes: - 40 Video Node 4K's - 40 City Hubs - Installation - Connectivity, lighting control and Intersection Safety Analytics services over the term of the agreement - Phase data from the traffic controller - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix		The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change. Intersection Safety Analytics with City Hub includes the following: - 1 basic intersection - 1 VN4K - 1 CH - Installation of all Video Nodes and City Hubs - Wireless connectivity, lighting control and Intersection Safety Analytics services over the term of the agreement - Warranty and Break/fix covers manufacturer defects only; up to 5 year term - Field Service dispatched if a node is not functional after verification that it is a HW failure (and not caused due to lack of power/non ndoe specific issue)
Intersection Safety Analytics - Basic - 1 Intersection	Intersection Safety Analytics with City Hub for 1 Intersection, no phase data	*Intersection Safety Analytics pricing includes: - 1 Video Node 4K - 1 City Hub - Installation - Connectivity and lighting control services and Intersection Safety Analytics services over the term of the agreement - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix		Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 24x7 Power Available - LED Luminaries Present with Nema Socket - 1 VN4K per pole - Permits and associated fees will exist and are not included - Structural Analysis Excluded - M/WBE requirements excluded - Assumes Mounting on existing and available poles - No traffic control required - Electrical available at pole - Holiday work days excluded - No union labor, no prevailing wage - Base cost assumes 120v electrical - Excludes Service Upgrades
Intelligent Traffic Management - Basic - 5 Int	Intelligent Traffic Management - Basic Plan with 5 Intersections	*Intelligent Traffic Management pricing includes: - Hardware - Installation - Intelligent Traffic Management Service - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix		Pricing does not include taxes or surcharges, if any, and assumes the following applies for ITM Basic: * ITM - Basic Hardware * Does not include any Conflict Monitors, MMUs, or updates to signal controllers. * Permits and associated fees will exist and are not included. * Does not include union or prevailing wages * Does not include off-hours, nights, or other times outside of regular business hours * Holiday work days excluded * Does not include traffic controller fees * Includes shipping in the continental United States
Intelligent Traffic Management - Basic - 10 Int	Intelligent Traffic Management - Basic Plan with 10 Intersections	*Intelligent Traffic Management pricing includes: - Hardware - Installation - Intelligent Traffic Management Service - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix		ITM Basic includes the following Hardware components, per intersection: * Flex Control Enhanced Module with Flex ID * Flex Control Power Supply * APCC Wi-Fi Sniffer with Antenna And Coax Cable * Sierra Wireless Airlink Rv50 Cell Modem * Pole Mounted Cellular Antenna with 100' Coax Cable * Universal Mounting Bracket * Standard Protection of Road Enhance Subkit

	Intelligent Traffic Management - Basic 25 Int	Intelligent Traffic Management - Basic Plan with 25 Intersections	Intelligent Traffic Management pricing includes: - Hardware - Installation - Intelligent Traffic Management Service - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix
	Intelligent Traffic Management - Advanced 5 Int	Intelligent Traffic Management - Advanced Plan with 5 Intersections	Intelligent Traffic Management pricing includes: - Hardware - Installation - Intelligent Traffic Management Service - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix
	Intelligent Traffic Management - Advanced 10 Int	Intelligent Traffic Management - Advanced Plan with 10 Intersections	Intelligent Traffic Management pricing includes: - Hardware - Installation - Intelligent Traffic Management Service - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix
	Intelligent Traffic Management - Advanced Plus - 5 Int	Intelligent Traffic Management - Advanced Plus Plan with 5 Intersections	Intelligent Traffic Management pricing includes: - Hardware - Installation - Intelligent Traffic Management Service - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix
	Intelligent Traffic Management - Advanced Plus - 10 Int	Intelligent Traffic Management - Advanced Plus Plan with 10 Intersections	Intelligent Traffic Management pricing includes: - Hardware - Installation - Intelligent Traffic Management Service - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix
	Traffic Data Services - Real Time Speed 50	Traffic Data Services - Real Time Speed, 50 miles	Pricing includes: - 50 one way miles - TDS Real Time Speed service - Maintenance and support over the term of the contract
	Traffic Data Services - Real Time Speed 100	Traffic Data Services - Real Time Speed, 100 miles	Pricing includes: - 100 one way miles - TDS Real Time Speed service - Maintenance and support over the term of the contract
	Traffic Data Services - Real Time Speed 200	Traffic Data Services - Real Time Speed, 200 miles	Pricing includes: - 200 one way miles - TDS Real Time Speed service - Maintenance and support over the term of the contract
	Traffic Data Services - Historical Speed 50	Traffic Data Services - Historical Speed 50 miles	Pricing includes: - 50 one way miles - TDS Historical Speed service - Maintenance and support over the term of the contract
	Traffic Data Services - Historical Speed 100	Traffic Data Services - Historical Speed 100 miles	Pricing includes: - 100 one way miles - TDS Historical Speed service - Maintenance and support over the term of the contract
	Traffic Data Services - Historical Speed 200	Traffic Data Services - Historical Speed 200 miles	Pricing includes: - 200 one way miles - TDS Historical Speed service - Maintenance and support over the term of the contract
	Traffic Data Services - OD 500K	Traffic Data Services - Origin & Destination Reports, population up to 500K	Pricing includes: - 4 quarterly Origin & Destination reports
	Traffic Data Services - OD 1M	Traffic Data Services - Origin & Destination Reports, population up to 1M	Pricing includes: - 4 quarterly Origin & Destination reports
	Traffic Data Services - OD 2.5M	Traffic Data Services - Origin & Destination Reports, population up to 2.5M	Pricing includes: - 4 quarterly Origin & Destination reports
	Traffic Data Services - OD 5M	Traffic Data Services - Origin & Destination Reports, population up to 5M	Pricing includes: - 4 quarterly Origin & Destination reports
	Traffic Data Services - Micro OD	Traffic Data Services - Micro Origin & Destination Report per section	Pricing includes: - 4 quarterly Micro Origin & Destination reports - Reports cover 1 section of congested road
	Traffic Data Services - Signal Tuning	Traffic Data Services - Signal Tuning (per junction)	Pricing includes: - 4 quarterly Signal Tuning reports (including percentage turn movement count and delay per junction)
	Traffic Data Services - Counting Station	Traffic Data Services - Counting Station	Pricing includes: - 4 quarterly counting station reports including estimated vehicle counts for a specific location

Additional HW/SW and Service includes: • Hosting/Wireless communications • SW License Fees • Pre-construction • Construction • Installation • Design, Kitting, Installation Support • Field Engineering Support • Warranty and Break/fix cost covers manufacturer defects only; up to 5 year term
The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below for ITM Advanced Plus. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change.
Pricing does not include taxes or surcharges, if any, and assumes the following applies for ITM Advanced: • ITM Advanced Hardware • Advanced intersection supports 8 lanes & includes 8 sensors, 8 tubes, 2 Long Life Repeaters, and 2 Standard External Antennas • Does not include any Conflict Monitors, MMUs, or updates to signal controllers • Assumes line of sight exists from digital radios to repeaters • Permits and associated fees are not included. • Does not include union or prevailing wages • Does not include off-hours, nights, or other times outside of regular business hours • Holiday work days excluded • Does not include traffic controller fees • Includes shipping in the continental United States
ITM Advanced includes the following HW components, per intersection: • Flex Control Enhanced Module With Flex ID • Flex Control Power Supply • Flex Connect Power Supply • APCC Serial Port Protocol (Digital Radio)
The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below for ITM Advanced Plus. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change.
Pricing does not include taxes or surcharges, if any, and assumes the following applies for ITM Advanced Plus: • Advanced Plus Hardware • Advanced Plus Intersection supports 10 lanes & includes 50 sensors, 2 micro sensors, 60 tubes, 4 Long Life Repeaters, and 2 Standard External Antennas • Assumes line of sight exists from digital radios to repeaters • Does not include any Conflict Monitors, MMUs, or updates to signal controllers. • Permits and associated fees will exist and are not included. • Does not include union or prevailing wages • Does not include off-hours, nights, or other times outside of regular business hours • Holiday work days excluded • Does not include traffic controller fees • Includes shipping in the continental United States
ITM Advanced Plus includes the following HW components, per intersection: • Flex Control Enhanced Module with Flex ID • Flex Control Power Supply • Flex Connect
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 3 main road covered with 3 feeders
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 3 main roads with 6 feeders
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 5 main roads with 10 feeders
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 1 main road covered with 3 feeders
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 3 main roads with 6 feeders
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 5 main roads with 10 feeders
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - Local population is what is covered in zones of interest - 1 zone = 10,000 people - Over night annual visitors for 60 days are 25% of local population or less - 4 quarterly reports are provided - Market share is assumed to be 35% or higher - Inclusion list is 70% or higher (gov numbers are excluded)
Reporting details: The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 4 micro OD reports per year
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 4 signal tuning reports per year
The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - Requires Real time or historical speed purchase covering the location of the counting station

	Traffic Data Services - 10 Zone Pack	Traffic Data Services - Additional 10 Zones (per 10 zones)	Pricing includes: - 10 additional zones above the number of zones included in the OD reports	The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies:
	Traffic Data Services - Feeder Add	Traffic Data Services - Additional Feeder (per feeder)	Pricing includes: - 1 additional feeder on a road segment covered with RT or HT	The enclosed pricing is for the services set forth in this proposal and based on the assumptions detailed below for Traffic Data Services. If any of the assumptions are not true and/or any additional requirements are identified, Verizon's pricing may change. Pricing does not include taxes or surcharges, if any, and assumes the following applies: - Requires Real time or historical speed purchase
	Parking Optimization - 4 Video Nodes	Parking Optimization with 4 Video Nodes and 4 City Hubs covering approximately 100 parking spots in a parking lot	Parking Optimization pricing includes: - 4 Video Node 4Ks - 4 City Hubs - Installation - Connectivity, lighting control, and parking optimization services over the term of the agreement - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix	The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change. Parking Optimization with City Hub includes the following: - 4 VN4Ks (assumes 20-25 parking spots covered by each camera with good line of sight depending on pole height) - 4 City Hubs - Installation of all Video Nodes and City Hubs - Connectivity and lighting control services over the term of the agreement - Warranty and break/fix cost covers manufacturer defects only; up to 5 year term - Field Service dispatched if a node is not functional after verification that it is a HW failure (and not caused due to lack of power/non ndou specific issue) Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 24/7 Power Available - LED Luminaries Present with Nema Socket - Pole height has to be 30ft with good line of sight visibility with no obstruction from Video Nodes to the parking spots - 1 VN4k per pole - Permits and associated fees will exist and are not included - Structural Analysis Excluded - M/WBE requirements excluded - Assumes Mounting on existing and available poles - No traffic control required - Electrical available at pole - Holiday work days excluded - No union labor, no prevailing wage - Base cost assumes 120v electrical - Excludes Service Upgrades

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: (Proposed Discount % / Maximum Proposed Discount %) * Total Cost Points Available.

Consulative Hourly Rate (this rate will be included in the contract)	\$199.00
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MA152-3 Wireless Voice, Data and Accessories Attachment C: Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless (Solution: Intrepid)

<i>Product Name</i>	<i>Product Description</i>	<i>Characteristics of Product</i>	<i>Percentage Off Discount (%)*</i>	<i>Notes</i>
Intrepid	Intrepid Networks provides a real-time situational awareness solution for both public and private organizations. Intrepid Networks solution suite is suited for emergency response agencies within the public sector, as well as any	1.Intrepid's public safety software solutions decrease critical response time while improving overall safety for first responders. 2.Minimize unnecessary radio traffic to conserve voice channels for emergency communications	25.00%	See Attachment G for package options. Percentage Discount applies to Annual Software Service Subscription price only. Excludes Integration subscription.

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: (Proposed Discount % / Maximum Proposed Discount %) * Total Cost Points Available.

Consolidative Hourly Rate (this rate will be included in the contract)	N/A
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MA157-1 Wireless Voice, Data and Accessories Attachment C: Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless

Product Name	Product Description	Characteristics of Product	Percentage Off Discount (%)*	Notes
Push to Talk Plus (PTT+)	Push to Talk Plus (PTT+) provides instant voice communication and integrated messaging with 1 person or a group of people. It's simple, efficient, secure and works wherever there is cellular or Wi-Fi coverage.	Users have the added ability to share: Texts, Alerts, Photos, Videos, Location data, Voice messages, and Documents. PTT+ supports: Subsecond Voice Calling Dispatch functionality (smartphones and tablets) Cross Carrier (i.e., the ability to load Verizon's PTT+ application on some other carriers' devices. PTT+ interoperates with Land Mobile Radios (LMR).		<ul style="list-style-type: none"> • PTT+ Only Feature for Basic or Smartphone device: \$2.67 per month • PTT+ License: Tablet/InterCarrier/3rd Party Web Access: \$5.00 per month • Dispatch License for Windows PC with PTT and mapping: \$30.00 per month • The Percentage Off Discount applies to the above listed Monthly Access prices
PTT+ with Land Mobile Radio (LMR)	PTT+ interfaced with LMR systems. PTT+ / LMR interoperability allows users of LMR networks to communicate seamlessly with PTT+ users. Interoperability between LMR and PTT+ is available at three levels, radio (RoP), network (ISSI), and console (CSSI).	Fast, secure, reliable communications unbound by coverage area or network type. <ul style="list-style-type: none"> • LMR access for those who cannot or will not carry a radio. • One device to access broadband data apps, LMR and PTT+. • The ability to quickly add PTT+ users as required. • Lower costs and improved functionality without need for new sites, frequencies or radios. 	25.00%	<ul style="list-style-type: none"> • LMR Feature Only when added to Basic or Smartphone device with PTT+: \$6.00 per month • LMR License Bundled with PTT+ License: Tablet/InterCarrier/3rd Party Web Access: \$13.00 per month • LMR License Bundled with Dispatch License for Windows PC with PTT and mapping: \$36.00 per month • The Percentage Off Discount applies to the above listed Monthly Access prices

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: (Proposed Discount % / Maximum Proposed Discount %) * Total Cost Points Available.

Constitutive Hourly Rate (this rate will be included in the contract)	N/A
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MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless (Solution: IoT - Lighting)

Product Name	Product Description	Characteristics of Product	Percentage Off Discount (X)*	Notes
Intelligent Lighting w/City Hub - 25	25 City Hubs with ongoing lighting control service	Intelligent Lighting Pricing includes: - 25 City Hubs - Installation - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix	23%	The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change. Lighting control with City Hub includes the following: - City Hubs - Installation of all City Hubs - Connectivity and lighting control services over the term of the agreement Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 24x7 Power Available - LED Luminaries Present with Nema Socket and support lighting control - No permits required or included - Structural Analysis Excluded - M/WBE requirements excluded - Assumes Mounting on existing and available poles - No traffic control required - Electrical available at pole - Holiday work days excluded - No union labor, no prevailing wage - 12 devices installed per crew per day - Excludes Service Upgrades - Environmental analysis excluded - Warranty and Break/fix cost covers manufacturer defects only; up to 5 year term - Field Service dispatched when there are 5 partially functional City Hub (defaulted to photocell) - Field Service dispatched if a City Hub is not functional after verification that it is a HW failure (and not caused due to lack of power/non City Hub specific issue) - Includes shipping in the continental United States
Intelligent Lighting w/LCO - 250	250 Lighting Core Optimized (LCO) nodes with lighting control service	Intelligent Lighting Pricing includes: - 250 LCOs - Installation - Connectivity and lighting control services - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix		The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change. Lighting control with City Hub includes the following: - LCO nodes - Installation of all LCO nodes - Connectivity and lighting control services over the term of the agreement - Warranty and Break/fix cost covers manufacturer defects only; up to 10 year term - Field Service dispatched when there are 5 partially functional nodes (defaulted to photocell) - Field Service dispatched if a node is not functional after verification that it is a HW failure (and not caused due to lack of power/non node specific issue) Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 24x7 Power Available - LED Luminaries Present with Nema Socket and support lighting control - No permits required or included - Structural Analysis Excluded - M/WBE requirements excluded - Assumes Mounting on existing and available poles - No traffic control required - Electrical available at pole - Holiday work days excluded - No union labor, no prevailing wage - 12 devices installed per crew per day - Excludes Service Upgrades - Environmental analysis excluded - Includes shipping in the continental United States
Intelligent Lighting w/LCO - 1000	1000 Lighting Core Optimized (LCO) nodes with lighting control service	Intelligent Lighting Pricing includes: - 1000 LCOs - Installation - Connectivity and lighting control services - Monitoring - Support for all software elements for the contract term - Hardware Warranty and break/fix		The enclosed pricing is for the material and services set forth in this proposal and based on the assumptions detailed below. If any of the assumptions are not true and/or any additional requirements are identified Verizon's pricing may change. Lighting control with City Hub includes the following: - LCO nodes - Installation of all LCO nodes - Connectivity and lighting control services over the term of the agreement - Warranty and Break/fix cost covers manufacturer defects only; up to 10 year term - Field Service dispatched when there are 5 partially functional nodes (defaulted to photocell) - Field Service dispatched if a node is not functional after verification that it is a HW failure (and not caused due to lack of power/non node specific issue) Pricing does not include taxes or surcharges, if any, and assumes the following applies: - 24x7 Power Available - LED Luminaries Present with Nema Socket and support lighting control - No permits required or included - Structural Analysis Excluded - M/WBE requirements excluded - Assumes Mounting on existing and available poles - No traffic control required - Electrical available at pole - Holiday work days excluded - No union labor, no prevailing wage - 12 devices installed per crew per day - Excludes Service Upgrades - Environmental analysis excluded - Includes shipping in the continental United States

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: (Proposed Discount % / Maximum Proposed Discount %) * Total Cost Points Available.

Consultative Hourly Rate (this rate will be included in the contract)	\$199.00
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MA152-1 Wireless Voice, Data and Accessories Attachment C: Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless

Product Name	Product Description	Characteristics of Product	Percentage Off Discount (%)*	Notes
Enterprise Messaging Access (EMAG) - TEXT ONLY Packages	Enterprise Messaging Access Gateway (EMAG) is a VZW-branded messaging platform that allows B2B, Government and SMB customers (5 or more Corporate Liabie subscribers) to send high volumes of text messages through a fast, reliable and secure network.	EMAG lets businesses and institutions send alerts, updates or campaigns to distribution lists of VZW subscribers who opt in to receive the messages. (Text Messages Only)		<ul style="list-style-type: none"> * Messages Included 15,000/ Monthly Access \$50/ Per Message Rate After Allowance \$0.01 * Messages Included 100,000/ Monthly Access \$200/ Per Message Rate After Allowance \$0.01 * Messages Included 500,000/ Monthly Access \$975/ Per Message Rate After Allowance \$0.01 * Messages Included 1,000,000/ Monthly Access \$1,850/ Per Message Rate After Allowance \$0.01 * Messages Included 5,000,000/ Monthly Access \$9,000/ Per Message Rate After Allowance \$0.005 * 100% discount for eligible Public Safety Entities with a qualifying NAICS code (621910,922110,922120,922130,922140,922150,922160,922190,928110) * The Percentage Off Discount applies to the above listed Monthly Access prices
Enterprise Messaging Access (EMAG) - Text and MMS Packages	Enterprise Messaging Access Gateway (EMAG) is a VZW-branded messaging platform that allows B2B, Government and SMB customers (5 or more Corporate Liabie subscribers) to send high volumes of text and pic messages through a fast, reliable and secure network.	EMAG lets businesses and institutions send alerts, updates or campaigns to distribution lists of VZW subscribers who opt in to receive the messages. (Text and MMS)	25.00%	<ul style="list-style-type: none"> * Messages Included 15,000/ Monthly Access \$100/ Per Message Rate After Allowance \$0.02 * Messages Included 100,000/ Monthly Access \$400/ Per Message Rate After Allowance \$0.02 * Messages Included 500,000/ Monthly Access \$1,950/ Per Message Rate After Allowance \$0.02 * Messages Included 1,000,000/ Monthly Access \$3,700/ Per Message Rate After Allowance \$0.02 * Messages Included 5,000,000/ Monthly Access \$18,000/ Per Message Rate After Allowance \$0.01 * The Percentage Off Discount applies to the above listed Monthly Access prices

*The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: $\text{Proposed Discount \%} / \text{Maximum Proposed Discount \%} * \text{Total Cost Points Available}$.

Consultative Hourly Rate (this rate will be included in the contract)	50.00
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MA152-1 Wireless Voice, Data and Accessories Attachment C- Costsheet
Award Category 3-D through 3-N Costsheet

Vendor Name:

Verizon Wireless

Product Name	Product Description	Characteristics of Product	Percentage Off Discount (%)*	Notes
Verizon Wireless Private Network	Verizon Wireless Private Network (PN) allows companies to extend their internal networks anywhere the VZW network wireless reaches without compromising network management and control.	<p>Private Network creates a secure connection between the VZW Network and the customer's internal computer network.</p> <p>Each customer's traffic is isolated from public and other private communications, ensuring greater security and performance.</p> <p>Traffic flows from a wireless device to a radio tower and into the private network. Connections can be made between the VZW network and the customer's internal network (i.e., intranet) through a:</p> <ul style="list-style-type: none"> * Verizon Business Private IP Multi Protocol Label Switching (MPLS) network * Fixed End System (FES) dedicated circuit (point-to-point T1 or frame Relay) * Virtual Private Network (dedicated virtual connection) * Wireless to Wireless (0 Tunnel) 	25%	<p>Set Up Fees - Private Network Only: \$500, Dynamic Mobile Network Routing (DMNR): \$150, PN with Service Based Access (SBA): \$250, Fixed End System (FES): \$1500</p> <p>Percentage Off Discount applies to the above listed Set Up Fees</p>

* The Offeror with the highest proposed minimum discount % (or Average discount off) for the given subcategory will receive 100% of the cost points possible for that service category. All other Offerors will receive a percentage of the cost points possible based on the percentage by which their proposed discount % is lower than the highest discount % in the given category. The formula to compute cost points is: (Proposed Discount % / Maximum Proposed Discount %) * Total Cost Points Available.

Consultative Hourly Rate (this rate will be included in the contract)	50.00
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Section 1: Preliminary Information				Section 2: General Description				Section 3: Financial Data				Section 4: Operational Metrics				Section 5: Regulatory Compliance			
Item No.	Description	Unit	Quantity	Material Name	Grade	Dimensions	Weight	Volume	Area	Perimeter	Length	Width	Height	Diameter	Radius	Surface Area	Volume	Weight	
1	Concrete	m ³	100	Concrete	M30	1000x1000x100	1.0	1.0	10000	40000	1000	1000	100	1000	500	157080	1000000	1000000	
2	Reinforcement	kg	2000	Reinforcement	R10	10mm	2000	0.2	0.2	2000	2000	2000	2000	2000	1000	62832	2000000	2000000	
3	Formwork	m ²	500	Formwork	Formwork	1000x1000	500	0.5	0.5	5000	5000	5000	5000	5000	2500	39270	5000000	5000000	
4	Scaffolding	m ²	1000	Scaffolding	Scaffolding	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
5	Paint	kg	500	Paint	Paint	1000x1000	500	0.5	0.5	5000	5000	5000	5000	5000	2500	39270	5000000	5000000	
6	Electrical	m	1000	Electrical	Electrical	1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
7	Plumbing	m	1000	Plumbing	Plumbing	1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
8	Masonry	m ³	500	Masonry	Masonry	1000x1000	500	0.5	0.5	5000	5000	5000	5000	5000	2500	39270	5000000	5000000	
9	Roofing	m ²	1000	Roofing	Roofing	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
10	Finishing	m ²	500	Finishing	Finishing	1000x1000	500	0.5	0.5	5000	5000	5000	5000	5000	2500	39270	5000000	5000000	
11	Site Work	m ²	1000	Site Work	Site Work	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
12	Clearing	m ²	1000	Clearing	Clearing	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
13	Excavation	m ³	1000	Excavation	Excavation	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
14	Foundation	m ³	1000	Foundation	Foundation	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
15	Structural	m ³	1000	Structural	Structural	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
16	Roof	m ²	1000	Roof	Roof	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
17	Walls	m ²	1000	Walls	Walls	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
18	Floors	m ²	1000	Floors	Floors	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
19	Windows	m ²	1000	Windows	Windows	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	
20	Doors	m ²	1000	Doors	Doors	1000x1000	1000	1.0	1.0	10000	10000	10000	10000	10000	5000	78540	10000000	10000000	

Year	Month	Day	Time	Location	Activity	Remarks
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2021	01	13	08:00
2021	01	14	08:00
2021	01	15	08:00
2021	01	16	08:00
2021	01	17	08:00
2021	01	18	08:00
2021	01	19	08:00
2021	01	20	08:00
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2021	01	22	08:00
2021	01	23	08:00
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2021	01	25	08:00
2021	01	26	08:00
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MA152-1 Verizon Attachment H

Field Name	Field Description
VENDOR	The awarded Contractor's name
VENDOR CONTRACT NUMBER	Lead State assigned contract number (using Lead State's numbering protocol)
STATE	State postal abbreviation code (Alaska = AK, Missouri = MO, etc.)
CUSTOMER TYPE (SEGMENT)	State Gov't, Education-K12, Education-HED, Local Gov't, Medical, Other - are acceptable segments. [determined by industrial practice for each contract - uniform for each contract]
BILL TO AGENCY	Customer (agency) Bill to name
BILL TO CITY	Customer (agency) Bill to city
INVOICE DATE	(mm/dd/ccyy)
PRODUCT DESCRIPTION	Product description of purchased product
CRU Lines	Commodity-level code based on UNSPSC code rules (8 Digits)
CRU Minutes	Number of voice minutes used
CRU Text	Number of texts sent and received
CRU Data	Amount of data used
CRU Gross Sales	Gross Sales
Equipment Lease	Amount of monthly charges for leased equipment
LIST PRICE/MSRP/CATALOG PRICE	uniform for each contract]
NASPO ValuePoint PRICE	NASPO ValuePoint Price- US Currency (\$99999.999)
QUANTITY	Quantity Invoiced (99999.999)
TOTAL PRICE	Extended Price (unit price multiplied by the quantity invoiced) - US Currency (\$999999999.999)
NASPO ValuePoint ADMIN FEE	Administrative Fee based on Total Price - US Currency (\$999999.999)

NASPO ValuePoint Cooperative Contract Detailed Sales Report

No Quarterly Sales

Contractor:

Vendor Name
Vendor Contract Number

State
Customer Type

Bill to Agency

Bill to City
Bill to State
Bill to Zipcode

Acc # or
Customer #

Invoice #
Invoice Date

Product
Description

CRU Lines
CRU Minutes

CRU Text
CRU Data

monthly
service cost

Equipment
Lease/Rental
Cost

Total cost
(monthly
service +
lease/rental)
Admin Fee

NASPO ValuePoint Cooperative Contract Detailed Sales Report

Contractor:

Quarter:

Vendor Contract Number	State	Customer Type	Invoice Date	IRU Lines	Total Cost	Admin Fee
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Carrier lists every plan in use under the NASPO contract, provides the quantity of the lines of service using each plan and provides basic details of the plan

Line Count	Plan #	Plan Description	Discount Eligible	Access Cost Before Discount	Included in Plan						Notes	
					Voice Minutes	Pooled	Data GB	Pooled	Text Qty	subsidized Device		

qty devices c if carrier has one
 this plan carrier has one
 yes / no

Field Name	Field Description
VENDOR	The awarded Contractor's name
VENDOR CONTRACT NUMBER	Lead State assigned contract number (using Lead State's numbering protocol)
STATE	State postal abbreviation code (Alaska = AK, Missouri = MO, etc.)
CUSTOMER TYPE (SEGMENT)	State Gov't, Education-K12, Education-HED, Local Gov't, Medical, Other - are acceptable segments. [determined by industrial practice for each contract - uniform for each contract]
BILL TO NAME	Customer (agency) Bill to name
BILL TO ADDRESS	Customer (agency) Bill to address
BILL TO CITY	Customer (agency) Bill to city
BILL TO ZIPCODE	Zip code in standard 5-4 format [standard 5 digits is acceptable, formatted as a zip code]
SHIP TO NAME	Customer (agency) Ship to name
SHIP TO ADDRESS	Customer (agency) Ship to address
SHIP TO CITY	Customer (agency) Ship to city
SHIP TO ZIPCODE	Zip code in standard 5-4 format [standard 5 digits is acceptable, formatted as a zip code]
ORDER NUMBER	Vendor assigned order number
PO DATE (ORDER DATE)	(mm/dd/ccyy)
INVOICE DATE	(mm/dd/ccyy)
INVOICE NUMBER	Vendor assigned Invoice Number
PRODUCT DESCRIPTION	Product description of purchased product
UNSPSC	Commodity-level code based on UNSPSC code rules (8 Digits)
LIST PRICE/MSRP/CATALOG PRICE	List Price - US Currency (\$99999.999) [determined by industrial practice for each contract - uniform for each contract]
NASPO ValuePoint PRICE	NASPO ValuePoint Price- US Currency (\$99999.999)
QUANTITY	Quantity Invoiced (99999.999)
TOTAL PRICE	Extended Price (unit price multiplied by the quantity invoiced) - US Currency (\$999999999.999)
NASPO ValuePoint ADMIN FEE	Administrative Fee based on Total Price - US Currency (\$999999.999)
VAR/Reseller/Distributor	If a VAR/Reseller/Distributor, name of VAR/Reseller/Distributor and state where located
Energy Star Compliant	Yes = 1 No = 2 Energy Star Does not Apply = 0
Optional	More information

NASFO ValuePoint Cooperative Contract Detailed Sales Report

Contractor:

Quarter:

No Quantity/Ship

Vendor Name	Vendor Contract Number	Customer Type	State	Bill to Agency	Bill to Address	Bill to City	Bill to Zipcode	Ship to Agency	Ship to Address	Ship to City	Ship to Zipcode	Order Number	PO Date	Invoice Date	Invoice Number	Product Description	Quantity	UNFISC Commodity	IFU or CRU	List Price/NSRP	NASFO ValuePoint Price	Total Price	Admin Fee	Energy Star EPEAT	Compliant	
<p style="text-align: center;">Need to match up with Grant Language in RFP</p>																										

Provider lists each Make / Model of equipment sold and the quantity sold of each.

Quantity Sold	Equipment/ Accessory Type	Part Number	Manufacturer	Model	Discount Eligible	List Price	Notes
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yes / no

to be taken
 from category
 2 cost sheet
 examples:
 smart phone
 tablet
 case
 etc ...



Solicitation # CJ18012 Wireless Data, Voice and Accessories RFP Attachment L Network Technology Questionnaire

The following section requests a description of the characteristics of the networks that you will be using to provide the services covered by award Category 1 of this RFP. To understand the infrastructure and context in which your services will be offered, we ask that you please describe your existing networks, technologies, and plans.

1. 4G Cellular Services

Describe the current status and plans for your 4G LTE and earlier generation wireless voice/data technologies.

Verizon's Response

On December 31, 2019, Verizon plans to retire its CDMA-only network (1x/EVDO, 2G/3G), and will stop activating new CDMA-only devices after June 30, 2018. Verizon will continue supporting the following account services through July 1, 2019: Device ID Change, MDN Change, Price Plan Change, Suspend and Resume, and Reactivate MDN.

4G will evolve towards 5G and will include backwards compatibility features to ensure a smooth transition. It's important to understand that 5G won't replace 4G. In fact, as we build out our new 5G network, we will continue to invest in our award-winning 4G LTE advanced network.

1. Current 4G network coverage across the U.S.

Verizon's Response

Verizon's 4G LTE network is available to more than 98 percent of the U.S. population and covers more than 321.3 million people.

LTE Advanced - Verizon customers in more than 2,000 markets can access the benefits of carrier aggregation and those in 1,100 markets can access 4x4 MIMO (Massive Input, Massive Output) and 256 QAM (Quadrature Amplitude Modulation) in addition to carrier aggregation.

Our online Coverage Locator tool depicts our wireless coverage area on a national map and enables you to zoom into any local area by entering that area's ZIP Code or the city and state information. The maps rendered show approximations, based on our internal data, of where coverage for various services is available.

Our online domestic Coverage Locator tool can be accessed at

<https://vzwmap.verizonwireless.com/dotcom/coveragelocator/>

Our online international Coverage Locator tool can be accessed at:

<http://verizon.cellmaps.com/>

2. Major planned enhancements for these and earlier generation networks in light of the deployment of 5G-based services

Verizon's Response

The low latency, high bandwidth combination that 5G includes will enable advancements in technology such as remote robotic surgery, autonomous cars, connected cities, augmented reality and virtual reality, but it will take some time to get there. Standards are still being developed for 5G but Verizon will continue to push the limits of what can be done for the customer. As we build out our new 5G network, we will continue to invest in our award-winning 4G LTE advanced network.

3. Voice Quality Performance Target/Guarantee:
 - a. Mean Opinion Score (MOS) rating for voice calls

Verizon's Response

Verizon provides the absolute best voice quality possible however wireless links can often degrade due to distance from cell sites and in building penetration as well as other factors. As long as there are locations where service cannot be maintained there will always be areas where sufficient voice quality is not possible. When compared to other service providers, Verizon tends to be the best however we cannot claim a specific MOS everywhere.

- b. Dropped Call Percentage

Verizon's Response

Verizon tries to maintain the best network at all times and strives for a 0% dropped call rate however there are times when performance cannot be guaranteed. Third party tests by Root Metrics consistently show that Verizon outperforms its competitors and recently posted its results for the first half of 2018 once again indicating that Verizon is the market leader.

- c. What improvements do you expect with the introduction of VoLTE and Wideband Voice?

Verizon's Response

The introduction of Voice over LTE (VoLTE) technology has enabled us to offer High Definition (HD) Voice. With HD Voice, voice calls are delivered over

Verizon's 4G LTE network instead of the traditional voice network. HD Voice offers the following services on select devices:

- ✓ HD Voice
- ✓ Video Calling (not available on all HD Voice-capable devices)
- ✓ Simultaneous Voice and Data
- ✓ 6-Way Calling
- ✓ Wi-Fi Calling

HD Voice

Available on select Smartphones, HD Voice provides improved voice quality with a more natural sound than standard voice calls and enables future HD Voice interoperability with other carriers.

HD Voice also offers Video Calling options, including making and receiving video calls directly from contact lists. Subscribers have the ability to change their calls instantly from voice-only to voice-and-video. In the near future, enhancements to the HD Voice suite of services, such as large file transfer, more robust group messaging, and location sharing, will be available.

Verizon has a growing line-up of HD Voice-enabled devices. For a list of HD Voice-enabled devices, please visit www.verizonwireless.com/advancedcalling.

Please note: HD Voice and Video Calling are only available when both parties use HD Voice-enabled phones provisioned with Verizon HD Voice. Both parties must be connected to Verizon's 4G LTE network. While HD Voice is available at no additional charge, both HD Voice and the voice portion of Video calls are billed according to a customer's existing voice calling plan. Video calls also incur data usage when not connected to Wi-Fi.

At this time, HD Voice does not offer interoperability with an organization's IP PBX systems.

Video Calling

Video calls require a LTE connection to set up, unless the user has enabled Wi-Fi Calling. Once the video call has been established, data will automatically be transported over the Wi-Fi data connection, if available. Please note: Video Calling is not available on all HD Voice-capable devices.

Apple devices only support video calling using the Apple Facetime Application or when using another downloadable solution through Apple's iTunes app store.

Wi-Fi Calling for Android/iOS

Wi-Fi Calling expands customers' calling options at no extra charge. With Wi-Fi Calling, customers can:

Make and receive calls and send messages even when there is no cellular coverage.

Call U.S. numbers with no airtime charges while in the U.S. or traveling internationally.

Calls to international numbers while in the U.S. or traveling internationally are subject to international long distance charges [the user must have an "International Calling while in the U.S." option on the line/account]

Place an HD Voice video call over Wi-Fi when cellular coverage is not available (available on select Android devices only).

Please note: The cellular network is preferred for voice calls in the United States. When users roam outside of the Verizon domestic footprint, they may select "Prefer Wi-Fi" when roaming in their HD Voice device settings. During a call transported over Wi-Fi, the in-call screen will display a Wi-Fi phone icon. For billing, Wi-Fi calls always originate in the U.S. even when the user is outside of the U.S. - this is why calls to international numbers are billed as international long distance ("International Calling while in the U.S.") whether or not the user is in the U.S. Outgoing international calls are always billed at international long distance rates but incoming calls do not get charged international rates for either cellular and Wi-Fi calls. Voice calls are billed based on the access network and location at the beginning of the call, not where they end or transition.

To activate Wi-Fi Calling, customers must first activate HD Voice on their Smartphone. They must also have access to the Internet through their device's Wi-Fi connection. Please note: If they lose their Wi-Fi connection while on a call and they have not re-established a cellular connection, their call will drop.

Government customers have the option of blocking the Wi-Fi Calling feature through Verizon's business account portal.

4. Broadband Data Performance Expectations/Guarantees:
 - d. Uplink/Downlink Data Rates (Peak, Sustained, Cell Edge)

Verizon's Response

Average network-to-device speeds, or downloads, will range from 5 to 12 Mbps.

Average device-to-network speeds, or uploads, will range from 2 to 5 Mbps.

e. Latency

Verizon's Response

4G

- ✓ An average network-to-device (one-way) latency below 50 ms is expected, delivering mobile broadband responsiveness equivalent to wireline connections.
- ✓ LTE Cat-1: In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, 20-40ms (can increase based on system design)).
- ✓ Cat-M1: In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, 20-40ms (can increase based on system design)).

5G

- ✓ Verizon currently testing fixed 5G in several market. In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, 4ms max. Also specs for 1ms for ultra-reliable low latency communications are in place).

5. Mobile E911 Technology

f. Technology employed?

Verizon's Response

The Federal Communications Commission (FCC) requires wireless carriers to provide Enhanced 911 call identification capability when requested by each of the state/local Public Safety Answering Points (PSAPs) nationwide (most are arms of local government).

Basic 911

Verizon provides Basic 911 call routing throughout our nationwide wireless network. However, with Basic 911 service, PSAPs cannot automatically read the mobile phone number of the caller or their location, and need to rely on the caller to provide this information. The FCC Basic 911 rules require wireless carriers to route all 911 calls to designated emergency call takers - the PSAPs - without procedures intended to identify and intercept calls from non-subscribers.

Enhanced 911

The FCC's Phase I Enhanced 911 rules require wireless carriers to automatically provide PSAPs with the telephone number of the 911 caller and the location of the cell site and sector used to originate the 911 call. Phase II Enhanced 911 rules require wireless carriers to automatically provide the telephone number of the 911 caller and far more precise location information.

We have successfully implemented extensive network components, purchased modified handsets, and completed a complex series of tasks associated with providing enhanced 911 Phase I and Phase II location services to Public Safety. We continue to meet the schedule set by the FCC in October 2001. As of October 1, 2018

- ✓ We have deployed Phase I E911 service to approximately 82% of the 6,300 PSAPs in the United States.
- ✓ We have deployed Phase II E911 service in 80% of the PSAPs.

Approximately 99% of the PSAPs capable of receiving 911 calls now receive enhanced 911, which displays the caller's phone number and address to the call taker. Until all PSAPs upgrade their systems, calls made from subscribers' E911-capable handsets to 911 call centers will go through and appear with only the data the PSAP is capable of receiving.

Text to 911

Verizon joined several other wireless providers to enable free Text-to-911 service from our devices. We initially signed a voluntary agreement with the FCC to offer this service to our customers, enabling them to communicate with 911 dispatchers as if they were on a voice call and are now compliant with the FCC's August, 2014 ruling on text-to-911. This feature is currently available in areas where the local 911 dispatch center has installed the appropriate upgrades to accept text messages. As of September 30, 2018, we have provided text-to-911 capability to 1,979 public safety answering points in 42 states.

g. Location Accuracy?

Verizon's Response

We offer a wide variety of handsets with Global Positioning System (GPS) capabilities to be used in conjunction with E911 services. Since December 30, 2003 all of the handset models we sell are GPS-capable of transmitting their E911 location.

Please note that E911-capable handsets will not be able to provide location information to 911 call takers until the 911 call takers' (PSAPs) systems and

some local telephone company systems are upgraded to receive and use the enhanced location data. These systems may still need to rely on mobile callers to identify their location.

Subscribers with questions about local E911 services should contact their local Public Safety Authority.

h. Indoor versus outdoor accuracy?

Verizon's Response

The FCC implemented indoor accuracy thresholds in its recent 4th Report and Order adopted in February, 2015. This Order implements new, forward-looking accuracy thresholds that apply to both indoor and outdoor mobile 911 calls. The rules look at increasing 50 meter accuracy locations on all 911 calls over time. The first threshold targets 50 meter accuracy for 40% of both indoor and outdoor mobile 911 calls by April, 2017 and 50 meters for 50% of all mobile 911 calls by April, 2018. The 50 meter percentage increases over time to 80% of all mobile 911 calls by April 2021. Verizon has exceeded the current accuracy thresholds and fully expects to comply with future accuracy thresholds using either Dispatchable Location or geodetic X/Y locations.

i. Compliance with February 2015 FCC Mandates

Verizon's Response

Verizon complies with the current accuracy threshold and fully expects to comply with future accuracy thresholds using either Dispatchable Location or geodetic X/Y locations.

j. Technology Plans/Expectations/Timeframes

Verizon's Response

Verizon is actively developing and implementing a Dispatchable Location solution using the National Emergency Address Database (NEAD) which is targeted for launch in early 2019. Verizon also is working on deploying several other methods for improving the accuracy of x, y coordinate information delivered to public safety, including the so-called Device-Based Hybrid solution in which the wireless handset uses both satellite-based and WiFi-based information to generate a highly accurate x,y coordinate.

2. Network Reliability, Disaster Recovery and Business Continuity

Describe your overall disaster preparedness plan, the steps you have taken to safeguard your internal and exposed assets, and the types of services and response we can anticipate in the event of an emergency or a disaster.

Verizon's Response

Our mission critical functions and systems, including our wireless network, IT systems, and customer contact centers are resilient by design. The business continuity/disaster recovery plans for mission critical functions and systems are updated and tested at least annually. Our crisis management teams are also tested through simulated exercises at least annually. Many of our plans and teams are put to the test throughout the year in response to real disasters, such as hurricanes, wildfires, and flooding events.

The Verizon Wireless Business Continuity and Disaster Recovery program is just one part of our overall philosophy to provide high quality services for our customers. Our nationwide wireless network is at the core of our business, and we have invested more than \$126 billion since the company was formed – averaging over \$6 billion every year – to increase coverage and capacity and to add new services.

Our Business Continuity and Disaster Recovery (BC/DR) program team is responsible for minimizing the impact of a disruption to our customers, employees, infrastructure, and business operations. We accomplish this objective by focusing on the following activities:

- ✓ Identify critical functions, infrastructure and risks;
- ✓ Implement strategies to minimize the risk of a disruption;
- ✓ Develop Business Continuity and Disaster Recovery plans, and Crisis Management Teams to recover operations in the event of a disruption;
- ✓ Maintain BC/DR plans, with updates completed at least annually;
- ✓ Test our plans, at least annually, to validate our response capabilities.

We continue to refine our response and recovery capabilities due to the increasing variety of services we provide and the ever-changing level of potential threats to these services.

The cross-functional Crisis Management Teams in place across our national footprint enhance coordination and response activities during crisis events. These teams provide a command-and-control structure that allows management to gather and report information about crisis events, for the teams to escalate decision-making as needed, and to facilitate resource allocation.

BC/DR activities are visible across all major aspects of our company. We have developed numerous plans to recover critical functions. Business functions have implemented strategies and procedures that not only support routine operations, but also help the function continue to operate in the event of a disaster. Robust operational strategies are at the core of our ability to provide reliable and resilient services.

Network Operations – Our wireless network is resilient by design

The Verizon Wireless network operations philosophy is driven by the desire to provide our customers with an extremely high level of service.

Verizon Wireless strives to deliver superior service based on our design philosophy, which includes redundancy on critical paths and components so that a potential failure of a network component does not significantly affect our customers. Our wireless services are provided through a large and sophisticated national network of 137 Mobile Switching Centers (MSCs) and Data Centers throughout our service areas. We will continue to invest in our network to support our customers.

The wireless voice and data switching networks are designed to provide continuous service to the customer. The communications between our internal switches and external networks such as the Public Switched Telephone Network (PSTN) and the Internet are also designed to reduce the possibility of interrupted communications. The use of battery and generator backup systems in critical locations also serves to minimize the risk of a disruption, if commercial power is lost.

Our design concept extends from our equipment and technology capabilities to our business procedures. These procedures include frequent and thorough preventive maintenance, real-time monitoring of all key system components, the 24x7x365 availability of trained maintenance personnel to repair or resolve critical failures should they arise, and wide deployment of these personnel and spare parts to permit rapid response and restoration of service.

Our most critical recovery assets are the thousands of highly-trained and experienced network technicians who have repeatedly proven their ability to respond, troubleshoot problems, and restore service to our customers during emergency situations.

1. Describe your overall approach to network hardening, including physical security for exposed assets, redundant links to cell sites, and internet-initiated threats.

Verizon's Response

Monitoring, maintenance, and restoration of wireless services

Service protection and restoration strategies are an integral part of Verizon Wireless network management and operations.

We have two Network Operations Centers (NOCs), one located in New Jersey and another in Texas, that monitor all facilities, cell sites and switches across

our nationwide network. These NOCs are staffed 24x7x365 with experienced personnel who work closely with our regional field operations teams and with our vendors to coordinate and expedite the restoration of service in the event of outages. Each NOC receives alarms or other indicators that help troubleshoot problems in the network, and that provide technicians with key information to analyze and maintain network integrity.

The NOC technicians work with the field operation managers, and personnel are dispatched to the affected site as needed. An inventory of standard spare parts and repair equipment is available to technicians in all of our central network locations. We also have standing agreements with our critical vendors to get 24x7 support from their engineering personnel and obtain replacement equipment if required. Verizon also maintains a monitoring center for cyber related threats.

Strategy for continued service to Mobile Switching Centers

Mobile Switching Centers are an important part of our national wireless network, and we continue to add them to our network as we grow. We have 137 MSCs strategically distributed across the country to meet the needs of our customers. Our teams monitor the loading of the switching and data systems to maintain an optimum capacity and service level. One goal of this is to reduce the impact of a disaster to any one MSC. Available capacity in neighboring MSCs could be utilized in the event of a serious disaster.

In addition to redundancy in the equipment and circuitry, each MSC is protected by automatic power backup systems, by automatic fire detection and suppression systems, and by physical security systems and alarms. MSC buildings have restricted access to prevent entry by unauthorized personnel. The building structure itself is designed to provide protection for the systems and services located inside.

In each MSC, network operations personnel routinely backup system data for the switch itself and the peripheral systems. Automated backup routines are supplemented with scheduled manual backup routines and off-site storage of critical data.

A disaster recovery plan has been developed for each MSC, which addresses the recovery of the systems, services and personnel. These plans are updated at least annually. Exercises are conducted at least annually to confirm that these plans can be implemented as expected and to continually increase the readiness of the network teams to respond to an actual disaster. These exercises focus on disasters that may impact us or our customers.

Strategy for continued service to cell sites

We have thousands of cell sites across our nationwide network to provide the desired level of customer service, both in terms of capacity and quality of

service. Despite the large number of sites, the loss of a single cell site is still a serious situation. We take extra precautions to protect and keep cell sites operational.

Cell site operations are protected in many ways, including redundancy in the equipment, automatic power backup systems, automatic fire detection systems, and by physical security systems and alarms. Through arrangements with our vendors, any major components of a cell site, up to and including the building and tower, becomes an immediate priority restoration effort on the part of both Verizon Wireless and our vendors.

Cell site equipment has sophisticated diagnostics that can instantly determine if a problem occurs at the site. These diagnostic alarms are transmitted to the MSC, which is monitored by regional field operations teams, and the NOC. Cell sites are outfitted with backup batteries, and in most cases backup generators in case of commercial power loss.

We maintain and utilize portable cell sites referred to as Cells-on-Wheels (COWs) and Cell-on-Light-Trucks (COLTs), which are fully functional generator-powered cell sites that can replace or enhance network coverage and capacity in a given area. They can accommodate both voice and data services, and can be used for emergency situations. For example, they can be used to enhance communications between firefighters when they are fighting a fire in a remote wilderness area. These portable cell sites are strategically located throughout our network coverage areas and may be deployed to an area that is affected by a weather-related or other disaster.

Backup power strategy for the wireless network

Verizon Wireless purchases power from electric companies for the day-to-day power requirements of our network infrastructure. If commercial power is lost, we have implemented backup power systems for all of the critical equipment and infrastructure in our wireless network.

This is accomplished by installing large banks of backup batteries in our MSCs and Data Centers, and these are supported by permanent backup generators. We have arrangements with our fuel suppliers to refill our fuel tanks as needed, allowing our systems to operate until commercial power is restored.

The cell sites are also equipped with batteries, and most sites also have permanent generators which turn-on automatically if commercial power is lost. The company also owns a large supply of portable generators that can be deployed to provide emergency power during extended power outages to those cell sites without permanent generators.

Our MSC, Data Center, and cell site generators are tested regularly to ensure that they are functioning properly. Both the batteries and generators are regularly put through rigorous load tests to ensure that they can support the

needs of the network in the event of a commercial power disruption.

Circuit diversity strategy for the wireless network

Our wireless network is comprised of numerous components that are connected using a mixture of fiber optic and high bandwidth telecommunication circuits. We support many of our critical network locations with diverse circuits, network technologies, and alternate local telecom carriers. The impact of a severed fiber optic cable or a faulty data circuit is minimized by this diversity in our telecommunications connectivity.

Information Technology - Disaster Recovery Planning

The Information Technology (IT) team for Verizon Wireless manages the technology that supports internal business functions. For example this technology helps internal users respond to customer needs, streamline internal and external communications, and automate many of our high volume activities. Many of these technologies are integral to our daily operations.

Our IT Disaster Recovery team focuses its efforts on mission critical applications and systems, many of which support customer transactions. System engineers for these applications and their supporting technologies emphasize redundancy, geographic diversity, and heightened security to safeguard these systems from an unexpected interruption or disaster.

Data Center Strategy

Mission critical applications are maintained in a secure data center environment. Our major data centers are protected by automatic fire detection and suppression systems, and by physical security systems and alarms. The data centers have strictly limited access to prevent entry by unauthorized personnel. Only a small number of authorized employees are permitted to access these data centers, and the buildings are monitored by security guards and camera systems to provide a high level of protection to the systems and services located there.

All data centers are backed up by both battery and permanent generator systems which are designed to support the data center for extended timeframes in the event commercial power is disrupted. These systems are tested regularly to ensure that they will provide power when needed.

Data Backup Strategy

In each of the Data Centers that house mission critical applications, a significant amount of resources are put into our data back-up and restoration capabilities. Ensuring the availability and security of critical historic data is part of daily operations, and our back-up procedures include internal and off-site rotation of electronic files.

2. What are your greatest challenges in terms of recovery in the event of extensive damage throughout an extended area, and how do you address them?

Verizon's Response

In our experience the primary challenge in the event of extensive damage throughout an extended area is the disruption of electric power. We address this by investing in backup power sources including backup batteries, and both permanent and portable generators.

Recovery Plans and Tests

The IT Disaster Recovery team develops tests and maintains disaster recovery plans for mission critical applications in the data centers. Exercises are scheduled at least annually to confirm that the applications can be restored properly, that all interfaces are accessible, and timeframes are met. Surprise simulation drills are also conducted to enhance the preparedness of the recovery teams.

Customer Service - Answering the call for operational resilience

Providing industry leading customer service is an important way for us to understand our customer's expectations, assist with questions, and ensure satisfaction with the services we provide. We continue to invest in our ability to provide excellent customer service, whether the customer contacts us during routine operations or in the midst of a hurricane.

Our customer service operations are designed to be resilient. The contact centers are equipped to adapt to changes in customer call volumes, call types, or other circumstances so that they meet service quality targets. Customers are also provided with many different ways to interact with us. For example, customers can gather information about their accounts using our website and other self-service tools if these are most convenient for them.

Call routing between multiple locations

Our customer service team operates multiple contact centers located across the United States. Our teams can redirect calls between these locations to provide the best service possible and to optimize the skills of our personnel. This operational strategy is a valuable asset during times of crisis, since it helps minimize the customer impact from a disaster that may affect one location. For example, if one contact center needs to close due to a threatening major storm in the area, that center can redirect its calls to an alternate center in an unaffected part of the country. Our national operations infrastructure is a benefit for our customers since it limits the likelihood that any one event will cause a significant impact to our customer service operations.

Contact center infrastructure

We pay particular attention to the design of our contact centers, not only to make them a safe and enjoyable workplace for our employees, but also to minimize the risk of a disruption. These efforts include special security access to the building, including security guards, camera systems, and lighting systems. The communications equipment is maintained in a secure and environmentally controlled computer room, which is supported by both backup batteries and generator power.

Recovery Plans and Tests

Our customer care teams work closely to monitor service levels, and the need to redirect calls to an alternate contact center. We have documented many of these routing patterns in our recovery plans to streamline our ability to activate the technology in the event of an interruption, and to send calls to the teams that are best equipped to help the customer.

3. Describe the types and amounts of back-up batteries, generators, COWs/GOATs and other deployable assets you maintain, and how long a period of disruption you anticipate in your planning.

Verizon's Response

Since the beginning, Verizon has worked closely with first responders, our customers, and our communities to provide support and wireless solutions when they are needed most - during an emergency/extreme weather conditions. With threats of hurricanes, tornadoes, wildfires and other natural disasters always a possibility, customers rely on us to keep them connected and productive, especially when the unexpected happens.

We provide support in a variety of ways, often lending wireless voice and data devices to first responders and emergency personnel. We built a Public Safety Private Core to support public safety, especially during times of high data traffic. And when disaster strikes, we coordinate with first responders and can mobilize charging stations, special equipment, emergency vehicles and more to support local, state and federal agencies across the U.S.

We also deploy Wireless Emergency Communication Centers (WECCs) into disaster zones, providing a safe place where impacted members of the community can charge their phones, make a free call, or access the Internet.

We also have hundreds of portable assets located across the country that enable our teams to enhance or restore network coverage and capacity in emergency situations. There are many types of assets and innovative solutions, such as:

- ✓ Cell-on-Wheels (COW)
- ✓ Cell-on-Light-Truck (COLT)

- ✓ Repeater-on-a-Trailer (RAT)
- ✓ Tower-on-Wheels (TOW)
- ✓ HVAC on Roadside Equipment (HORSE)
- ✓ Generator on a Trailer (GOAT)
- ✓ Repeater on a Trailer (RAT)
- ✓ Pico cell on a Trailer (SPOT)
- ✓ Cell Repeater on Wheels (CROW)

We also continue to design and deploy innovative portable solutions that provide our personnel, first responders, and our customers with options that extend wireless coverage into areas of need. Many of these solutions leverage technologies ranging from lightweight suitcase-sized cell sites, to trailer-based solutions, and Unmanned Aerial Vehicle (UAV) assets.

We invest billions of dollars in our network every year – more than \$126 billion since 2000. These investments include hardening our network from top to bottom – from switching centers to cell sites. For example:

- ✓ Our sub-zero switches are built in places like Minneapolis, where snow and ice are the biggest weather threats to our facilities. Reinforced roofing, specialized entranceways, thicker insulation and fiber buried to a much deeper level are key characteristics in this weather-fortified building. When ice melts, we have aquadams, which, when deployed extend 500 feet around the perimeter of a switch location and when filled with water act as a barrier to flood waters to protect the building.
- ✓ Throughout Florida, an area known for hurricane activity, “Super Switches” are built to withstand Category 5 hurricane winds. These switch locations boast tilt wall block construction built of concrete and rebar and - because of possible flooding - fiber enters the facility in two distinct locations to ensure additional redundancy. Additionally, because commercial power loss is often associated with hurricanes and tropical storms, the Florida Super Switches have dual on-site generators and HVAC systems. The switch facilities also serve as emergency operation centers when hurricanes or other emergencies arise.
- ✓ Along the east coast, flooding is a significant issue when tropical storms and hurricanes threaten. So Verizon has built cell towers on stilts and elevated platforms. Base stations that house the majority of a cell tower’s equipment including its power, generators, cooling

systems and transport interface, are elevated from ground level so if flood waters reach the tower, the equipment is safe, dry and able to perform.

- ✓ Because earthquakes cause lateral and vertical movements, the switch location in California is designed to withstand likely seismic movement patterns. Steel frame walls, suspended ceilings and extra bracing throughout for on-site generators, fire suppression agent tanks and battery racks keep this building standing. Exterior generators are integrally mounted to their fuel tanks to prevent severance of buried lines and subsequent fuel spills.
- ✓ We own a fleet of portable emergency equipment that can be deployed quickly to keep customers connected or restore damaged connections as soon as possible.
 - In the heartland, tornados often threaten equipment that is stored outdoors as most of Verizon's mobile equipment is. In Kansas, however, mobile assets are safely stored 60 feet underground in a 20,000 square foot cave, which provides safe and convenient storage for emergency assets including portable COWs, COLTs, HORSEs, GOATs, RATs and CROWs.

Being crisis-ready is paramount to Verizon, and we are committed to supporting those who need us most when they need us most. During an emergency, first responders rely on wireless service more than ever to coordinate efforts in the face of fires, floods, snow and wind storms, earthquakes, tornados, or hurricanes.

The following are examples of how we have responded to natural disasters and kept first responders, government agencies and customers connected.

Fires and Extreme Heat:

Throughout November and December 2017, wildfires raged in Southern California. We loaned over 130 wireless devices to emergency response organizations supporting the Southern California wildfires. We added capacity to cell sites near Lake Cachuma to handle increased network traffic while the Cal Fire incident command center was operational. Displaced residents were welcome to use our cell phone charging stations and Internet-connected laptops at the UC Santa Barbara and Ventura County Fairgrounds evacuation centers. Our Verizon's Response Teams were on site providing assistance.

In October 2017, as wildfires broke out across Napa, Sonoma and Mendocino Counties in California, for some impacted sites, Verizon utilized temporary microwave technology to provide connectivity to the network. Our Network team refueled generators at cell sites and kept them running until commercial

power was restored. We supported first responders and government officials with recovery efforts, as well as those in the community who needed assistance. Verizon deployed a COW to provide coverage to the Sonoma County Fairgrounds evacuation shelter in Santa Rosa. A Disaster Response Trailer (DRT) was deployed at Kaiser Permanente Hospital in Napa, with Internet access, laptop computers, phones and a wireless charging station for public use. Additional wireless connectivity to support emergency personnel was added to the Sonoma County emergency operations center (EOC), Sonoma County Sheriff's office, Napa County Sheriff's office, the Cal Fire base camp in Napa and the City of Santa Rosa EOC.

In July 2017, as wildfires burned through the dry terrain in western US states, Verizon responded with critical communications to support the 8,000+ firefighters and first responders on the ground. During an emergency, first responders rely on wireless service more than ever to coordinate efforts and we are there to support those first responders and the communities they serve.

In California, we brought satellite communications service to a remote area where the Schaeffer Fire burned in Sequoia National Forest, 17 miles north of Kernville in Kern County, CA. The US Forest Service Incident Management Team requested assistance for the fire base camp located at Black Rock Visitor center. We provided two satellite communications solutions to provide 4G LTE service: a SPOT includes a 30-foot antenna mast with the satellite dish on top of the trailer and a portable mini-satellite dish with a 4G LTE eFemto cell. In addition, we responded to requests for communications assistance by loaning wireless devices and jetpacks (portable wireless hot spots) to first responders at the Winters Fire (Yolo County), Alamo Fire (San Luis Obispo County), Wall Fire (Butte County) and Whittier Fire (Santa Barbara).

In Utah at Brian's Head Fire, we deployed a COW to the Brian's Head Fire command center and base camp near Panguitch, UT. The COW is a mobile cell site with multiple voice and data channels capable of processing thousands of calls and data transmissions simultaneously. The COW provides additional capacity for emergency crews accessing the Internet, sending text and video messages and making phone calls during disaster response efforts. The base camp needed critical communications services to support over 1,000 firefighting personnel.

In Arizona, to assist the first responders and residents, we deployed multiple network repeaters that pick up a network signal, amplify it and point it to an area with weaker or no signal.

In April 2017, a wildfire spread to more than 40,000 acres of the Coronado National Forrest, just South of Tucson, AZ. A crew of about 600 firefighters battled the Sawmill Fire as it spread, leaving over 100 people evacuated from

their homes. As soon as we were contacted, our Verizon Crisis Response Team (VCRT) and Sales Operations organization shipped out Smartphones and tablets to emergency crews battling the blaze.

Throughout the fall of 2016, as more than 30 wildfires burned in northern Georgia, eastern Tennessee, eastern Kentucky, the western Carolinas and parts of surrounding states, Verizon responded with assistance to firefighters, the U.S. Forest Service, support personnel and impacted residents. When the southern Appalachian wildfires ignited, Verizon Network teams immediately began monitoring network performance in affected areas to ensure residents and emergency crews could communicate. In addition to monitoring for sustained network performance, Verizon actively supported emergency responders by deploying two COLTs, which are temporary generator-powered mobile cell sites with multiple voice and data channels capable of processing thousands of calls and data transmissions simultaneously. These COLTs provided additional wireless capacity for emergency crews accessing the Internet, sending text and video messages and making phone calls during disaster response efforts. Our Network teams also deployed a COW and CROs to keep emergency responders connected. To accompany this increased network capacity, Verizon delivered wireless phones and Internet hotspots for the Forest Service to use in its efforts, and set up charging stations at a fire department and two shelters in NC to help keep wireless equipment charged and people connected.

During the summer of 2016, with fires raging and extreme heat in the West, Verizon engineers had portable cooling units staged for deployment to sites to ensure our network equipment – vital to connecting customers to friends, family and emergency personnel – continues to maintain high performance as temperatures soared. In areas where the wildfires ravaged large swaths of land, Verizon's back-up generators and batteries kept cell sites online and performing well.

Tornadoes:

In April 2017, VCRT took to the road to support relief services in East Texas after four tornadoes ripped through Van Zandt and Henderson counties. One of these deadly tornadoes left a trail of damage spanning over 50 miles wide. The fatal storms left over 7,000 people without power. We sent a disaster relief trailer out to Canton, TX, where our employees set up charging stations, passed out water, and kept locals connected with phones, Jetpacks, and tablets. We also deployed Jetpacks and phones to local officials and first responders.

In November 2016, tornadoes caused additional problems in Tennessee while emergency crews still battled wildfires. Tornadoes caused three cell sites to go out of service in Athens, TN, and our Network Team brought in a COW to provide coverage/increase capacity until the sites were back in service.

Hurricanes, Rain Storms and Floods:

In May 2018, in response to severe flooding in the Ellicott City, MD area, Verizon deployed a SPOT, which is a stand-alone cell site delivering LTE and voice services that are powered with a generator and rely on satellite connection so no wired connections are required to add wireless coverage and capacity; delivered portable Wi-Fi hotspots for public safety agencies for additional connectivity; and provided a charging tent for first responders and the public.

In September 2017, Hurricane Irma left devastation behind as it traveled through the Southeast. Our network team staffed our command centers 24x7 and was in contact with federal, state and local emergency management teams to coordinate communication needs and efforts with them. Our mobile equipment fleet was deployed throughout Florida. Hundreds of portable generators were in use. We deployed two SPOTs in the Keys to assist the Florida Department of Law Enforcement with their recovery operations. Also deployed to the Keys were: a Tactical Command Trailer, which is a completely self-sufficient trailer that provides support to government agencies and can function successfully on deployments as short as a day or as long as several months; a Mobile Command Center, which helps provide support to rebuild network infrastructure and also provide support to government agencies; a Gooseneck Trailer, equipped with connectivity, 5 mobile workstations and an inflatable shelter; a Big Red, a big rig equipped with connectivity, 24 mobile workstations; and a Wireless Emergency Communication Center, which is a generator-powered mobile unit that provides device charging, computer workstations and wireless phones, tablets and other devices enabling members of the community to contact friends and family. Just like our network engineers, our Operations, IT and Retail teams also worked nonstop to reopen our stores. Generators were deployed to locations without power and Stores on Wheels to locations with significant damage. More than 90 percent of our company-owned retail locations in Florida were open for business to serve the needs of all those in the community. Additionally, two WECCs were deployed in Naples near the areas hardest hit by the storm.

Also in September 2017, Hurricane Maria became the worst natural disaster in the history of Puerto Rico. We pledged grants of \$5 million to fund Hurricane Maria relief efforts in Puerto Rico and the U.S. Virgin Islands. Verizon engineers were on the ground for weeks assisting our roaming partners on the islands, offering support to carriers and coordinating with federal agencies. We provided portable equipment, including generators, mobile cell sites and antennas, to our roaming partners, Claro and Open Mobile. We donated a generator to the University of Puerto Rico. And we donated 44 laptops to help local regulators bring Internet access to residents allowing them to apply for aid and communicate with friends and loved ones. The donation doubled the number of Internet access locations available to

residents.

In August 2017, when Hurricane Harvey made landfall in Texas, we already had teams and equipment deployed, including COWs, COLTS and mobile connection rigs and staffing shelters in Houston, Dallas and San Antonio to assist first responders and displaced residents with mobile charging, Internet access and other communications needs. Three COWs, one located in northeast Houston and two in Beaumont, several CROWs, used in Corpus Christi and near Beaumont, and microwave systems communicating between cell sites in Corpus Christi to the switching center, ensured Verizon customers and emergency management teams stayed connected. In-building solutions reinforced coverage at the command centers of several leading government agencies.

In April 2017, the Red Cross reached out to Verizon for assistance supporting multiple Disaster Relief Operations (DRO) centers in Oklahoma. Heavy rain and thunderstorms led to flooding, road and bridge closures, and residential damage across multiple cities. We provided Jetpacks and Smartphones to enable connectivity between the multiple DROs spread across Northeast Oklahoma.

In February 2017, at least 188,000 people from several cities and counties in Northern California were evacuated due to severe erosion on the emergency spillway at Lake Oroville. California Governor Jerry Brown issued a state emergency as the potential failure of Lake Oroville's emergency spillway would have been "potentially catastrophic". To help customers stay connected, a Disaster Recovery Trailer with Internet access and charging stations was deployed to the Silver Dollar Fairgrounds in Chico, CA. Our Crisis Response Team quickly deployed COLT and GOAT network elements at the request of the Department of Water Resources and we also provided California Fire with five phones and five jetpacks.

In October 2016, Hurricane Matthew unleashed its wrath throughout the Southeast. To help victims of the hurricane more easily reach family, friends and other important contacts, Verizon deployed WECCs near the areas hardest hit by the storm in Georgia and South Carolina. WECCs are generator-powered mobile units that have device charging and computer workstations, and wireless phones, tablets and other devices. Also available at the WECCs were teams of technicians who conducted troubleshooting and charged up wireless phone batteries that survived the storm or had lost power.

In August 2016, thousands of people were displaced by unprecedented flooding in Baton Rouge, LA. Verizon employees from across the country arrived to assist customers throughout southern Louisiana: they set up emergency communications centers that offered free calling, Internet service and charging stations for our customers and other residents; more than 400 phones and hotspots were deployed for volunteer and first responders; retail

employees from other markets arrived to assist in store locations; and a store on wheels opened in the Denham Springs area because our permanent location was destroyed. Our wireline and wireless network teams, sometimes using boats to reach flooded sites, quickly deployed 18-wheeler rigs to provide communication relief, CROws, COLTs and GOATs to keep customers connected.

In June 2016, historic flooding hit many counties in West Virginia. To help storm victims more easily reach family, friends and other important contacts, a WECC was deployed just north of Charleston, WV, near the areas hardest hit by the storm. This 35-foot trailer comes equipped with 50 charging ports that enable community members to charge their wireless devices despite power outages or residential displacement. Nine sit-down stations are also available and equipped with Internet connectivity and cell phones to enable residents in storm-stricken areas to call loved ones and take care of personal business. Two external LCD screens and satellite connections enable the center to stream weather information and emergency response information to residents.

4. Also describe how your organization would continue to function in the event of a widespread environmental or health threat that would require most citizens to remain at home.

Verizon's Response

We have created a cross-functional pandemic planning team led by the Business Continuity/Disaster Recovery department. Utilizing information and guidance from organizations including the World Health Organization (WHO), Centers for Disease Control and Prevention (CDC), Federal- and State-level Departments of Health and external medical experts, a pandemic action plan was developed for us based on projected risks and potential impact to our employees, customers, vendors and key stakeholders. Our Pandemic Action Plan includes pre-pandemic preparations, initial responses upon pandemic declaration, and full response once our employees or operations are impacted. Critical preparation steps have been completed, including: review of network capacity, confirmation of employee telecommuting capability and stockpiling safety supplies. Our Crisis Management Teams across the United States have been briefed on the plan and have conducted exercises to heighten awareness and response capabilities.

3. 5G Cellular Services

Describe your deployment plans for 5G network coverage across the U.S.

Verizon's Response

Verizon's network legacy is rooted in being the first to deliver to customers

the next-generation of wireless technology, coast to coast, before any other carrier. With the fifth generation (5G) of wireless technology, Verizon is once again poised to usher in a new era of network technology. 5G will deliver enhanced fixed and mobile broadband, low-latency services and massive scale for IoT, which will transform all industries. 5G won't be a wireless "evolution," with better speeds and feeds, but a true revolution changing the way we work and interact: this means more connected services and devices, and higher broadband capacity that can benefit our entire society.

We are committed to developing and deploying 5G wireless technology. Collaborating with Verizon's 5G Technology Forum (5GTF) partners, we are working to ensure the aggressive pace of innovation, standards development and appropriate requirements for this next generation of wireless technology. We are conducting multiple pre-commercial fixed wireless broadband trials on millimeter wave spectrum - this is an important step in commercializing gigabit broadband service to offices and homes via a wireless 5G connection. The trials are providing us with valuable insights for our commercial deployments. During our testing process, we have validated numerous 5G technology enablers, such as wide bandwidth operation of several hundred MHz in size, multiple antenna array processing, and carrier aggregation capabilities that are substantially different from 4G. 5G will combine existing technologies with next-generation radio access advances to deliver new and highly-robust customer experiences. We intend to be the first company to deploy a 5G fixed wireless broadband network in the U.S., anticipating a limited launch in 2018, with 5G service debuting in Los Angeles, CA, Houston, TX, Sacramento, CA, and Indianapolis, IN.

1. Expected Role of 5G in your overall network architecture.

We would like to understand where 5G "fits" in your overall network strategy. For example, do you see 5G as:

- a. A wholesale upgrade for 4G LTE services in the wide area,

Verizon's Response

Verizon continues to make considerable investments and improvements to the 4G LTE network in addition to the industry-leading work being done with 5G New Radio (NR). 5G will be the first technology that does not displace its predecessor.

- b. A high-capacity local distribution solution for a 4G wide areanetwork,

Verizon's Response

Although 5G NR offers the ability to provide solutions for both fixed and mobile applications, Verizon has made a considerable commitment to purchase large amounts of fiber backhaul for cellular base stations.

- c. Some combination of the two,

Verizon's Response

Verizon continues to make considerable investments and improvements to the 4G LTE network in addition to the industry-leading work being done with 5G NR. 5G will be the first technology that does not displace its predecessor.

- d. A fixed wireless solution for business or residential Internet access, or,

Verizon's Response

5G NR offers the ability to provide comprehensive cellular solutions for both fixed and mobile applications.

- e. Something else entirely?

Verizon's Response

See above.

- 2. Please provide the fundamental strategy you are following for deploying 5G technologies going forward.

Verizon's Response

Millimeter (mm) wave spectrum is fundamental to 5G NR performance, and Verizon is currently in the process of building out a dense infrastructure using our current licenses as quickly as possible to serve our customers. The investment is significant in respect to both time and costs which is why Verizon began the 5G journey years ago.

- 3. Timetable and total percent of 5G coverage in each state.

Verizon's Response

The deployment is very fluid and depends on a variety of variables. The coverage and projections change daily as Verizon works feverishly to extend the network in multiple areas.

- 4. Proposed Channel Sizes (in MHz) for macro area and small cell deployments

Verizon's Response

Release 15 of the 3GPP specification currently allows for channel sizes up to 400MHz. However, the process of engineering a cellular base station is extremely complicated and relies on a variety of factors unique to each location. As a result, channel sizes will vary.

5. Frequency Band(s) to be used and primary applications for each.

Verizon's Response

Verizon is currently focused on applying owned spectrum licenses (28GHz and 39GHz) for our 5G NR rollout.

6. Pricing Model: Will 5G usage be metered and priced the same rates as 4G voice and data usage or will premium pricing be applied?

Verizon's Response

Verizon is currently exploring various pricing models for 5G. Because 5G is a transformational technology, the way it is priced (similar to the way it will be used) may require a different approach than traditional cellular technologies have in the past.

4. VoLTE and Wideband Cellular Voice Services

Describe you plans for Voice over LTE (VoLTE) and Wideband voice services

Verizon's Response

VoLTE is and will continue to be Verizon's preferred voice solution. Once the 2G 3G sunset occurs, VoLTE on 4G and 5G will be the only path.

1. Current level of VoLTE deployment and ongoing plans

Verizon's Response

VoLTE is a part of Verizon's 4G LTE platform and is available wherever LTE service is available.

2. Wideband Voice (AMR-WB) Availability

Verizon's Response

HD Voice (AMR-WB) and Video calling are available with Verizon service but are dependent on smartphone capabilities.

3. User device availability.

Verizon's Response

Verizon has a growing line-up of HD Voice-enabled devices. For a list of HD Voice-enabled devices, please visit www.verizonwireless.com/advancedcalling.

4. Wideband Voice Interoperability:
 - Between Mobile Carriers

Verizon's Response

HD Voice and Video Calling are only available when both parties use HD Voice-enabled phones provisioned with Verizon HD Voice. Both parties must be connected to Verizon's 4G LTE network.

- Mobile Carrier-to-PBX/UC Platform
(i.e. compatibility with wideband voice devices using G.722 or other wideband codecs)

Verizon's Response

At this time, HD Voice does not offer interoperability with an organization's IP PBX systems.

5. Circuit Switched Fallback Included?

Verizon's Response

Verizon continues to support devices that allow for circuit switched fallback through December 31, 2019. Verizon ceased activation of new services using those devices on June 30, 2018. Like for like device swaps will be maintained through June 30, 2019.

6. Describe your overall pricing model for VoLTE services (e.g. Will wideband voice be offered at the same price as existing voice calling services?).

Verizon's Response

While HD Voice is available at no additional charge, both HD Voice and the voice portion of Video calls are billed according to a customer's existing voice calling plan. Video calls also incur data usage when not connected to Wi-Fi.

7. As "voice" has essentially becomes additional "data traffic" with VoLTE, indicate the likelihood you will be offering internet-like all-data plans that support all traffic types as opposed to plans that distinguish voice, data and text services.

Verizon's Response

Verizon does not currently classify HD Voice as "data traffic." Verizon's HD Voice is measured by the customer's minutes of use. Verizon does not have plans to offer internet-like all-data plans that support all traffic types as opposed to plans that distinguish voice, data, and text services at this time.

5. IoT Cellular Network Services

Describe what you currently have and plan to introduce in the way of network services specifically geared toward Internet of Things (IoT) applications.

Verizon's Response

Verizon has the Machine to Machine (M2M) and Internet of Things (IoT) resources that can help you transform your business operations with a connected ecosystem of M2M and machine-to-human interactions. Smart devices can enhance your delivery of goods and services, help you manage your workforce more effectively and help save more of the world's precious natural resources. IoT can help you solve the challenges of providing more services to your customers without increasing costs. IoT can help make your operations safer for your employees, help you manage regulatory compliance and help you manage and protect remote assets.

The key ingredients for IoT - machine to machine enabled by network connectivity, cloud, security, and network infrastructure - have existed for decades. Still, using IoT as a normal part of your everyday operations requires hard work and a clear plan. Verizon has more than a dozen years of experience in connected solutions. We manage millions of connected devices and we have invested in building an unparalleled base of expertise and technology. We offer you all the pieces of the puzzle you need to realize the full benefits of IoT while mitigating the risk of deploying IoT solutions.

Verizon can help your organization outpace the competition with IoT:

- ✓ We offer 4G LTE-equipped routers and wireless broadband plans to back up your office, retail or remote locations to protect you against costly outages
- ✓ Our Mobile solutions and 4G LTE help you expand your capabilities with interactive kiosks, digital signage, and 4G LTE equipped tablets
- ✓ We have a broad range of certified 4G/3G/2G routers to support wireless deployments
- ✓ Our My Business online resource helps you manage your IoT deployments quickly

Wireless connectivity is just one part of a successful IoT solution. Global networking, security, cloud, and a broad ecosystem of partners are an integral part of launching IoT quickly and securely. Verizon has one of the world's largest IP networks - enabling you to integrate IoT solutions into a global network. Verizon is recognized as a global leader in security and offers a wide range of professional and consulting services. Our team of IT cloud experts can help you capture and manage the data from your IoT devices. Our partners can help you develop specialized hardware, software and services to get your IoT projects going rapidly.

From 4G LTE networks to global IP networks and end-to-end management and security support to industry specific IoT solutions, Verizon can help you rapidly obtain the benefits of IoT to grow your business and outpace your competition.

Self-Service Online Resource for M2M Devices

When organizations rely on data from remote assets, connectivity management

becomes mission-critical. M2M/IoT administrators need to take devices in and out of service according to business need, ensure devices connect and transmit data properly and monitor the costs of remote data acquisition.

ThingSpace Manage is a self-service online resource that provides specialized features to track, monitor and control the connectivity and usage of 2G, 3G, and 4G M2M devices. Our partners and enterprise customers access ThingSpace Manage through a link in My Business.

ThingSpace Manage:

- ✓ Allows you to configure alerts to prevent overages
- ✓ Provides the ability to name devices and assign other custom properties
- ✓ Provides near real-time connectivity status and usage information
- ✓ Tracks and monitors devices by IP address, custom properties, and many other attributes
- ✓ Provides configurable reports and a graphical dashboard

1. List all IoT-Focused Transport Services (e.g. NB-IoT, LTE Cat M1, etc.) Offered and Planned

Verizon's Response

- ✓ Currently Offered: LTE and Cat M1
- ✓ Verizon has plans to support all major IoT-Focused Transport Services, including NB-IoT

2. Performance Expectations (For each service offered):
- Uplink/Downlink Data Rates (Peak, Sustained, Cell Edge)

Verizon's Response

4G

- ✓ LTE Cat-1: For fixed LTE, UL 5Mbps and DL 10Mbps
- ✓ Cat-M1: Currently for fixed Cat-M1 UL 375kbps and DL 300kbps; and expected for 2019, UL 1000kbps and DL 600kbps (For Sensor Data).

5G

- ✓ For fixed 5G, the standards target will be less than or equal to GIGE UL/DL (Pending our current 28 and 39Ghz trials).

Note: The rates reflected above are Peak rates. These targets are subject to change.

- Maximum Transmission Range

Verizon's Response

4G

- ✓ LTE Cat-1: In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, varies: 5 Miles in rural macro to 1 SF block for small cell (low power)).
- ✓ Cat-M1: In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, 5 Miles+ - use case will determine. Low data rate with higher transmissions may increase the range from typical use case on LTE).

5G: For fixed 5G, density is the key to deployment. For example, in a 4G deployment for LA County CA, we would need 1000 antennas. For 5G, we would need 10x, or, 10000 antennas (A mix of small cell and tower antennas).

- Expected Latency

Verizon's Response

4G

- ✓ LTE Cat-1: In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, 20-40ms (can increase based on system design)).
- ✓ Cat-M1: In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, 20-40ms (can increase based on system design)).

5G: Verizon currently testing Fixed 5G in several market. In lieu of offering theoretical values and/or arithmetic means, Verizon will provide comprehensive values by region to target meaningful information at a later date (For the RFI, 4ms max. Also specs for sub 10ms for ultra-reliable low latency communications are in place).

- Frequency Band(s) Employed

Verizon's Response

Bands 2 (PCS), 4 (AWS-1), 5 (850), 10 (AWS-1, AWS-3), 13 (750), 66 (AWS-1, AWS-3, AWS-4) with plans for LAA, CBRS, and 5G mmWave frequencies.

3. General Deployment Plans and Targeted Availability

Verizon's Response

4G

- ✓ LTE Cat-1: Deployed

- ✓ Cat-M1: Deployed
- ✓ Narrowband IoT: Roadmap

5G: Fixed 5G commercial deployments are planned for 2018 to 2021 using 28 and 39Ghz spectrum.

LTE CAT-M1

By combining both device and network features, Long Term Evolution (LTE) Category M1 (Cat-M1) is the choice for Internet of Things (IoT) applications requiring long battery life, low cost, lower data speeds, extended outdoor coverage, and improved in-building penetration. Verizon maintains a strong leadership position in IoT technology and solutions with a history of firsts, including the first deployment of 4G LTE, LTE Cat-1 and now LTE Cat-M1.

Our commercial 4G LTE Cat-M1 network spans 2.4 million square miles. This includes all coverage in the continental U.S., Alaska and Hawaii but excludes our LTE Rural America (LRA) coverage [which may be added at a later date]. Currently, Cat-M1 is not supported while roaming on domestic or international partner networks.

This is the first Cat-M1 network providing scale, coverage and security for customers seeking wireless access solutions for IoT. Verizon's Cat-M1 network is built on a virtualized cloud environment that enables rapid and agile IoT solution deployment and nationwide scaling aimed at increasing IoT adoption for developers and businesses with new and more economical IoT data plans. Cat-M1 supports data, SMS and Mobile Private Network in addition to basic broadband services (e.g., public IP access).

A game-changer for the industry, Cat-M1 has a new class of LTE device ideal for applications like sensors. They require less power, offer extended battery life and support an array of use cases ranging from water meters to asset trackers to consumer electronics. In collaboration with industry-leading partners, Verizon has enabled an open ecosystem for Cat-M1 that includes infrastructure providers and manufacturers of chipsets, modules and devices. Verizon's Cat-M1 partners include industry leaders including Sequans, Telit, U-Blox, Sierra Wireless, Gemalto, Qualcomm Technologies, and Altair, who together with Verizon are solving for the next generation of IoT use cases.

LTE Cat-M1 Advantages:

- ✓ Cost-effective to deploy: The cost per unit for LTE Cat-M1 is similar or lower than 2G devices, delivering improved technology for a better price.

- ✓ Better coverage: LTE Cat-M1 devices include special network features that help provide better coverage, giving you coverage in places previously unavailable.
- ✓ Better battery life: LTE Cat-M1 devices can reduce communication with the network and even go to sleep for extended periods of time, increasing battery life to up to 10 years, depending on your use case.

5G Technology

Verizon's network legacy is rooted in being the first to deliver to customers the next-generation of wireless technology, coast to coast, before any other carrier. With the fifth generation (5G) of wireless technology, Verizon is once again poised to usher in a new era of network technology. 5G will deliver enhanced fixed and mobile broadband, low-latency services and massive scale for IoT, which will transform all industries. 5G won't be a wireless "evolution," with better speeds and feeds, but a true revolution changing the way we work and interact: this means more connected services and devices, and higher broadband capacity that can benefit our entire society.

We are committed to developing and deploying 5G wireless technology. Collaborating with Verizon's 5G Technology Forum (5GTF) partners, we are working to ensure the aggressive pace of innovation, standards development and appropriate requirements for this next generation of wireless technology. We are conducting multiple pre-commercial fixed wireless broadband trials on millimeter wave spectrum - this is an important step in commercializing gigabit broadband service to offices and homes via a wireless 5G connection. The trials provided us with valuable insights for our commercial deployments. During our testing process, we validated numerous 5G technology enablers, such as wide bandwidth operation of several hundred MHz in size, multiple antenna array processing, and carrier aggregation capabilities that are substantially different from 4G. 5G combines existing technologies with next-generation radio access advances to deliver new and highly robust customer experiences. We were the first company to deploy a 5G fixed wireless broadband network in the U.S.

4. General Pricing Model(s) and Alignment To Minimize Cost with Specific Application Use Cases

Verizon's Response

Pricing models vary by product. Verizon's IoT Cellular Services pricing is detailed in Attachment C.

6. RCS Cellular Messaging Services

Describe your current and planned deployments of Rich Communications Service (RCS)

service.

1. Planned/Deployed?

Verizon's Response

Verizon plans to launch RCS Services targeted 1Q 2019.

2. Extent of Coverage

Verizon's Response

RCS messaging will be supported on Verizon's LTE network as well as over WiFi.

3. List of Features Offered

Verizon's Response

RCS features Verizon will support include:

- ✓ Typing indicator
- ✓ Read Receipt
- ✓ Open Group Chat
- ✓ Large File Transfer
- ✓ Network Message Storage

4. Supported devices

Verizon's Response

Verizon expects future 4G LTE Android devices to support RCS. In addition select existing devices will support RCS in the future.

5. Expectations for user adoption going forward

Verizon's Response

The default text messaging application provided with Verizon Wireless Android Smartphones will include support for RCS in the future.

7. Indoor Cellular Services

Describe your primary strategies addressing coverage problems in indoor or other difficult to service locations, and the type of support you can provide to our buyers in addressing these issues.

1. General technology approaches (e.g. DAS, small cells, indoor repeaters, VoWiFi,

etc.) for different environments (Small office, large office building, campus, sports arena, etc.)

Verizon's Response

Verizon employs all approaches available to resolve coverage and capacity limitations in challenging environments including DAS, small cells, repeaters, VoWiFi, Femto cells, as well as emerging technologies like CBRS. The application of alternative service methods is dependent on each specific application (i.e. number of customers affected, presence of local service, presence of customer data networks, etc...).

2. Process by which states request assistance with special coverage issues.

Verizon's Response

If you are receiving less than adequate reception in one of your buildings, your Verizon Account Manager can request a survey of your building to determine whether an in-building solution could improve your reception. If the survey request is approved, then upon its completion, your Account Manager can work with you to develop a price schedule and scope of work for the procurement, installation, operation and maintenance of the in-building equipment. These terms would then be incorporated into a separate in-building addendum. It is important to note that it may be necessary for us to acquire necessary leases, permits or zoning changes, as well as comply with other requirements as may apply before implementing some in-building solutions.

The cost and financing of in-building solutions is dependent upon several factors, including the complexity of the system, who pays for the solution, whether a dedicated cell site is necessary for the in-building system, any number of existing or future Verizon wireless lines associated with such a system, whether the space is publically or privately held, and the number of customers that the in-building system would support.

Please note: You should not move or displace Verizon-owned equipment, cabling, assets, etc. from the premises without our written approval.

We can also work with, or recommend, approved third-party in-building providers that can improve coverage in your buildings.

3. Availability of guidance regarding suitability of specific solutions to particular applications, known tradeoffs, regulatory issues (e.g. retransmission rights), and potential interference with existing Wi-Fi or other unlicensed networks in operation.

Verizon's Response

If your organization is having difficulty accessing the Verizon wireless

network in a certain area, your Account Manager may be able to arrange testing and evaluation of our signal strength. If we find a serious coverage issue in one of your locations, we can evaluate several alternatives that might improve your coverage. We may, for example, be able to:

- ✓ Redirect an antenna on a cell site;
- ✓ Adjust the power levels on cell site components to increase performance; or
- ✓ Evaluate the area for the location of a new cell site.

We can also work with, or recommend, approved third-party in-building providers that can improve coverage in your buildings.

It is important to understand that many factors, some beyond our reasonable control, can affect reception levels. We cannot, therefore, guarantee that any of these alternatives will be taken in your area or that, if taken, they will improve reception in your specific locations. While we do not typically charge for this testing service, it is subject to available resources. If an extensive site survey is required, such as for a multi-building campus, your organization may incur charges or be asked to sign a letter of intent.

4. Special support services regarding coverage problems that will be available to NASPO ValuePoint users under this contract

Verizon's Response

Verizon's Government Account Managers will be available to NASPO ValuePoint users under this contract to coordinate the diagnosis and correction of coverage problem as they arise.

8. Cellular Services on Unlicensed Bands

Describe your overall plans for use of unlicensed frequency bands in providing your service, and how you intend to handle problems arising from customer private networks that are also using those channels.

Verizon's Response

LTE in Unlicensed Spectrum (LTE-U) and Migration to License Assisted Access (LAA)

Wireless carriers typically rely on exclusively-licensed spectrum. However, LTE-U will use 4G LTE technology in unlicensed spectrum in conjunction with licensed spectrum, enabling wireless carriers to offer customers a more robust and seamless mobile broadband experience with faster download speeds. LTE-U will boost data throughput by enabling data (not just voice calls) to flow over the unlicensed 5 GHz band in conjunction with the wireless

carrier's licensed spectrum.

In 2014, Verizon formed the LTE-U Forum in cooperation with Nokia, Ericsson, Qualcomm and Samsung. The forum collaborates and creates technical specifications for operating LTE-U base stations and consumer devices on unlicensed frequencies in the 5 GHz band, as well as coexistence specifications. LTE-U extends the benefits of LTE and LTE Advanced to unlicensed spectrum, enabling mobile operators to utilize unlicensed frequencies efficiently and effectively. We plan an initial rollout of devices and equipment in 2H 2017. While LTE-U is pre-standards, it will support migration to the standards-based Licensed Assisted Access (LAA), expected to begin roll-out by 1H2018.

LAA is the 3rd Generation Partnership Project's (3GPP) effort to standardize operation of LTE in the 5GHz unlicensed band, while coexisting with Wi-Fi. The coexistence mechanism, known as listen-before-talk (LBT), ensures fair spectrum sharing and allows coexistence with other Wi-Fi devices on the same band. LAA uses carrier aggregation in the downlink to combine LTE in unlicensed spectrum (5 GHz) with LTE in the licensed band. This aggregation of spectrum provides for a fatter pipe with faster data rates and more a responsive user experience.

Citizens Broadband Radio Service

In April 2016, the FCC finalized rules for Citizens Broadband Radio Service (CBRS) for shared commercial use of the 3550-3700 MHz band (3.5 GHz Band).. With dynamic spectrum sharing rules, CBRS offers 150 MHz of sparsely used spectrum in the 3.5 GHz band for LTE capacity expansion, enabling flexible approaches to indoor and outdoor mobile solutions.

In May 2018, Verizon, Ericsson, Federated Wireless and Qualcomm Technologies, Inc., successfully tested 4G LTE technology over CBRS spectrum in Verizon's live commercial network in Florida. After successful initial trials in 2017 and ongoing work to advance the CBRS ecosystem in Verizon's lab in Texas, this real-world deployment marked the beginning of public access to the 150 MHz bandwidth of 3.5 GHz shared spectrum that until now had been used by the federal government for radar systems. The deployment in Florida used a combination of Verizon licensed AWS and 700 MHz spectrum aggregated with 50 MHz of CBRS band 48 spectrum. The combination of LTE Advanced features of multiple antennas, 256 QAM, and carrier aggregation across shared and licensed spectrum produced peak speeds of 790 Mbps. The deployments in Florida involved outdoor and in-building systems and marked the beginning of commercial deployment of LTE on CBRS spectrum. Devices that can access the CBRS spectrum are anticipated in 2018.

1. Frequency bands being considered

Verizon's Response

The unlicensed 5 GHz in conjunction with the wireless carrier's licensed spectrum and the 3550-3700 MHz band (3.5 GHz Band).

2. Planned applications for each band (e.g. Macro network, small cells, VoWiFi, etc.)

Verizon's Response

Verizon will use unlicensed 5 GHz to provide customer with a more robust and seamless mobile broadband experience with faster download speeds. LTE-U will boost data throughput by enabling data (not just voice calls) to flow over the unlicensed 5 GHz band in conjunction with the wireless carrier's licensed spectrum.

Verizon has tested outdoor and in-building system deployments in Florida on 3.5 GHz Band (CBRS spectrum).

3. What level of problems do you anticipate regarding interference problems created through your use of unlicensed channels that might be occupied by WLANs or other private wireless systems?

Verizon's Response

Listen-Before-Talk (LBT) algorithms are working well and have shown negligible impacts when sharing spectrum with WLAN services when field tested.

4. How will users buying under this contract be notified that a system using unlicensed frequencies will be deployed in their facility and what steps will you be taking to ensure against interference with existing networks using those same unlicensed bands (e.g. Wi-Fi, Other 2.4 G/5GHz deployments)

Verizon's Response

Radio deployments at customer locations are discussed and detailed in contractual agreements necessary for said deployments. Verizon does not deploy radios without customer consent and necessary logistical coordination.

9. Use of Wi-Fi in Cellular Services

Describe how you use Voice/Data/Text over Wi-Fi, the nature of the Wi-Fi services you would use, how the decision is made to use Wi-Fi versus cellular, and the impact Wi-Fi use will have on billable traffic.

Verizon's Response

We provide the ability for devices to use Wi-Fi networks for calling, SMS and data:

- ✓ Wi-Fi calling
- ✓ SMS over Wi-Fi
- ✓ Data over Wi-Fi

The decision to use Wi-Fi calling is customer initiated through their device. The impact that Wi-Fi use will have on billable traffic is described in answer number 4 below.

1. Do you offload traffic onto Wi-Fi Networks?

Verizon's Response

Verizon prefers to use the Verizon network first. With Verizon's network coverage, this provides the best customer experience, and allows our technical teams to help customers troubleshoot issues from end to end. In areas where coverage is an issue, and Wi-Fi is available, for mobile devices where the user has completed the configuration and has opted into Wi-Fi calling, Verizon supports establishing calls over Wi-Fi. The determination of whether network or Wi-Fi is used is based on signal quality metrics.

2. Indicate the approximate percentage of Wi-Fi usage for your total wireless network traffic over the following types of Wi-Fi networks:

- Wi-Fi Networks built and maintained by you- Voice___% Data___%
- Wi-Fi Networks from certified 3rd Party providers
 (e.g. Boingo, Cable Companies, etc.)- Voice___% Data___%
- Customer Wi-Fi Networks- Voice___% Data___%
- Any open and available Wi-Fi network- Voice___% Data___%

Verizon's Response

Exception with clarification. Verizon prefers to use the Verizon network first. With Verizon's network coverage, this provides the best customer experience, and allows our technical teams to help customers troubleshoot issues from end to end. In areas where coverage is an issue, and Wi-Fi is available, for mobile devices where the user has completed the configuration and has opted into Wi-Fi calling, Verizon supports establishing calls over Wi-Fi. The determination of whether network or Wi-Fi is used is based on signal quality metrics.

3. How is the service choice made to use cellular versus Wi-Fi, and which Wi-Fi network to choose if there are multiple options available?

Verizon's Response

It is the customer's responsibility to set up their device to select the Wi-Fi network they will connect to. Once connected, Verizon supports establishing calls over Wi-Fi. The determination of whether network or Wi-Fi is utilized is based on signal quality metrics.

4. Are any of the following traffic types sent over Wi-Fi charged against the user's service plan?
- Voice?
 - Data?
 - Text (SMS/MMS)?

Verizon's Response

Voice

Wi-Fi Calling expands customers' calling options at no extra charge. With Wi-Fi Calling, customers can:

- ✓ Make and receive calls and send messages even when there is no cellular coverage.
- ✓ Call U.S. numbers with no airtime charges while in the U.S. or traveling internationally.
- ✓ Calls to international numbers while in the U.S. or traveling internationally are subject to international long distance charges [the user must have an "International Calling while in the U.S." option on the line/account]
- ✓ Place an HD Voice video call over Wi-Fi when cellular coverage is not available (available on select Android devices only).

Please note: The cellular network is preferred for voice calls in the United States. When users roam outside of the Verizon domestic footprint, they may select "Prefer Wi-Fi" when roaming in their HD Voice device settings. During a call transported over Wi-Fi, the in-call screen will display a Wi-Fi phone icon. For billing, Wi-Fi calls always originate in the U.S. even when the user is outside of the U.S. - this is why calls to international numbers are billed as international long distance ("International Calling while in the U.S.") whether or not the user is in the U.S. Outgoing international calls are always billed at international long distance rates but incoming calls do not get charged international rates for either cellular and Wi-Fi calls. Voice calls are billed based on the access network and location at the beginning of the call, not where they end or transition.

To activate Wi-Fi Calling, customers must first activate HD Voice on their device.

Smartphone. They must also have access to the Internet through their device's Wi-Fi connection. Please note: If they lose their Wi-Fi connection while on a call and they have not re-established a cellular connection, their call will drop.

If you do not wish your corporate lines to have access to this feature, your organization's SPOC can log into Verizon's My Business online resource to block Wi-Fi Calling for those lines.

Data

Verizon customers on usage-based wireless data plans may use third-party tethering and Wi-Fi hotspot apps without paying any additional fee. Customers on legacy unlimited data plans must continue to pay an additional fee to use their devices for tethering or as Wi-Fi hotspots.

Text

Verizon Messages App

Verizon Messages (Message+) is an easy-to-use, free, downloadable app available on Android and IOS Smartphones and tablets.

Verizon Messages provides you with the ability to:

- ✓ Sync across multiple devices (e.g., tablet, PC) and a Smartphone [Please note: You cannot sync Verizon Messages on multiple Smartphones.
- ✓ Send and receive messages through Wi-Fi
- ✓ Use your existing Smartphone number (MDN) to make and receive domestic and international calls from a connected tablet on either cellular or Wi-Fi networks. After initially linking your Smartphone with your tablet, your Smartphone need not be connected or powered on to make or receive calls with your tablet. All incoming and outgoing calls will be associated with your Smartphone mobile number. Note: Requires a HD Voice-capable Smartphone with Advanced Calling activated and a tablet with any Internet connection - cellular or Wi-Fi. The tablet does not need a Verizon data plan.
- ✓ Make videocalls on Android and iOS tablets using the Verizon Messages (Message+) app. Tablet must have a Wi-Fi or cellular connection to make and receive video calls using your Smartphone number. Smartphone must have LTE Video Calling (LVC) activated. Note: Calls can only be made to other Verizon customers with the same feature activated.
- ✓ Customize background, specific contacts, tones, auto reply, driving mode, etc.

Blocking Calling from Verizon Messages

If your organization does not want your Government Subscribers to self-provision the feature to place and receive calls from a tablet, your SPOC can log into Verizon's My Business online resource to block calling from Verizon Messages for that line. Please note: although your corporate subscribers will be blocked from using calling from Verizon Messages, they may still use other features of Verizon Messages.

Integrated Messaging Feature

Integrated Messaging is a feature of Verizon Messages that enables you to send and receive text and multimedia messages seamlessly on your Smartphone, tablet or computer. After initially linking your Smartphone with your tablet or computer, your Smartphone need not be connected or powered on to make or receive messages with your tablet or computer. All incoming and outgoing messages will be associated with your Smartphone mobile number. The service syncs up to 90 days of messages across your enabled devices.

Blocking Integrated Messaging

If your organization does not want your users to save messages to the cloud, you must block the Integrated Messaging feature.

Integrated Messaging is not designed for secure transmission or storage of personal healthcare information. Therefore, it must not be used to store or transmit Protected Health Information (PHI) as defined in the Health Insurance Portability and Accountability Act (HIPAA) of 1996 and the Health Information Technology for Economic and Clinical Health Act of 2009 and accompanying regulations. If a business is a Covered Entity or Business Associate as defined by HIPAA, your organization must block the Integrated Messaging feature.

Pricing

While there is no charge or subscription fee for the Verizon Messages App, downloading and calling may consume data and be charged according to your data plan.

- ✓ The consumption and utilization of data will be based on your data connection on the tablet (i.e. Wi-Fi or 4G LTE) and how it's billed (i.e., metered data will be decremented, unlimited will not be impacted).
- ✓ All calls originating via the Verizon Messages application, regardless if from a U.S. or international location, will be treated as if they are originating in the U.S. These voice calls will not deplete minutes of use or be billed (except for 411 and other premium calls).

- ✓ Calls made to international numbers will be billed as “International Calling While in the U.S.” (a.k.a. International Long Distance). If an international rate plan exists on the account, the international calls will be billed at those rates.

Messages are billed at the appropriate messaging rates, per recipient, in accordance with your plan and messaging bundle.

10. Public Safety Wireless Priority Service (WPS) - For Bidders Offering Public Safety Services

Describe your ability to provide Wireless Priority Service (WPS) voice services for State employees with critical job duties and responsibility for responding to disaster/emergency events.

Verizon's Response

Wireless Priority Services (WPS) is a White House-directed emergency phone service managed by the Department of Homeland Security's Office of Emergency Communications (OEC). WPS complies with the Federal Communications Commission (FCC) Second Report and Order, FCC 00-242, Establishment of Rules and Requirements for Priority Access Service. WPS provides priority network access for qualified government and industry subscribers that are pre-authorized by the Office of Emergency Communications (OEC) division of the Department of Homeland Security. WPS provides eligible customers the ability to improve their probability of call completion during wireless network congestion in periods of National Security and Emergency Preparedness.

The Radio Access Network (RAN) consists of access and radio resource connections. The RAN is regularly overloaded during special events resulting in access and radio connection failures – stadium events, parades, New Year's Eve celebrations, and disaster events such as 9/11, the Boston Marathon Bombing, Hurricane Katrina, Super Storm Sandy, earthquakes, tornados, etc. The RAN can also overload in particularly high network traffic areas on a daily basis. WPS enables authorized users to gain priority access to the next available wireless channel, thereby increasing their probability of call completion during an emergency.

WPS service is available throughout the Verizon wireless CDMA voice coverage area. With the CDMA network retiring soon, and since the majority of our voice users are now using HD voice on the 4G LTE network, we are rolling out our next generation WPS solution – WPS VoLTE. WPS VoLTE will launch in two phases: Initial Operating Capacity (IOC) and Full Operating Capacity (FOC). IOC provides priority on the RAN, while FOC will provide priority on the Evolved Packet Core (EPC) and IP Multimedia Service (IMS) platform. We launched the first phase of WPS VoLTE, IOC, in June 2017, and

launched the second phase of WPS VoLTE, FOC, in May 2018.

1. Describe the general mechanism by which the network will prioritize WPS user calls(e.g. Will public network voice calls in progress be terminated to allow WPS calls to be connected?)

Verizon's Response

How Wireless Priority Service Works

CDMA

Once WPS is activated, and when registered users dial *272 before dialing the 10-digit telephone number, the call is automatically placed in priority status on CDMA and is given priority for the next available wireless channel at the originating RAN; additionally, priority is provided on the Verizon wireless switching, interoffice facilities and interconnections to Local Exchange Carriers (LECs) and InterExchange Carriers (IECs). A WPS call is provided with Government Emergency Telecommunications Service (GETS) priority when routed through these exchange carriers. Call priority is maintained on the terminating portion of the call throughout the wireless and wireline networks, regardless of whether the call originated via GETS (landline) or WPS.

VoLTE

WPS VoLTE IOC customers receive priority during times of LTE RAN congestion. Dialing *272 is not required for WPS VoLTE IOC customers to receive priority on the 4G LTE RAN network. WPS VoLTE IOC customers will experience significantly higher connection success rates than non-priority users. In the event of congestion beyond the LTE RAN, the WPS customer should dial *272 as he/she normally would for a CDMA call. The call will then be processed as a WPS CDMA call – even when the device is registered on VoLTE.

WPS VoLTE FOC is an incremental enhancement of WPS and adds priority call processing features in the Evolved Packet Core (EPC) and IP Multimedia Service Platform (IMS). In the event of a call completion failure beyond the LTE RAN, the WPS VoLTE user dials *272, followed by the 10-digit phone number, and priority is provided end-to-end on the VoLTE network for the best experience. For qualified devices, WPS FOC provides priority on the LTE Radio Access Network (RAN) with or without dialing *272. For non-qualified devices, WPS FOC provides priority on LTE RAN only when *272 is dialed. This results in the call being processed as WPS CDMA.

WPS CDMA remains the same for devices registered on CDMA. When VoLTE is not available and the device is registered on CDMA, the customer will be able to utilize WPS CDMA.

2. Can public safety officials disable calling for the general public to ensure WPS access for first responders?

Verizon's Response

At this time, Verizon does not allow public safety officials the ability to disable calling for the general public to ensure WPS access for first responders however WPS users are given the highest priority at the Radio Access Network (RAN) and Core level in the network. Therefore, WPS users will always have priority over the general public when placing calls, ensuring them access to network resources first.

3. What happens when a base station or other network element becomes overloaded with WPS calls?

Verizon's Response

The limitation of the number of callers on a cell tower may be different for each cell tower configuration (capacity is different based upon the demographics/population of the community for which the cell site is serving and the number of spectrum resources Verizon configures to accommodate that demographic). In general, we can say that priority callers can theoretically consume all the resources on a given cell site/sector and could be blocking all commercial/non-priority customers, at this point the system will manage the WPS calls processed based on the assigned priority of the WPS user (a priority level 1 will have priority over a level 5 user) until all resources are exhausted.

4. Define the range of devices supported.

Verizon's Response

Equipment Requirements:

- ✓ Smartphones and Basic Phones must support WPS CDMA and HD Voice.
- ✓ Mobile Telephone Number must be provisioned with WPS CDMA.

Please note: Devices that currently do not support CDMA will not support WPS.

5. Does the service operate on 2G, VoLTE, or both?

Verizon's Response

Wireless Priority Services are supported in 3G (CDMA) and 4G (VoLTE) networks and there is no change in the end user experience between 3G and 4G. However, technically there are obvious differences on how Verizon processes these sessions through our VoLTE and CDMA network. CDMA (2G/3G) will be sunset by the end of 2019.

6. Do you provide enhanced reporting to public safety agencies regarding WPS availability, dropped calls, performance, etc.

Verizon's Response

Verizon Wireless can provide a priority and preemption report as a roll-up of all usage from cell sites within a Participating Entity's State. The report shows the details in terms of MOU (Minutes of Use) on a quarterly basis. Reporting can be tailored to only include a specific subset of devices once the device ID's are provided.

Priority and Preemption Usage - Data on how often public safety data is prioritized and when and where preemption has been invoked in a state to guarantee public safety communications. An example is shown below.

	QTD 2018
Priority and Preemption Usage (MOU)	1,919,930,557

Priority and Preemption Usage and other Network reports will be subject to mutual agreement and the execution of a non-disclosure agreement between the parties.

7. Describe the type of back-up and recovery measures that are included as part of WPS.

Verizon's Response

WPS uses the entire Verizon network to deliver the service.

Backup power strategy for the wireless network

Verizon Wireless purchases power from electric companies for the day-to-day power requirements of our network infrastructure. If commercial power is lost, we have implemented backup power systems for all of the critical equipment and infrastructure in our wireless network.

This is accomplished by installing large banks of backup batteries in our MSCs and Data Centers, and these are supported by permanent backup generators. We have arrangements with our fuel suppliers to refill our fuel tanks as needed, allowing our systems to operate until commercial power is restored.

The cell sites are also equipped with batteries, and most sites also have permanent generators which turn-on automatically if commercial power is

lost. The company also owns a large supply of portable generators that can be deployed to provide emergency power during extended power outages to those cell sites without permanent generators.

Our MSC, Data Center, and cell site generators are tested regularly to ensure that they are functioning properly. Both the batteries and generators are regularly put through rigorous load tests to ensure that they can support the needs of the network in the event of a commercial power disruption.

8. Do you have the ability to augment coverage/capacity with deployable assets during events/disasters?

Verizon's Response

We also have hundreds of portable assets located across the country that enable our teams to enhance or restore network coverage and capacity in emergency situations. There are many types of assets and innovative solutions, such as:

- ✓ Cell-on-Wheels (COW)
- ✓ Cell-on-Light-Truck (COLT)
- ✓ Repeater-on-a-Trailer (RAT)
- ✓ Tower-on-Wheels (TOW)
- ✓ HVAC on Roadside Equipment (HORSE)
- ✓ Generator on a Trailer (GOAT)
- ✓ Repeater on a Trailer (RAT)
- ✓ Pico cell on a Trailer (SPOT)
- ✓ Cell Repeater on Wheels (CROW)

We also continue to design and deploy innovative portable solutions that provide our personnel, first responders, and our customers with options that extend wireless coverage into areas of need. Many of these solutions leverage technologies ranging from lightweight suitcase-sized cell sites, to trailer-based solutions, and Unmanned Aerial Vehicle (UAV) assets.

9. Detail levels of user priority defined and procedures required in applying for and initiating WPS for a user.

Verizon's Response

To take advantage of WPS on the Verizon wireless network, authorized National Security and Emergency Preparedness (NS/EP) users must first apply to the OEC to receive this service. Once OEC confirms eligibility, the OEC will then notify Verizon that the official has been approved for WPS and that the service can be added to the user's account. Users may also contact their Verizon Government Account Manager or the WPS Activation and Support department at 877-262-2950 for further information.

Process for approval and registration for WPS:

1. Customer submits a WPS Order Form to the CSC WPS Program office

using the following link:

https://saic.custhelp.com/ci/documents/detail/2/WPS_first_time_requestor

- For assistance and information on all Office of Emergency Communications (OEC) Priority Telecommunications programs, contact the Priority Telecommunications Service Center toll free at 866-627-2255, Option 2 or support@priority-info.com

2. OEC/Department of Homeland Security (DHS)

- Authorizes the subscriber for priority level assignment (Level 1-5) based on their National Security/Emergency Preparedness (NS/EP) role.
- Sends approval to Verizon’s Government Customer Operations (GCO) team.

3. GCO adds the appropriate WPS feature to the authorized subscriber’s account.

4. Customer dials *272 prior to the telephone number to originate a WPS call

Priority Levels

As part of the online WPS Service Request, participating organizations show the eligibility of each WPS. Eligibility is based upon 5 categories of WPS NS/EP criteria established by the Federal Communications Commission

(FCC). These criteria were selected to meet the needs of the emergency response community and provide access for the command and control functions critical to management of and response to national security and emergency situations.

Priority levels for WPS:

Priority Level	User Groups	Users
1	Executive Leadership and Policy Makers	Users who qualify for the executive leadership and policy makers' priority are assigned Priority Level 1. A limited number of wireless service technicians who are essential to restoring the wireless service networks also receive the highest priority treatment.

		<p>Examples of eligible parties include:</p> <ul style="list-style-type: none"> ✓ The President of the United States, the Secretary of Defense, the Secretary of Homeland Security, selected military leaders, and the minimum number of senior staff necessary to support these officials ✓ State governors, lieutenant governors, cabinet-level officials responsible for public safety and health, and the minimum number of senior staff necessary to support these officials ✓ Mayors, county commissioners, and the minimum number of senior staff to support these officials
2	Disaster Response/Military Command and Control	<p>Users who qualify for the disaster response/military command and control priority are assigned Priority Level 2</p> <p>Individuals eligible for this priority include personnel key to managing the initial response to an emergency at the local, state, regional and federal levels. Personnel selected for this priority are responsible for ensuring the viability or reconstruction of the basic infrastructure in an emergency area. In addition, personnel essential to continuity of government and national security functions (such as the conduct of international affairs and intelligence activities) are also included in this priority.</p> <p>Examples of eligible parties include:</p> <ul style="list-style-type: none"> ✓ Federal emergency operations center coordinators (Example: Manager of the National Coordinating Center for Telecommunications, National Interagency Fire Center, Federal

		<p>Coordinating Officer, Federal Emergency Communications Coordinator, Director of Military Support)</p> <ul style="list-style-type: none"> ✓ State emergency services director, National Guard leadership, State and Federal Damage Assessment Team leaders ✓ Federal, state and local personnel with continuity of government responsibilities ✓ Incident Command Center Managers, local emergency managers, other state and local elected public safety officials ✓ Federal personnel with intelligence and diplomatic responsibilities
3	Public Health, Safety, and Law Enforcement Command	<p>Users who qualify for the public health, safety, and law enforcement command priority are assigned Priority Level 3.</p> <p>Personnel selected for this priority are individuals who direct operations critical to life, property, and maintenance of law and order immediately following an event.</p> <p>Examples of eligible parties include:</p> <ul style="list-style-type: none"> ✓ Federal law enforcement command State police leadership ✓ Local fire and law enforcement command Emergency medical service leaders Search and rescue team leaders Emergency communications coordinators
5	Disaster Recovery	<p>Users who qualify for the disaster recovery priority are assigned Priority Level 5.</p> <p>Personnel selected for this priority are individuals responsible for managing a variety of recovery operations after the</p>

		<p>initial response is accomplished. These functions may include managing medical resources, such as, supplies, personnel, or patients in medical facilities. Other activities, such as, coordination to establish and stock shelters, obtaining detailed damage assessments, or supporting key disaster field office personnel may be included.</p> <p>Examples of eligible parties include:</p> <ul style="list-style-type: none"> ✓ Medical recovery operations leadership Detailed damage assessment leadership Disaster shelter coordination and management Critical Disaster Field Office support personnel
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10. Confirm your ability to activate equipment and WPS within 24 hours after request in the event of a State of Disaster/Emergency.

Verizon's Response

The turnaround time for WPS activations during non-emergency situations is one business day after the receipt of the WPS order. The turnaround time for WPS activations during emergency situations is four hours after the receipt of the WPS order.

Provided the customer has the equipment, Verizon has the ability to activate equipment within 24-hours.

11. National Broadband Public Safety Networks (NPSBNs) - For Bidders Offering Public Safety Services

Describe your plans for deploying FirstNet or FirstNet-like (i.e. National Broadband Public Safety Network) solutions for providing priority data and video service to State employees with critical job duties and responsibility for responding to disaster/emergency events.

Verizon's Response

Ensuring public safety organizations across the country have access to reliable wireless communications and a diverse ecosystem of products, services and applications is critical for the safety of our communities. Verizon has been a leading provider of communications services to public safety for decades – we know what it takes to serve this most important customer base. Verizon is also a member of the Executive Advisory Council of The Public Safety Technology Alliance (PSTA); providing advice, insights and

recommendations to the PSTA Board. The PSTA helps promote the development and adoption of open, best-in-class standards-based technologies to ensure interoperability between different networks, applications and databases.

In addition to the products and services outlined below, we plan to introduce additional products and services for public safety.

Public Safety Private Core

Public Safety Private Network Core (PSPNC) is a dedicated network core that Verizon offers at no charge to first responders and other qualified public safety customers.

PSPNC provides several key features to public safety customers including traffic segmentation, priority and preemption, improved security, and enhanced service management and control. It is connected to Verizon's Radio Access Network (RAN), which utilizes spectrum in various bands including the 700 MHz, 800 MHz Cellular, 1.9 GHz PCS, and 1.7/2.1 GHz AWS bands.

PSPNC separates data traffic of public safety mobile users from commercial users across Verizon's 4G LTE network. Public safety users will have their data immediately recognized as public safety with priority access at the tower and through the network. PSPNC leverages leading edge networking technology to provide security, flexibility and reliability.

Mobile Broadband Priority

Mobile Broadband Priority Service (MBP) provides public safety users priority service for data transmissions. During times of heavy commercial network congestion, MBP users will receive priority over commercial users. MBP enables priority service for public safety officials using applications on Smartphones or tablets, transmitting data from first responder vehicles or video from surveillance cameras. MBP, Wireless Priority Service (WPS) and private network traffic management combine to transmit the voice, data and Internet of Things communications public safety and government agencies rely on to protect and serve. MBP is available at no additional charge to qualified public safety customers.

Preemption Services

Preemption provides prioritized access to network resources during times of network congestion. Verizon automatically and temporarily reallocates network resources from commercial data/Internet users to first responders in the unlikely event network resources become congested. As part of the network access and registration process, first responders and public safety personnel are identified and given preemption designation. This helps to determine which users will receive allocated resources with preemption. Preemption is offered at no additional charge for qualified public safety customers.

Service Overview

1. Will the priority NPSBN service operate over a fully separate radio access (RAN) and evolved packet core (EPC) network, and if not, what elements will be shared with the public wireless network. Are those plans expected to change in the foreseeable future?

Verizon's Response

No, Verizon's Public Safety Private Core is connected to Verizon's Radio Access Network (RAN), which utilizes spectrum in various bands including the 700 MHz, 800 MHz Cellular, 1.9 GHz PCS, and 1.7/2.1 GHz AWS bands.

Public Safety Private Network Core (PSPNC) is a dedicated network core that Verizon offers at no charge to first responders and other qualified public safety customers.

PSPNC provides several key features to public safety customers including traffic segmentation, priority and preemption, improved security, and enhanced service management and control.

PSPNC separates data traffic of public safety mobile users from commercial users across Verizon's 4G LTE network. Public safety users will have their data immediately recognized as public safety with priority access at the tower and through the network. PSPNC leverages leading edge networking technology to provide security, flexibility and reliability.

2. In shared network elements, describe the specific mechanisms by which public safety traffic will be prioritized over other public network traffic in both wireless and wired portions of the network.

Verizon's Response

Priority and Preemption Services

Preemption provides prioritized access to network resources during times of network congestion. Verizon automatically and temporarily reallocates network resources from commercial data/Internet users to first responders in the unlikely event network resources become congested. As part of the network access and registration process, first responders and public safety personnel are identified and given preemption designation. This helps to determine which users will receive allocated resources with preemption. Preemption is offered at no additional charge for qualified public safety customers.

We understand the operational importance of prioritized services. WPS "minutes of use" and monthly recurring costs" are waived (\$0) for government

customers.

There are three significant mechanisms that provide priority for radio access and beyond radio access. They are Access Class Barring (ACB), High Priority Access (HPA), and Allocation and Retention Priority (ARP).

Verizon has all three configured in the access network. ACB and HPA have been deployed since June 8th 2017. ARP with preemption was recently deployed in the public safety market.

ACB: Provides priority at the cell site access that is essentially the knock at the door "Let me in". The cell site (eNodeB) knows when it is in overload and cannot process further requests (knocks on the door). Upon that situation, the cell site begins a probabilistic barring process of non-priority users. When congestion clears, barring is removed. During barring, priority users are exempt from barring and essentially get to the head of the line.

HPA: Priority user requests are marked as "HPA." The cell site then assigns a radio resource even when non-priority users are blocking at radio resources.

ARP: This provides for preemption. Due to the efficacy of ACB and HPA there have been no instances of network conditions which would result in preemption being necessary. VZW recently launched preemption and it is a valuable tool in the priority tool box that is available nationwide.

Under the Federal Communications Commission's definition of a first responder, only police, fire and EMS are considered primary users of a public safety dedicated network. Under the Department of Homeland Security definition - in an emergency situation - public works agencies would rise to primary user status. With regards to who establishes the priority, Verizon is considering various models and will work with State and Local officials on how best to implement.

Note: The best defense against network capacity overloads is a superior network offering. By way of example, 98% of Verizon's sites stayed operational during Hurricane Harvey. We celebrated the fact that we didn't have to use these services to maintain connectivity for first responders. Verizon did not have to rely on priority access or preemption because of our superior network capacity. We, however, know the importance of public safety having our priority access and preemption capabilities (available at no additional cost) that in times of emergency is potentially needed.

3. Describe the range of capabilities available to support Quality of Service (QoS) for different classes of public safety traffic (e.g. voice, video, PTT/MCPTT, priority data, best effort data, background data, etc.), and what modifications would be required on end user devices or servers to mark traffic so that it would be assigned to the correct QoS priority level.

Verizon's Response

Our tailored network design includes Traffic Management that enables application differentiation and Quality of Service (QoS) over the LTE Private Network using standards-based IP packet marking. Verizon's Private Network service transports a multitude of data applications, including Voice over IP (VoIP), video and best effort applications. When there is contention for network resources, mission critical applications (i.e., VoIP) are competing with best effort applications (i.e., email) for network resources, so customers' mission critical applications may experience performance degradation (e.g., difficulty accessing Verizon's LTE network resources, variable download/upload speeds, etc.).

Today, Verizon offers network priority and preemption that allows the assignment of QoS for user profiles using the standard service control parameters defined by 3GPP and the Internet Engineering Task Force, including Access Class, Quality Class Indicator (QCI), Allocation and Retention Priority (ARP), and Differentiated Service (Diff Serve). While our network RAN deployment ensures coverage 24 hours a day, 7 days a week, and 365 days a year.

4. What radio frequency band(s) will your public safety service be operating on? Are there plans to change or expand that list?

Verizon's Response

Verizon's Public Safety Private Core is connected to Verizon's Radio Access Network (RAN), which utilizes spectrum in various bands including the 700 MHz, 800 MHz Cellular, 1.9 GHz PCS, and 1.7/2.1 GHz AWS bands.

5. At any point do you plan to offer a physically separate public safety RAN (please provide your definition of "physically separate") using Band 14, and will public safety officials have the ability to preempt access to those radio network resources from the general public in the event of an emergency or disaster?

Verizon's Response

Verizon does not have Band 14 spectrum and does not have plans to acquire it at this time. Verizon has made its entire footprint available to its Public Safety Core.

6. Describe the availability of compatible end devices for your public safety services, and identify any potential changes to your network offering (e.g. migration to Band 14) that would require device upgrades, and the scale of those upgrades (e.g. New SIM, Other hardware update, device replacement, etc.).

Verizon's Response

Verizon's entire device ecosystem is available to Public Safety. There is no requirement of SIMs or other migration in order to support Public Safety devices.

7. Does this page from the FirstNet Web Site <https://www.firstnet.com/devices> represent the complete list of FirstNet Certified Compatible devices?

Verizon's Response

Verizon offers Band 14 compatible devices. FirstNet is an AT&T product. We are unable to confirm the content of AT&T's website.

8. Describe what happens when all public network traffic has been preempted and the network becomes overloaded with public safety traffic.

Verizon's Response

The Radio Access Network (RAN) consists of access and radio resource connections. The RAN is regularly overloaded during special events resulting in access and radio connection failures – stadium events, parades, New Year's Eve celebrations, and disaster events such as 9/11, the Boston Marathon Bombing, Hurricane Katrina, Super Storm Sandy, earthquakes, tornados, etc. The RAN can also overload in particularly high network traffic areas on a daily basis. WPS enables authorized users to gain priority access to the next available wireless channel, thereby increasing their probability of call completion during an emergency.

Verizon Wireless has all three configured in the access network. ACB and HPA have been deployed since June 8th 2017. ARP with preemption was recently deployed in the public safety market.

ACB: Provides priority at the cell site access that is essentially the knock at the door "Let me in". The cell site (eNodeB) knows when it is in overload and cannot process further requests (knocks on the door). Upon that situation, the cell site begins a probabilistic barring process of non-priority users. When congestion clears, barring is removed. During barring, priority users are exempt from barring and essentially get to the head of the line.

HPA: Priority user requests are marked as "HPA." The cell site then assigns a radio resource even when non-priority users are blocking at radio resources.

ARP: This provides for preemption. Due to the efficacy of ACB and HPA there have been no instances of network conditions which would result in preemption being necessary. VZW recently launched preemption and it is a valuable tool in the priority tool box that is available nationwide.

Under the Federal Communications Commission's definition of a first responder, only police, fire and EMS are considered primary users of a public safety dedicated network. Under the Department of Homeland Security definition - in an emergency situation - public works agencies would rise to primary user status. With regards to who establishes the priority, Verizon is considering various models and will work with State and Local officials on how best to implement.

Note: The best defense against network capacity overloads is a superior network offering. By way of example, 98% of Verizon's sites stayed operational during Hurricane Harvey. We celebrated the fact that we didn't have to use these services to maintain connectivity for first responders. Verizon did not have to rely on priority access or preemption because of our superior network capacity. We, however, know the importance of public safety having our priority access and preemption capabilities (available at no additional cost) that in times of emergency is potentially needed.

Service Offerings and Performance Guarantees/Expectations

9. Voice Telephony: What are your plans, timetables and proposed technologies to offer wireless voice telephony services on your public safety network, and will it be carried with appropriate QoS?

Verizon's Response

Verizon currently offers wireless voice telephony services as a part of Verizon's Public Safety Private Core.

Our tailored network design includes Traffic Management that enables application differentiation and Quality of Service (QoS) over the LTE Private Network using standards-based IP packet marking. Verizon's Private Network service transports a multitude of data applications, including Voice over IP (VoIP), video and best effort applications. When there is contention for network resources, mission critical applications (i.e., VoIP) are competing with best effort applications (i.e., email) for network resources, so customers' mission critical applications may experience performance degradation (e.g., difficulty accessing Verizon's LTE network resources, variable download/upload speeds, etc.).

Today, Verizon offers network priority and preemption that allows the assignment of QoS for user profiles using the standard service control parameters defined by 3GPP and the Internet Engineering Task Force, including Access Class, Quality Class Indicator (QCI), Allocation and Retention Priority (ARP), and Differentiated Service (Diff Serve). While our network RAN deployment ensures coverage 24 hours a day, 7 days a week, and 365 days a year.

10. Video: What are your plans, timetables and proposed technologies to offer wireless video services on your public safety network, and will it be carried with appropriate QoS? As video calls may be originated from a laptop, how will the user signal to the network that this is a video call so that appropriate QoS handling can be applied?

Verizon's Response

Verizon currently offers wireless data services that support Video as a part of Verizon's Public Safety Private Core.

Our tailored network design includes Traffic Management that enables application differentiation and Quality of Service (QoS) over the LTE Private Network using standards-based IP packet marking. Verizon's Private Network service transports a multitude of data applications, including Voice over IP (VoIP), video and best effort applications. When there is contention for network resources, mission critical applications (i.e., VoIP) are competing with best effort applications (i.e., email) for network resources, so customers' mission critical applications may experience performance degradation (e.g., difficulty accessing Verizon's LTE network resources, variable download/upload speeds, etc.).

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11. Broadband Data Performance Expectation/Guarantee:

- How many levels of priority data services (e.g. Critical, High Priority, Best Effort, Background Data, etc.) will be offered, and how will user devices signal to the network the QoS level that should be applied to each session?

Verizon's Response

Mobile Broadband Priority is a priority data service that signals to the network that a user has higher priority in the network to access the network and get a connection over other users. Verizon LTE network is based on 3GPP standards technology which includes device level QoS parameters that apply to each session. Verizon's network extensively uses LTE technology to provide priority data levels in the network through priority and preemption services and is also currently working on a multi-tiered approach to prioritization services which will be offered to our customers in the future.

- Uplink/Downlink Data Rates (Peak, Sustained, Cell Edge) and Latency for each QoS level supported.

Verizon's Response

The priority class has a maximum bit rate of 2Mbps and the best effort service class can utilize the remaining bandwidth of the LTE connection.

- Impact on network performance in Network Overload Conditions

Verizon's Response

Preemption is a feature that enables certain high priority users to preempt a voice, data or text session in order to get a voice, data or text session during times of network overload conditions. Verizon has implemented preemption feature in the network nationwide for its public safety customers and network service performance during the overload conditions has been more than optimal and had met network KPI SLAs and customer user expectations when preemption conditions existed in the network.

12. Text: Describe the text capability that will be offered with your NPSBN, specify if it is separate from the public SMS/MMS service, the typical and maximum message delivery delay, and any particular features it provides for public safety users.

Verizon's Response

We support the following standards for content delivery to mobile devices: WAP 1.x, WAP 2.0, SMS, MMS, EMS, and BREW. It is important to note that all these options may not be supported on all devices. In addition to standard text messaging services, Verizon's offers the following Messaging Solutions:

Verizon Messages App

Verizon Messages (Message+) is an easy-to-use, free, downloadable app available on Android and IOS Smartphones and tablets.

Verizon Messages provides you with the ability to:

- ✓ Sync across multiple devices (e.g., tablet, PC) and a Smartphone [Please note: You cannot sync Verizon Messages on multiple Smartphones.
- ✓ Send and receive messages through Wi-Fi
- ✓ Use your existing Smartphone number (MDN) to make and receive domestic and international calls from a connected tablet on either cellular or Wi-Fi networks. After initially linking your Smartphone with your tablet, your Smartphone need not be connected or powered

on to make or receive calls with your tablet. All incoming and outgoing calls will be associated with you Smartphone mobile number. Note: Requires a HD Voice-capable Smartphone with Advanced Calling activated and a tablet with any Internet connection - cellular or Wi-Fi. The tablet does not need a Verizon data plan.

- ✓ Make videocalls on Android and iOS tablets using the Verizon Messages (Message+) app. Tablet must have a Wi-Fi or cellular connection to make and receive video calls using your Smartphone number. Smartphone must have LTE Video Calling (LVC) activated. Note: Calls can only be made to other Verizon customers with the same feature activated.
- ✓ Customize background, specific contacts, tones, auto reply, driving mode, etc.

Text to 911

Verizon joined several other wireless providers to enable free Text-to-911 service from our devices. We initially signed a voluntary agreement with the FCC to offer this service to our customers, enabling them to communicate with 911 dispatchers as if they were on a voice call and are now compliant with the FCC's August, 2014 ruling on text-to-911. This feature is currently available in areas where the local 911 dispatch center has installed the appropriate upgrades to accept text messages. As of July 1, 2016, we have provided text-to-911 capability to 823 public safety answering points in 39 states.

Enterprise Messaging

With Enterprise Messaging your organization can send large volumes of text messages to subscribers of any domestic carrier* via our fast, reliable and secure network. For example, this solution can be used by hospital administrators sending messages to doctors; by dispatchers sending priority messages to drivers; by inventory managers sending updates to shipping and receiving employees; by educational institutions sending messages to students and faculty about providing timely information regarding facilities, schedules and developing situations. *Please note: Enterprise Messaging can only send/receive messages to/from U.S.-based 10-digit mobile numbers. Enterprise Messaging does not currently support messaging with non-U.S. mobile numbers.

Depending on your application, messages are sent to mobile devices based on either the mobile device owner individually selecting to "opt-in" for the service or based on enterprise-owned device enrollment.

Enterprise Messaging benefits include:

- ✓ Support for high-volume messaging;
- ✓ Support for two-way messaging;
- ✓ Multimedia Messaging (MMS) support;
- ✓ May be suitable for pager replacement.

13. PTT: Describe the capabilities of your current push-to-talk (PTT) service including interface to existing LMR systems.

Verizon's Response

We have introduced interoperability between our Push to Talk Plus (PTT+) service and Land Mobile Radio (LMR). PTT+-LMR Interoperability enables our PTT+ service to communicate with devices on private LMR networks. PTT+-LMR is a simple, easy, cost-effective way for any organization that communicates with large groups of mobile workers, including those in government/public safety, transportation and utilities, to extend their coverage beyond the traditional geographic limitations of their LMR system.

LMR is a private, two-way radio system that operates similarly to walkie-talkies on certain defined frequencies [primarily VHF/UHF] - it is not associated with cellular coverage. For example, a city's police department may use a LMR network to communicate within the department.

Our PTT+ service lets you use a PTT+-enabled mobile device like a walkie-talkie for instant two-way communication. PTT+ is ideal for anyone who needs to communicate quickly with other team members or employees. You can talk to one individual or an entire group with just the push of a button. You can also make regular phone calls on the same device.

Benefits of LMR Interoperability with PTT+

- ✓ Performance
 - LMR customers communicate with PTT+
 - Broad array of tested and certified devices and accessories
- ✓ Reliability
 - End-to-end performance measurement and analysis
 - 24/7 monitoring and support
- ✓ Cost and Efficiency
 - Single point of contact for all billing, customer service and operations issues

- Bundled offering

How PTT+ Interoperability Works

LMR Interoperability works with all PTT+ capable devices. To use PTT+, the customer needs a PPT+ feature, or a software license for tablets and dispatch, and a PTT+ compatible device. Within the PTT+ service cloud, the LMR interoperability service acts as a scalable front-end for customers who want to use PTT+ services to augment their existing LMR communications. An Internet Protocol (IP) link is used to connect Verizon's PTT+ service with the customer's LMR network through the "IP Gateway".

14. MCPTT: Describe your plan and timetable for introducing Mission Critical PTT (MCPTT) services:

- Overall plans and timetables

Verizon's Response

Verizon is committed to bring a 3GPP standards based Mission Critical PTT solution to the marketplace and it is currently working with selected vendors to bring a standards compliant solution in 2019. The Mission Critical PTT solution will bring features and function as defined by the standards such as private calls, group calls and interoperability to LMR systems.

- Additional features to be provided with MCPTT

Verizon's Response

As stated above, Verizon intends to bring a standards compliant Mission Critical solution to the marketplace. However, as the standards are still under development Verizon plans to deliver a solution that will allow end-users to grow with the service as new features are defined and become available.

- Availability of direct peer-to-peer wireless device connectivity.

Verizon's Response

Verizon is committed to bring a 3GPP standards based MC-PTT solution to the marketplace. Currently, the standards defines how the MCPTT Service operates in off-network mode using ProSe E-UTRA direct (UE-to-UE) Communications to allow peer-to-peer communications. To the extent feasible, it is expected that the end user's experience is similar regardless if the MCPTT Service is used with an EPC network or based on the use of a ProSe direct communication path. However, ProSe is not currently supported by the device manufacturers and it will not be available until sometime in 2020.

- Ability of MCPTT devices to continue to operate on a direct peer-to-peer basis if the cellular base station is disabled.

Verizon's Response

Verizon intends to bring a 3GPP standards based MC-PTT solution to the marketplace. Currently, the standards defines how the MCPTT Service operates in off-network mode using ProSe E-UTRA direct (UE-to-UE) Communications to allow peer-to-peer communications when a user is out of coverage. However, ProSe is not currently supported by the device manufacturers and it will not be available until sometime in 2020.

- Please describe what functions or capabilities would be lost in the event that the service cell site becomes inoperable.

Verizon's Response

Verizon intends to bring a 3GPP standards based MC-PTT solution to the marketplace. Currently, the standards defines how the MCPTT Service operates in off-network mode using ProSe E-UTRA direct (UE-to-UE) Communications. The capabilities available during off-network operations will be defined at the time ProSe is supported.

Service Level Agreements

15. Is there a specific, defined SLA for public safety customers? If so, please describe in detail.

Verizon's Response

We offer Service Level Reporting on monthly basis, without penalties. Monthly reporting is available based on Metrics:

- ✓ Voice (HD Voice and 1xRTT)
 - Call setup success
 - Dropped calls
- ✓ Text messaging: Delivery within 20 seconds
- ✓ Cell site availability
- ✓ Data (1xRTT, EVDO and LTE)
 - Session setup success
 - Dropped sessions
 - Average user data rate (download and upload)
 - Latency
- ✓ Private Network (3G and 4G): Service availability

Interoperability

16. Describe the level of interoperability between your solution and other

cellular-based NPSBNs, FirstNet or other, for:

- a) Voice Telephony (When Offered): Will public safety priority and QoS traffic classes be maintained for calls passing between different carriers' networks?

Verizon's Response

The Middle Class Tax Relief and Job Creation Act of 2012 (The Act) created FirstNet, and established the Technical Advisory Board for First Responder Interoperability (Interoperability Board). Under the Act, the Interoperability Board was tasked with publishing the Recommended Minimum Technical Requirements to Ensure Nationwide Interoperability for the Nationwide Public Safety Broadband Network (Report). The Report defines interoperability as "the ability of all authorized local, state and federal public safety entities and users to operate on the national public safety broadband network and commercial partner networks, to access rapid, reliable and secure communication services, in order to communicate and share information via voice and data."

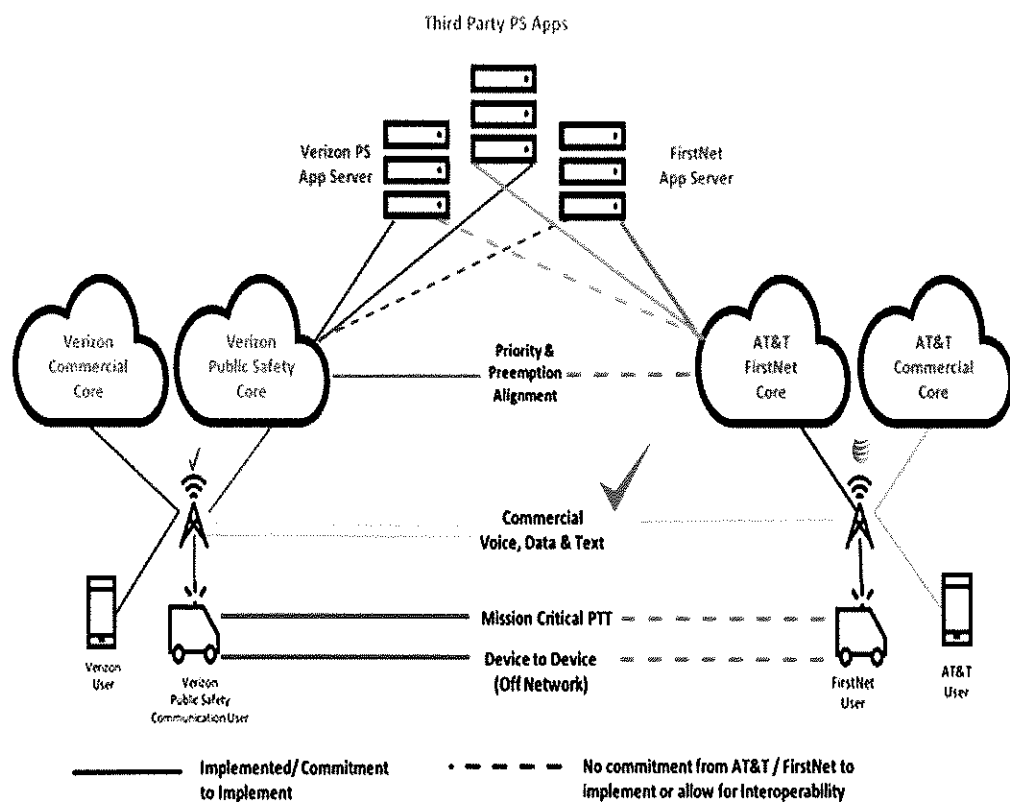
Adherence to open and global standards via Third-Generation Partnership Project (3GPP) is essential to enabling interoperability of devices, radio access networks (RANs), and core network elements that leverage ever-evolving, commercially available products and services. In the past, the lack of interoperability has hindered public safety voice communications particularly in situations of mutual aid involving multiple agencies. Hence, ensuring that interoperability is supported at all levels including the sharing of priority and preemption protocols, applications, and mission critical PTT (MCPTT) communications and off-air device to device communications is essential.

Interoperability is critical to all public safety agencies and as such all public safety broadband communications providers should agree to enable comprehensive public safety broadband interoperability via the following communications functions.

- ✓ MCPTT via standard interface (not via over the top applications) using 3GPP open standards to allow for interoperability.
- ✓ MCPTT Device to Device communications using 3GPP industry standards and protocols.
- ✓ Applications that are non-proprietary and interoperable based on open standards and available to all developers and industry best practices.
- ✓ Priority and preemption that allows the assignment of QoS for user profiles using the standard service control parameters defined by

3GPP, including Access Class, Quality Class Indicator (QCI), Allocation and Retention Priority (ARP), and Differentiated Service (Diff Serve).

As Verizon has publically noted to the Public Safety Community, the diagram below is one way Verizon envisions interoperability.



b) Video Service: Will public safety priority and QoS traffic classes be maintained for video connections passing between different carriers' networks?

Verizon's Response

See above.

c) Broadband Data: Describe how public safety priority and QoS traffic classes will be maintained for traffic passing between different carriers' networks?

Verizon's Response

See above.

- d) Text: Will NPSBN text services interoperate with users on other NPSBNs, and what other text services (e.g. SMS/MMS/RCS, Apple Messages, WhatsApp, etc.) can it exchange messages with.

Verizon's Response

See above.

- e) PTT: Describe interoperability between PTT users served on different carriers' networks, including stations that are in the same broadcast group.

Verizon's Response

See above.

- f) MCPTT: Describe interoperability between MCPTT users served on different carriers' services, including stations that are:
 - o Communicating through their cellular base station

Verizon's Response

See above.

- o Communicating directly with one another (through Proximity Services)

Verizon's Response

See above.

- o In the same broadcast group.

Verizon's Response

See above.

Network Management and Control

17. Does the vendor support a separate 'Portal' for public safety users?

Verizon's Response

Today, Verizon government customers have control over their lines of service through Verizon's My Business online resource that they can adjust price

plans, activate/deactivate service, add certain features, and functionalities. We realize that with our new Public Safety service offerings additional control services are needed, so we are developing customer portal to fulfill that need. We are projecting this portal to be operational sometime during calendar year 2019.”

18. Does the vendor provide the ability for public safety customers to monitor network performance in real-time and a mechanism to communicate directly with network operations personnel during times of crisis?

Verizon’s Response

Our design concept extends from our equipment and technology capabilities to our business procedures. These procedures include frequent and thorough preventive maintenance, real-time monitoring of all key system components, the 24x7x365 availability of trained maintenance personnel to repair or resolve critical failures should they arise, and wide deployment of these personnel and spare parts to permit rapid response and restoration of service.

Our most critical recovery assets are the thousands of highly-trained and experienced network technicians who have repeatedly proven their ability to respond, troubleshoot problems, and restore service to our customers during emergency situations.

We have two Network Operations Centers (NOCs), one located in New Jersey and another in Texas, that monitor all facilities, cell sites and switches across our nationwide network. These NOCs are staffed 24x7x365 with experienced personnel who work closely with our regional field operations teams and with our vendors to coordinate and expedite the restoration of service in the event of outages. Each NOC receives alarms or other indicators that help troubleshoot problems in the network, and that provide technicians with key information to analyze and maintain network integrity.

The NOC technicians work with the field operation managers, and personnel are dispatched to the affected site as needed. An inventory of standard spare parts and repair equipment is available to technicians in all of our central network locations. We also have standing agreements with our critical vendors to get 24x7 supports from their engineering personnel and obtain replacement equipment if required.

19. Will government agencies have the ability to totally preempt public network voice/data/text traffic on shared elements in extreme circumstances to ensure public safety users maintain network availability at all times?

Verizon’s Response

Preemption provides prioritized access to network resources during times of

network congestion. Verizon automatically and temporarily reallocates network resources from commercial data/Internet users to first responders in the unlikely event network resources become congested. As part of the network access and registration process, first responders and public safety personnel are identified and given preemption designation. This helps to determine which users will receive allocated resources with preemption. Preemption is offered at no additional charge for qualified public safety customers.

Security, Reliability and Hardening Measures

20. Describe the security measures and standards employed for both traffic and control messages on both wired and wireless portions of the network.

Verizon's Response

Verizon's response does not include products that provide encryption capabilities end to end. Verizon's response does not contain Identity, Credential, and Access Management – that item is under development. Below is a brief summary of the measures we have implemented in the wireless network to protect our wireless network and customers from physical and logical threats to systems and services.

These security measures include reviewing and deploying end-user device security capabilities, securing the mobile radio frequency interfaces, securing the connections between the cell sites and core network systems and gateways, and monitoring mission critical systems with a variety of sophisticated tools and solutions. As part of our network standards, other security measures include installation of fencing around key locations, deployment of intrusion detection and alarming, security camera monitoring, security guard presence, and background checks on all personnel.

The following are the key security enhancements in 4G LTE access:

- ✓ Secure storage: The 4GLTE Subscriber Identification Module ("SIM") card holds credentials and secure data for accessing services provided by the mobile network. The private key is created when the SIM is manufactured, and is shared with Verizon Wireless only, via a secure connection, ensuring that the data cannot be co-opted. Personal Identification Number ("PIN") and PIN Unblocking Key ("PUK") mechanisms are enforced on the SIM to ensure secure access to data or applications on the 4G LTE network. In this sense, the SIM offers hardware Root of Trust for Storage (RTS) for mobile devices. It provides cryptographic primitives and secures storage of key material that cannot be corrupted by the surrounding hardware and software of the handset.

- ✓ Mutual Authentication: In LTE networks, the network authenticates the user identity, while the user equipment (UE) authenticates the network credentials. Mutual authentication protects against attacks from rogue base stations. The 4G SIM contains the necessary authentication algorithms and certificates which aids in the secure accessing of the network. The primary algorithm for accessing the LTE network services is the 3GPP defined algorithm, MILENAGE.
- ✓ Root Key Length: The use of 128-bit keys doubles the key strength and in so doing requires a greater "level of effort" in attacking the algorithm. The security keys in the LTE network are derived from a Key Derivation Function (KDF). Each key has a different input but all keys used for crypto- algorithms are 128 bits in length.
- ✓ Security Context: Keys to encrypt signaling and User Plane (UP) data are created for each data session on the Verizon Wireless 4G LTE network. The key for UP traffic is retained for the period that the UE is in a valid connected session and the keys are deleted on transition to idle mode or on handover to another LTE cell site. Also, handover between LTE cell sites can only be performed after security is activated.
- ✓ Integrity Protection: Integrity protection is used to verify that the signaling has not been modified over the radio access interface and that the origin of signaling data is the one claimed. Each signaling message is appended with an integrity tag and the message is accepted only upon verification of the integrity by the receiving end. The Verizon Wireless LTE network supports 128- bit AES and SNOW3G algorithms for integrity protection.
- ✓ Airlink Encryption: Encryption is used to provide confidentiality, so that the User Plane data or signaling cannot be overheard on the radio access interface. The Verizon Wireless 4G LTE network supports three options for encryption: AES-128, SNOW3G and NULL. One of the three options is negotiated between the UE and LTE Cell before the communication commences. AES-128 is the preferred option in the Verizon Wireless LTE network, followed by SNOW3G and if the UE is not capable of either option, then no encryption (NULL) is used.

Verizon Wireless offers secure wireless data services for its government customers. These services are designed to enhance the mobile experience while maintaining security.

Secure Access Control to Management Center

The M2M Management Center is hosted by Verizon in a highly redundant, failover-capable configuration. Customer access to the Management Center

is provided through a formal processor on-boarding which provides access credentials to customers. Customers can use either of two methods to access the Management Center:

- ✓ The Integrated Portal: Access control to the Integrated Portal is provided via username/password credentials provided to users belonging to the customer's organization. SSL based connections for browsers with 128-bit (or higher) encryption are required.
- ✓ Unified Web Services (UWS): a set of web services APIs (offered via an application software development kit) based on standard SOAP/XML web services API technology. Customers use these APIs to integrate M2M Management Center services into the applications that they build and host. Access to UWS is provided through a username/password credential that the software application uses. Additional security is provided through web services session time outs and session tokens used in API call invocations. Unified Web Services connections use 1-way SSL (with 128 bit or higher encryption) with white-listing of the customer's application server IP address.

Application Security

Secure Sockets Layer (SSL) and Transport Layer Security (TLS) are standards-based protocols that allow mutual authentication between a client and server, and establish an authenticated and encrypted connection between the client and the server.

Dual-Persona

Dual persona enables a single Smartphone or tablet to be used for both business and personal use. It partitions the device so that data going to business side can be secured, managed and wiped, while leaving the employee to manage their own information.

The Verizon Dual Persona solution offered through Enterploid as a part of Government Mobility as a Service (EMaaS) includes a downloadable app that provides consistent security and management of any mobile device running Android 2.2 or iOS 5.0 and above. The Enterploid Divide service supports a suite of policies that govern data protection, data leakage, network access, email attachments and app distribution. All policies are distributed OTA and can be applied by group. The Divide client allows individuals to use their personal device for work tasks by creating a secure, extensible and IT-friendly business persona, including secure access to fully managed business productivity applications and unified communications, without compromising the individual's privacy or choice of device and personal usage.

Verizon offers services that secure the mobile device to protect user privacy

and provide a layer of protection against hazards common to connected mobile computing devices.

Verizon Mobile Security

Verizon offers a security suite of applications for Smartphone's which is designed to protect users from various threats to device and data theft. The basic suite includes antivirus and anti-phishing software that provides near real time protection from malware and alerts the user when browsing websites known to be malicious or contain phishing or other exploits as reported by McAfee Site advisor service.

Customers desiring even greater protection can find Verizon App Alert service which notifies users of the risks applications present in transmitting personal information. A recovery of lost device suite is also available that can locate, alarm, lock and erase lost devices. The controls for this suite are tied into the My Verizon Web portal.

Device Security Features

- ✓ Secure Boot: Prevents any OS modification or unauthorized OS software from being executed. During boot process, it verifies that only signed software is on the device. Through Mocana's NanoBoot solution, small signature verification application that executes during initialization from within a processor's protected flash memory (8 KB footprint).
- ✓ Trust Zone is available in most devices sold in 2012 or after.
- ✓ Multifactor Authentication: Meets DoD 8520.03 which mandates the use of the Common Access Card (CAC) for device level authentication. Accepts X.509 certificates from an external physical smart card reader and FIPS Validated Certificate Store.
- ✓ Data at Rest: Prevents access to user data if device is lost or stolen. Prevents malware or rogue apps from getting access to any user information. OEMs can leverages solutions which are both FIPS 140-2 certified and NSA Suite B compliant. Some solutions can be post-loaded on Android 4.0 and have a GUI; capable of AES-256 which exceeds native Data at Rest implementation on Android 3.X and 4.0. Examples include FIPS 140-2 certified module in Motorola RAZR, RAZR MAXX, and DROID 4; Samsung GALAXY TAB 10.1
- ✓ Data in Motion: Prevents interception and alteration of data being transmitted across the network, including via the radio access network. Works through Multiple IPSec VPN partners native to devices. Verizon Wireless has created government-wide policies that conform to the ISO 17799 and NIST standards for the protection of customer and employee information. Verizon Wireless has created

operational standards that reflect these corporate policies and have instituted a program to ensure adherence to the corporate policies.

The following reflects key corporate policies and guidelines:

- ✓ Supporting Policies, Practices and Guidelines Confidential and Proprietary Data Policy
 - Disposition of Personal Computing Assets
 - Database Standards
 - Internet and Web Users
 - Secure Socket Layer (SSL) Certificates
 - Violation Reporting
 - Electronic Mail/Instant Messaging Access & Usage
 - Wireless Device Security
 - PCI Logging
 - IT Support Center Data Privacy Practice
- ✓ Network & Access
 - Network Firewall Guidelines
 - Desktop & Laptop Security
 - Encryption Key Management
 - Externally Hosted Internet Applications
 - Wireless LAN
 - VPN Security
- ✓ Authentication
 - External / Extranet Supporting Practices
 - Internal / Intranet Supporting Practices
 - Third Party VPN/Extranet

21. Describe the overall network hardening for public safety services, and approach to meeting NPSTC public safety grade standards. Including but not limited to: battery backup, backup generator, redundant backhaul, etc.

Verizon's Response

The PSBCN solution will adhere to 3GPP standards and the National Public Safety Telecommunications Council (“NPSTC’s”) network requirements Defining Public Safety Grade Systems and Facilities report. We also understand that deploying a network that meets public safety’s recommendations is critical to enabling network services to withstand hurricanes such as Harvey and Irma where 98% and 90% (respectively) of Verizon’s cell sites remained operational throughout the historic storms.

Strategy for Continued Service to Mobile Switching Centers

Mobile Switching Centers (MSC) are an important part of our national wireless network, and we continue to add them to our network as we grow. We have 137 MSCs strategically distributed across the country to meet the needs of our customers. Our teams monitor the loading of the switching and data systems to maintain an optimum capacity and service level. One goal of this is to reduce the impact of a disaster to any one MSC. Available capacity in neighboring MSCs could be utilized in the event of a serious disaster.

In addition to redundancy in the equipment and circuitry, each MSC is protected by automatic power backup systems, by automatic fire detection and suppression systems, and by physical security systems and alarms. MSC buildings have restricted access to prevent entry by unauthorized personnel. The building structure itself is designed to provide protection for the systems and services located inside.

In each MSC, network operations personnel routinely backup system data for the switch itself and the peripheral systems. Automated backup routines are supplemented with scheduled manual backup routines and off-site storage of critical data.

A disaster recovery plan has been developed for each MSC, which addresses the recovery of the systems, services and personnel. These plans are updated at least annually. Exercises are conducted at least annually to confirm that these plans can be implemented as expected and to continually increase the readiness of the network teams to respond to an actual disaster. These exercises focus on disasters that may impact us or our customers.

Strategy for Continued Service to Cell Sites

We have thousands of cell sites across our nationwide network to provide the desired level of customer service, both in terms of capacity and quality of service. Despite the large number of sites, the loss of a single cell site is still a serious situation. We take extra precautions to protect and keep cell sites operational.

Cell site operations are protected in many ways, including redundancy in the equipment, automatic power backup systems, automatic fire detection systems, and by physical security systems and alarms. Through arrangements

with our vendors, any major components of a cell site, up to and including the building and tower, becomes an immediate priority restoration effort on the part of both Verizon Wireless and our vendors.

Cell site equipment has sophisticated diagnostics that can instantly determine if a problem occurs at the site. These diagnostic alarms are transmitted to the MSC, which is monitored by regional field operations teams, and the NOC. Cell sites are outfitted with backup batteries, and in most cases backup generators in case of commercial power loss.

We maintain and utilize portable cell sites referred to as Cells-on-Wheels (COWs) and Cell-on-Light-Trucks (COLTs), which are fully functional generator-powered cell sites that can replace or enhance network coverage and capacity in a given area. They can accommodate both voice and data services, and can be used for emergency situations. For example, they can be used to enhance communications between firefighters when they are fighting a fire in a remote wilderness area. These portable cell sites are strategically located throughout our network coverage areas and may be deployed to an area that is affected by a weather-related or other disaster.

Backup power strategy for the wireless network

Verizon Wireless purchases power from electric companies for the day-to-day power requirements of our network infrastructure. If commercial power is lost, we have implemented backup power systems for all of the critical equipment and infrastructure in our wireless network.

This is accomplished by installing large banks of backup batteries in our MSCs and Data Centers, and these are supported by permanent backup generators. We have arrangements with our fuel suppliers to refill our fuel tanks as needed, allowing our systems to operate until commercial power is restored.

The cell sites are also equipped with batteries, and most sites also have permanent generators which turn-on automatically if commercial power is lost. The company also owns a large supply of portable generators that can be deployed to provide emergency power during extended power outages to those cell sites without permanent generators.

Our MSC, Data Center, and cell site generators are tested regularly to ensure that they are functioning properly. Both the batteries and generators are regularly put through rigorous load tests to ensure that they can support the needs of the network in the event of a commercial power disruption.

Circuit diversity strategy for the wireless network

Our wireless network is comprised of numerous components that are connected using a mixture of fiber optic and high bandwidth telecommunication circuits. We support many of our critical network locations with diverse circuits, network technologies, and alternate local

telecom carriers. The impact of a severed fiber optic cable or a faulty data circuit is minimized by this diversity in our telecommunications connectivity.

Information Technology - Disaster Recovery Planning

The Information Technology (IT) team for Verizon Wireless manages the technology that supports internal business functions. For example this technology helps internal users respond to customer needs, streamline internal and external communications, and automate many of our high volume activities. Many of these technologies are integral to our daily operations.

Our IT Disaster Recovery team focuses its efforts on mission critical applications and systems, many of which support customer transactions. System engineers for these applications and their supporting technologies emphasize redundancy, geographic diversity, and heightened security to safeguard these systems from an unexpected interruption or disaster.

Data Center Strategy

Mission critical applications are maintained in a secure data center environment. Our major data centers are protected by automatic fire detection and suppression systems, and by physical security systems and alarms. The data centers have strictly limited access to prevent entry by unauthorized personnel. Only a small number of authorized employees are permitted to access these data centers, and the buildings are monitored by security guards and camera systems to provide a high level of protection to the systems and services located there.

All data centers are backed up by both battery and permanent generator systems which are designed to support the data center for extended timeframes in the event commercial power is disrupted. These systems are tested regularly to ensure that they will provide power when needed.

Data Backup Strategy

In each of the Data Centers that house mission critical applications, a significant amount of resources are put into our data back-up and restoration capabilities. Ensuring the availability and security of critical historic data is part of daily operations, and our back-up procedures include internal and off-site rotation of electronic files.

Backbone and Backhaul Network

A significant investment in high bandwidth connectivity is required to help ensure that our 4G LTE core systems maintain connectivity to the cell sites and our customers.

Verizon Wireless has continued to invest significantly in network capabilities that permit the continued growth in voice and data usage from our customers.

These capabilities include both physical and virtual diversity for our network paths, continued deployment of fiber in the backbone and backhaul networks, and ongoing deployment of nodes that reduce single points of failure in these networks. We have also continued to expand our ownership of these network assets nationally through our affiliate of XO Communications.

We also continue to design and deploy innovative portable solutions that provide our personnel, first responders, and our customers with options that extend wireless coverage into areas of need. Many of these solutions leverage technologies ranging from lightweight suitcase-sized cell sites, to trailer-based solutions, and Unmanned Aerial Vehicle (UAV) assets.

We invest billions of dollars in our network every year – more than \$126 billion since 2000. These investments include hardening our network from top to bottom – from switching centers to cell sites. For example:

- ✓ Our sub-zero switches are built in places like Minneapolis, where snow and ice are the biggest weather threats to our facilities. Reinforced roofing, specialized entranceways, thicker insulation and fiber buried to a much deeper level are key characteristics in this weather-fortified building. When ice melts, we have aqua dams, which, when deployed extend 500 feet around the perimeter of a switch location and when filled with water act as a barrier to flood waters to protect the building.
- ✓ Throughout Florida, an area known for hurricane activity, “Super Switches” are built to withstand Category 5 hurricane winds. These switch locations boast tilt wall block construction built of concrete and rebar and - because of possible flooding - fiber enters the facility in two distinct locations to ensure additional redundancy. Additionally, because commercial power loss is often associated with hurricanes and tropical storms, the Florida Super Switches have dual on-site generators and HVAC systems. The switch facilities also serve as emergency operation centers when hurricanes or other emergencies arise.
- ✓ Along the east coast, flooding is a significant issue when tropical storms and hurricanes threaten. So Verizon has built cell towers on stilts and elevated platforms. Base stations that house the majority of a cell tower’s equipment including its power, generators, cooling systems and transport interface, are elevated from ground level so if flood waters reach the tower, the equipment is safe, dry and able to perform.
- ✓ Because earthquakes cause lateral and vertical movements, the switch location in California is designed to withstand likely seismic movement patterns. Steel frame walls, suspended ceilings and extra bracing throughout for on-site generators, fire suppression agent

tanks and battery racks keep this building standing. Exterior generators are integrally mounted to their fuel tanks to prevent severance of buried lines and subsequent fuel spills.

- ✓ We own a fleet of portable emergency equipment that can be deployed quickly to keep customers connected or restore damaged connections as soon as possible.
- ✓ In the heartland, tornados often threaten equipment that is stored outdoors as most of Verizon's mobile equipment is. In Kansas, however, mobile assets are safely stored 60 feet underground in a 20,000 square foot cave, which provides safe and convenient storage for emergency assets including portable COWs, COLTs, HORSEs, GOATs, RATs and CROWs.

Customer Service – Answering the call for operational resilience

Our customer service operations are designed to be resilient. The contact centers are equipped to adapt to changes in customer call volumes, call types, or other circumstances so that they meet service quality targets. Customers are also provided with many different ways to interact with us. For example, customers can gather information about their accounts using our website and other self-service tools if these are most convenient for them.

Call Routing Between Multiple Locations

Our customer service team operates multiple contact centers located across the United States. Our teams can redirect calls between these locations to provide the best service possible and to optimize the skills of our personnel. This operational strategy is a valuable asset during times of crisis, since it helps minimize the customer impact from a disaster that may affect one location. For example, if one contact center needs to close due to a threatening major storm in the area, that center can redirect its calls to an alternate center in an unaffected part of the country. Our national operations infrastructure is a benefit for our customers since it limits the likelihood that any one event will cause a significant impact to our customer service operations.

Contact Center Infrastructure

We pay particular attention to the design of our contact centers, not only to make them a safe and enjoyable workplace for our employees, but also to minimize the risk of a disruption. These efforts include special security access to the building, including security guards, camera systems, and lighting systems. The communications equipment is maintained in a secure and environmentally controlled computer room, which is supported by both backup batteries and generator power.

Service Restoration Activities

The Verizon Crisis Response Team (V-CRT) is a nationwide program sponsored and managed by the National Government Sales & Operations team. When a natural disaster or crisis occurs, V-CRT responds to government and non-profit organization and emergency management agencies that need our assistance. V-CRT provides the following support in the event of a crisis:

- ✓ Deployment of COW/COLT/crisis response vehicle
- ✓ Back-up phone coverage
- ✓ Equipment/Network support
- ✓ Assistance with search and rescue initiatives
- ✓ A live support line to request help 24/7
- ✓ Best-in-class customer support
- ✓ Routing of requests to the Verizon Security Assistance Team
- ✓ One phone number (800-981-9558) to call in a crisis situation.

This process links together, for the first time, management of crisis situations in one location for the entire Verizon wireless community. V-CRT aligns network, operations, legal and sales – allowing us to react quickly to a crisis situation. The benefits to our customers and to emergency management agencies are tremendous.

Verizon Wireless Business Continuity and Disaster Recovery Program

The Verizon Wireless Business Continuity and Disaster Recovery Program (BC/DR) is just one part of our overall philosophy to provide high quality services for our customers. Our nationwide wireless network is at the core of our business, and we have invested more than \$126 billion since the company was formed – averaging over \$6 billion every year – to increase coverage and capacity and to add new services.

Our Business Continuity and Disaster Recovery (BC/DR) program team is responsible for minimizing the impact of a disruption to our customers, employees, infrastructure, and business operations. We accomplish this objective by focusing on the following activities:

- ✓ Identify critical functions, infrastructure and risks;
- ✓ Implement strategies to minimize the risk of a disruption;
- ✓ Develop Business Continuity and Disaster Recovery plans, and Crisis Management Teams to recover operations in the event of a disruption;

- ✓ Maintain BC/DR plans, with updates completed at least annually;
- ✓ Test our plans, at least annually, to validate our response capabilities.

We continue to refine our response and recovery capabilities due to the increasing variety of services we provide and the ever-changing level of potential threats to these services.

The cross-functional Crisis Management Teams in place across our national footprint enhance coordination and response activities during crisis events. These teams provide a command-and-control structure that allows management to gather and report information about crisis events, for the teams to escalate decision-making as needed, and to facilitate resource allocation.

BC/DR activities are visible across all major aspects of our company. We have developed numerous plans to recover critical functions. Business functions have implemented strategies and procedures that not only support routine operations, but also help the function continue to operate in the event of a disaster. Robust operational strategies are at the core of our ability to provide reliable and resilient services.

22. Does the vendor have the ability to augment coverage/capacity with deployable assets during events/disasters?

Verizon's Response

Deployment of Deployable

Verizon maintains deployable to improve capacity at large gatherings and special events. They are also utilized to quickly improve coverage and capacity when natural disasters or other unplanned events interrupt wireless service. Verizon's local operations team can deploy any of our emergency portable assets including COWs and COLTs. All portable assets are owned and maintained by Verizon Wireless.

Estimated duration deployment of a COW, COLT, and SPOT:

- ✓ Satellite connection - within 8-16 hours; based on capacity and Satellite connection
- ✓ Without interconnect - 24-48 hours
- ✓ With Interconnect - 8-16 hours
- ✓ SPOT- 4-8 hours/based on capacity and Satellite connection
- ✓ All have to support E911 before they can be turned up

23. How would public safety or other government agency requests for those deployable assets be prioritized over public network services in an emergency or disaster situation?

Verizon's Response

Our customer care teams work closely to monitor service levels, and the need to redirect calls to an alternate contact center. We have documented many of these routing patterns in our recovery plans to streamline our ability to activate the technology in the event of an interruption, and to send calls to the teams that are best equipped to help the customer.

Being crisis-ready is paramount to Verizon, and we are committed to supporting those who need us most when they need us most. During an emergency, first responders rely on wireless service more than ever to coordinate efforts in the face of fires, floods, snow and wind storms, earthquakes, tornados, or hurricanes.

24. Does the vendor support local agencies purchasing their own cellular equipment to 'turn up' additional capacity when/where needed.

Verizon's Response

Yes. Verizon offers the Mobile Connectivity Trailer – a towable deployable asset that can be managed and deployed directly by the customer. This allows the customer to maintain control over the timing and deployment decision for these network assets.

User Classification, Authorization and Onboarding

25. Detail classes of user priority defined and procedures required in applying for and initiating public safety priority service for a user as well as the mechanism for device provisioning and management in both day-to-day operations and during critical incidents.

Verizon's Response

Device Provisioning

- ✓ Verizon utilizes the latest technology and partners with various vendors to streamline the migration process and minimize the impact to end users
 - If porting from another carrier, there may be a brief lapse of service while the conversion is taking place.
- ✓ Verizon has experience working with all major equipment manufacturers, their mobile enrollment programs and various Mobile

Device Management (MDM) solutions to leverage semi-automated provisioning capabilities (a separate cost may be associated).

- ✓ Most enterprise data should automatically restore from the customer's servers on Smartphone
 - Voicemail configuration and restoration will be dependent on the customer's device and operating system selection. Porting device will establish a new voicemail system
- ✓ End users should be instructed to backup personal data that is not captured on the customer's servers prior to rollout; which can significantly reduce the overall transition time

Customer Involvement

- ✓ Partner with Verizon during the project planning phase to solidify overall project execution
- ✓ Approve / submit reconcile orders for onsite and direct ship device requests
- ✓ Partner with Verizon to create and solidify master rollout schedule
- ✓ Employee Communications: Verizon partners with the customer to ensure employee communications cover all pertinent conversion criteria
 - On-site Transitions - Customer manages scheduling end users for device pickup dates and times
 - Direct Ship - Customer communicates estimated delivery date to all remote end users

26. Describe the process for a user to use his/her personal mobile device to access the public safety network services if required.

Verizon's Response

Verizon offers tools to our public safety customers to manage their Bring Your Own Devices (BYOD) devices today through use of the public safety private core network.

27. Confirm your ability to activate equipment and priority data/video services within 24 hours after request in the event of a State of Disaster/Emergency.

Verizon's Response

Provided the customer has met all of the requirements to receive Mobile Broadband Priority Service, Verizon is able to activate equipment and Mobile



Broadband Priority Service within 24 hours after request in the event of a State of Disaster/Emergency.



**NASPO ValuePoint Wireless Data, Voice and Accessories
Product Add Request**

DATE: _____

ATTN: Chris Jennings
NASPO ValuePoint Contract Administrator

RE: NASPO ValuePoint Master Service Agreement # (the "Contract") with _____ ("Contractor")

Dear Mr. Jennings:

Action Requested:

Contractor requests to add the product(s) and/or service(s) referenced in this document (collectively, the "Products") to the Contract.

Action Log: _____ Verify Log is attached

PRODUCTS:

PRODUCT OVERVIEW:

Provide a summary of the product you are requesting to add. Attach any product brief to this document.

Describe how the product falls with the Scope of the Master Agreement:

NEW PRODUCT TERMS AND CONDITIONS. Attach any Terms and Conditions that apply to this product (such as ULA, Policy, Product Terms and Conditions). Any and all Products offered and furnished shall comply fully with all applicable Federal and State laws and regulations. Any third-party product provider must agree to the Master Agreement Terms and Conditions.



**NASPO ValuePoint Wireless Data, Voice and Accessories
Product Add Request**

BILLING

Any Product added to the NASPO ValuePoint Master Agreement must be billed by the Master Agreement Contractor and not by any third party.

COST:

Include a cost matrix to include NASPO ValuePoint contract pricing.



**NASPO ValuePoint Wireless Data, Voice and Accessories
Product Add Request**

APPROVAL:

Upon signature, NASPO ValuePoint approves the addition of the product(s) and/or service(s) referenced herein to the Contract.

Upon signature, Contractor assures that all product(s) and/or service(s) referenced herein meet the terms and conditions of the Contract and understands that NASPO ValuePoint reserves the right to audit Contractor for compliance in accordance with the terms and conditions of the Contract. NASPO ValuePoint also reserves the right (a) to request additional information with respect to the product(s) and/or service(s) throughout the life of the Contract if in the best interest of NASPO ValuePoint.

Contract Vendor:

BY: _____
NAME: _____
TITLE: _____
DATE: _____

NASPO ValuePoint

BY: _____
NAME: _____
TITLE: _____
DATE: _____



**NASPO ValuePoint Wireless Data, Voice and Accessories
Product Add Request**

ACTION LOG

Submit updated Action Log with each Request. Log must provide history of previous requests.

CONTRACT VENDOR: _____

Contact Name and Email (for questions): _____

DATE: _____

DATE SUBMITTED	ACTION REQUESTED:	DATE APPROVED

Utah Solicitation Number # CJ18012
Wireless Data, Voice, and Accessories
Attachment S

- A. Purchasing entities are concerned about the security and privacy of information and data related to the performance of this contract. The type of data and information transmitted, stored and processed by the products and services will vary based on the purchasing entities requirements. As a result, it is not possible to establish a single set of security requirements all products and services awarded under this contract must meet. Each purchasing entity purchasing from this contract will determine which products and services have the appropriate cyber security and data controls in place to meet their specific needs. To assist public entities each offeror must submit a Security Disclosure Statement with their proposal.

Verizon Response

Acknowledged.

- B. To qualify for any award under this contract, the Offeror must submit a Security Disclosure Statement addressing all of the elements listed below.
- I. In responding, Offeror must address not only the security mechanisms used by the bidder and its direct subsidiaries, but any partners, subcontractors or other 3rd parties who would be involved in implementing, operating, or in any way coming into contact with the service.

Verizon Response

Acknowledged.

- II. By signature of the proposal submitted in response to this RFP, the offeror represents and warrants the accuracy and currency of the information submitted in response to the Security Disclosure Statement as listed in paragraph C of this attachment.

Verizon Response

Acknowledged.

C. Security Disclosure Statement information required. Offeror shall describe all policies, procedures, measures, methods, certifications and standards the offered product and/or service has in place to protect the purchasing entities security and privacy of information and data involved in the performance of this contract for each numbered statement below. Description responses shall also include;

- I. If for the specific product or service offered, the numbered security statement is not appropriate because it does not as a matter of accepted security practice relate to the product or service offered, the offeror shall indicate in a statement that it is not applicable and briefly explain why.

Verizon Response

Acknowledged. Verizon maintains the CPI-810 Corporate Security Policy Instruction manual which is based and aligned with the National Institute of Standards and Technology (NIST) Cyber Security Framework (CSF), and other standards. In addition, individual business units may maintain supplemental security requirements in accordance with the instructions set forth in the CPI-810.

- II. If the specific product or service offered does not comply with the the numbered statement, the offer shall indicate, "does not comply".

Verizon Response

Acknowledged.

- 1) Methods and measures taken to hold, protect, and dispose of data during and following completion of any contract services. Include how access to a Purchasing Entity's user accounts or data will not be allowed, except in the course of data center operations, response to service or technical issues, as required by the express terms of the Master Agreement, the applicable Participating Addendum, and/or the applicable Service Level Agreement.

Verizon Response

Verizon integrates the principles of duty segregation into processes where there is potential for fraud or the risk of accidental or deliberate misuse of privileges. In those instances where sufficient segregation of duties is not possible or practical, other controls are put in place such as management oversight, monitoring of activities, logs, audit trails, etc. The underlying principle is to separate the initiation of an action from the authorization of that action. Additionally, Verizon utilizes the Principle of Least Privilege in which a user is granted the minimum level of access to perform actions necessary for the job function.

- 2) Security measures to secure and protect the confidentiality of information and data that is obtained, created, stored, transmitted, processed or otherwise held or managed by the product or service during the performance of all work related to performance of this contract. Include all data confidentiality standards and practices that prevent the exposure to unauthorized personnel, but also managing and reviewing access that administrators have to stored data.

Verizon Response

See answer above. Additionally, Logical access control policies are defined, documented and managed to ensure that only authorized personnel have access to critical business applications and systems based on position and job requirements. User access on Information Resources are reviewed by a Responsible Party at least once every twelve (12) months and privileged IDs are reviewed at least once every three (3) months to ensure they are still required and that all Users that utilize them are authorized.

- 3) Data encryption methods and standards in place to encrypt data at rest and in transit. This includes but is not limited to, encryption standards employed to protect data in transit over either wired or wireless (e.g. cellular, Wi-Fi, or other), and how that might change over the life of the contract.

Verizon Response

Verizon's Policies, Standards and Practices address the encryption requirements for sensitive data during transmission and while in storage, to include encryption technology specifications and minimum key length requirements. Verizon business units are required to develop policies, practices and instructions for use of cryptographic systems and techniques which must consider Verizon classification requirements and a process for key management, including revocation and recovery of encrypted information in the case of lost, compromised or damaged keys. Verizon uses industry standard, commercial grade strong encryption for message confidentiality, authentication, and non-repudiation.

- 4) Measures to protect Information about the cost, type, quantity and location of state communications facilities, system assets, plans, procedures, contract information, billing information and other information identified as sensitive by the purchasing entity related to the performance of all work under this contract.

Verizon Response

Verizon's asset management program utilizes discovery tools and core physical asset information to facilitate the lifecycle management of IT computer and data center assets. Classifications and associated labels are assigned to information and information processes by Information Resource Custodians in accordance with the need for confidentiality, integrity

and availability of the particular data and the security risk to Verizon should the information be compromised, corrupted, lost or destroyed, or the service rendered inoperable or misused.

- 5) Risk and policy management and enforcement measures in place to protect the security of physical assets and information.

Verizon Response

Verizon's Risk Management teams identify potential risks, including a wide variety of hazards or threats to infrastructure or business operations, and analyzes the business impact in order to determine the potential for interruption of critical processes, or the violation of internal security policies or controls. Once a risk is identified, Verizon develops an operational plan to respond to, assign responsibility for, and resolve risks identified in the risk assessment, tests the plans and incorporates lessons learned.

- 6) How distributed access is controlled and managed across IT assets, including data, applications, networks and platforms within the solution.

Verizon Response

Access to IT assets including data, applications, networks and platforms is centralized with work flow approval process.

- 7) Security management in place to secure data and applications, including threats from outside the service center as well as other customers co-located within the same service center.

Verizon Response

Verizon utilizes access control lists on edge routers. Customer facing servers are located in the Demilitarized Zone (DMZ). Secure routers and firewalls separate the Internet and DMZ, and additional secure routers and firewalls separate the Verizon internal network from the DMZ. Verizon uses standard protocols that are compatible with industry standard access control mechanisms.

- 8) Describe the logging process including:
 - a. The types of services and devices logged,

Verizon Response

Verizon systems are required to provide logging of any event that may indicate a system compromise, denial-of-service, or other security violation. System monitoring must be capable of immediately notifying an administrator when pre-determined event thresholds are exceeded. If audit records cannot be recorded, the system must be configured to generate an alarm (i.e., pager, email, etc.) to the security or other authorized administrator.

- b. The event types logged, and

Verizon Response

Verizon systems are required to provide logging of any event that may indicate a system compromise, denial-of-service, or other security violation. System monitoring must be capable of immediately notifying an administrator when pre-determined event thresholds are exceeded. If audit records cannot be recorded, the system must be configured to generate an alarm (i.e., pager, email, etc.) to the security or other authorized administrator.

- c. The information fields will be made available to the authorized Purchasing Entity if requested in their PA after award of the master agreement.

Verizon Response

Audit logs are confidential and not shared externally.

- 9) Describe the security Technical Reference Architectures

Verizon Response

Verizon firewalls, gateways, routers and Intrusion Detection Systems (IDS) restrict, control and monitor access into and within its network, sub-networks and the systems within its global network. Depending on the architecture, remote access authorization is managed through authentication protocols.

- 10) Describe security procedures (background checks, foot printing logging, etc.) which are in place regarding Offerors employees who have access to sensitive data.

Verizon Response

All prospective employees are investigated and subjected to a background check, including criminal and Social Security background checks, as part of the hiring process to determine whether they merit employment in the positions for which they applied. Additionally, all employees are covered by our Code of Conduct, which can be provided for your review upon request. Please note that the Code is available on our external website at:

<https://www.verizon.com/about/our-company/code-conduct>

- 11) Provide an itemized list of all cyber security standards and, security certifications in place that the products and service offered comply with to ensure appropriate controls and data confidentiality are in place, as well as those in process at time of response. Specifically include HIPAA, FERPA, CJIS Security Policy, PCI Data Security Standards (DSS), IRS Publication 1075, FISMA, NIST 800-53, NIST SP 800- 171, FIPS 200 and FedRAMP (Moderate, High) if they apply. Include detailed response on how security

standards and certifications will be maintained and updated to meet best practices for maintenance and operations.

Verizon Response

There are no certificates for wireless services. However, Verizon has implemented and enforced documented policies, standards and practices intended to protect the confidentiality, integrity, availability and non-repudiation of that information. Additionally, Verizon also employs a sizable Internal Audit function, whose mission includes continual assessment of Verizon controls and processes, in order to facilitate ongoing improvement in those areas, and to memorialize findings from those Audits in reports which are communicated up to and including Verizon's Board of Directors. Internal audit reports are generally considered confidential and proprietary to Verizon and are available to Verizon employees only on a need-to-know basis.

- 12) Provide a detailed list of all third-party attestations, security credentials and certifications, and reports relating to data security, integrity, and other controls in place.

Verizon Response

In order to provide competitive services Verizon may employ subcontractors. Verizon's subcontractor agreements include requirements to abide by Verizon Security Policies and are protected under non-disclosure agreements. Product/Service team would need to comment if any Third Parties will even be used for these services.

Verizon uses AWS for infrastructure and they comply with many of infrastructure related security measures.

In addition, Verizon has its own internal security measures that all products must comply prior to launch. These measures are based off of NIST CSF & NIST 800-53.

<https://aws.amazon.com/compliance/pci-dss-level-1-faqs/>

- 13) NIST Cybersecurity Framework, April 16, 2018, Version 1.1 <https://doi.org/10.6028/NIST.CSWP.04162018>: Describe how the offeror is prepared to utilize the NIST Cybersecurity Framework for Turnkey Internet of Things, Other Turnkey Wireless, Applications and Services (Category 3) and Wireless Transport Options (Category 4) as may be implemented by the Purchasing Entity, which may include, but is not limited to:
 - a. Convey the purchasing entities' cyber security requirements,

Verizon Response

Verizon maintains the CPI-810 Corporate Security Policy Instruction manual which is based and aligned with the National Institute of Standards and Technology (NIST) Cyber Security Framework (CSF), and other standards. In addition, individual business units may

maintain supplemental security requirements in accordance with the instructions set forth in the CPI-810.

- b. Identify Functions, Categories, Subcategories, and Informative References that describe specific cybersecurity activities will provide in the Offerors's system, products or services under contract with the Purchasing Entity,

Verizon Response

Verizon has an enterprise incident response, business continuity, and disaster recovery capability for responding to known or suspected security attacks, threats, or hazards to its network and information infrastructure. Formal reporting and incident response procedures are documented, implemented, and periodically tested. Verizon's Incident Response Operations organization is responsible for 24x7x365 security threat alarm monitoring and response, and security event response and management. The organization's process and procedures are formally documented and tested at least annually.

- c. Communicate cyber security requirements through Cyber Supply Chain Risk Management (SCRM), and

Verizon Response

See above answer.

- d. Other cybersecurity risk management activities of Offeror's system, products or services under contract with the purchasing entity.

Verizon Response

See above answer.

14) NIST Cybersecurity Framework, Table 2 Framework Core: For each subcategory of the all 15 Categories of the NIST Cybersecurity Framework, list the specific standards and certifications, the products or services offered comply with at the time or your proposal. Categories Include:

- a. Asset Management (ID.AM): The data, personnel, devices, systems, and facilities that enable the organization to achieve business purposes are identified and managed consistent with their relative importance to organizational objectives and the organization's risk strategy.

Verizon Response

Verizon maintains the CPI-810 Corporate Security Policy Instruction manual which is based and aligned with the National Institute of Standards and Technology (NIST) Cyber Security Framework (CSF), and other standards. In addition, individual business units may maintain



supplemental security requirements in accordance with the instructions set forth in the CPI-810.

- b. Business Environment (ID.BE): The organization's mission, objectives, stakeholders, and activities are understood and prioritized; this information is used to inform cybersecurity roles, responsibilities, and risk management decisions.

Verizon Response

Yes.

- c. Governance (ID.GV): The policies, procedures, and processes to manage and monitor the organization's regulatory, legal, risk, environmental, and operational requirements are understood and inform the management of cybersecurity risk.

Verizon Response

The CPI-810 practices and procedures have been updated to align with the National Institute of Standards and Technology (NIST) Cyber Security Framework. These documents describe the minimum baseline required to secure Verizon's information resources. This instruction applies to individual behaviors and business processes, as well as to our infrastructure and its supporting systems and applications.

- d. Risk Assessment (ID.RA): The organization understands the cybersecurity risk to organizational operations (including mission, functions, image, or reputation), organizational assets, and individuals.

Verizon Response

Yes.

- e. Risk Management Strategy (ID.RM): The organization's priorities, constraints, risk tolerances, and assumptions are established and used to support operational risk decisions.

Verizon Response

Yes.

- f. Supply Chain Risk Management (ID.SC): The organization's priorities, constraints, risk tolerances, and assumptions are established and used to support risk decisions associated with managing supply chain risk. The organization has established and implemented the processes to identify, assess and manage supply chain risks.

Verizon Response

Third party service providers are regularly monitored for security and privacy compliance via the SOC and HIPAA risk assessment and compliance processes. Third party vendors must also comply with Verizon internal security policies; reviewed as a pre-requisite to production implementation and on-going, annually.

- g. Identity Management, Authentication and Access Control (PR.AC): Access to physical and logical assets and associated facilities is limited to authorized users, processes, and devices, and is managed consistent with the assessed risk of unauthorized access to authorized activities and transactions.

Verizon Response

Yes.

- h. Awareness and Training (PR.AT): The organization's personnel and partners are provided cybersecurity awareness education and are trained to perform their cybersecurity related duties and responsibilities consistent with related policies, procedures, and agreements.

Verizon Response

Security awareness training is mandatory and conducted by Corporate Security throughout Company structure with topics discussed but not limited to: protection of proprietary information; classification and handling of information/materials; business ethics; high risk situations; disaster prevention; password security; health and safety; etc. This training is reinforced by security awareness articles and bulletins on current issues.

- i. Data Security (PR.DS): Information and records (data) are managed consistent with the organization's risk strategy to protect the confidentiality, integrity, and availability of information.

Verizon Response

Yes.

- j. Information Protection Processes and Procedures (PR.IP): Security policies (that address purpose, scope, roles, responsibilities,

management commitment, and coordination among organizational entities), processes, and procedures are maintained and used to manage protection of information systems and assets.

Verizon Response

Yes.

- k. Maintenance (PR.MA): Maintenance and repairs of industrial control and information system components are performed consistent with policies and procedures.

Verizon Response

Procedures are clearly documented to ensure that maintenance access is only accessible by arrangement between the manager of the computer service and the hardware/software support personnel requiring access. One-time password mechanisms or two-factor authentication are required for external or remote network access and access to critical data.

- l. Protective Technology (PR.PT): Technical security solutions are managed to ensure the security and resilience of systems and assets, consistent with related policies, procedures, and agreements.

Verizon Response

Yes.

- m. Anomalies and Events (DE.AE): Anomalous activity is detected and the potential impact of events is understood.

Verizon Response

Yes.

- n. Security Continuous Monitoring (DE.CM): The information system and assets are monitored to identify cybersecurity events and verify the effectiveness of protective measures.

Verizon Response

Verizon has taken extraordinary measures to ensure the security and privacy of our networks-from teams of cyber-security employees monitoring our networks around the clock to completing a comprehensive update of our privacy policy.

- o. Detection Processes (DE.DP): Detection processes and procedures are maintained and tested to ensure awareness of anomalous events.

Verizon Response
Yes.

- p. Response Planning (RS.RP): Response processes and procedures are executed and maintained, to ensure response to detected cybersecurity incidents.

Verizon Response
Yes.

- q. Communications (RS.CO): Response activities are coordinated with internal and external stakeholders (e.g. external support from law enforcement agencies).

Verizon Response

Verizon has established processes to identify, track and determine applicable legal and regulatory information security and privacy regulations as defined and implemented by external governing bodies (e.g. international, Federal, state and local governments).

- r. Analysis (RS.AN): Analysis is conducted to ensure effective response and support recovery activities.

Verizon Response
Yes.

- s. Mitigation (RS.MI): Activities are performed to prevent expansion of an event, mitigate its effects, and resolve the incident.

Verizon Response
Yes.

- t. Improvements (RS.IM): Organizational response activities are improved by incorporating lessons learned from current and previous detection/response activities.

Verizon Response
Yes.

- u. Recovery Planning (RC.RP): Recovery processes and procedures are executed and maintained to ensure restoration of systems or assets affected by cybersecurity incidents.

Verizon Response
Yes.

- v. Improvements (RC.IM): Recovery planning and processes are improved by incorporating lessons learned into future activities.

Verizon Response
Yes.

- w. Communications (RC.CO): Restoration activities are coordinated with internal and external parties (e.g. coordinating centers, Internet Service Providers, owners of attacking systems, victims, other CSIRTs, and vendors).

Verizon Response
Yes.

- 15) Describe the data breach/incident policies and procedures regarding notification to both the purchasing entity of a security incident and/or data breach, as defined in this RFP, and the mitigation of such a breach. Include how proposer will work with Purchasing Entities before, during, and after a Security Incident and a Data Breach. Include information such as:
 - a. Personnel who will be involved at various stages, include detail on how the Contract Manager will be involved;

Verizon Response

Customer notifications are contract-specific and may vary based on geographic location and jurisdiction (e.g. U.S. State requirements vs. EU notification requirements). Please consult with your Account Representative for customer-specific procedures relating to breach notification.

- b. Response times;

Verizon Response
See above answer.

- c. Incident levels;

Verizon Response
See above answer.

- d. Processes and timelines;

Verizon Response

See above answer.

- e. Methods of communication and assistance; and

Verizon Response

Verizon will use commercially reasonable efforts to promptly notify the customer and assist them in investigating and assessing the extent and nature of the unauthorized disclosure. Notification is made based on statutory or contractual requirements.

- f. Other information vital to understanding the service you provide.

Verizon Response

See above answer

- g. Provider should take into consideration that Purchasing Entities may have different notification requirements based on applicable laws and the categorization type of the data being processed or stored.

Verizon Response

Acknowledged.

- 16) Describe the method for compliance with all applicable laws related to data privacy and security including state Security Breach Notification Laws dealing with personally identifiable information (PII). Describe any legal obligations related to security the offeror will meet over the life of the contract and describe how offeror will report changes to these obligations to the public entity.

Verizon Response

Verizon's policies on the use and disclosure of customer data are set forth in Verizon's privacy policy, the terms and conditions of products and services, and its customer agreements. Under federal law and some state laws, customer has the right, and Verizon the duty, to protect the confidentiality of Customer Data that also is customer proprietary network information ("CPNI"). Verizon's use and disclosure of CPNI, as that term is or may hereinafter be defined in Section 222 of the Communications Act of 1934, as amended (the "Act"), shall be governed solely by, and undertaken strictly in accordance with, applicable law including without limitation the Act..

- D. Any Turnkey Internet of Things, Other Turnkey Wireless system that incorporates SaaS, IaaS or PaaS or other cloud computing element shall complete, provide, and maintain a completed CSA STAR Registry Self-Assessment for that element. 2 < https://cloudsecurityalliance.org/star/self-assessment/#_overview. Offeror must either submit a completed Consensus Assessments Initiative Questionnaire (CAIQ), or submit a report documenting compliance with Cloud Controls Matrix (CCM) that the CAIQ is based on for the element that cloud based.

Verizon Response

Verizon has its own internal security policies that all products must comply prior to launch. These policies are based off of NIST CSF & NIST 800-53.

Verizon leverages on existing AWS compliance, certifications, and best practices when it deploys the platform on AWS Cloud Infrastructure and when it uses AWS Managed Services.

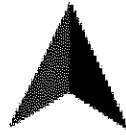
AWS Cloud Infrastructure compliance programs:
<https://aws.amazon.com/compliance/programs/>.



Solicitation # CJ18012
Wireless Data, Voice, and Accessories RFP
Attachment V
Category 3 Subcategory Definitions

Item	Application	Definition
A	Fleet Management	Allows the management of tasks associated with managing a fleet of vehicles through the use of telematics or remote sensing devices.
B	Mobile Device Management /Enterprise Mobility Management (MDM/EMM)	Mobile device management/enterprise mobility management (MDM/EMM) are solutions IT organizations use to manage and support end users' mobile devices, applications and data, and to enforce enterprise security policies.
C	Mobile Integration/Mobile Substitution Solutions	Network-based solutions that allow the integration of a user's mobile device and a desk phone, and provide a number of other business-oriented features. As a minimum, solutions meeting this criteria will provide: <ul style="list-style-type: none">• Single Number Reach or the ability for a user to be reached at a single business telephone number.• Calls to that single telephone number would ring at both the user's desk phone or mobile device either through simultaneous and/or sequential ringing.• Single Voicemail Box for calls to that single business number.
D	Workforce Management	Workforce management solutions are systems that organizations use to manage personnel who are mobile or regularly operate outside of a fixed office or work location. Functions typically include supervisory monitoring, time and attendance tracking, enforcing pay/workforce rules, scheduling, planning, task management, capacity planning, budgeting, forecasting, and other related functions
E	Field Service Management	Systems that support the management of field service operations typically managing service orders, dispatching technicians, work planning, route optimization, time recording, maintenance data collection/analysis and other related functions.

F	Mobile Data Collection/Mobile Forms	A solution(s) that allow mobile users with cellular-equipped tablets or smartphones to collect data and possibly other information (e.g. pictures, videos, audio notes, locations, etc.), which is then sent over the cellular network to a cloud storage facility from which it can be accessed or downloaded by the customer.
G	Traffic Management and Intelligent Transport Systems (ITS)	Systems implemented by local governments to manage the flow of vehicle and potentially pedestrian traffic to reduce congestion, improve efficiency, reduce energy waste, improve safety and optimize road utilization.
I	Public Safety Systems	Any system that would be used by public safety organizations (e.g. Police, Fire, EMS, etc.) in executing their duties. Those functions might include multimodal communications, locating resources, managing responses, routing and dispatching, building and site intelligence, ongoing monitoring and detection systems, and other related functions.
J	IoT Management	Solutions to monitor, manage and maintain networks of Internet of Things (IoT) devices. Functions might include maintaining inventory, monitoring health/performance, measuring utilization, security maintenance, diagnostics and troubleshooting, downloading software/firmware updates, executing remote commands (e.g. turn off/on, reboot, etc.), logging/reporting, and other related functions.
M	Enterprise Messaging	A messaging solution offered as an alternative to traditional SMS/MMS and offering enterprise-grade security, archiving, and retrieval geared for the messaging requirements of organizations with stringent security requirements.
N	Secure LAN Access	A cellular wireless service providing a secure end-to-end virtual private network (VPN) type connection between a mobile device and to the customer's local area network (LAN).



NASPO
ValuePoint

MA152-1

Attachment W

Wireless Data, Voice and Accessories

Offeror Submission Sheet

Offeror Name: Cellco Partnership d/b/a Verizon Wireless

Instructions: Please indicate below which categories of award apply to your proposal. Offerors may propose by state if desired in lieu of a National Award for Categories 3 and 4 (Regional). If Regional award is desired please indicate so on this attachment. Organizing your proposal so that each category of award is addressed separately would be preferable.

Category (subcategory)	Yes	No	Regional Award?
Category 1: Wireless Voice and Data	X		N/A
Category 2: Wireless Accessories and Equipment	X		N/A
Category 3: Turnkey Wireless Solutions (Check this if any subcategories below)	X		
Category 3: Subcategory A: Fleet Management	X		
Category 3: Subcategory B: Mobile Device Management/Enterprise Mobility (MDM/EMM)	X		
Category 3: Subcategory C: Mobile Integration/Mobile Substitution Solutions	X		
Category 3: Subcategory D: Workforce Management	X		
Category 3: Subcategory E: Field Service Management	X		
Category 3: Subcategory F: Mobile Data Collection/Mobile Forms	X		
Category 3: Subcategory G: Traffic Management and Intelligent Transport Systems (ITS)	X		
Category 3: Subcategory H: Snow and Ice Removal Route Management		X	
Category 3: Subcategory I: Public Safety Systems	X		
Category 3: Subcategory J: IoT Management	X		
Category 3: Subcategory K: Energy Conservation/Management		X	
Category 3: Subcategory L: Building and Facilities Automation		X	
Category 3: Subcategory M: Enterprise Messaging	X		
Category 3: Subcategory N: Secure LAN Access	X		
Category 4: Alternate Data Transport		X	