



AGENDA

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

BOARD OF DIRECTORS SPECIAL MEETING
Thursday, August 6, 2015 • 9:00 a.m.
Grace E. Simons Lodge
1025 Elysian Park Drive, Los Angeles, CA 90012

Los Angeles Regional Interoperable Communications System Authority (the "Authority")

AGENDA POSTED: August 5, 2015

Complete agendas are made available for review at the designated meeting location. Supporting documentation is available at the LA-RICS Office located at 2525 Corporate Place, Suite 100, Monterey Park, CA 91754 during normal business hours and may also be accessible on the Authority's website at <http://www.la-rics.org>.

Members:

1. **Miguel Santana**, CAO, City of Los Angeles
2. **Ralph Terrazas**, Fire Chief, City of Los Angeles Fire Dept.
3. **Charles L. Beck**, Vice Chair, Chief of Police, LA Police Dept.
4. **Sharon Tso**, Chief Legislative Analyst, City of Los Angeles
5. **Sachi Hamai**, Chair, CEO, County of Los Angeles
6. **Daryl L. Osby**, Fire Chief, County of Los Angeles Fire Dept.
7. **Jim McDonnell**, Sheriff, County of Los Angeles Sheriff's Dept.
8. **Cathy Chidester**, Dir., EMS Agency, County of LADHS
9. **Steven K. Zipperman**, Chief of Police, LA School Police Dept.
10. **Bill Walker**, Fire Chief, City of Alhambra Fire Dept.
11. **Larry Giannone**, Chief of Police, City of Sierra Madre Police Dept.
12. **Mark R. Alexander**, City Manager, CA Contract Cities Assoc.
13. **Kim Raney**, Chief of Police, City of Covina Police Dept.
14. **Douglas Prichard**, City Manager, City of Rolling Hills Estates

Alternates:

Patty Huber, Asst., CAO, City of Los Angeles
June Gibson, Fire Administrator, City of Los Angeles Fire Dept.
Maggie Goodrich, Chief Information Officer, LA Police Dept.
Matias Farfan, Asst., Chief Legislative Analyst, City of Los Angeles
Tom Tindall, Director, CEO, County of Los Angeles
Chris Bundesen, Asst., Fire Chief, County of Los Angeles Fire Dept.
Scott Edson, Commander, County of Los Angeles Sheriff's Dept.
Karolyn Fruhwirth, Asst., Dir., EMS Agency, County of LADHS
Jose Santome, Deputy Chief, LA School Police Dept.

Joe Ortiz, Captain, City of Sierra Madre Police Dept.
Sam Olivito, Executive Dir., CA Contract Cities Assoc.
David Povero, Captain, City of Covina Police Dept.
Greg Grammer, Asst., City Manager, City of Rolling Hills Estates

Officers:

Patrick Mallon, Executive Director
John Naimo, County of Los Angeles Auditor-Controller
Joseph Kelly, County of Los Angeles, Treasurer and Tax Collector
Priscilla Lara, Board Secretary



NOTE: ACTION MAY BE TAKEN ON ANY ITEM IDENTIFIED ON THE AGENDA

- I. CALL TO ORDER
- II. ANNOUNCE QUORUM – Roll Call
- III. PUBLIC COMMENTS
- IV. CONSENT CALENDAR – (None)
- V. REPORTS (None)
- VI. ADMINISTRATIVE MATTERS (A-B)

A. APPROVE AMENDMENT NO. 12 FOR AGREEMENT NO. LA-RICS 008 FOR LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM PUBLIC SAFETY BROADBAND NETWORK

It is recommended that your Board:

1. Find that the approval of, execution of, and work covered by Amendment No. 12 does not result in any change to the PSBN project, or to the circumstances under, which the project is being undertaken, and that the determination that this activity is exempt from review under California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21080.25, the statutory exemption adopted specifically for the LA-RICS project, remains unchanged. Also find that the approval of, execution of, and work covered by Agreement No. LA-RICS 008 is exempt from review under the CEQA under CEQA Guidelines Section 15061 (b)(3), and is also not a project under CEQA pursuant to CEQA Guidelines Sections 15378(b)(2) and 15378(b)(5).
2. Approve Amendment No. 12 to Agreement No. LA-RICS 008 for the PSBN with Motorola Solutions, Inc. (Motorola), substantially similar in form to the Enclosure, which revises the Agreement to:
 - (a) Remove forty-two (42) PSBN Sites from the scope of the PSBN resulting in cost reduction in the amount of \$12,989,223.
 - (b) Remove the tower foundations from seven (7) PSBN Sites as part of construction restoration Work to return the sites to preconstruction conditions in the amount of \$37,607.



- (c) Include construction restoration Work for one (1) PSBN Site LASDCVS to return the site to preconstruction conditions in the amount of \$19,800.
 - (d) Include and purchase 5,000 UICC in the amount of \$245,000.
 - (e) Include and purchase of five (5) CISCO routers and five (5) corresponding units of data service in the amount of \$17,500.
 - (f) Account for site construction changes and corresponding adjustments to Final Acceptance requirements and closeout activities that will facilitate final spend of funds during the BTOP grant performance period.
 - (g) Account for the correction in costs to remedy miscalculations in the amount of \$165,422.
 - (h) Authorize the reduction in the Maximum Contract Sum by \$12,353,154 (\$12,989,223 – \$636,069 when taking the above cost increases into consideration) from \$166,238,851 to \$153,885,697.
3. Allow for the issuance of one or more Notices to Proceed for the Work contemplated in Amendment No. 12.
 4. Delegate authority to the Executive Director to execute Amendment No. 12 in substantially similar form to the enclosed Amendment.

Agenda Item A: Enclosure

B. MEMORANDUM OF AGREEMENT WITH THE CITY OF LOS ANGELES FOR USE OF THE CITY OF LOS ANGELES' MICROWAVE SYSTEM

It is recommended that your Board:

1. Find that the approval and execution of the Agreement for use of the City's Microwave System is exempt from review under the California Environmental Quality Act (CEQA), because it is not a project as defined in Sections 15378(b) (2) and (b)(5) of the State CEQA Guidelines; and that it is also categorically exempt from the provisions of CEQA under State CEQA Guidelines Section 15061(b)(3).
2. Delegate authority to the Executive Director to execute an Agreement, substantially similar in form to the enclosed, between the City and the



Authority to allow the Authority to use the City's Microwave System at no cost to the Authority, to enhance the connectivity of the PSBN, which shall commence upon execution for a term of fifteen (15) years unless otherwise terminated pursuant to the terms of the Agreement.

Agenda Item B: Enclosure

VII. MISCELLANEOUS – (None)

VIII. ITEMS FOR FUTURE DISCUSSION AND/OR ACTION BY THE BOARD

IX. CLOSED SESSION REPORT (None)

X. ADJOURNMENT and NEXT REGULAR MEETING:

Thursday, September 10, 2015, at 9:00 a.m., at the Grace E. Simons Lodge.



BOARD MEETING INFORMATION

Members of the public are invited to address the LA-RICS Authority Board on any item on the agenda prior to action by the Board on that specific item. Members of the public may also address the Board on any matter within the subject matter jurisdiction of the Board. The Board will entertain such comments during the Public Comment period. Public Comment will be limited to three (3) minutes per individual for each item addressed, unless there are more than ten (10) comment cards for each item, in which case the Public Comment will be limited to one (1) minute per individual. The aforementioned limitation may be waived by the Board's Chair.

(NOTE: Pursuant to Government Code Section 54954.3(b) the legislative body of a local agency may adopt reasonable regulations, including, but not limited to, regulations limiting the total amount of time allocated for public testimony on particular issues and for each individual speaker.)

Members of the public who wish to address the Board are urged to complete a Speaker Card and submit it to the Board Secretary prior to commencement of the public meeting. The cards are available in the meeting room. However, should a member of the public feel the need to address a matter while the meeting is in progress, a card may be submitted to the Board Secretary prior to final consideration of the matter.

It is requested that individuals who require the services of a translator contact the Board Secretary no later than the day preceding the meeting. Whenever possible, a translator will be provided. Sign language interpreters, assistive listening devices, or other auxiliary aids and/or services may be provided upon request. To ensure availability, you are advised to make your request at least 72 hours prior to the meeting you wish to attend. (323) 881-8291 or (323) 881-8295

SI REQUIERE SERVICIOS DE TRADUCCION, FAVOR DE NOTIFICAR LA OFICINA CON 72 HORAS POR ANTICIPADO.

The meeting is recorded, and the recording is kept for 30 days.



LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 100
Monterey Park, California 91754
Telephone: (323) 881-8291
<http://www.la-rics.org>

PATRICK J. MALLON
EXECUTIVE DIRECTOR

August 6, 2015

LA-RICS Board of Directors
Los Angeles Regional Interoperable Communications System Authority (the "Authority")

Dear Directors:

APPROVE AMENDMENT NO. 12 FOR AGREEMENT NO. LA-RICS 008 FOR LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM PUBLIC SAFETY BROADBAND NETWORK

SUBJECT

Board approval is requested to authorize the Executive Director to execute an amendment to Agreement No. LA-RICS 008 Los Angeles Regional Interoperable Communications Systems (LA-RICS) – Public Safety Broadband Network (PSBN) to revise the Agreement to reflect: (a) the removal of forty-two (42) PSBN Sites from the scope of the PSBN; (b) the removal of tower foundations from seven (7) PSBN Sites as part of construction restoration Work; (c) the inclusion of construction restoration Work for one (1) PSBN Site Los Angeles County Sheriff's Department Crescenta Valley Station (LASDCVS) to return the site to preconstruction conditions; (d) the inclusion and purchase of 5,000 Universal Integrated Circuit Cards (UICC); (e) the inclusion and purchase of five (5) CISCO routers and five (5) corresponding units of data service; (f) site construction changes and corresponding adjustments to Final Acceptance requirements and closeout activities that will facilitate final spend of funds during the Broadband Technology Opportunities Program (BTOP) grant performance period; (g) remedy certain miscalculations in costs; (h) a cost reduction to account for forty-two (42) terminated PSBN Sites; (i) all actions decreasing the Maximum Contract Sum by \$12,353,154. Amendment No. 12 will be in substantially similar in form to the Enclosure.

AGENDA ITEM A

RECOMMENDED ACTIONS

It is recommended that your Board:

1. Find that the approval of, execution of, and work covered by Amendment No. 12 does not result in any change to the PSBN project, or to the circumstances under, which the project is being undertaken, and that the determination that this activity is exempt from review under California Environmental Quality Act (CEQA) pursuant to Public Resources Code Section 21080.25, the statutory exemption adopted specifically for the LA-RICS project, remains unchanged. Also find that the approval of, execution of, and work covered by Agreement No. LA-RICS 008 is exempt from review under the CEQA under CEQA Guidelines Section 15061 (b)(3), and is also not a project under CEQA pursuant to CEQA Guidelines Sections 15378(b)(2) and 15378(b)(5).
2. Approve Amendment No. 12 to Agreement No. LA-RICS 008 for the PSBN with Motorola Solutions, Inc. (Motorola), substantially similar in form to the Enclosure, which revises the Agreement to:
 - (a) Remove forty-two (42) PSBN Sites from the scope of the PSBN resulting in cost reduction in the amount of \$12,989,223.
 - (b) Remove the tower foundations from seven (7) PSBN Sites as part of construction restoration Work to return the sites to preconstruction conditions in the amount of \$37,607.
 - (c) Include construction restoration Work for one (1) PSBN Site LASDCVS to return the site to preconstruction conditions in the amount of \$19,800.
 - (d) Include and purchase 5,000 UICC in the amount of \$245,000.
 - (e) Include and purchase of five (5) CISCO routers and five (5) corresponding units of data service in the amount of \$17,500.
 - (f) Account for site construction changes and corresponding adjustments to Final Acceptance requirements and closeout activities that will facilitate final spend of funds during the BTOP grant performance period.
 - (g) Account for the correction in costs to remedy miscalculations in the amount of \$165,422.
 - (h) Authorize the reduction in the Maximum Contract Sum by \$12,353,154 (\$12,989,223 – \$636,069 when taking the above cost increases into consideration) from \$166,238,851 to \$153,885,697.

3. Allow for the issuance of one or more Notices to Proceed for the Work contemplated in Amendment No. 12.
4. Delegate authority to the Executive Director to execute Amendment No. 12 in substantially similar form to the enclosed Amendment.

BACKGROUND

On March 6, 2014, your Board awarded Agreement No. LA-RICS 008 for LA-RICS PSBN System to Motorola to provide Long Term Evolution (LTE) broadband technology to approximately 34,000 first responder and 17,000 secondary responder personnel to the greater Los Angeles region.

Following actions by the Los Angeles County (County) Board of Supervisors and the City of Los Angeles (City) City Council in March and April 2015, the Department of Commerce National Oceanic and Atmospheric Administration (NOAA) Grants Management Division, on behalf of National Telecommunications and Information Administration (NTIA), notified the Authority on April 3, 2015, of a suspension of all work, with certain limited exceptions, related to the PSBN project and issued a Corrective Action Plan (CAP) that required the Authority to provide a response by April 13, 2015.

On April 13, 2015, the Authority submitted a response to the CAP, which provided an alternative system solution with various augmentation strategies, including the use of fifteen (15) Cells-on-Wheels (COW) to mitigate losses in coverage and capacity.

On April 14, 2015, the County Board of Supervisors took action to approve the Authority's CAP response permitting PSBN infrastructure at a smaller number of County-owned, operated, or controlled sites and allowed construction to begin or continue at those sites set forth in the CAP response. Likewise, on April 17, 2015, the Los Angeles City Council approved a motion to reinstate the Los Angeles Police Department (LAPD) sites which the Authority reflected as an additional strategy in the form of an addendum to the CAP response.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

Approval of the recommended actions will authorize the Executive Director, on behalf of the Authority, to authorize Motorola, to make the changes necessary to reflect (a) the removal of forty-two (42) PSBN Sites from the scope of the PSBN; (b) the removal of tower foundations from seven (7) PSBN Sites as part of construction restoration Work; (c) the inclusion of construction restoration Work for one (1) PSBN Site LASDCVS to return the site to preconstruction conditions; (d) the inclusion and purchase of 5,000 UICC; (e) the inclusion and purchase of five (5) CISCO routers and five (5) corresponding units of data service; (f) site construction changes and corresponding

adjustments to Final Acceptance requirements and closeout activities that will facilitate final spend of funds during the BTOP grant performance period; (g) remedy certain miscalculations in costs; and (h) a cost reduction to account for forty-two (42) terminated PSBN Sites.

As previously mentioned to your Board, due to the removal of 42 PSBN Sites, it was necessary to negotiate with Motorola to reconcile the Agreement to reflect a drop in PSBN Sites commensurate with the adopted CAP plan. This Amendment No. 12 reflects the dropping of forty-two (42) PSBN Sites from the PSBN and the resultant changes in the scope of the Agreement and a reduction in costs associated with this work. However, the Authority continues to work closely with Motorola negotiate and further reconcile the Agreement and schedule of payments to reflect additional changes in scope resulting from the loss of PSBN Sites.

Amendment No. 12 also addresses the removal of tower foundations from seven (7) PSBN Sites as part of construction restoration Work and includes performing construction restoration Work at one (1) PSBN Site LASDCVS to return the site to preconstruction conditions. On June 18, 2015, your Board approved the construction restoration Work to commence at thirty (30) PSBN Sites to return the sites to preconstruction conditions. After your Board authorized this work, it was necessary to modify the scope to contemplate the complete removal of tower foundations at seven (7) Los Angeles County Fire Station sites as opposed to covering the tower foundations with an encasement as originally planned. Further, following your Board's authorization for construction restoration Work, LASDCVS was identified as a dropped site that would require construction restoration Work to return it to preconstruction conditions. As such, the Authority worked with Motorola to identify a cost for this work which is being presented to your Board for approval under this Amendment No. 12.

Additional work contemplated in Amendment No. 12 is the purchase of 5,000 UICC for use with PSBN LTE devices. The Authority is currently pursuing the purchase of certain LTE devices (namely in-vehicle routers) to be used on the PSBN. However, these devices require UICCs to function on the PSBN, which Motorola has agreed to provide the Authority. Moreover, the amendment contemplates the purchase of five (5) CISCO routers and five (5) corresponding units of data service that are capable of operating a 4G cellular aircard on a commercial carrier that will allow Motorola and the Authority to temporarily test eNodeB sites in the event that the permanent backhaul solution is not available at the time of site commissioning.

Lastly, Amendment No. 12 contemplates the reconciliation of a portion of site construction changes that are above the scope of the current agreement and to remedy certain miscalculations in costs that have resulted over the course of the various amendments that have previously been presented to your Board. This Amendment No. 12 also adjusts the Final System Acceptance requirements to permit acceptance of PSBN sites by the Authority upon substantial completion of construction by Motorola at

such sites, with the exception of punch list items, and moves the Final System Acceptance date from August 15, 2015 to August 31, 2015. This will permit more time for sites to be substantially completed, and for invoicing for this work to timely occur so that the remaining BTOP grant funds can be drawn down by the Authority prior to the expiration of the September 30, 2015 grant performance deadline. Any final punch-list items will then need to be completed prior to final payment of an invoice by the Authority. The changes also permit testing of the PSBN to fully occur as originally contemplated.

The project team continues to work closely with Motorola to reconcile remaining outstanding work items and expects to present additional amendments to your Board as soon as costs and terms and conditions are successfully negotiated with Motorola.

ENVIRONMENTAL DOCUMENTATION

On March 6, 2014, and thereafter, the Board determined that design, construction, implementation, operation, and maintenance of the PSBN project (also known as the LTE Project) collectively and individually at the PSBN sites were exempt from review under the CEQA pursuant to Public Resources Code Section 21080.25, the statutory exemption adopted specifically for the LA-RICS project. Approval of this Amendment No. 12 does not result in any change to the PSBN project and the determination that these activities are exempt from CEQA remains unchanged. As the CEQA Lead Agency, the LA-RICS Authority has determined that all of the work meets the statutory exemption. This determination is supported by substantial evidence in the custody of the Authority, which is incorporated in relevant part into the record of proceedings.

The remaining activities in Amendment No. 12 involve design work and the purchase of supplies/equipment, and are organizational or administrative activities of government that will not result in direct or indirect physical changes in the environment pursuant to Sections 15378(b)(2) and 15378(b)(5) of the State CEQA Guidelines. It is also exempt from review under CEQA under Section 15601 (b)(3), in that there is no potential for causing a significant effect on the environment.

Upon the Board's approval of the recommended actions, a Notice of Exemption will be filed with the Registrar-Recorder/County Clerk pursuant to Section 15062 of the State CEQA Guidelines.

FISCAL IMPACT/FINANCING

The work to be performed under Amendment No. 12 is fully reimbursable under the BTOP grant awarded by the NTIA, with the exception of the match requirement.

FACTS AND PROVISIONS/LEGAL REQUIREMENT

The Authority's counsel has reviewed the recommended actions.

CONCLUSION

Upon the Board's approval of the recommended action, on behalf of the Authority, the Executive Director will have authority to execute a contract amendment with Motorola, substantially similar in form to the enclosed.

Respectfully submitted,



PATRICK J. MALLON
EXECUTIVE DIRECTOR

PJM:JA:pl

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Enclosure

c: Counsel to the Authority

AMENDMENT NUMBER TWELVE
TO AGREEMENT NO. LA-RICS 008
FOR
LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM –
PUBLIC SAFETY BROADBAND NETWORK

Recitals

This Amendment Number Twelve (together with all exhibits, attachments, and schedules hereto, ("Amendment No. 12") is entered into by and between the Los Angeles Regional Interoperable Communications System Authority ("Authority") and Motorola Solutions, Inc. ("Contractor"), effective as of August _____, 2015, based on the following recitals:

Authority and Contractor have entered into that certain Agreement No. LA-RICS 008 for Los Angeles Regional Interoperable Communications System ("LA-RICS") – Public Safety Broadband Network (PSBN), dated as of March 6, 2014 (together with all exhibits, attachments, and schedules thereto, all as amended prior to the date hereof, the "Agreement").

The Agreement has been previously amended by Amendment Number One, effective as of March 6, 2014, to exercise the Unilateral Option for all Work pertaining to Phase 1.

The Agreement has been previously amended by Amendment Number Two, effective April 7, 2014, to (a) make changes necessary to reflect the Authority's exercise of the Unilateral Option for all Work pertaining to Phase 1 for Additive Alternate No. 1, System Design Work for the Home Subscriber Server ("HSS"), and all Work pertaining to Phase 1 for Additive Alternate No. 2, System Design Work for the Redundant Evolved Packet Core ("EPC"), and (b) to make other changes as reflected in Amendment No. 2.

The Agreement has been previously amended by Amendment Number Three, effective June 20, 2014, to exercise the Unilateral Option for all Work pertaining to Phase 2, Site Construction and Site Modification, and Phase 3, Supply PSBN Components.

The Agreement has been previously amended by Amendment Number Four, effective July 16, 2014, to exercise the Unilateral Option for all Work pertaining to (i) Phase 2 for Additive Alternate No. 1, Site Construction and Site Modification for the HSS, (ii) Phase 3 for Additive Alternate No. 1, Supply PSBN Components Work for the HSS, (iii) Phase 2 for Additive Alternate No. 2, Site Construction and Site Modification Work for the Redundant EPC, and (iv) Phase 3 for Additive Alternate No. 2, Supply PSBN Components Work for the Redundant EPC.

The Agreement has been previously amended by Amendment Number Five, effective September 24, 2014, to exercise the Unilateral Option for all Work pertaining to

Phase 4, PSBN Implementation, including Phase 4 Work for Additive Alternate 1 (Home Subscriber Server) and Additive Alternate 2 (Redundant Evolved Packet Core), to install, optimize, test, commission, and deploy all or such portion of the PSBN as authorized by the Authority via notices to proceed, and to make other certain changes as reflected in Amendment No. 5.

The Agreement has been previously amended by Amendment Number Six, effective October 3, 2014, to (a) make changes necessary to reflect the removal of three (3) PSBN Sites and all the Work and equipment associated with these PSBN Sites; (b) to make the changes necessary to reflect the replacement of undisguised antenna support structures to disguised antenna support structures at 32 PSBN Sites and all of the Work and equipment affected by these replacements; (c) to make other certain changes; and (d) to increase the Maximum Contract Sum by \$2,613,300 from \$175,583,275 to \$178,196,575.

The Agreement has been previously amended by Amendment Number Seven, effective December 31, 2014, to (a) make changes necessary to reflect the replacement of undisguised antenna support structures with various types of antenna support structures at eight PSBN Sites and all of the Work and equipment affected by these replacements; (b) reconcile hose tower designs for 28 sites in Phase 2; and (c) to make other certain changes as reflected in Amendment No. 7.

The Agreement has been previously amended by Amendment Number Eight, effective February 13, 2015, to (a) make changes necessary to reflect the removal of thirty-six (36) PSBN Sites and all the Work and equipment associated with the removal of these sites (b) make changes necessary to reflect the addition of six (6) PSBN Sites and all the Work and equipment associated with the addition of these sites and exercise the Unilateral Options for all Work pertaining to Phase 1 (System Design), Phase 2 (Site Construction and Site Modification), Phase 3 (Supply PSBN Components), and Phase 4 (PSBN Implementation) for these six (6) PSBN Sites; (c) reconcile hose tower installation and associated foundation costs for twenty-eight (28) PSBN Sites in Phase 2; (d) to reduce the Maximum Contract Sum by \$11,941,896 from \$178,196,575 to \$166,254,679; and (d) to make other certain changes reflected in Amendment No. 8.

The Agreement has been previously amended by Amendment Number Nine, effective March 23, 2015, to (a) make changes necessary to reflect the removal of twenty-four (24) PSBN Sites and all the Work and equipment associated with the removal of these sites; (b) make changes necessary to reflect the addition of six (6) PSBN Sites and all the Work and equipment associated with the addition of these sites and exercise the Unilateral Options for all Work pertaining to Phase 1 (System Design), Phase 2 (Site Construction and Site Modification), Phase 3 (Supply PSBN Components), and Phase 4 (PSBN Implementation) for these six (6) PSBN Sites; (c) make changes necessary to reflect Phase 1 Work, site design visit for one (1) potential PSBN System Site; (d) to reduce the Maximum Contract Sum by \$7,324,405 from \$166,254,679 to \$158,930,274; and (e) to make certain other changes reflected in Amendment No. 9.

The Agreement was previously amended by Amendment Number Ten, effective June 25, 2015, to (a) make changes necessary to remedy certain miscalculations reflected in Amendment No. 9 resulting in a reduction in the amount by \$280,622; (b) make changes necessary to reflect the inclusion of Phase 1 (System Design) Work for fifteen (15) Cell-on-Wheels (COWs) as set forth in Exhibit C (Schedule of Payments) attached to Amendment No. 10, and exercise the Unilateral Option for all Work Pertaining to Phase 1 (System Design) for the COWs in the amount of \$411,981; (c) make changes necessary to reflect construction restoration Work for thirty (30) PSBN Sites to return the sites to preconstruction conditions in the amount of \$2,321,257; (d) make changes necessary to reflect the inclusion of fiber optic equipment and related Work for the County of Los Angeles and the City of Los Angeles to allow for interconnectivity among the agencies and the PSBN in the amount of \$1,275,000; (e) to increase the Maximum Contract Sum by \$3,727,616 (\$4,008,238 - \$280,622) from \$158,930,274 to \$162,657,890; and (f) to make certain other changes as set forth in Amendment No. 10.

The Agreement was previously amended by Amendment Number Eleven, effective July 16, 2015, to (a) make changes necessary to reflect the inclusion of one (1) PSBN Site and all Work and equipment associated with the addition of this site in the amount of \$336,081 as set forth in Exhibit C (Schedule of Payments) attached to this Amendment No. 11; (b) make changes necessary to reflect the inclusion of Phase 2 (Site Construction and Site Modification), Phase 3 (Supply PSBN Components), and Phase 4 (PSBN Implementation) Work for fifteen (15) COWs in the amount of \$3,244,880 as set forth in Exhibit C (Schedule of Payments) attached to this Amendment No. 11; (c) exercise the Unilateral Options for all Work Pertaining to Phase 1 (System Design) for one (1) PSBN Site (PASDNPD) and Phase 2 (Site Construction and Site Modification), Phase 3 (Supply PSBN Components), and Phase 4 (PSBN Implementation) for the one (1) PSBN Site and the fifteen (15) COWs; and (d) to increase the Maximum Contract Sum by \$3,580,961 from \$162,657,890 to \$166,238,851. The parties acknowledged that the Maximum Contract Sum would be adjusted down accordingly in future amendments reducing the scope of the PSBN Project.

Authority and Contractor desire to further amend the Agreement to (a) account for the removal of forty-two (42) sites from the scope of the PBSN as further described in this Amendment No. 12; (b) make changes necessary to reflect the removal of tower foundations from seven (7) PSBN Sites as part of construction restoration Work to return the sites to preconstruction conditions in the amount of \$37,607; (c) make changes necessary to include construction restoration Work for one (1) PSBN Site (LASDCVS) to return the site to preconstruction conditions in the amount of \$19,800; (d) make changes necessary to reflect the inclusion and purchase of 5,000 Universal Integrated Circuit Cards (UICC) in the amount of \$245,000; (e) make changes necessary to reflect the inclusion and purchase of five (5) CISCO routers and five (5) corresponding units of data service in the amount of \$17,500; (f) make changes necessary to reflect site construction changes in the amount of \$150,740 (g) make changes necessary to remedy certain miscalculations in cost in the amount of

\$165,422; (h) make the changes necessary to reflect a cost reduction for forty-two terminated PSBN Sites in the amount of \$12,989,223; (i) resulting in a reduction in the Maximum Contract Sum by \$12,353,154 (\$12,989,223 – \$636,069 when taking the above cost increases into consideration) from \$166,238,851 to \$153,885,697; and (j) to make other certain changes as set forth in the Amendment No. 12.

This Amendment No. 12 is authorized under Section 2 (Changes to Agreement) of the Agreement.

NOW THEREFORE, in consideration of the foregoing recitals, all of which are incorporated as part of this Amendment No. 12, and for other valuable consideration, the receipt and sufficiency of which are acknowledged, Authority and Contractor hereby agree as follows:

1. Capitalized Terms; Section References. Capitalized terms used herein without definition (including in the recitals hereto), have the meanings given to such terms in the Base Document. Unless otherwise noted, section references in this Amendment No. 12 refer to sections of the Base Document and its Exhibits, as amended by this Amendment No. 12.

2. Amendments to Base Document.

2.1 Section 4.3 of the Base Document is deleted in its entirety and replaced with the following:

4.3 Approval of Work

4.3.1. Work Acceptance Certificate

4.3.1.1. Contractor is required to obtain the Authority's Acceptance of all Work provided by Contractor as described in this Section 4.3. Upon completion of each Work Task, Subtask, or Deliverable hereunder, Contractor shall fully complete and submit for review, approval, and signature to the Authority Project Director a Work Acceptance Certificate (Exhibit E) with respect thereto. The Authority Project Director's signature on a Work Acceptance Certificate shall indicate the Authority's Acceptance of the Work Task, Subtask, or Deliverable described therein, subject to punch-list items. In no event shall the Authority be liable or responsible for any payment with respect to any Work Task, Subtask, or Deliverable prior to such Acceptance. Without limiting the foregoing, the Authority's Acceptance of: (a) Deliverables associated with the System Design and Site Design Documents shall be in accordance with the procedures set forth in Section 4.5.3 (Responsibilities During Design); and (b) Deliverables associated with any

Implementation Phase Acceptance or with Final PSBN Acceptance shall additionally be in accordance with Section 14 (PSBN Acceptance).

4.3.1.2. With respect to any Work Task, Subtask, or Deliverable, in the event that the Authority finds such Work Task, Subtask, or Deliverable does not comply with the Specifications and otherwise with this Agreement, with the exception of punch-list items, the Authority will issue to the Contractor a "Notice of Noncompliance," describing such non-compliance in reasonable detail. No Work subject to a Notice of Noncompliance will be paid for by the Authority until such Work is brought into full compliance with the Specifications and otherwise with this Agreement to the satisfaction of the Authority, as indicated by the Authority's Acceptance of such Work in accordance with this Section 4.2. The Contractor must obtain the Authority's Acceptance of all corrections to non-compliant Work prior to proceeding with Work that may be affected by the non-compliant Work. The Contractor shall not build on or conceal Work that is non-compliant.

4.3.1.3. Notwithstanding Section 4.3.1.1.1, the Authority Project Director's execution of a Work Acceptance Certificate for any interim deliverable under this Section 4.2 shall in no way relieve the Contractor from its obligations under this Agreement to fully perform, provide, complete, and deliver all Work, including, without limitation, with respect to any of: (a) obtaining all applicable Jurisdictional Approvals of the Site Design Documents; (b) Milestones; (c) Implementation Phase Acceptance; and/or (d) Final PSBN Acceptance, nor shall Acceptance be deemed a waiver of the Authority's right to require the Contractor to perform and provide Work in accordance with all Specifications and otherwise with this Agreement.

2.2 Section 4.4.7.9 of the Base Document is deleted in its entirety and replaced with the following:

4.4.7.9 In addition to all other Documentation required to be provided by Contractor to the Authority under this Agreement, Contractor shall submit a set of the Site Record Documents to the Authority Project Director in electronic and reproducible hard copy format by September 30, 2015 or prior to the Authority paying an invoice for Work where Site Record Documents are generated with such Work. "Site Record Documents" are a set of Site

Improvement Documents and other documents into which the Contractor has carefully verified and incorporated, on a monthly basis, all as-built conditions on each PSBN Site, and are referred to in Exhibit A (Statement of Work) and/or Exhibit B (PSBN Specifications) as As-Built Documentation. The electronic files of the Site Record Documents shall be provided in both PDF and AutoCAD format. The hard copy of the Site Record Documents shall be provided in a reproducible format and in at least halfsize and laminated to protect against wear and tear. In addition, an index in an electronic format such as spreadsheet or data base shall be provided listing all the Site Record Documents. The Site Record Documents shall show all changes made during construction based upon the Contractor's records of all the as-built drawings and specifications. Each document and drawing sheet shall be prominently marked "Site Record Document."

- 2.3 Section 7.2.1.9 is hereby added to the Base Document as follows:
- 7.2.1.9 Contractor shall pass all requisite inspections as required in this Section 7.2.1 (Inspections) by September 30, 2015 or prior to the Authority paying an invoice for Work at that site.
- 2.4 Section 7.2.3.4 of the Base Document is deleted in its entirety and replaced with the following:
- 7.2.3.4 In addition to all other Documentation required to be provided by Contractor to the Authority under this Agreement, the Contractor shall deliver to Authority all original permits, licenses, certificates, variances, entitlements, and approvals obtained by Contractor in connection with the Work, by September 30, 2015 or prior to the Authority paying an invoice for Work where such original permits, licenses, certificates, variances, entitlements, and approvals are generated with such Work.
- 2.5 Section 8.1.1 of the Base Document is deleted in its entirety and replaced with the following:
- 8.1.1. The "Maximum Contract Sum" under this Agreement is One Hundred Fifty-Three Million, Eight Hundred Eighty-Five Thousand, Six Hundred Ninety-Seven Dollars (\$153,885,697) which includes the Contract Sum and all Unilateral Option Sums, as set forth in Exhibit C (Schedule of Payments).
- 2.6 Section 9.3 of the Base Document is deleted in its entirety and replaced with the following:

9.3 Funding Disallowance

Notwithstanding anything to the contrary set forth in this Agreement, whether expressly or by implication, to the extent that funds are disallowed as a result of Contractor's or its Subcontractors' acts and/or omissions inconsistent with its obligations under the Agreement, and to the extent not caused by a Force Majeure, the Authority, or delay caused by a third party so long as such delay is not attributable to any act or omission of Contractor, Contractor nevertheless shall remain responsible to the Authority for any and all Deliverables and other Work, but the Authority shall have no payment obligation to the Contractor to the extent of such disallowed funds.

2.7 Section 11.1.3 of the Base Document is deleted in its entirety and replaced with the following:

11.1.3. Approval of Invoices

All invoices submitted by Contractor must have the approval of the Authority Project Director as described in this Section 11.1.3. All invoices submitted by Contractor for payment with respect to any Work hereunder must have a fully signed Work Acceptance Certificate for such Work prior to any payment thereof. Contractor shall prepare and submit each invoice, together with the applicable fully signed Work Acceptance Certificate, in duplicate to the Authority Project Director. In no event shall the Authority be liable or responsible for payment for Work described in an invoice prior to such approval. Authority will also not be liable or responsible for payment for Work where outstanding punch list items have not been completed, or where required Documentation, Site Record Documents, or other required materials have not been delivered to the Authority. To the extent an invoice includes costs for punch list items that have not been completed, the Authority will withhold from payment the assessed value of such item(s) until the work is complete.

Section 14.1.2 of the Base Document is deleted in its entirety and replaced with the following:

14.1.2. Commissioning

For each Phase, Contractor shall perform any and all further Tasks, Deliverables and other Work necessary or appropriate to ensure that the PSBN, and all of its parts, subsystems and components, are fully functional in their respective service

environments. Contractor will complete all commissioning for Phases 1 through 4 by September 30, 2015 or prior to the Authority paying an invoice for Work at such sites.

2.8 Section 14.2.1.1 of the Base Document is deleted in its entirety and replaced with the following:

14.2.1.1 With respect to each Implementation Phase, Contractor shall achieve "Implementation Phase Acceptance" for such Implementation Phase if and when (a) with respect to all Site Improvement Work included in such Implementation Phase, the Contractor has fully performed, provided, completed, and delivered all such Site Improvement Work, subject to punch list items, and the Authority has Accepted all such Site Improvement Work; (b) the Contractor has fully performed, provided, completed, and delivered, and the Authority has Accepted the Implementation Phase Acceptance Tests as set forth in Section 6.3.5 of Exhibit A; and (c) the Authority has indicated its Acceptance of Deliverable for Implementation Phase Acceptance for such Implementation Phase in accordance with Section 4.3 (Approval of Work). Implementation Phase Acceptance does not include delivery of all training, Site Documentation, Post-Implementation Phase Acceptance Testing as set forth in Section 6.3.5 of Exhibit A, or punch list items, all of which Contractor agrees to complete as part of its Deliverables as set forth in this Agreement and in accordance with the Project Schedule. In addition, excluded from Implementation Phase Acceptance are the Sites listed in Attachment 1 to this Amendment 11, which may be updated by mutual agreement of the Parties. Contractor will complete Implementation Phase Acceptance for such Sites in accordance with this Agreement and the Project Schedule.

2.9 Section 14.3 of the Base Document is deleted in its entirety and is replaced with the following:

14.3 Based on a mutually agreed to Project Schedule, Contractor shall achieve Final PSBN Acceptance for the PSBN by August 31, 2015, with the exception of the Sites listed in Attachment 1 to this Amendment No. 12, which will be completed in accordance with the Project Schedule. Contractor shall achieve "Final PSBN Acceptance" for the PSBN if and when (a) with respect to all Site Improvement Work, (i) the Contractor has fully performed, provided, completed, and delivered all such Site Improvement Work subject to "punch list" items, and (ii) Contractor has provided to the Authority all required guarantees and warranties, operation and maintenance manuals, and all

other submittals required by this Agreement with respect to all such Site Improvement Work; (b) the Contractor has achieved Implementation Phase Acceptance for each Implementation Phase; (c) the Contractor has fully performed, provided, completed, and delivered, and the Authority has Accepted, all Implementation Acceptance Testing as set forth in Section 6.3.5 of Exhibit A; (d) the Authority has indicated its Acceptance of Deliverable for Final PSBN Acceptance in accordance with Section 4.3 (Approval of Work); and (e) the Contractor has submitted all invoices for all Work under Phases 1 through 4 of the Project in accordance with Section 11.1 (Invoices) of this Agreement. Final PSBN Acceptance does not include delivery of all training, Site Documentation, Implementation Phase Acceptance Tests as set forth in Section 6.3.5 of Exhibit A, or "punch list" items all of which Contractor agrees to complete as part of its Deliverables as set forth in this Agreement and in accordance with the Project Schedule. If the parties are unable to agree to a mutually approved Project Schedule, the parties shall invoke the Dispute Resolution Procedure as provided for in Section 23 (Dispute Resolution Procedure).

2.10 Section 24.4.1 of the Base Document is deleted in its entirety and replaced with the following:

24.4.1 Except for liability resulting from personal injury, harm to tangible property, or wrongful death, Contractor's total liability to the Authority, whether for breach of contract, warranty, negligence, or strict liability in tort, will be limited in the aggregate to direct damages no greater than One Hundred Ninety-Seven Million, Three Hundred Twenty-Five Thousand, Eight Hundred Thirty Dollars (\$197,325,830). Notwithstanding the foregoing, Contractor shall not be liable to the Authority for any special, incidental, indirect, or consequential damages.

3. Construction Restoration Work at Eight (8) PSBN Sites. The parties agree and acknowledge that the restoration Work will be done for one (1) additional PSBN Site to return said site to pre-construction conditions as reflected in Exhibit C (Schedule of Payments) attached to this Amendment No. 12. Additionally, the parties further agree to remove the tower foundations from seven (7) PSBN Sites as part of construction restoration Work to return the sites to preconstruction conditions as reflected in the attached Exhibit C (Schedule of Payments). Subject to Section 4.1.2.3 (Notices to Proceed) of the Base Document, the Contractor agrees it shall on a timely basis and in accordance with this Amendment and the Agreement, to fully perform, provide, complete, and deliver all Work encompassed in such Work, in exchange for the amounts set forth in Exhibit C (Schedule of Payments), Exhibit C.13 (Restoration Work) for such Work. A summary of the sites covered by this section is set forth below:

CONSTRUCTION RESTORATION – AMENDMENT NO. 12		
Item No.	Site ID	Site Description
2.1	LASDCVS	Los Angeles County Sheriff's Department
2.2	LACF050	Los Angeles County Fire Department
2.3	LACF095	Los Angeles County Fire Department
2.4	LACF078	Los Angeles County Fire Department
2.5	LACF140	Los Angeles County Fire Department
2.6	LACF044	Los Angeles County Fire Department
2.7	LACF090	Los Angeles County Fire Department
2.8	LACF123	Los Angeles County Fire Department

4. Inclusion of Universal Integrated Circuit Cards (UICC). The parties agree and acknowledge that the Authority is purchasing 5,000 Universal Integrated Circuit Cards (UICC) and related Work for use with PSBN Long Term Evolution (LTE) Devices in the following quantities and form factors (4,000 2FF Form Factor – Routers) and (1,000 3FF Form Factor – Smartphone) as reflected in Exhibit B (PSBN Specifications) and Exhibit C (Schedule of Payments) attached to this Amendment No. 12. Subject to Section 4.1.2.3 (Notices to Proceed) of the Base Document, the Contractor agrees it shall on a timely basis and in accordance with this Amendment and the Agreement, to fully perform, provide, complete, and deliver all Work encompassed in such Work, in exchange for the amounts set forth in Exhibit C (Schedule of Payments) for such Work.

5. Inclusion of CISCO Routers. The parties agree and acknowledge that the Authority is purchasing five (5) CISCO routers and five (5) corresponding units of data and related Work that are capable of operating a 4G cellular aircard on a commercial carrier that will allow the Contractor and the Authority to temporarily test eNodeB sites in the event that the permanent backhaul solution is not available at the time of site commissioning as reflected in Exhibit B (PSBN Specifications) and Exhibit C (Schedule of Payments). Subject to Section 4.1.2.3 (Notices to Proceed) of the Base Document, the Contractor agrees the Contractor shall on a timely basis and in accordance with this Amendment and the Agreement, to fully perform, provide, complete, and deliver all Work encompassed in such Work, in exchange for the amounts set forth in Exhibit C (Schedule of Payments) for such Work.

6. Removal of 42 Sites from PSBN. The parties agree and acknowledge that the 42 sites, listed below, will no longer be considered for inclusion in the PSBN, no further Work will occur at these sites. The parties further agree and acknowledge that the Contract Sum for each of these removed 42 sites will be reduced according to the agreed percentage completion for that site, as was jointly determined by the Authority and the Contractor. These reductions are set forth in the relevant portions of Exhibit C (Schedule of Payments), in particular Exhibit C.15 (Site Construction Changes). These reductions do not reflect any Contractor claims for additional above-scope work at any of these sites. Review of those Contractor claims is still ongoing and will, if warranted, be reflected in

future Contract amendments. In addition, the total Contract amounts for the Contractor's Project Management attributed to each site is presently being left in the Contract Sum, and will later be adjusted, as necessary, as part of the Contractor's claims for Project Management expenses.

REMOVAL OF PSBN SITES – AMENDMENT NO. 12		
Item No.	Site ID	Site Description
6.1	LACF003	Los Angeles County Fire Department
6.2	LACF004	Los Angeles County Fire Department
6.3	LACF016	Los Angeles County Fire Department
6.4	LACF021	Los Angeles County Fire Department
6.5	LACF023	Los Angeles County Fire Department
6.6	LACF031	Los Angeles County Fire Department
6.7	LACF038	Los Angeles County Fire Department
6.8	LACF044	Los Angeles County Fire Department
6.9	LACF048	Los Angeles County Fire Department
6.10	LACF050	Los Angeles County Fire Department
6.11	LACF058	Los Angeles County Fire Department
6.12	LACF059	Los Angeles County Fire Department
6.13	LACF061	Los Angeles County Fire Department
6.14	LACF065	Los Angeles County Fire Department
6.15	LACF068	Los Angeles County Fire Department
6.16	LACF073	Los Angeles County Fire Department
6.17	LACF078	Los Angeles County Fire Department
6.18	LACF079	Los Angeles County Fire Department
6.19	LACF081	Los Angeles County Fire Department
6.20	LACF083	Los Angeles County Fire Department
6.21	LACF085	Los Angeles County Fire Department
6.22	LACF086	Los Angeles County Fire Department
6.23	LACF087	Los Angeles County Fire Department
6.24	LACF090	Los Angeles County Fire Department
6.25	LACF092	Los Angeles County Fire Department
6.26	LACF093	Los Angeles County Fire Department
6.27	LACF095	Los Angeles County Fire Department
6.28	LACF096	Los Angeles County Fire Department
6.29	LACF098	Los Angeles County Fire Department
6.30	LACF107	Los Angeles County Fire Department
6.31	LACF108	Los Angeles County Fire Department
6.32	LACF111	Los Angeles County Fire Department
6.33	LACF114	Los Angeles County Fire Department
6.34	LACF117	Los Angeles County Fire Department
6.35	LACF120	Los Angeles County Fire Department
6.36	LACF123	Los Angeles County Fire Department
6.37	LACF132	Los Angeles County Fire Department
6.38	LACF140	Los Angeles County Fire Department
6.39	LACF141	Los Angeles County Fire Department
6.40	LACF144	Los Angeles County Fire Department
6.41	LAFD066	Los Angeles City Fire Department
6.42	LAPDCEN	Los Angeles Police Department

7. Site Construction Changes: The parties agree and acknowledge that the Authority requested that the Contractor perform the Work items identified in Exhibit C.15 (Site Construction Changes) of Exhibit C (Schedule of Payments), each of which is above the scope of the Contract. The parties further agree and acknowledge that the dollar amount of each of the Work items identified in Exhibit C.15 (Site Construction Changes), and the total of all of those amounts, which is \$150,740, represents a full and final accord and satisfaction of all claims and costs incurred by Contractor and its subcontractors for that item of work, inclusive of all overhead and markup. Contractor agrees the Contractor shall on a timely basis and in accordance with this Amendment and the Agreement, fully perform, provide, complete, and deliver all Work encompassed in such Work, in exchange for the amounts set forth in Exhibit C.15 (Site Construction Changes) of Exhibit C (Schedule of Payments).
8. Amendments to Agreement Exhibits.
- 8.1 Exhibit A (Statement of Work) is deleted in its entirety and replaced with Exhibit A (Statement of Work) attached to this Amendment No. 12, which is incorporated by this reference.
- 8.2 Exhibit B (PSBN Specifications) is deleted in its entirety and replaced with Exhibit B (PSBN Specifications) attached to this Amendment No. 12, which is incorporated by this reference.
- 8.3 Exhibit C.1 (PSBN Payment Summary) to Exhibit C (Schedule of Payments) is deleted in its entirety and replaced with Exhibit C.1 (PSBN System Payment Summary) to Exhibit C (Schedule of Payments) attached to this Amendment No. 12, which is incorporated by this reference.
- 8.4 Exhibit C.2 (Phase 1 – System Design) to Exhibit C (Schedule of Payments) is deleted in its entirety and replaced with Exhibit C.2 (Phase 1 – System Design) to Exhibit C (Schedule of Payments) attached to this Amendment No. 12, which is incorporated by this reference.
- 8.5 Exhibit C.3 (Phase 2 – Site Construction and Site Modification) to Exhibit C (Schedule of Payments) is deleted in its entirety and replaced with Exhibit C.3 (Phase 2 – Site Construction and Site Modification) to Exhibit C (Schedule of Payments) attached to this Amendment No. 12, which is incorporated by this reference.
- 8.6 Exhibit C.4 (Phase 3 – Supply PSBN Components) to Exhibit C (Schedule of Prices) is deleted in its entirety and replaced with Exhibit C.4 (Phase 3 – PSBN Implementation) to Exhibit C (Schedule of Payments) attached to this Amendment No. 12, which is incorporated by this reference.
- 8.7 Exhibit C.5 (Phase 4 – PSBN Implementation) to Exhibit C (Schedule of Prices) is deleted in its entirety and replaced with Exhibit C.5 (Phase 4 –

PSBN Implementation) to Exhibit C (Schedule of Payments) attached to this Amendment No. 12, which is incorporated by this reference.

- 8.8 Exhibit C.13 (Restoration Work) to Exhibit C (Schedule of Payments) is deleted in its entirety and replaced with Exhibit C.13 (Restoration Work) to Exhibit C (Schedule of Payments) attached to this Amendment No. 12, which is incorporated by this reference.
 - 8.9 Exhibit C (Schedule of Payments) is revised to include a new Exhibit, Exhibit C.15 (Site Construction Changes), which is attached to this Amendment No. 12, and incorporated by this reference.
 - 8.10 Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement) is deleted in its entirety and replaced with Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement) dated August 2015, which is incorporated by this reference.
 - 8.11 Attachment 2 (Construction Management Requirements) (CMR) and the corresponding PSBN Environmental Best Management Practices by Project Location matrix to Exhibit J (Confidential Supplement) is deleted in its entirety and replaced with Attachment 2 (Construction Management Requirements) and corresponding PSBN Environmental Best Management Practices by Project Location matrix to Exhibit J (Confidential Supplement) dated August 2015, which is incorporated by this reference.
9. This Amendment No. 12 shall become effective as of the date identified in the recitals, which is the date upon which:
 - 9.1 An authorized agent of Contractor has executed this Amendment No. 12;
 - 9.2 Los Angeles County Counsel has approved this Amendment No. 12 as to form;
 - 9.3 The Board of Directors of the Authority has authorized the Executive Director of the Authority to execute this Amendment No. 12; and
 - 9.4 The Executive Director of the Authority has executed this Amendment No. 12.
 10. Except as expressly provided in this Amendment No. 12, all other terms and conditions of the Agreement shall remain the same and in full force and effect.
 11. Contractor and the person executing this Amendment No. 12 on behalf of Contractor represent and warrant that the person executing this Amendment No. 12 for Contractor is an authorized agent who has actual authority to bind Contractor to each and every term and condition of this

Amendment No. 12, and that all requirements of Contractor to provide such actual authority have been fulfilled.

12. This Amendment No. 12 may be executed in one or more original or facsimile counterparts, all of which when taken together shall constitute one in the same instrument.

* *

**AMENDMENT NUMBER TWELVE
TO AGREEMENT NO. LA-RICS 008
FOR
LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM –
PUBLIC SAFETY BROADBAND SYSTEM**

IN WITNESS WHEREOF, the parties hereto have caused this Amendment No. 12 to be executed on their behalf by their duly authorized representatives, effective as of the date first set forth above.

LOS ANGELES REGIONAL
INTEROPERABLE COMMUNICATIONS
SYSTEM AUTHORITY

MOTOROLA SOLUTIONS, INC.

By: _____

By: _____

Patrick J. Mallon
Executive Director

APPROVED AS TO FORM FOR THE LOS
ANGELES REGIONAL INTEROPERABLE
COMMUNICATIONS SYSTEM
AUTHORITY:

MARY C. WICKHAM
Interim County Counsel

By: _____

Truc L. Moore
Senior Deputy County Counsel

ATTACHMENT 1

SITE ID	SITE DESCRIPTION
LBECOC	Long Beach Emergency Comm & Op Center
FCCF	FCCF - HQ
LAPDDVN	Devonshire Area Station
SDW	San Dimas
LDWP243	Aqueduct Cascades
ONK	Oat Mountain Nike

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1. TASK 1: PROJECT KICK OFF

1.1 SUBTASK 1.1 – PROJECT KICK OFF MEETING

To initiate the Project, Contractor will conduct a Project kickoff meeting with key stakeholders. The primary goal of this meeting is to:

- 1.1.1 Introduce Contractor's Project team;
- 1.1.2 Present proposed roles and responsibilities matrix including which team members (companies/individuals) will be responsible for Contractor's scope;
- 1.1.3 Present proposed Project Schedule and critical path items;
- 1.1.4 Establish ongoing working groups to execute the Project;
- 1.1.5 Schedule ongoing Project meetings;
- 1.1.6 Discuss decision making and approval processes; and
- 1.1.7 Discuss Project objectives.

SUBTASK 1.1 DELIVERABLE- Meeting Presentation Material; Meeting Notes; Agenda; Attendance Sheet; Draft Project Schedule and other work product resulting from Subtask 1.1, all meeting the requirements of Subtask 1.1 and provided within fourteen (14) calendar days from the Effective Date.

2. TASK 2: PROJECT ADMINISTRATION**2.1 SUBTASK 2.1 – GENERAL PROJECT MANAGEMENT SERVICES**

2.1.1 The Contractor will provide overall project management, in conjunction with the Work detailed in Subtask 2.1, to manage all tasks required to complete all Phases of the Project, including, at a minimum the following Work:

- a. Provide project management staff to oversee and carryout all tasks necessary;
 1. For Contractor to complete all Work associated with Phase 1 for the PSBN within sixty (60) calendar days of the Authority issuing a Notice to Proceed for Phase 1.
 2. For Contractor to achieve Final PSBN Acceptance, as further described in Section 14.3 (Final PSBN Acceptance) of the Base Document, by August 15, 2015;
- b. Conduct Project planning sessions with applicable Contractor, Authority, and Member Project staff;
- c. Prepare weekly Project status reports and monthly reports (or more frequently if required by the Authority) and attend weekly status meetings (or more frequently if required by the Authority);
- d. Prepare as-needed reports and materials for Project executive staff and Authority Board meetings and attend such meetings as directed;
- e. In cooperation with the Authority, pro-actively, expeditiously and creatively resolve problems and issues that may occur during the course of the Project;
- f. The Authority currently uses ProLog as its document management tool. Contractor will upload project documents to ProLog. If the Contractor uses any other such tool (website), the Contractor shall also grant the Authority access;
- g. Provide sufficient staff in accordance with the approved Staffing Plan as otherwise required to fully perform and provide all Work under Agreement, including, but not limited to, the following:
 1. Provide staff to assist and support the Authority and its Members in acquiring property, easements and leases, if any, that are to be part of or are necessary to construct or use sites or other facilities that are to be part of the PSBN;

2. Provide staff to assist and support the Authority and its Members, and its third party environmental services consultants, as needed, throughout the CEQA and NEPA review process; and
 3. Provide staff to assist and support Authority in satisfying all Grant Funding Requirements;
- h. Manage all Project communications in accordance with the approved Communications Plan;
 - i. Ensure that all Project Deliverables are delivered on time and according to the expected quality; and
 - j. After all Project tasks are completed, perform the appropriate Project closing tasks that include punch list completion and submission of all records and Documentation.

2.1.2 Authority Responsibilities

The Authority understands that it will provide certain services and deliverables to assist the Contractor in completing the Project. The Authority will provide only the following:

- 2.1.2.1 Project Team Leadership that shall act as the Authority's point of contact with overall responsibility for reviewing and accepting the Work of the Contractor;
- 2.1.2.2 Engagement of separate contractors for environmental consulting services and for Authority's project management;
- 2.1.2.3 Appropriate signatures for FCC licenses; however, it should be noted that preparation of all FCC license applications, including all necessary supporting material, shall be the sole responsibility of the Contractor;
- 2.1.2.4 Escorts for Contractor's personnel or other security measures regarding site access, at the sole discretion of the Authority;
- 2.1.2.5 Without duplication, the responsibilities described in Section 4.5 (Responsibilities of Authority) of the Base Document;
- 2.1.2.6 Without duplication, arrange inspections as described in Section 7.2.1 (Inspections) of the Base Document; and

- 2.1.2.7 Negotiations for all real estate leases or purchases, if applicable.
- 2.1.2.8 The Authority will review and approve or reasonably reject all Deliverables within eight (8) calendar days, excluding holidays, of receipt. This duration will start on the date and time that the deliverable/approval request is electronically delivered to the Authority. The parties may make exceptions to this duration on a case-by-case basis as necessary. The parties agree that the mutual goal of the parties is to obtain approvals as quickly as possible. The parties agree that they will work toward this goal by providing drafts of documents in advance when feasible, dividing Deliverables into smaller components for review when feasible, and by immediately alerting the other party of any concerns with a Deliverable as soon as the concern is identified.

SUBTASK 2.1 DELIVERABLE - Meeting Presentation Material, Meeting Notes, Agenda, Attendance Sheet, As-needed reports and materials for Project executive staff and Authority Board meetings, and other work product resulting from Subtask 2.1. Deliverables will all meet the requirements of Subtask 2.1 and are to be provided on a monthly basis by the date specified in the approved Project Schedule.

2.2 SUBTASK 2.2 – PROJECT SCHEDULE

- 2.2.1 Within fifteen (15) days after Phase 1 Notice to Proceed (NTP), the Contractor will provide a Project Schedule, which sets forth (a) each numbered Task and associated Subtasks, Deliverable, and Milestone included in each Phase, and (b) a timeline for completion of, and a Gantt chart for, such Task, Deliverable, and Milestone, stating the number of calendar days commencing upon the Authority's issuance of the Notice to Proceed for such Phase and continuing through completion of such Task, and associated Subtasks, Deliverables and Milestones.
- 2.2.2 The Contractor shall provide a dedicated and qualified project scheduler who will maintain and update the schedule on a regular basis.
- 2.2.3 The Project Schedule is the all-encompassing roadmap to Project completion. The Contractor will ensure that the Project Schedule includes all Project related Tasks, Deliverables, Milestones, start and end dates, Task prerequisites and/or dependencies and critical paths, as well as the parties responsible for each Task.
- 2.2.4 The Contractor will provide the Authority, in detail, all assumptions the Contractor made in proposing each timeline set forth in the Project Schedule.

- 2.2.5 The Project Schedule will include all tasks agreed to be performed by the Authority.
- 2.2.6 The Contractor will report schedule variances monthly at a minimum, and weekly as Project requirements may dictate.
- 2.2.7 The Authority will dictate the reporting frequency depending on the day-to-day flow of the Project. During conditions when Project risks become a concern to the Authority, the Authority's Project Director and/or the Authority's Project Manager will determine the frequency and content of reporting.
- 2.2.8 The Project Schedule will serve as a critical reporting and planning tool for the Project. It will also serve as a tool to record the progress on various program Phases and tasks, capture the timing and execution of each task and provide look-ahead forecasts to ensure the overall program is on track.
- 2.2.9 The Contractor will develop and implement the Project Schedule using Oracle's Primavera P6 application, and the Project Schedule will be updated weekly or as otherwise dictated by the Authority, depending on Project requirements.
- 2.2.10 The Contractor will divide the Project Schedule into the Project's first four (4) Phases which are further described below.
- 2.2.11 Phase 1 – System Design
- 2.2.11.1 Project Description – The Authority will provide the Project Description by no later than thirty (30) Days of the Notice to Proceed for Phase 1 – System Design. The Contractor will review the Authority's Project Description during Phase 1 – System Design and confirm that the PSBN System Design is consistent with the Authority's Project Description or provide a list of discrepancies, unless otherwise authorized by the Authority.
- 2.2.11.2 PSBN System Design and Site Designs – The Contractor will ensure that all remaining work associated with Phase 1 – System Design is completed and delivered to by the Authority within sixty (60) calendar days of receiving a Notice to Proceed under Phase 1.
- 2.2.12 Phase 2 – Site Construction and Site Modification

- 2.2.12.1 As part of the Project Schedule, the Contractor will develop a detailed site development, engineering and construction schedule that clearly articulates the critical path for each PSBN Site and for all Work under Phase 2.
- 2.2.12.2 Contractor will incorporate all details and Tasks associated with Phase 2 of the Project in the Project Schedule and will schedule Phase 2 accordingly to meet the Project completion deadline of August 15, 2015.
- 2.2.12.3 At a minimum, the Project Schedule will incorporate the site selection, site acquisition (if applicable), permit approvals (e.g. planning and zoning, special use), architectural, engineering design plan and construction tasks necessary to complete this Project Phase.

2.2.13 Phase 3 – Supply PSBN Components

- 2.2.13.1 As part of the Project Schedule, the Contractor will develop a detailed schedule that clearly articulates the critical path for all Work under Phase 3.
- 2.2.13.2 Contractor will incorporate all details and Tasks associated with Phase 3 of the Project in the Project Schedule and will schedule Phase 3 accordingly to meet the Project completion deadline of August 15, 2015.
- 2.2.13.3 The Project Schedule will reflect an efficient schedule of sequencing for ordering, manufacturing, staging, shipping, delivering and storing of the PSBN equipment and prior to implementation.

2.2.14 Phase 4 – PSBN Implementation

- 2.2.14.1 As part of the Project Schedule, the Contractor will develop a detailed schedule that clearly articulates the critical path for all Work under Phase 4.
- 2.2.14.2 Contractor will incorporate all details and Tasks associated with Phase 4 of the Project in the Project Schedule and will schedule Phase 4 accordingly to meet the Project completion deadline of August 15, 2015, as set forth in the Base Document for Final System Acceptance.
- 2.2.14.3 Contractor will provide an implementation schedule that addresses the staging, installation, optimization, and Acceptance Testing of PSBN Components at PSBN Sites and Equipment Centers.

- 2.2.15 The Contractor will ensure that the Project Schedule is based on and incorporates Deliverable and Milestone completion dates specified in this Agreement.
- 2.2.16 The Contractor will work with the Authority to develop and maintain a Project Schedule that incorporates grant funding timelines.
- 2.2.17 The Contractor’s Project Manager and the Authority’s Project Manager will agree to the format, content, coding, and management of the Project Schedule.
- 2.2.18 The Contractor will ensure that the overall Project time of completion, and the time of completion for each Deliverable and Milestone shown on the Project Schedule, will adhere to times specified above, unless an earlier (advanced) time of completion is requested by the Contractor and agreed to in writing by the Authority.
- 2.2.18.1 The Authority is not required to accept an earlier (advanced) schedule, i.e., one that shows early completion date(s) for the Agreement Time.
- 2.2.18.2 The Contractor is not entitled to extra compensation in the event Agreement is reached on an earlier (advanced) schedule and the Contractor completes its Work, for whatever reason, beyond the completion date shown in earlier (advanced) schedule but within the Agreement Time.
- 2.2.19 Failure of the Project Schedule to include any element of the Work, or any inaccuracy in the Project Schedule, shall not relieve the Contractor from responsibility for accomplishing the Work in accordance with this Agreement. The Authority's acceptance of any Project Schedule shall be for its use in monitoring and evaluating the progress of the Project, payment requests, and time extension requests, and shall not, in any manner, impose a duty of care upon the Authority, or act to relieve the Contractor of its responsibility for performance of the Work and compliance with this Agreement.
- 2.2.20 Project Schedule Format and Level of Detail
- 2.2.20.1 The Contractor will ensure that the Project Schedule and all updates and modifications thereto created by the Contractor employs critical path methodology and indicates all discrete Contractor activities required for completion of the Work, including but not limited to the following:

- 2.2.20.1.1 All Contractor, Subcontractor, and other assigned Work will be shown in a logical Work sequence that demonstrates a fully-coordinated plan of Work in order to achieve timely completion of all Work under Phases 1 through 4 of the Project, and to provide a common basis of acceptance, understanding, and communication, as well as the interface of the Contractor's Work with all other contractors, subcontractors, and the Authority.
- 2.2.20.1.2 All activities related to the ordering, production, delivery, staging, and installation of all the Contractor furnished PSBN Components will be shown.
- 2.2.20.1.3 All activities will be identified through codes or other identification to indicate the installation sites and Contractor's responsibilities to which they pertain, including, duration and assignment at each of the PSBN Sites.
- 2.2.20.1.4 The schedule will break up the Work into all discrete activities and employ durations of not more than twenty-one (21) Days, or as otherwise agreed to in writing by the Authority Project Director
- 2.2.20.1.5 All hard copy prints of the schedule provided by the Contractor to the Authority, will include printouts that show the critical path in red, and also include printouts that show for each activity: early start, late start, early finish, late finish, durations measured in Days, the LA-RICS Project float, all predecessor and successor activities, and responsible party.
- 2.2.20.2 Failure by the Contractor to include on the Project Schedule any element of Work required for performance of the Work will not excuse the Contractor from completing all Work required by this Agreement.
- 2.2.20.3 The Contractor will update weekly and issue a two-week (minimum or such additional period as the Authority may reasonably request) "look ahead," detailed daily bar chart schedule.
- 2.2.20.4 The Contractor will prepare the Project Schedule using Oracle's Primavera P6, or other software approved in writing by the Authority for all scheduling, including schedule updates, as the Authority may request. For schedules generated using Oracle's Primavera P6, the Contractor will submit electronic

schedules in a format compatible with Oracle's Primavera P6 software.
Additionally:

- 2.2.20.4.1 The Contractor will complete all data point entries in the scheduling software.
- 2.2.20.4.2 For each separate activity in the Project Schedule and all modifications and updates, the Contractor will complete the data point entry to identify its duration and logic ties, including activities added to the schedule or noted on the schedule for information.
- 2.2.20.4.3 The Contractor will provide the Authority with complete electronic copies of Project Schedule files, with each update and each payment application noted. Each electronic copy will be submitted with a clear identification of the Project Schedule version.

2.2.21 Monthly Project Schedule Update Submittals

- 2.2.21.1 Following the Authority's Acceptance of the Contractor's Project Schedule, the Contractor will monitor the progress of the Work and update the Project Schedule each month (at a minimum) to reflect actual progress (shown in blue) and any anticipated changes to planned activities.
- 2.2.21.2 The Contractor will submit each proposed monthly Project Schedule update for review and approval by the Authority by no later than the last Thursday of the month following the month to which the update pertains.
- 2.2.21.3 The Contractor will continue to show, in each update, all Work activities including those already completed. Completed activities (shown in blue) will accurately reflect "as-built" information by indicating the dates on which all scheduled activities were actually started and completed.
- 2.2.21.4 The Contractor will provide accurate as-built information.
- 2.2.21.5 The Contractor will provide a schedule impact analysis based on the "as-built" information.
- 2.2.21.6 The Contractor will show in red the critical path for the LA-RICS Project on each proposed Project Schedule update submitted.

- 2.2.21.7 No Project Schedule update will contain any modification to any of the logic or durations shown in the last Authority-approved Project Schedule update without prior written approval of each modification by the Authority.
- 2.2.21.8 Updating, modifying, changing or revising of any report, schedule or narrative submitted to the Authority by the Contractor, in accordance with this Agreement, or the Authority's review or acceptance of any such report, schedule, or narrative, will not have the effect of amending or modifying, in any way, any Agreement Time or other completion date, Deliverable or Milestone dates, or of modifying or limiting, in any way, the Contractor's obligations under this Agreement.

2.2.22 Recovery Schedule

- 2.2.22.1 If a Project Schedule update shows a completion date of twenty-one (21) Days beyond any Agreement Time, or individual Deliverable or Milestone completion date, the Contractor will submit to the Authority within seven (7) Days the proposed revisions to recover the lost time. If the schedule will extend the Project beyond the completion deadline of August 15, 2015, the Authority will be notified immediately, and the Contractor will submit to the Authority within seven (7) Days the proposed revisions to recover the lost time.
- 2.2.22.2 As part of this submittal, the Contractor will provide a written narrative for each revision to Project Schedule proposed to be made to recapture the lost time. If the revisions include sequence changes, the Contractor will provide a schedule diagram, including a scheduling analysis fragnet, comparing the original sequence to the revised sequence of Work. The Contractor will also provide the following:
- 2.2.22.2.1 Show the intended critical path.
- 2.2.22.2.2 Secure appropriate Subcontractor and supplier consent to the recovery Project Schedule.
- 2.2.22.2.3 Submit a narrative explaining all changes, impacts, duration changes, added/deleted activities, critical path changes, and identify all near critical paths and man-hour loading assumptions for major Subcontractors.

2.2.22.3 As with all updates to the Project Schedule, the Authority shall have the right to approve or disapprove of such proposed revision(s).

2.2.23 Time Impact Evaluation for Amendments, Extensions, and Delays

2.2.23.1 If the Contractor requests a time extension or compensation for delay for any reason, the Contractor will submit a Time Impact Evaluation (TIE) that includes both a written narrative and a schedule diagram, including a scheduling analysis fragnet, depicting how the changed Work or other impact, event, or circumstance affects all scheduled activities and cost impacts. The schedule diagram will show how the Contractor proposes to incorporate the changed Work or other impact, event, or circumstance into the schedule, and how it impacts the current Project Schedule update critical path or otherwise.

2.2.23.2 The Contractor will be responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram will be tied to the main sequence of scheduled activities to enable the Authority to evaluate the impact of changed Work to the scheduled critical path. The Authority may deny such time extension(s) in its sole discretion.

2.2.23.3 Contractor will comply with the requirements of Section 2.2.23.2 above for all delays and all types of delays including, but not limited to, Contractor/Subcontractor delays, Authority-caused delays, other Contractor-caused delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.

2.2.23.4 The Contractor will be responsible for all costs associated with the preparation of all TIEs, and the process of incorporating TIEs into the current schedule update. The Contractor will provide the Authority with four hard copies and one electronic copy of each TIE.

2.2.24 Project Time Constraints

2.2.24.1 The proposed Project Schedule must conform to the Authority's BTOP schedule obligations. Specifically, the Contractor must have achieved Final PSBN Acceptance no later than August 15, 2015. Contractor shall achieve Final PSBN Acceptance by this date.

- 2.2.24.2 The Contractor must provide the Authority with adequate time to conduct the Acceptance Testing.
- 2.2.24.3 In the event that, during the period between the Effective Date and August 15, 2015, the Authority or its partners decide to augment the PSBN, these augmentations will have individual binding schedules.
- 2.2.24.4 The Contractor's Project Schedule will include all planned activities from the Effective Date to August 31, 2015. The schedule will include, at a minimum, the following: System Design Milestones, Site Design Document Milestones, Final Design Package Milestones, Construction Site Improvement Milestones, Installation and Commission Milestones, commencement of Acceptance Testing Milestone, completion of Acceptance Testing Milestone, Final PSBN Acceptance Milestone and completion of training.

SUBTASK 2.2 DELIVERABLE (MILESTONE) – Contractor will provide a comprehensive Project Schedule that meets the requirements of Subtask 2.2 within fifteen (15) Days after the issuance of the Phase 1 NTP. Contractor will provide updates to the Project Schedule that meet the requirements of Subtask 2.2 by the dates required by Subtask 2.2.

2.3 SUBTASK 2.3 – STAFFING PLAN

- 2.3.1 Contractor will provide a Staffing Plan through Final PSBN Acceptance that includes the organization chart, the roster identifying names of the assigned individuals, the roles, the responsibilities and the qualifications of Contractor's staff assigned to the Project;
- 2.3.2 Contractor will notify the Authority of any changes to the Staffing Plan and provide an updated staffing plan at the beginning of every quarter;
- 2.3.3 The Authority reserves the right to perform background checks on all Contractor staff assigned to work on this Project as described in Section 37.6 (Background and Security Investigation) of the Base Document; further, all staff is subject to Section 37.3 (Contractor's Staff) of the Base Document;
- 2.3.4 The Contractor will assign, at a minimum, the following Contractor Key Personnel to the Project:

- 2.3.4.1 Project Director;
 - 2.3.4.2 Project Manager;
 - 2.3.4.3 Lead System Engineer;
 - 2.3.4.4 Site Design and Construction Manager;
 - 2.3.4.5 Network Design and Implementation Manager; and
 - 2.3.4.6 Security Designees.
- 2.3.5 Any changes to the Contractor’s Key Personnel will be submitted to the Authority’s Project Director for approval in accordance with Section 37.1 (Contractor Administration) of the Base Document.
- 2.3.6 Project Director (full time)
- 2.3.6.1 The Contractor’s Project Director will be the responsible point of contact for Contractor's overall performance of and compliance with this Agreement.
 - 2.3.6.2 The Contractor’s Project Director will have the authority to commit the Contractor’s resources to meet the requirements of the Agreement.
 - 2.3.6.3 The Contractor’s Project Director will be responsible for managing all Work by providing direction to the Contractor’s Project management team.
 - 2.3.6.4 The Contractor’s Project Director will meet and confer with the Authority’s Project Director and the Authority’s Project Manager on a regular basis and otherwise when and as requested by the Authority Project Director. Such meetings will be conducted at a time and place convenient to the Authority.
- 2.3.7 Project Manager (full time)
- 2.3.7.1 The Contractor’s Project Manager will be responsible for planning and coordinating all Work related to the PSBN on a daily basis.

- 2.3.7.2 The Contractor's Project Manager will be the primary liaison between the Authority and the Contractor.
- 2.3.7.3 The Contractor's Project Manager will coordinate and monitor all Contractor's resources and subcontractors.
- 2.3.7.4 The Contractor's Project Manager will interface with the Authority's Project Manager on a regular and scheduled basis and otherwise when and as requested by the Authority's Project Manager. Such meetings will be conducted at a time and place convenient to the Authority.
- 2.3.7.5 The Contractor's Project Manager will give daily personal attention and supervision to the Work until it is entirely completed.
- 2.3.7.6 The Contractor's Project Manager will be competent to manage, superintend, and direct the progress of the Work, and will be authorized to receive instructions and to act for the Contractor on all matters related to the Work.
- 2.3.7.7 The Contractor's Project Manager will be located on site at a location provided by the Authority.
- 2.3.7.8 The Contractor's Project Manager or their designee will attend, at a minimum, status meetings with LA-RICS committees, the Authority's Board of Directors, and political bodies and committees as required by the Authority.

2.3.8 Lead System Engineer

- 2.3.8.1 The Contractor's Lead System Engineer shall be responsible for the architecture design, testing, acceptance, and meeting system performance requirements for the PSBN.
- 2.3.8.2 The Contractor's Lead System Engineer will provide technical leadership to the design and implementation of the PSBN and resolve critical architecture and system performance issues.
- 2.3.8.3 The Contractor's Lead System Engineer will be knowledgeable and experienced on LTE, Fixed Microwave, Internet Protocol ("IP"), Multiprotocol Label Switching ("MPLS") and network security.

2.3.9 Site Design and Construction Manager (full time during Phases 1 and 2)

- 2.3.9.1 The Contractor's Site Design and Construction Manager shall be a State of California licensed architect and/or engineer.
- 2.3.9.2 The Contractor's Site Design and Construction Manager will have the overall responsibility for developing the Site Design Documents and Site Improvement Documents for each PSBN Site under Phase 1, to be used for the ultimate construction of the Site Improvements for each such PSBN Site(s) under Phase 2, Site Construction and Site Modification.
- 2.3.9.3 The Contractor's Site Design and Construction Manager performs such observations as are necessary for such person to keep familiar with the conditions at each PSBN Site, as well as with the progress of the Site Work.
- 2.3.9.4 The Contractor's Site Design and Construction Manager will manage all on site field construction activities associated with the Project and oversee all construction activities.
- 2.3.9.5 The Authority may require that the Contractor's Site Design and Construction Manager participate in any discussions between Authority staff and Contractor staff concerning Work under Phases 1 or 2.
- 2.3.9.6 The Contractor's Project staff will include a complete site development, engineering and construction team, which will be comprised of but not be limited to the following specialties: Architect(s), Structural Engineer(s), Civil Engineer(s), Electrical Engineer(s), Mechanical Engineer(s), Soils Engineer(s), Environmental Engineer(s), Land Surveyor(s), Industrial Hygienist(s) and Construction Manager(s), all having experience in the development, design and construction of wireless telecommunications facilities. Engineers, Architects and any other specialty requiring a license to perform their duties will be licensed by the State of California.
- 2.3.9.7 The number of such specialists comprising the team will be sufficient to meet the approved Project Schedule and to meet all other applicable requirements of this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.

2.3.10 Network Design and Implementation Manager (full time)

- 2.3.10.1 The Contractor’s Network Design and Implementation Manager will have the overall responsibility for developing the Network Design Documents and Network Implementation Documents for the PSBN, including the Evolved Packet Core, eNodeB, Backhaul and all PSBN Subsystems, at each PSBN Site, to be used for the ultimate network deployment of the PSBN at each such PSBN Site(s) under all Phases of the Project.
- 2.3.10.2 The Contractor’s Network Design and Implementation Manager will oversee such design, installation, optimization, deployment, test, and Acceptance Test tasks as are necessary for such person to keep familiar with the conditions at each PSBN Site(s), as well as with the overall progress of the Network Design and Implementation on a daily basis.
- 2.3.10.3 The Contractor’s Network Design and Implementation Manager will be responsible for meeting the expected performance requirements of the network, and resolve any performance issues identified during testing and acceptance.
- 2.3.10.4 Contractor's Project staff will include a complete system design, development, engineering, and implementation team, all having experience in the design, development, and implementation of wireless LTE broadband telecommunications systems.
- 2.3.10.5 The number of such specialists comprising the team will be sufficient to meet the approved Project Schedule and to meet all other applicable requirements of this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.
- 2.3.10.6 The Authority requires that the Contractor’s Network Design and Implementation Manager participate in any discussions between Authority staff and Contractor staff concerning Work under Phases 1 through 4.

SUBTASK 2.3 DELIVERABLE – Contractor will provide a comprehensive Staffing Plan that meets the requirements of Subtask 2.3.

2.4 SUBTASK 2.4 – COMMUNICATIONS PLAN

The Contractor will establish a Communications Plan that will include formats, management tools, processes and forms for relaying any and all information between the Contractor and the Authority. The Communications Plan should include at a minimum the following items:

2.4.1 Meeting Minutes

2.4.1.1 The Contractor and the Authority will determine the process for capturing, distributing and maintaining formal meeting minutes. Formal status and decision meetings require that meeting minutes be produced in order to document the assigned actions and key decisions, as well as, other pertinent information.

2.4.1.2 Unless directed by the Authority, Contractor will provide minutes to every meeting.

2.4.2 Weekly Project Status Reports

2.4.2.1 Throughout the Project, the Contractor will provide the Authority's Project Director, after review by the Authority's Project Manager, with weekly Project status reports which will include, at a minimum, the following information:

2.4.2.1.1 Period covered by the report;

2.4.2.1.2 Summary of the Project status as of the reporting date;

2.4.2.1.3 The Work performed during the reporting period;

2.4.2.1.4 The Work completed during the reporting period and whether it was done/completed timely;

2.4.2.1.5 The Work scheduled, but not completed during the reporting period;

2.4.2.1.6 Tasks, Subtasks, Deliverables, goods, services and other Work scheduled to be completed in the next reporting period;

2.4.2.1.7 Issues resolved and remaining to be resolved;

2.4.2.1.8 Updated PMWP, if applicable; and

2.4.2.1.9 Any other information that the Authority may request from time-to-time.

2.4.2.2 As with all Deliverables, reporting templates will be proposed by the Contractor for review and approval by the Authority.

2.4.3 Monthly Reports

2.4.3.1 In addition to the schedules required hereunder and in addition to all other reports required by this Agreement, the Contractor will provide the Authority's Project Director, after review by the Authority's Project Manager, with monthly written reports. Unless otherwise directed by the Authority in writing, these reports will include an Executive Summary and each report will address, at a minimum:

2.4.3.1.1 General Project status;

2.4.3.1.2 Project risk tracking in the form of a Risk Register (see Section 2.8.6 below);

2.4.3.1.3 Problems, areas of concern, and corrective or remedial actions taken;

2.4.3.1.4 Cost summaries and cash flow (actual and projected);

2.4.3.1.5 Project schedule and scope related changes; and

2.4.3.1.6 Summary narrative of the progress of the Project.

2.4.3.2 The Contractor will, in its monthly report, list and describe all events and circumstances of which the Contractor is aware that have delayed or may delay any of the Work.

2.4.3.3 Additionally, the Contractor will submit monthly reports and these reports must be comprehensive and fully descriptive of the current status of the Project, and include the following:

2.4.3.3.1 Disputes and Claims. Each monthly report will include a section that describes all disputes, potential claims and claims made.

2.4.3.3.2 Outstanding Issues Log (the "OIL Log"). Each monthly report will include a section on Outstanding Issues or the "OIL Log". The narrative will include all Contractor and Subcontractor concerns with, for example,

sequencing, infrastructure, site access, coordination issues, congestion of workers and equipment, time requirements for design, procurement and installation.

- 2.4.3.3.3 Look-Ahead Task List. Each monthly report will include a "look-ahead" section. The look ahead section will include a one hundred twenty (120) Day look-ahead/task listings for the Authority's planning purposes, of the Authority-specific activities, coordination, inspections, approval, tie-ins, connections, consents and decisions necessary from the Authority to facilitate Contractor's progress. This section will also include a sixty (60) Day look-ahead/task listing for the Authority's planning purposes, of all testing(s) and inspection(s) scheduled for the Project during the look-ahead period.

2.4.4 Project Website

- 2.4.4.1 The Contractor will provide a secure project management SharePoint with up-to-date Project-related documents and schedules. The website shall provide groupware capability to accommodate all Project staff members, as determined by the Authority. The Authority currently uses SharePoint as its document management tool. If the Contractor uses any other such tool (website), the Contractor shall also grant the Authority access.

2.4.5 Issue Escalation

- 2.4.5.1 The Communications Plan will include an issue escalation process describing the Authority and Contractor staff to whom issues will be escalated. The Contractor will promptly notify the Authority regarding all PSBN related issues that require escalation. The determination of situations that require issue escalation will be in accordance with the approved Communications Plan and otherwise should be based on the reasonable judgment of experienced construction project oversight.
- 2.4.5.2 The Contractor will document and report issue escalation actions to the Authority and update status report documentation as appropriate.

SUBTASK 2.4 DELIVERABLE – Contractor will provide a comprehensive Communications Plan that meets the requirements of Subtask 2.4.

2.5 SUBTASK 2.5 – DOCUMENTATION PLAN

2.5.1 The Contractor will provide a Project Documentation Plan that will outline procedures for developing, maintaining and updating all Documentation on the Project, including but not limited to:

2.5.1.1 PMWP and component plans, and updates thereto;

2.5.1.2 PSBN and PSBN Subsystem Documentation;

2.5.1.3 System design, engineering and testing Documentation;

2.5.1.4 As-built Documentation;

2.5.1.5 Maintenance Documentation;

2.5.1.6 Site Improvement Documentation; and

2.5.1.7 Any/all such project management tools and metrics necessary to successfully conduct and complete the Project.

2.5.2 At a minimum, the Project Documentation Plan will contain the following sections: Project Documentation, System and Subsystem Documentation, Maintenance Documentation, As-Built Documentation and User Documentation, as further detailed in this Subtask 2.5.

2.5.3 Project Documentation

2.5.3.1 A standardized Project Documentation Plan is a vital tool for large and complex project management. The Project will create and receive hundreds to thousands of pertinent documents during the lifetime of this Project. Documents are contractual communications relevant to the Project for record purposes, including letters, emails, drawings, requests for information, schedules, photos, submittals, as-built documents, electronic data, etc. It is vitally important to maintain them for day-to-day operations, cost management, risk management, close-out and historical records.

2.5.3.2 The Contractor will define in its Project Documentation Plan a Project Documentation control system that articulates which Project-specific

documents and information will be documented and in what media and/or format Project documents will be maintained, categorized and filed for easy retrieval throughout the Project.

2.5.3.3 The Contractor will standardize Project Documentation to the greatest extent possible in order to build Authority confidence that:

2.5.3.3.1 There will be a comprehensive historical record of the Project at completion;

2.5.3.3.2 Productivity will be increased with a standard system providing quick, efficient access to any document, at any time; and

2.5.3.3.3 Risk can be managed, and if claims do arise, they can be handled efficiently because the documentation will be easily accessible.

2.5.3.4 The Contractor will define, in the Project Documentation Plan, how the Project file structures will be created that addresses and ensures that:

2.5.3.4.1 The integrity, quality and status accountability of the documentation, including baseline, contract drawings, specifications, budget and schedule will be maintained and updated as needed throughout the Project, that is, design, build, construction and deployment, test and acceptance, and warranty and maintenance.

2.5.3.4.2 A responsive, effective, and consistent approach to change, claims and records management for the Project, all of which shall be consistent with, and controlled by Section 2 (Changes to Agreement) of the Base Document. Change requests will be submitted for approval before they occur, and approval shall be in accordance with Section 2 (Changes to Agreement) of the Base Document.

2.5.3.4.3 Active and historical records and files are properly maintained and in appropriate locations. This provides technical and cost accountability for design and revision of the Project baseline and provides necessary information for ongoing system operations and maintenance.

2.5.3.5 The Contractor will articulate document control procedures that cover the following minimum criteria:

- 2.5.3.5.1 Procedures to process, distribute, maintain, control and protect Project documents;
 - 2.5.3.5.2 Identification of vital Project records and how they will be managed, tracked and updated;
 - 2.5.3.5.3 Processes for incoming and outgoing correspondence;
 - 2.5.3.5.4 Distribution processes;
 - 2.5.3.5.5 A file naming convention;
 - 2.5.3.5.6 Protocols for maintaining drawings; and
 - 2.5.3.5.7 Establishment of a disaster protocol for documents.
- 2.5.3.6 The Contractor will establish procedures for document scanning and ensure that all Project related documents are maintained in an electronic format to the maximum extent possible.
- 2.5.3.7 The Contractor will establish procedures to control document reproduction of drawings, specifications, etc. and these procedures will address:
- 2.5.3.7.1 Submitting and approving document requests;
 - 2.5.3.7.2 Ordering document copies from reproduction services; and
 - 2.5.3.7.3 Receipt and quality check of the reproduction orders.
- 2.5.3.8 The Contractor will establish procedures to control document distribution and these procedures will address:
- 2.5.3.8.1 All baseline documents will be issued by controlled copy to ensure that all document holders have the current revision of the document;
 - 2.5.3.8.2 All controlled and/or sensitive documents will be appropriately classified, marked, and identified as to who will have document access; and

- 2.5.3.8.3 Document distribution will be outlined through a distribution matrix to include all Project participants who may be included in any document distribution.

- 2.5.3.9 The Contractor will define a filing index structure that has index codes for indexing and quick retrieval of documents. The Project file index coding procedure should contain the following:
 - 2.5.3.9.1 The use of coding in the structure. The Project will use a system based on the Phases of the Project;
 - 2.5.3.9.2 The process of making changes to the index coding system;
 - 2.5.3.9.3 Distribution of the index code list; and
 - 2.5.3.9.4 All documents will be filed with a file index code identified on the document.

- 2.5.3.10 The Contractor will define the document filing process to ensure that all documents, both current and historical, both paper and electronic, are maintained safely and can be retrieved quickly. At a minimum, the Contractor will address the following:
 - 2.5.3.10.1 Filing of drawings and controlled documents;
 - 2.5.3.10.2 Filing of correspondence, Project documents, submittals, etc.;
 - 2.5.3.10.3 Maintaining the baseline documents;
 - 2.5.3.10.4 Access to the document control files;
 - 2.5.3.10.5 All documents will be scanned and logged in the Authority's web-based system (Share Point); and
 - 2.5.3.10.6 All original Project documents are to be filed. Contractor and Authority team members should only receive copies.

- 2.5.3.11 The Contractor will establish procedures for using SharePoint for logging and tracking all incoming and outgoing documentation. This document repository tool will also provide a tracking mechanism for action items and issues management with follow-up due dates and a project documentation library.
- 2.5.3.12 The Contractor will establish a procedure for maintaining a Project document library. This library will contain a copy of the current and historical revisions of all contract specifications, the contract and reference drawings (beginning from the design review level), the baseline controlled documents, the reference documents and all other Project-specific documents that will be maintained in a centralized location. This procedure addresses:
- 2.5.3.12.1 Receipt and quality check of documents;
 - 2.5.3.12.2 Project library log;
 - 2.5.3.12.3 Preparing documents for inclusion to the library; and
 - 2.5.3.12.4 Use of the library.
- 2.5.3.13 The Contractor will establish back-up document recovery procedures to protect vital Project records in case of a disaster. The Contractor will define the requirements and responsibilities for creation and use of the disaster file, and will address the following:
- 2.5.3.13.1 Document protection;
 - 2.5.3.13.2 Disaster files location;
 - 2.5.3.13.3 Mode of record archive preparation;
 - 2.5.3.13.4 Retrieval from the disaster file; and
 - 2.5.3.13.5 Tracking of documents sent to the disaster file.
- 2.5.3.14 The Contractor will establish responsibilities for Documentation management and those responsibilities, at a minimum, will include the responsibility to:

- 2.5.3.14.1 Receive and process all incoming (received) Project correspondence via U.S. postal and express mail, messenger, hand-carried and fax;
- 2.5.3.14.2 Stamp with a "Received/Date" stamp and assign a file code. If a file code is already assigned, verify its accuracy and revise as needed;
- 2.5.3.14.3 Process all outgoing (generated) correspondence. Verify the assigned file code and revise as necessary;
- 2.5.3.14.4 Enter/Log all incoming and outgoing correspondence into the web-based system (Share Point);
- 2.5.3.14.5 Ensure that the document control web-based system (Share Point) assigns a unique document tracking number (DTN) to all incoming/outgoing correspondence;
- 2.5.3.14.6 Make a copy of the incoming correspondence for the addressee. The original will be filed;
- 2.5.3.14.7 Maintain, control and retrieve all documents;
- 2.5.3.14.8 Scan documents and file electronically with appropriate file naming conventions followed;
- 2.5.3.14.9 Develop standard document formats;
- 2.5.3.14.10 Comply with the outgoing correspondence formats and preparation requirements defined in this procedure;
- 2.5.3.14.11 Assign file codes in accordance with the file index code procedure prior to issuing correspondence;
- 2.5.3.14.12 Project Managers, review incoming mail correspondence and decide if any additional distribution, action items, assignees, and due date are required;
- 2.5.3.14.13 Submit a copy of all outgoing correspondence, documents and faxes to document control;

2.5.3.14.14 Respond to assigned action items for incoming correspondence within seven (7) working days unless otherwise specified; and

2.5.3.14.15 Obtain the document control's assistance to retrieve Documentation located in the Program files.

2.5.3.15 The Contractor will establish procedures to ensure that all documents generated by the Contractor and for the Project are to include an appropriate file code. All Project files will be maintained using the file index code system.

2.5.3.16 As the Project progresses through the various Phases from Notice to Proceed ("NTP") through to close-out, changes to the file index may be necessary. The Authority or the Contractor may request a change to the file index code. The requestor is responsible for explaining why a new code is needed.

2.5.3.17 The Contractor will define the requirements and responsibilities for filing documents for the Project. Those requirements and responsibilities will be contained in the Documentation Plan.

2.5.3.18 The Contractor will define the requirements and procedures for the filing, handling, storing, and retrieval of drawings of various sizes, and this information will be contained in the Documentation Plan.

2.5.3.19 The Contractor will define the requirements and procedures for Project close-out Documentation, and this information will be contained in the Documentation Plan.

2.5.4 System and Subsystem Documentation

2.5.4.1 The Contractor will provide and maintain throughout the term of the Agreement, a central server containing a repository of all design drawings, as-build drawings, PSBN manuals, user manuals and any other type of PSBN documentation. Server access will be provided to any authorized Authority user of any Member agency and all documents and files will be the property of the Authority.

2.5.4.2 The Contractor will provide a description in the Documentation Plan that specifies the graceful degradation upon PSBN failure.

- 2.5.4.3 The Contractor will provide footprint and installation drawings of all proposed equipment and other Components. This will include fixed equipment drawings.
- 2.5.4.4 The Contractor will include drawings showing the arrangement of all equipment and other Components in each rack.
- 2.5.4.5 The Contractor will include all dimensions of the equipment racks.
- 2.5.4.6 As with all Deliverables, the Contractor will submit all formal PSBN and/or PSBN Subsystem Documentation to the Authority in draft form for approval by the Authority.
- 2.5.4.7 The Contractor will provide all Documentation that is subject to frequent change (other than schedule documents) in Microsoft® Office format (e.g., cable pair assignments, punch blocks, logs, etc.) or a mutually agreed to format.
- 2.5.4.8 The Contractor will submit all engineering drawings in AutoCAD, Version 13 (or latest version) and meet the following requirements:
- 2.5.4.8.1 The Contractor will provide select drawings in ANSI - E size format. The specific drawings will be determined during the Design Review process.
 - 2.5.4.8.2 The Contractor will provide three (3) electronic copies of all engineering drawings in AutoCAD, Version 13 (or latest version) and Adobe PDF.
 - 2.5.4.8.3 The Contractor will include, for all engineering drawings, fifteen (15) prints.
 - 2.5.4.8.4 All engineering drawings will be folded to approximately 8½” x 11”.
 - 2.5.4.8.5 All engineering drawings will bear title block and drawing number of the issuing organization.
 - 2.5.4.8.6 The Contractor will ensure that all manuals indicate all safety precautions to be taken by personnel employed in the installation, operation, or maintenance of the Components.

2.5.4.8.7 The Contractor will ensure that all manuals, drawings and system documentation are provided in both electronic format and hardcopy format.

2.5.4.8.8 The Contractor will provide an electronic copy of the manufacturer's installation standards and practices, especially concerning lightning, grounding and transient protection.

2.5.5 Maintenance Documentation

2.5.5.1 The Contractor will provide an electronic copy of the maintenance manuals for major Components during Design Review (as defined below).

2.5.5.2 The Contractor will supply suitable maintenance manuals for the purpose of allowing Authority technicians to maintain the PSBN. These maintenance manuals will contain the following:

2.5.5.2.1 A complete narrative description of the PSBN with reference to functional block diagrams;

2.5.5.2.2 A complete step-by-step alignment and adjustment procedures;

2.5.5.2.3 Complete test and maintenance instructions including trouble-shooting charts;

2.5.5.2.4 Functional block diagrams giving signal levels at each interface;

2.5.5.2.5 Component location drawings or pictorials showing Component reference designators;

2.5.5.2.6 Parts list giving complete description and ordering information for each Component. Part numbers will be industry standard or the actual manufacturer part number;

2.5.5.2.7 Inter and intra-cabling diagrams reflecting as-built configuration including pin layouts for all plugs, wire color codes, gauge, and functional labeling;

2.5.5.2.8 A complete set of software for diagnostic, alignment, and configuration of Component residing at the site; and

- 2.5.5.2.9 Mounting and installation drawings.
- 2.5.5.3 The Contractor will ensure that all maintenance manuals are plainly indexed and contain only the information applicable to the Components delivered.
- 2.5.5.4 The Contractor will ensure that all maintenance manuals are contained in a sturdy multi-ring binder, which facilitates insertion of corrections, changes and additions.
- 2.5.5.5 The Contractor will ensure that all electronic Components are identified by reference designators for cross-reference to parts listings.
- 2.5.5.6 The Contractor will provide fifteen (15) copies of maintenance manuals, along with one (1) copy for each site where Components are installed as part of the Project.
- 2.5.5.7 Copies of all factory test results will be provided as part of the manual set.
- 2.5.5.8 The Contractor will ensure that all PSBN bulletins and modifications, where appropriate, are provided for the life of the Component, not less than ten (10) years from the date of Final LTE PSBN Acceptance.
- 2.5.6 As-Built Documentation
 - 2.5.6.1 The Contractor will provide one (1) set of site-specific as-built Documentation for each site where the Contractor installs Components in both hardcopy and electronic format (PDF) and AutoCAD files where applicable.
 - 2.5.6.2 The Contractor will include the following in the as-built Documentation:
 - 2.5.6.2.1 Complete PSBN drawings;
 - 2.5.6.2.2 Major Component specifications;
 - 2.5.6.2.3 Antenna support structure specifications including wind, seismic and other code-required loadings;
 - 2.5.6.2.4 Antenna Structure Registration number, when applicable;

- 2.5.6.2.5 Antenna specifications;
 - 2.5.6.2.6 Antenna feed line specifications;
 - 2.5.6.2.7 Antenna diagrams and mounting details, including tilt and azimuth when applicable;
 - 2.5.6.2.8 An overview of backbone hardware configuration;
 - 2.5.6.2.9 A detailed functional block diagram;
 - 2.5.6.2.10 All interconnection drawings;
 - 2.5.6.2.11 All cable labeling;
 - 2.5.6.2.12 Optimization procedures;
 - 2.5.6.2.13 Operating manuals;
 - 2.5.6.2.14 Installation manuals;
 - 2.5.6.2.15 Maintenance and troubleshooting manuals;
 - 2.5.6.2.16 Spares list;
 - 2.5.6.2.17 All site-specific Acceptance Test results;
 - 2.5.6.2.18 Site equipment rack diagram; and
 - 2.5.6.2.19 Operating frequencies and licenses.
- 2.5.6.3 The Contractor will include existing equipment that will remain at a given site in appropriate as-built drawings.
- 2.5.6.4 The Contractor will ensure that all Documentation is corrected to include any changes made during implementation through Final PSBN Acceptance. The Authority will not accept handwritten notes to document changes.

2.5.6.5 In addition to all other Documentation required to be provided by Contractor to the Authority under this Agreement, the Contractor will submit a set of the Site Record Documents (As-Built Documentation) to the Authority Project Director in electronic and reproducible hard copy format. "Site Record Documents" are a set of Site Improvement Documents and other documents into which the Contractor has carefully verified and incorporated, on a monthly basis, all as-built conditions on each PSBN Site. The electronic files of the Site Record Documents shall be provided in both PDF and AutoCAD (version 13 or later) format. The hard copy of the Site Record Documents shall be provided in a reproducible format and in least half size and laminated to protect against wear and tear. In addition, an index in an electronic format such as spreadsheet or data base shall be provided listing all the Site Record Documents. The Site Record Documents shall show all changes made during construction based upon the Contractor's records of all the as-built drawings and specifications. Each document and drawing sheet shall be prominently marked "Site Record Document." All Site Record Documents will be delivered to the Authority by September 30, 2015 or prior to the Authority paying an invoice for Work where Site Record Documents are generated with such Work.

2.5.7 User Documentation

2.5.7.1 The Contractor will provide all User Documentation in both electronic format and hardcopy format.

2.5.7.2 The Contractor will provide a User Manual that will:

2.5.7.2.1 Be included with each device or equipment provided; and

2.5.7.2.2 Describe in non-technical language the use of the device or equipment including the functioning of all user accessible controls and adjustments.

2.5.7.3 The User Manual will include:

2.5.7.3.1 A description of all PSBN system utilities;

2.5.7.3.2 PSBN operational procedures;

2.5.7.3.3 Documentation of all device drivers;

- 2.5.7.3.4 A description of PSBN system diagnostics;
 - 2.5.7.3.5 A PSBN system block diagram;
 - 2.5.7.3.6 A PSBN system overview;
 - 2.5.7.3.7 A description of PSBN Hardware and Software including functional usage and operation;
 - 2.5.7.3.8 Start/stop and power fail/recovery procedures;
 - 2.5.7.3.9 Messages regarding malfunctions and user action in each case;
 - 2.5.7.3.10 Back up procedures;
 - 2.5.7.3.11 All commands including the impact and expected response; and
 - 2.5.7.3.12 Manufacturer contact information.
- 2.5.7.4 The Authority will be granted the right to reproduce unlimited copies of the User Manuals and any other system Documentation for use within the Authority, its Members and Users.

SUBTASK 2.5 DELIVERABLE – Contractor will provide a comprehensive Documentation Plan that meets the requirements of Subtask 2.5.

2.6 SUBTASK 2.6 – QUALITY CONTROL PLAN

- 2.6.1 The Contractor will provide a Quality Control Plan that will ensure that each Task, Deliverable, and Milestone included in each Phase of the Project will be performed and provided in accordance with the Agreement, prior to turning such Task, Deliverable, and Milestone over to the Authority for approval. This Quality Control Plan will include, at a minimum:
- 2.6.1.1 Activities to be monitored;
 - 2.6.1.2 Steps and procedures to follow to ensure achieving implementation of the quality control and quality assurance process;

- 2.6.1.3 Monitoring methods to be used;
 - 2.6.1.4 Frequency of monitoring;
 - 2.6.1.5 Samples of forms to be used in monitoring;
 - 2.6.1.6 Title/level and qualifications of personnel performing monitoring functions;
and
 - 2.6.1.7 Method of recordkeeping that the Contractor will use to record inspections conducted, Deficiency and other problem identification, Deficiency/problem description, corrective action taken, and elapsed time between identification and completed corrective action and method of making such recordkeeping available to the Authority on demand via SharePoint.
- 2.6.2 The Contractor’s Quality Control Plan will specifically describe the plans and procedures which ensure compliance of the proposed PSBN system(s) design with the Authority’s requirements. The plan will address the metrics, standards and key checkpoints used by the Contractor for the following Project tasks, at a minimum:
- 2.6.2.1 Design analysis and verification;
 - 2.6.2.2 Coverage analysis and verification;
 - 2.6.2.3 Interference verification;
 - 2.6.2.4 Network capacity analysis and verification;
 - 2.6.2.5 Design changes and document control;
 - 2.6.2.6 Material shipping, receiving and storage;
 - 2.6.2.7 Site preparation and construction;
 - 2.6.2.8 Field installation and inspection;
 - 2.6.2.9 Equipment inventory and tracking;

- 2.6.2.10 Equipment testing and validation;
- 2.6.2.11 PSBN integration, testing and validation;
- 2.6.2.12 Software regression testing;
- 2.6.2.13 Deficiency reporting and correction;
- 2.6.2.14 Implementation and migration/transition; and
- 2.6.2.15 Training and certification.

SUBTASK 2.6 DELIVERABLE – Contractor will provide a comprehensive Quality Control Plan that meets the requirements of Subtask 2.6.

2.7 SUBTASK 2.7 – CHANGE ORDER PROCESS & MANAGEMENT PLAN

- 2.7.1 Subject to, and consistent with Section 2 (Changes to Agreement) of the Base Document, the Contractor will provide its proposed Change Management Plan to address proposed changes in the Project, and include, at a minimum:
 - 2.7.1.1 Change management objectives;
 - 2.7.1.2 Change recommendations based on gap analysis;
 - 2.7.1.3 Stakeholder participation strategies in proposing and prioritizing changes;
 - 2.7.1.4 Success factors and measures of success;
 - 2.7.1.5 Risk factors and risk mitigation actions; and
 - 2.7.1.6 Communication plan and communication channels.
- 2.7.2 Subject in all respects to Section 2 (Changes to the Agreement) of the Base Document, the Contractor and the Authority will develop a Change Control Board (CCB), comprised of Contractor and Authority personnel. The purpose of the CCB will be to review all proposed changes with respect to need, technical impact to the network, impact to the Project Schedule, impact to the schedule and reasonableness of cost.

- 2.7.3 Proposed changes will be processed through the Authority’s Project Manager to the Authority’s Project Director for approval, subject in all respects to Section 2 (Changes to the Agreement) of the Base Document, however proposed changes will not be processed until the CCB has completed its analysis and provided a written summary report addressing all aspects of the proposed change(s), such summary report to be included with the requested change.
- 2.7.4 The format and content of the Change Request will be approved by the Contractor and the Authority prior to any changes being submitted.
- 2.7.5 Change requests will be submitted prior to implementing the changes.
- 2.7.6 For the avoidance of doubt, all changes to the Work shall be in accordance with Section 2 (Changes to Agreement) to the Base Document, irrespective of any approval or disapproval by the Change Control Board.
- 2.7.7 Also, for the avoidance of doubt, the Authority’s rights in Section 2.3.4, 2.3.5 (Proceed Order), 2.3.6 (Unilateral Amendment), 2.3.9.2 (Continued Performance), 2.3.10.2 (Unilateral Amendment), and any other provisions of Section 2 (Changes to Agreement) or elsewhere in the Base Document providing the Authority the ability to unilaterally issue changes to the Agreement or direct Work are not subject to the Change Control Board.

SUBTASK 2.7 DELIVERABLE – Contractor will provide a comprehensive Change Order Process and Management Plan that meets the requirements of Subtask 2.7.

2.8 SUBTASK 2.8 – RISK MANAGEMENT PLAN

- 2.8.1 The Contractor will provide a Risk Management Plan. The Contractor’s Risk Management Plan will include, at a minimum:
- 2.8.1.1 Description of all of the Project’s potential risks;
 - 2.8.1.2 An assessment of the impact on the Project should each risk factor occur;
 - 2.8.1.3 An assessment of the likelihood of the risk occurring;
 - 2.8.1.4 Steps that should be taken to mitigate the potential for the risk to occur;

- 2.8.1.5 Identification of the indicators that the risk factor may be about to occur;
 - 2.8.1.6 Actions to be undertaken should the risk indicators arise; and
 - 2.8.1.7 Risk monitoring, tracking, and updating process, i.e., the Risk Register (see Section 2.8.6 below).
- 2.8.2 The Contractor will work with the Authority to determine all risks associated with the Project. Risks will be tracked and reported in the Weekly Project Status Reports and Monthly Reports, and at such meetings necessary to outline and discuss risks and mitigation strategies.
- 2.8.3 The Contractor will develop and maintain, with input from the Authority, a list of potential Project risks. Potential Project risks will be included for all participating organizations, including the Authority, the Contractor and its Subcontractors, and Member agencies.
- 2.8.4 The Contractor will include in the Risk Management Plan the following minimum considerations:
- 2.8.4.1 Critical Path Analysis – The schedule and cost impact on the Project of critical path items not being fulfilled and whether the dependencies that are driving the critical path are realistic.
 - 2.8.4.2 Schedule realities and anomalies – Describe realistic durations compared to recent past histories. Confirm Milestones accurately reflect the tasking being performed.
 - 2.8.4.3 Design – Describe how the design is solid and follows industry practices. Describe any aspects of the design that are new, untested, or known to include risk from previous experience.
 - 2.8.4.4 Production limitations – Describe how the factory is able to meet production schedules. Identify any key Component delays forecasted. Describe the impact of new orders on current delivery schedules.
 - 2.8.4.5 Weather and Terrain – Describe how the construction schedule adequately include impacts due to adverse weather conditions and difficult terrain access.

Identify any unusual weather or geological incidents that have recently occurred that could impact the program.

- 2.8.4.6 Past history with specific products being fielded – Identify problems that have been experienced with the Contractor’s products in the past. Describe how they have been corrected and if so, what was the impact. Identify similar issues to be expected in the deployment of the PSBN.
- 2.8.4.7 Construction and Contractor delays – Describe the track record to date regarding timely construction and delivery and/or delay by the Contractor and its Subcontractors.
- 2.8.4.8 Compliance with Construction Management Requirements – Describe how the Contractor(s) work plan, System Design and Site Design Documents includes the construction management requirements set forth in Attachment 2 (Construction Management Requirements) to Exhibit J (Confidential Supplement) for each of the sites, including but not limited to, impact on construction start/end dates due to these requirements. The Contractor will validate that these construction management requirements will be built into the System Design and Site Design Documents and will be implemented prior to and during construction activities. The Contractor and Authority will identify associated environmental considerations (e.g., bird nesting season), and coordinate with the Authority’s third-party environmental services consultants, and reflect those activities in the Project Schedule.
- 2.8.4.9 Staffing – Identify if the Contractor’s assigned design and implementation staff to the Project has changed or is about to change and what impact will the changes have on the Project. Confirm if the number of Contractor’s field implementation teams are adequate and consistent with the site rollout schedule. Confirm that key site personnel is sufficiently identified and qualified. Describe if they have experience performing tasks of similar size and scope.
- 2.8.4.10 Organization – Describe how the Contractor’s Project management team will continue to support the various functional and implementation Phases of the Project. Describe how the Contractor’s management organization is flexible enough to react to changes brought on by Project redirection and/or delays.

- 2.8.4.11 Quality Assurance – Confirm there are sufficient QA methodologies in place. Confirm the Contractor is performing adequate software regression testing. Identify if there is formal Contractor version control for PSBN System Design, hardware, software and Documentation.
- 2.8.4.12 Program Management – Confirm there are sufficient program management tools in place to identify risks in a timely manner. Confirm there are mechanisms in place to track mitigation strategies should they be called upon.
- 2.8.4.13 Third Party – Identify regulatory issues, permitting processes, environmental concerns, citizen actions, or construction approvals that could impact the Project Schedule. Describe the recent history of these issues in the areas of implementation.
- 2.8.4.14 Public Relations – The potential impact of political or organizational risks in a large-scale government program must be identified and mitigated. Confirm there are ongoing Authority/Contractor program to build consensus and garner acceptance by participating organizations, participating stakeholder agencies, potential local jurisdiction participants and the public at large. Identify sufficient mechanisms that will be put in place to accurately communicate the Project’s purpose, goals, objectives and status.
- 2.8.5 During Project development and execution, the Contractor and the Authority will hold periodic meetings to assess the risks, owner of the risk, and uncertainties of this Project. During these meetings the team will classify risks as L=low, M=medium, H=high probability and develop appropriate preliminary mitigation plans in case of occurrence.
- 2.8.6 The Contractor will develop and maintain a Risk Register and Action Item List through all Phases of the Project. The Risk Register will be discussed and updated at weekly and monthly coordination meetings.
- 2.8.7 The master Risk Register will be maintained in the Project SharePoint file for access by the Contractor and the Authority.

SUBTASK 2.8 DELIVERABLE – Contractor will provide a comprehensive Risk Management Plan that meets the requirements of Subtask 2.8.

2.9 SUBTASK 2.9 – NETWORK DESIGN AND IMPLEMENTATION PLAN

The Contractor will provide a Network Design and Implementation Plan that will incorporate the network design and implementation requirements, as well as other Phase 1, 3 and 4 Work, detailed in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and elsewhere in the Base Document and include a detailed list of activities, developed and sequenced with a clear duration, start and end dates, assignments and dependencies.

SUBTASK 2.9 DELIVERABLE – Contractor will provide a comprehensive Network Design and Implementation Plan that meets the requirements of Subtask 2.9 by the date specified in the approved Project Schedule.

2.10 SUBTASK 2.10 – SITE DESIGN AND CONSTRUCTION PLAN

The Contractor will provide a Site Design and Construction Plan for each PSBN Site that will incorporate the design and construction requirements, as well as other Phase 2 Work, detailed in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and elsewhere in the Base Document, and include a detailed list of activities, developed and sequenced with a clear duration, start and end dates, assignments and dependencies.

SUBTASK 2.10 DELIVERABLE – Contractor will provide a comprehensive Site Design and Construction Plan that meets the requirements of Subtask 2.10.

2.11 SUBTASK 2.11 – TESTING AND ACCEPTANCE PLAN

The Contractor will provide a Testing and Acceptance Plan that will incorporate the requirements regarding Acceptance Testing and Final PSBN Acceptance detailed in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and elsewhere in the Base Document, and include a detailed list of activities, developed and sequenced with a clear duration, start and end dates, assignments and dependencies.

SUBTASK 2.11 DELIVERABLE – Contractor will provide a comprehensive Testing and Acceptance Plan that meets the requirements of Subtask 2.11.

2.12 SUBTASK 2.12 – TRAINING PLAN

2.12.1 These training requirements are included primarily to provide the Authority the opportunity to train its end users and technicians in the operation and maintenance of the PSBN. However, the Contractor will include any necessary changes that are the result of providing an integrated solution.

- 2.12.2 The Training Plan will include the following:
- 2.12.2.1 Number of participants for each class;
 - 2.12.2.2 The prerequisites for all participants;
 - 2.12.2.3 The length of each class in hours; and
 - 2.12.2.4 The total number of trainer hours proposed.
- 2.12.3 The Training Plan will provide a computer database tracking mechanism for the training received by each student. The minimum information tracked must include students name, agency, type of training and hours of training received, by subject and cumulative training time.
- 2.12.4 All training will be conducted at a location approved by the Authority (any training that requires offsite participation must be specifically noted).
- 2.12.5 The Training Plan will be flexible enough to allow the Authority to make adjustments to the participants or curriculum to achieve the greatest benefit for the training hours provided. All training must be conducted as close to “go live” dates as possible, except where noted in the Project Schedule.
- 2.12.6 The training plan will describe the type of refresher training recommended (e.g., updated user training, changes to system configuration).
- 2.12.7 Training materials (both hardcopy and electronic) will be provided a minimum of three weeks prior to the start of any training course.
- 2.12.8 Training materials will be for the version of the software to be deployed. Training materials for previous/older versions of software are unacceptable.
- 2.12.9 Training materials will be customizable based on the functionality being sought by the Authority.
- 2.12.10 The Contractor will describe how LA-RICS Member specific scenarios will be integrated into the training program.

- 2.12.11 The Contractor will describe how the effectiveness of the training will be evaluated.
- 2.12.12 The Contractor will provide train the trainer style training for end users (e.g., Police Officers, Fire Fighters, Dispatchers and Dispatch Supervisors).
- 2.12.13 The User training will include but not be limited to PSBN system overview, both general Users and supervisory User tasks and any other training the Contractor deems necessary to properly operate on the PSBN.
- 2.12.14 A comprehensive level of training for Engineers and Technicians will include, but not be limited to: PSBN overview, individual Component troubleshooting and repair at module level, PSBN optimization, PSBN alignment and adjustment, PSBN configuration, fallback configurations, and preventative maintenance. The Contractor will identify any additional training deemed necessary to properly maintain and restore the PSBN in a timely matter as determined by the Authority.
- 2.12.15 The following training courses for technicians are to be provided regarding the following Components: eNodeBs and backhaul equipment, User Equipment, other infrastructure equipment and Evolved Packet Core (“EPC”).
- 2.12.16 Training courses for Authority Member Engineers and Technicians will be completed no earlier than sixty (60) days before Final PSBN Acceptance.
- 2.12.17 The Contractor will provide a plan to include designated Authority Member Engineers and Technicians in the implementation and optimization as well as warranty and maintenance during the PSBN Warranty Period.
- 2.12.18 A full training curriculum is required for Engineering and Technical personnel. Refresher training is not acceptable for initial PSBN introduction.
- 2.12.19 As with all Deliverables, all training plans and or materials will be subject to review and approval by the Authority prior to use or distribution by the Contractor.
- 2.12.20 The Contractor will recommend the number and type of training sessions to ensure that a sufficient number of personnel are trained for PSBN system use and maintenance.
- 2.12.21 The Authority will provide classroom space for training sessions. The Contractor will be responsible for providing all training courses within these facilities.

- 2.12.22 The Contractor will provide all instructional materials, media presentation devices, presentation media, lesson plans, and course instructors.
- 2.12.23 Student to instructor ratios for all training sessions will not exceed a ratio of twelve (12) students to one (1) instructor unless approved by the Authority.
- 2.12.24 All training courses will be scheduled by the Contractor and, as with all Deliverables, approved by the Authority.
- 2.12.25 In addition to formalized training programs, the Contractor will list any electronic utilities (e.g., self-guided tutorials) that provide an on-line or off-line training environment. The nature of such utilities will be presented, along with the content of such courses. These utilities will mirror the installed operations by using live data wherever possible.
- 2.12.26 The Authority recognizes the need to create, set up, and maintain data files, tables, and configuration parameters required by the proposed PSBN. PSBN configuration training must be provided by the Contractor to designated PSBN administrators on how to both set up and maintain these files, tables, and parameters.
- 2.12.27 All manuals, handouts, and other printed materials used during the training will become the property of the Authority.
- 2.12.28 The Authority will be granted the right to reproduce unlimited copies of the training materials for use by Authority, its Member and Users.
- 2.12.29 If any specialized test/diagnostic equipment is required or proposed to support the PSBN, the Contractor will include training for this equipment.
- 2.12.30 The Contractor will include hands-on training, which includes simulations of common failures and maintenance processes.
- 2.12.31 In addition to in-person instruction, self-guided web-based tutorials are highly desired by the Authority.
- 2.12.32 A remote training system will be proposed that allows Users to simulate live operations for all proposed PSBN Components without degrading PSBN performance.

- 2.12.33 A simulated system or training database will be provided to the Authority as soon as possible by the Contractor to allow Authority system administrators to familiarize themselves with each PSBN Component. A minimum of two workstations is preferred.
- 2.12.34 The Contractor will provide all equipment required for hands-on training.
- 2.12.35 All courses will be professionally video recorded by the Contractor and become Authority property for the purpose of refreshment course and/or new training.
- 2.12.36 The Contractor will include a training outline and a copy of all the standard documentation (user, administrator, installer guides, etc.) for all Components (hardware, firmware, and software) proposed.
- 2.12.37 Training will not include use of the live PSBN.
- 2.12.38 In the training mode, Users will be presented with screen presentations and functionality identical to the live PSBN.
- 2.12.39 The training environment will be easily populated with data from the remote training system.
- 2.12.40 Training Curricula Development
- 2.12.40.1 Course Materials: The Contractor will provide hard copy and soft copy course materials in sufficient quantities to satisfy participant requirements.
 - 2.12.40.2 Delivery of Training: The Contractor will provide onsite training at a location to be provided by the Authority. The Authority may video tape training session and post such training video. Should the Authority and Authority Members download softcopies of the video tape training session, the Authority and Authority Members will execute a non-disclosure agreement consistent with the provisions set forth in Exhibit N (Non-Disclosure Agreement). Administrators will be authorized to download and make materials available to end users on a temporary basis for training purposes.
 - 2.12.40.3 Certification Program: The Contractor will provide certification of course completion to all course participants. A formal Certification Program will be

established for LA-RICS personnel to achieve sufficient skills and expertise to fully maintain the PSBN.

- 2.12.40.4 Technician Training: The Contractor will train twenty-five (25) Authority technicians on eNodeB, EPC, System Management and other key PSBN Components, Subsystems and other PSBN elements to a level of quality and certification the Contractor would require for its own technicians.
- 2.12.40.5 Training Programs: The Contractor will provide a comprehensive training program as defined within this and other Sections. The Program will include but not be limited to the course modules presented below and others as deemed appropriate by the Contractor:
 - 2.12.40.5.1 Device Provisioning;
 - 2.12.40.5.2 PSBN Overview;
 - 2.12.40.5.3 LTE Air Interface;
 - 2.12.40.5.4 LTE Radio Network Functions (handover, mobility management, neighbors, idle/active mode, power control, capacity management, resource scheduling);
 - 2.12.40.5.5 LTE Radio Engineering including drive test analysis;
 - 2.12.40.5.6 Basic EPC Operations;
 - 2.12.40.5.7 Quality of Service Configuration;
 - 2.12.40.5.8 Access Point Name (“APN”) Configuration;
 - 2.12.40.5.9 LTE Key Performances Indicators (“KPIs”) 101;
 - 2.12.40.5.10 eNodeB Field Maintenance;
 - 2.12.40.5.11 eNodeB Commissioning (train to commission integrating additional eNodeBs both at the EPC and eNodeB including SON);

- 2.12.40.5.12 LTE Network Operations (Fault management, hardware/software management, performance management, configuration);
- 2.12.40.5.13 Troubleshooting failures;
- 2.12.40.5.14 Performance Management and Troubleshooting Performance Issues (including database consistency checks);
- 2.12.40.5.15 Optimization (collect performance data for KPIs and strategies for improving KPIs);
- 2.12.40.5.16 Network Dimensioning;
- 2.12.40.5.17 Traffic Management (tethering detection, deep packet inspection, header inspection, and other policy control);
- 2.12.40.5.18 IP Networking;
- 2.12.40.5.19 Operational Support System (“OSS”);
- 2.12.40.5.20 Upgrade Training (deltas between different versions); and
- 2.12.40.5.21 Site infrastructure and ancillary equipment operation and maintenance (including equipment for environmental control system, backup power system, fuel monitoring system, and FAA obstruction lighting control).

SUBTASK 2.12 DELIVERABLE – Contractor will provide a comprehensive Training Plan that meets the requirements of Subtask 2.12.

2.13 SUBTASK 2.13 – TRANSITION PLAN

2.13.1 At the sole discretion of the Authority, the Contractor will transition the PSBN, in whole or in part, to the Authority or any of its Members, as described in Section 30 (Transition of Services) of the Base Document. Accordingly, Contractor will provide a Transition Plan that will address the following:

2.13.1.1 All requirements of Section 30 (Transition of Services) of the Base Document.

- 2.13.1.2 Contractor’s provision of engineering, installation, reconfiguration and other required support to transition the required PSBN Components.
- 2.13.1.3 Contractor’s provision of any technical services required to upgrade, and maintain the LA-RICS RAN in accordance with the Authority’s/applicable Member’s guidelines until the PSBN is completely transitioned.
- 2.13.1.4 If the Authority, at its sole discretion, opts to transition all or some Contractor provided warranties, equipment, software, manuals, as-builts, and other Documentation to become the property of the third party the Contractor will facilitate and provide support for such transition at no additional charge.
- 2.13.1.5 The Contractor will provide tools to monitor, detect and prevent intrusion on network interfaces between the PSBN and other networks.

SUBTASK 2.13 DELIVERABLE – Contractor will provide a comprehensive Transition Plan that meets the requirements of Subtask 2.13.

2.14 SUBTASK 2.14 – VALUE ENGINEERING PLAN

- 2.14.1 The Contractor will provide a Value Engineering Plan that includes the development of objectives, alternatives, refinement of the alternatives and optimization of the refined alternatives.
- 2.14.2 The Value Engineering Plan will document the capability of each proposed major Component and any optimal alternatives analysis, and verification.

SUBTASK 2.14 DELIVERABLE – Contractor will provide a comprehensive Value Engineering Plan that meets the requirements of Subtask 2.14.

2.15 SUBTASK 2.15 – DISASTER RECOVERY AND SPECIAL EVENTS PLANS

2.15.1 Disaster Recovery Plans

- 2.15.1.1 The Contractor will provide a PSBN level description and recovery procedures for use by individual agencies for their Disaster Recovery Plans (DRP). This description will provide information for each agency in the event of a disaster or Component failure. The Contractor will provide an example DRP for consideration.

- 2.15.1.2 The DRP will include a plan for failure of a single, multiple, or all dispatch centers.
 - 2.15.1.3 The DRP will include a plan for failure of a PSBN Site that provides primary coverage and/or capacity for an agency.
 - 2.15.1.4 The DRP will include a plan for enhancing coverage and capacity in an area where coverage and capacity is inadequate to support the required operations of an agency, (e.g., earthquakes, wildfires, etc.).
 - 2.15.1.5 The DRP will include a plan for the failure of all core elements (e.g. EPC, DNS, MPLS).
 - 2.15.1.6 The DRP will include a plan for the failure of WAN, backhaul connectivity.
 - 2.15.1.7 The DRP will include implementation, storage and management of field replacement units and spares.
 - 2.15.1.8 The DRP will include a plan for prioritizing the repair of PSBN Sites in the event of multiple site outages. Consideration will be given to the type of outage, the effect of a site outage to the overall system (e.g., microwave hub vs. the end of a spur), the presence of overlapping coverage in the area, and the number of users affected by the outage.
 - 2.15.1.9 The DRP will include a description for the use of satellite communications as part of the plan if applicable. The Contractor will describe the advantages and disadvantages of utilizing this technology in disaster recovery services.
 - 2.15.1.10 The Authority requests DRPs for addressing Electro-Magnetic Pulse (EMP) event.
 - 2.15.1.11 The Contractor’s responsibilities for disaster recovery are found in Task 7.
- 2.15.2 Special Events Plans (SEP)
- 2.15.2.1 The Contractor will provide Special Event Plans (SEP) for individual agencies for use in the case of special events. The Contractor will provide an example SEP for consideration.

- 2.15.2.2 The SEP will include a plan for enhancing coverage and capacity in an area where coverage and capacity is inadequate to support the required operations of an agency, (e.g., Athletic Contests, Public Meetings, etc.).
- 2.15.2.3 The SEP will include implementation, storage and management of field replacement units and spares.

SUBTASK 2.15 DELIVERABLE – Contractor will provide a comprehensive Disaster Recovery and Special Events Plan that meets the requirements of Subtask 2.15.

2.16 SUBTASK 2.16 - PROJECT MANAGEMENT AND WORK PLAN

2.16.1 The Contractor will develop and provide a Project Management and Work Plan (“PMWP”) that will be used for this Project, upon Acceptance from Authority, to manage all tasks required to complete all Phases of the Project. The PMWP is a single document that encompasses all program control processes (including changes), reporting processes, quality and risk mitigation plans, project execution, acceptance, transition plans, and program management control systems. Subject in all respects to its compliance with the Base Document, it will be considered the governing document for the Authority and the Contractor to manage all Phases of the Project. Contractor will include the following sub-plans in the PMWP document and will label each section accordingly:

- a. Staffing Plan;
- b. Communications Plan;
- c. Master Project Schedule;
- d. Documentation Plan;
- e. Quality Control Plan;
- f. Change Order Process & Management Plan;
- g. Risk Management Plan;
- h. Network Design and Implementation Plan;
- i. Site Design and Construction Plan;
- j. Testing and Acceptance Plan;
- k. Training Plan;

- l. Transition Plan; and
 - m. Value Engineering Plan.
 - n. Disaster Recovery and Special Events Plan
- 2.16.2 Following review and approval of the final designs for the PBSN, the Contractor will update the PMWP to reflect the final approved design. For each site, a detailed work plan will be developed, which will include the following:
- a. A work plan approval and concurrences by each party involved or affected by the site (e.g. site owner, zoning, permits etc.) including any deferred submittal and permits based on approved design;
 - b. Name and contact details of all the human resources assigned to work at the site;
 - c. Detailed description of the Work to be performed at the site;
 - d. List of all equipment to be used;
 - e. Safety requirements; and
 - f. Escort requirements.

SUBTASK 2.16 DELIVERABLE (Comprehensive PMWP) (MILESTONE) – Contractor will provide the Authority with the Project Management and Work Plan that includes Subtasks 2.2 through 2.15, within sixty (60) days following issuance of a Notice to Proceed.

3. TASK 3: PHASE 1 – SYSTEM DESIGN**3.1 SUBTASK 3.1 – PROJECT DESCRIPTION**

3.1.1 The Authority will provide the Project Description by no later than thirty (30) Days of the Notice to Proceed for Phase 1 – System Design. The Contractor will review the Authority's Project Description during Phase 1 – System Design and confirm that the PSBN System Design is consistent with the Authority's Project Description or provide a list of discrepancies, unless otherwise authorized by the Authority.

3.1.2 The Contractor will fully cooperate and assist the Authority and/or the Authority's third party environmental services consultant as necessary throughout the CEQA and NEPA processes, including but not limited to compliance with any construction management requirements and other measures that may be adopted by the Authority or federal granting agencies in connection with the CEQA/NEPA processes, as well as to perform such other work as described in this Statement of Work.

SUBTASK 3.1 DELIVERABLE (MILESTONE) – Review and confirmation of Authority's Project Description as set forth in Subtask 3.1.**3.2 SUBTASK 3.2 – SYSTEM DESIGN**

3.2.1 Contractor will develop a detailed System Design, such that, upon Contractor's full completion and delivery of all Work under Phases 1 through 4, the PSBN shall be fully functional and operational without any additional purchased options required, and shall perform in accordance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), and the Base Document.

3.2.2 Design and System Overview

3.2.2.1 Contractor will engineer a System Design for the PSBN that meets the contractual requirements for function, performance, schedule and budget as detailed in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.

3.2.2.2 The Project will be a turn-key solution and will contain all the necessary hardware, equipment, equipment, devices, parts materials, goods, software, firmware, data, physical and network infrastructure, deliverables and other work necessary or appropriate for the PSBN to be a fully functional and

operating system, which includes work in order to plan, design, develop, license, construct, supply, fabricate, install, test, commission and deploy and provide training and technical support with respect to maintaining a fully functional PSBN.

- 3.2.2.3 All PSBN Components will be new unused, and will perform according to the final accepted design and performance at the time of installation.
- 3.2.2.4 Contractor will provide a PSBN that is scalable, both upwards and downwards, in order to meet the capacity and coverage needs of the Authority as defined in Exhibit B (PSBN Specifications). The PSBN must retain its original designed functionality.
- 3.2.2.5 Contractor will identify risks and work collaboratively with the Project team to mitigate the risks and further develop requirements and tradeoffs.
- 3.2.2.6 The Contractor will verify that the PSBN, its Component hardware, equipment, devices, parts, materials, goods, software, firmware, data, physical and network infrastructure, deliverables and other work provided for the implementation of the PSBN must meet or exceed all applicable codes, ordinances, regulations, standards and best practices including, but not limited to those identified below. Contractor will provide documentation indicating compliance with the most current versions of these standards.
 - 3.2.2.6.1 Part 15, 80, 90 and 101 of the Federal Communications Commission (FCC) Rules and Regulations;
 - 3.2.2.6.2 Federal Aviation Administration (FAA) Rules & Regulations;
 - 3.2.2.6.3 MIL-STD-810 (latest revision);
 - 3.2.2.6.4 Telecommunications Industry Association (TIA), Electronic Industry Alliance (EIA) and National Institute of Standards and Technology (NIST) standards;
 - 3.2.2.6.5 California Building Standards Code (CBSC);
 - 3.2.2.6.6 National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA);

- 3.2.2.6.7 Internet Engineering Task Force (IETF) standards and best practices for Internet Protocol (IP) networks;
 - 3.2.2.6.8 California’s RoHS (Restriction or use of Certain Hazardous Substances), Section 25214.10 of the California Health and Safety Code;
 - 3.2.2.6.9 FCC and OSHA Specifications related to Maximum Permissible Exposure (MPE) limits for the power density and magnetic and electric field strength from RF transmitters, including but not limited to MPE standards set forth in Sections 1.307 and 1.1310 of Title 47 of the Code of Federal Regulations;
 - 3.2.2.6.10 Land use plan adopted by the Airport Land Use Commission (ALUC);
 - 3.2.2.6.11 Los Angeles County, and other State and local jurisdictional agencies, codes and ordinances;
 - 3.2.2.6.12 Additional Specification contained in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and otherwise in the Base Document; and
 - 3.2.2.6.13 If there is a conflict between codes, ordinance, regulations, standards, and the Agreement, the most stringent requirement will govern.
- 3.2.2.7 Contactor will perform a PSBN System Design for the PSBN, its Subsystems, and its major Components, and the required interconnections. The design will include at a minimum:
- 3.2.2.7.1 Coverage;
 - 3.2.2.7.2 Capacity and throughput planning;
 - 3.2.2.7.3 IT and network security;
 - 3.2.2.7.4 Interconnection to Member enterprise networks;
 - 3.2.2.7.5 System integration procedures and design;

- 3.2.2.7.6 A complete Specification for each Component of PSBN Hardware, Software and Infrastructure will be provided; and
- 3.2.2.7.7 Standard configurations: Industry accepted design standards and procedures will be applied to all sites (e.g., Architect & Engineering, Zoning Application, Zoning Drawings, Electrical Drawings, Bill of Materials, Soil resistivity, interface with Utility, etc.).
- 3.2.2.8 Contractor will provide coverage maps, microwave path surveys and all other services necessary to review and select alternate sites should the proposed PSBN site be unsuitable or unavailable for any reason.
- 3.2.2.9 Contractor will include the following components in its System Design according to 3GPP release 10 specifications:
 - 3.2.2.9.1 Evolved Packet Core;
 - 3.2.2.9.2 Number planning;
 - 3.2.2.9.3 Access Point Names;
 - 3.2.2.9.4 Policy Charging and Rules Function (PCRF) configuration;
 - 3.2.2.9.5 System segmentation by Member;
 - 3.2.2.9.6 eNodeBs;
 - 3.2.2.9.7 Link budgets;
 - 3.2.2.9.8 Intermodulation Study for collocated site;
 - 3.2.2.9.9 Site Interference study;
 - 3.2.2.9.10 Site PSBN Hardware, Software and Infrastructure configuration; and
 - 3.2.2.9.11 eNodeB parameters.
- 3.2.2.10 Additionally, the System Design for the PSBN will include a Backhaul Design

- 3.2.2.10.1 The Contractor will provide a detailed technical design for the backhaul network, including microwave path analyses, line-of-sight verifications, an IP-addressing plan and capacity analysis, redundancy plan, frequency plan and any Specifications for fiber optic connectivity.
- 3.2.2.10.2 The Contractor will provide the following components to the Backhaul Design:
- 3.2.2.10.2.1 Backhaul path analysis;
 - 3.2.2.10.2.2 Capacity analysis and design;
 - 3.2.2.10.2.3 Frequency search;
 - 3.2.2.10.2.4 Path Survey;
 - 3.2.2.10.2.5 Frequency acquisition and licensing;
 - 3.2.2.10.2.6 IP/MPLS Design;
 - 3.2.2.10.2.7 Reliability and redundancy;
 - 3.2.2.10.2.8 An identification of which PSBN Sites the Contractor proposes to use Contractor-Provided Leased Circuits in order to provide backhaul connectivity for such sites;
 - 3.2.2.10.2.9 Priority and Quality of Service (“QOS”) definitions; and
 - 3.2.2.10.2.10 Interconnection to existing systems.
- 3.2.2.11 The System Design for the PSBN will also include a Member Interconnection Design:
- 3.2.2.11.1 Contractor will perform existing systems survey for each Member interconnection and determine PSBN Interconnection Requirements and Security Requirements.

- 3.2.2.12 The System Design for the PSBN will further include requirements for User Equipment:
- 3.2.2.12.1 The Contractor will define all requirements for User Equipment (“UE”) to ensure that the UE will be compatible with the PSBN. Such requirements will be provided during Design Review and will include elements that define the proper function and performance of the UE and the PSBN. The Authority reserves the right to purchase network compatible UE from any vendor.
 - 3.2.2.12.2 The Contractor will define all User Equipment provisioning and maintenance requirements. This will include requirements of the device configuration and management platform.
- 3.2.2.13 The System Design for the PSBN will additionally include designs for any other Subsystem or Component identified in Exhibit B (PSBN Specifications) and any other Work that is necessary for the System Design to be sufficient such that, upon Contractor’s full completion and delivery of all Work under Phases 1 through 4, the PSBN shall be fully functional and operational without any additional purchased options required, and shall perform in accordance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.

SUBTASK 3.2 DELIVERABLE (MILESTONE) – Contractor will provide a comprehensive System Design that meets the requirements of Subtask 3.2, within sixty (60) days after issuance of a Notice to Proceed for Phase 1.

3.3 SUBTASK 3.3 – SITE DESIGN

3.3.1 For each PSBN Site, Contractor will prepare a complete set of Site Design Documents for such site, detailing the detailed Site Improvement design and scope of work for such site. The Site Design Documents will be sufficient such that, upon Contractor’s full completion and delivery of all Work under Phases 1 through 4, the PSBN shall be fully functional and operational without any additional purchased options required, and shall perform in accordance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document. In preparing Site Design Documents for each PSBN Site, Contractor’s responsibilities include:

- 3.3.1.1 Conduct site visits;

- 3.3.1.2 Perform site surveys of existing sites to determine what, if any, modifications are required;
- 3.3.1.3 Coordinate and order title reports necessary for design drawings and perform any necessary land surveys, including property boundary and topographic surveys;
- 3.3.1.4 Provide structural analysis Documentation for existing towers, shelters and other existing antenna support structures planned to be used in the PSBN, including analysis to determine structural integrity of tower according to applicable standards with new antennas in place;
- 3.3.1.5 Provide detailed list of grounding work required at each site to bring site up to grounding standard;
- 3.3.1.6 Provide final tower drawings including location of all antennas, microwave dishes, feedlines and waveguides-cable ladder and ice bridges, as applicable;
- 3.3.1.7 Provide necessary information and Documentations to support the Authority and Member entities in their property easement and/or lease acquisition activities;
- 3.3.1.8 Prepare and submit applicable jurisdictional forms, applications and required information (including visual simulations) necessary for zoning permits, building permits, electrical permits, planning permits and other government agency or regulatory permits required as part of the site acquisition process;
- 3.3.1.9 Obtain all required Jurisdictional Approvals for work, including, but not limited to, permits, licenses, certificates, entitlements, variances and other approvals required by law;
- 3.3.1.10 Provide expert witnesses as required to obtain permits and zoning approvals;
- 3.3.1.11 Include detailed floor plans showing locations of Components. Special attention will be given to the placement (temporary and permanent) of and the relationship between legacy components and new components;
- 3.3.1.12 Provide diagrams for all elements of the PSBN; and

- 3.3.1.13 Prepare a site-by-site development, engineering, and construction plan detailing all necessary work and the methods that will be used to accomplish the work.
- 3.3.1.14 Contractor will prepare the schematic design and detailed construction plans and documents which will be submitted by Contractor for review and approval by the Authority prior to submitting for building permit plan check. Construction plans, specifications, and documents, for each of the sites, will be submitted to the Authority for review at designated review stages (see Design Review Subtask), which are indicated as Milestones on the Contractor's baseline Project Schedule.
- 3.3.1.15 Contractor will provide construction drawings in hard copy and electronic format, including PDF and AutoCAD formats to include the following, but not limited to:
- 3.3.1.15.1 Precise location and boundaries, include detailed maps.
 - 3.3.1.15.2 Monopole drawings.
 - 3.3.1.15.3 The location of the monopole proposed on each site.
 - 3.3.1.15.4 Monopole lighting specifications;
 - 3.3.1.15.5 The amount of grading and clearing to occur at each site;
 - 3.3.1.15.6 Antennas, and any tower-top electronics to be mounted on the antenna support structure.
 - 3.3.1.15.7 Site equipment list and rack/cabinet layout.
 - 3.3.1.15.8 Detailed equipment specification sheets for all proposed Components.
 - 3.3.1.15.9 Grounding system specifications for all PSBN Components including antenna support structures, equipment cabinet, etc.
 - 3.3.1.15.10 Foundation of antenna support structure, equipment cabinets, and all other required structures and foundation type (e.g., mat, caisson) and dimension (length x width x depth or diameter x depth);

- 3.3.1.15.11 Any proposed trenching, trench dimension, amount of excavation, and trenching method and equipment to be used;
 - 3.3.1.15.12 Backhaul/transport network system and/or interfaces;
 - 3.3.1.15.13 Infrastructure development plan and/or requirements;
 - 3.3.1.15.14 System block diagrams; and
 - 3.3.1.15.15 Detailed list of materials for each site.
- 3.3.1.16 Contractor will provide design documents, construction drawings and as built drawings as required for final site layout both in hard copy and electronic copy.
- 3.3.1.17 Contractor will provide design documents and constructions drawings for each site as required to get approvals from regulatory bodies and landlords.
- 3.3.2 Contractor will address the following in the layout and design of any Site Improvements:
- 3.3.2.1 Necessary site preparation;
 - 3.3.2.2 Grading;
 - 3.3.2.3 Compaction;
 - 3.3.2.4 Trenching;
 - 3.3.2.5 Boring;
 - 3.3.2.6 Drainage;
 - 3.3.2.7 Engineering studies;
 - 3.3.2.8 Structural engineering calculations and designs on existing structures, existing towers, or on existing buildings to support the new loads that meet local code requirements code requirements and applicable construction management requirements as set forth in Exhibit J (Confidential Supplement);

- 3.3.2.9 Preparation of environmental reports (which can include, but not be limited to, disposal reports, reuse of construction aggregate, distance to waste facilities and use of material from local distributors to reduce green gas emissions for transportation, etc.);
- 3.3.2.10 Monitoring and resolution of environmental issues where necessary;
- 3.3.2.11 Modification and repair of access roads where necessary;
- 3.3.2.12 Providing foundations as required;
- 3.3.2.13 Erecting, replacing or modifying antenna support structures and cabinets;
- 3.3.2.14 Provision or modification and re-routing of electrical power and any other utility services, where necessary;
- 3.3.2.15 An identification of which PSBN Sites the Contractor proposes to use Contractor-Provided Leased Circuits in order to provide backhaul connectivity for such sites;
- 3.3.2.16 Placement of new structures and facilities at existing sites will not block the access to existing facilities for service and maintenance. This includes space around existing antenna support structures for the installation and removal of antennas;
- 3.3.2.17 Placement of new antenna support structures will avoid trees or other microwave line-of-sight obstructions and potential environmental interferences. The Contractor will discuss approach and method to mitigate potential environmental interferences;
- 3.3.2.18 Trees will be topped or trimmed by the Contractor as necessary where permitted;
- 3.3.2.19 Where existing surface cover (e.g. asphalt, concrete, gravel, etc.) is disturbed or removed for the installation of new facilities (e.g. antenna support structures, shelter, fuel tanks, etc.), the ground surfaces surrounding the new facilities will be repaired, patched and reinstated; and

- 3.3.2.20 All other Work that is necessary to obtain any required Jurisdictional Approval of the Site Design Documents (which, upon Jurisdictional Approval and Acceptance by the Authority, become the Site Improvement Documents) and/or for the Site Design Documents to be sufficient such that, upon Contractor's full completion and delivery of all Work under Phases 1 through 4, the PSBN shall be fully functional and operational without any additional purchased options required, and shall perform in accordance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.
- 3.3.3 Contractor will provide coverage maps, microwave path survey and all other services necessary to review and select alternate sites should a proposed PSBN Site be unsuitable or unavailable for any reason.
- 3.3.4 The Contractor will submit the schematic system design and detailed construction plans and documents at the 50%, 90% and 100% Design Stages completion.
- 3.3.5 The Contractor will assist the Authority, or its designee as necessary, with all BTOP Environmental Questionnaire requirements as detailed at: <http://www2.ntia.doc.gov/compliance>, and any other Grant Funding Requirements.
- 3.3.6 Contractor will discuss in detail its approach and method to mitigate potential environmental interferences.
- 3.3.7 The Contractor will assist the Authority, or its designee as necessary, with all local, state, and federal environmental laws, codes, or statutes.
- 3.3.8 The Contractor, its Architects and Engineer(s) of Record and all other Subcontractors will be responsible for the design and specification of all Phase 2 Work, which will be in strict compliance with the most current adopted version of all applicable codes, ordinances and regulations as well as national and industry standards recognized by the same including, but not limited to:
- 3.3.8.1 American Society of Testing Materials (ASTM);
 - 3.3.8.2 Underwriters Laboratories (UL);
 - 3.3.8.3 National Electrical Code (NEC);

- 3.3.8.4 IEEE, TIA and Telcordia standards on grounding, bonding and lightening protection for sensitive electronic and telecommunications equipment;
- 3.3.8.5 American Concrete Institute (ACI);
- 3.3.8.6 National Fire Protection Association (NFPA);
- 3.3.8.7 Telecommunication Industry Association, ANSI/TIA 222-G, Structural Standards for Antenna Supporting Structures and Antennas, Aug. 2005 and all addendums;
- 3.3.8.8 Telecommunication Industry Association, TIA 569, Telecommunications Pathway and Spaces and all addendums
- 3.3.8.9 2011 County of Los Angeles Building Code (Title 26), and other jurisdictional agencies, based on the 2010 California Building Code and the 2009 International Building Code, and any later revisions based on the 2013 California Building Code;
- 3.3.8.10 American Institute of Steel Construction Load Resistance Factor Design Manual, 1999, AISC – 3rd Edition;
- 3.3.8.11 American Society of Testing Materials, ASTM (applicable sections as listed in this specification);
- 3.3.8.12 American Welding Society (AWS) Structural Welding Code D1.1 – latest revision;
- 3.3.8.13 Federal Aviation Administration, FAA Advisory Circular AC 70/7476, Obstruction Marking and Lighting, and all Advisory Circular referenced therein including specifications for obstruction lighting equipment (AC 150/5345-43F), including all changes;
- 3.3.8.14 Federal Communications Commission, FCC Rules and Regulations, Part 17, Subpart C, Specifications for Obstruction Marking and Lighting of Antenna Structures, Sections 17.21 through 17.58, and FCC Form 715, Obstruction Marking and Lighting Specifications for Antenna Structures;
- 3.3.8.15 All Local Building Codes, Rulings, Zoning, and Planning ordinances;

- 3.3.9 In the case where applicable standards or applicable codes, ordinances and regulations conflict, those that pose the most stringent requirements will prevail, as determined by the Authority. More stringent codes or standards will take precedence over the CBC. The Contractor will apply the required codes and standards as applicable on a site or facility basis.
- 3.3.10 Contractor will prepare updates as required to the schematic design and detailed construction plans and documents which will be submitted for review and approval by the Authority prior to submitting for building permit plan check. Construction plan updates and documents will be submitted to the Authority for review at designated review stages.
- 3.3.11 Construction plans and documents will be wet-stamped and signed by Professional Engineer(s) (P.E.) of the appropriate engineering specialty and/or architect and licensed in the state of California, as applicable.
- 3.3.12 For each PSBN Site, Contractor will provide a complete set of Site Design Documents that includes but is not limited to:
- 3.3.12.1 Site survey reports;
 - 3.3.12.2 Electrical drawings; and
 - 3.3.12.3 Geotechnical reports
- 3.3.13 Site Survey Report
- 3.3.13.1 The Contractor will prepare a comprehensive site survey report, in matrix form, for each site being considered for this Project. The report will include, but not be limited to:
 - 3.3.13.1.1 All electrical, mechanical, structural, and civil requirements, including the identification of potential hazardous materials;
 - 3.3.13.1.2 Telecommunications utility service (electric utility service and meter information);
 - 3.3.13.1.3 Grounding, bonding, and lightning protection;

- 3.3.13.1.4 Environmental controls;
- 3.3.13.1.5 Floor space;
- 3.3.13.1.6 Rack/cabinet space;
- 3.3.13.1.7 Cable tray/ice bridge;
- 3.3.13.1.8 Battery power systems;
- 3.3.13.1.9 Uninterruptible Power System (UPS);
- 3.3.13.1.10 Emergency generator;
- 3.3.13.1.11 Generator fuel system;
- 3.3.13.1.12 Antenna support structure and FAA obstruction lighting and painting;
- 3.3.13.1.13 Site access;
- 3.3.13.1.14 Site work area and compound fencing; and
- 3.3.13.1.15 Physical security.

3.3.13.2 The report will address current condition, suitability for use by the proposed PSBN and any deficiencies, and if improvement/upgrade or modification is recommended/required.

3.3.13.3 In the absence of original design or as-built information for existing facilities, the Contractor will describe the approach to ensure adequacy for intended use to meet the requirements of Exhibit B (PSBN Specifications), Exhibit A (Statement of Work) and the Base Document, and applicable industry standards, regulations, code and ordinances in effect.

3.3.14 Geotechnical Investigation and Reports

3.3.14.1 The Contractor will provide a comprehensive geotechnical investigation and prepare a written report (Geotechnical Report) for each PSBN Site. The

Geotechnical Report will include sufficient information for the Engineer of Record to create a suitable design for all site structures. Information provided will specifically include:

- 3.3.14.1.1 Geological maps showing any geological and seismic hazards that may have an adverse impact on the performance of the antenna support structure and other facilities to be installed as part of the PSBN.
- 3.3.14.1.2 A description of procedures and methods used for the field exploration and laboratory testing phases of the work, including a bore log and laboratory test results.
- 3.3.14.1.3 The number and depth of borings and test pits will be determined by the Engineer of Record to meet the design and construction criteria and requirements of ANSI/TIA-222-G (or latest version and addendums), applicable building codes, and the “County of Los Angeles Manual for Preparation of Geotechnical Reports” from a geotechnical perspective. Where applicable, the geotechnical investigation will provide design recommendations for rock coring and testing as required.
- 3.3.14.1.4 A site plan showing borehole locations in relation to proposed new or replacement monopole and/or outdoor equipment cabinet locations and existing structures on site.
- 3.3.14.1.5 A description of the site including surface and drainage features, topography and nearby faults, and a discussions on potential geologic-seismic hazards, including, but not limited to, fault surface rupture, seismic shaking and ground motion evaluation, liquefaction potential, seismically induced flooding, landslides, subsidence and erosion.
- 3.3.14.1.6 Recommendations to mitigate potential adverse geological hazards.
- 3.3.14.1.7 Soil parameters, specifically including soil resistivity corrosion potential of the sub-soils.
- 3.3.14.1.8 Foundation design recommendations, specifically including corrosion protection recommendations for the foundations and any other underground facilities including conduits, pipelines, ground rod and ground conductors.

- 3.3.14.1.9 Grading requirements for these structures and any fill and cut slopes. If the proposed monopole, cabinet, building and/or any new structures are within the slope setback required per local jurisdiction(s), the Geotechnical Report will include geological cross-sections before an analysis of slope stability.
 - 3.3.14.1.10 The Contractor will include in the geotechnical investigation subsurface exploration sampling and testing of soils (soil types, strata changes, Standard Penetration Tests etc.) and rocks (rock type, rock quality, rock quality designation, types of discontinuities, degree of weathering, etc.) to provide engineering parameters of soils and rock per ANSI/TIA-222-G and applicable building codes for geotechnical evaluation of and slope conditions and recommendation of foundations' structural design.
 - 3.3.14.1.11 Upon completion of the soil sampling, the Contractor will backfill the borings with Bentonite and cement mix and the surrounding ground surfaces will be patched and reinstated.
- 3.3.15 Electrical Work Details and Drawings
- 3.3.15.1 For each PSBN Site, the Contractor will provide a power study report, identifying all existing loads and circuits, modifications to be made to existing loads and circuits and new loads and circuits.
 - 3.3.15.2 The report will include power requirements for all mechanical, electrical and electronic equipment currently in use and new equipment and other Components that will be put into use at the site.
 - 3.3.15.3 Contractor will provide all electrical work at a site to ensure the power requirements are met including UPS, generator and (e.g. replacement of main distribution panel to support existing and new power requirements).
- 3.3.16 The Contractor will include a Grounding Plan during Design Review and in the construction as-built document package showing the grounding layout, conductor specification, and ground resistance measurements at locations to be determined during Design Review. The Grounding Plan will indicate methods used to determine the ground resistance.

- 3.3.16.1 The Grounding Plan will contain scaled drawings that show locations of the grounding system Components (ground rings and ground rods as a minimum) installed for the PSBN as well as any connection and bonding to existing grounding system at a site.
- 3.3.16.2 The Grounding Plan will include site plot plan(s) that show all outdoor grounding installations in relation to existing and new structures (e.g. antenna support structures, equipment, cabinet, fences, generators, fuel tanks, etc.).
- 3.3.16.3 The Grounding Plan will include equipment cabinet floor plans that show all indoor grounding installation and layouts (cable trays, relay racks/cabinets, grounding bus bar, etc.) where an existing shelter is used to house the PSBN equipment.
- 3.3.16.4 The Grounding Plan will show specification of Components furnished for the PSBN including manufacturers, material type, dimension and gauge in American Wire Gage (AWG) (e.g. #2 AWG tinted, stranded copper).
- 3.3.16.5 The Grounding Plan will show installation details including bonding, welding and attachment details, embedment depth of all Components installed below grade, etc.
- 3.3.16.6 The Grounding Plan will show any calculations used to determine installation locations or material sizing.
- 3.3.16.7 The Grounding Plan will show resistance measurements and date(s) measured at a minimum of 10 locations and as determined during Design Review. Any deviation from the requirements below must be with the approval of the Authority. The Grounding Plan will show the instruments used and their manufacturers, model numbers and date of factory calibration. Contractor will perform the following for the grounding system design and acceptance:
- 3.3.16.7.1 A Wenner four-point resistivity test (can be done as part of the Geotechnical Investigation) to obtain soil resistivity data. Grounding Plan will show the probe spacing, instrument readings and calculated soil resistivity at different depth to the borehole depths in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and otherwise in the Base Document.

- 3.3.16.7.2 Two-point continuity tests per IEEE standard 81 to determine electrical continuity of grounding-path.
- 3.3.16.7.3 Clamp-on resistance or induced frequency tests with clamp-on ground resistance tester.
- 3.3.16.7.4 Three-point fall-of-potential tests as appropriate.

SUBTASK 3.3 DELIVERABLE (MILESTONE) – Contractor will provide a complete set of Site Design Documents, for each PSBN Site meeting the requirements of Subtask 3.3, within sixty (60) days after issuance of a Notice to Proceed for Phase 1.

3.4 SUBTASK 3.4 – COVERAGE MODELING TOOL

- 3.4.1 The Contractor will provide two (2) copies and associated licenses (including terrain and clutter data for use of the software) of the PSBN coverage modeling software for up to eight (8) users, consistent with the provisions in Exhibit M (Hydra Software License) to the Authority.
- 3.4.2 Software licenses and PSBN Updates or later revisions will be provided to the Authority for the lifecycle of the PSBN.
- 3.4.3 The software provided will be the same as the software used to prepare the coverage/engineering maps provided in the Contractor’s Proposal in response to RFP No. LA-RICS 008.
- 3.4.4 The Contractor will also provide to the Authority copies (in a format compatible with the provided software) of the Project files used to produce its coverage maps for the Authority.
- 3.4.5 The Contractor will provide training for up to twenty-four (24) students for the coverage-modeling tool.
- 3.4.6 The Contractor will provide technical support via telephone or email for Users.
- 3.4.7 The tool will utilize up-to-date Terrain and Land Use Land Cover (“LULC) data for Region VI. The Contractor will keep the overall tool database updated for a minimum of 10 years.

SUBTASK 3.4 DELIVERABLE – Contractor will provide two (2) copies including user manuals (and associated licenses and terrain data for use of the software) of PSBN coverage modeling software and other work product of Subtask 4.4, all meeting the requirements of Subtask 3.4, within sixty (60) days after issuance of a Notice to Proceed for Phase 1.

3.5 SUBTASK 3.5 – RF EMISSION REPORT

- 3.5.1 The Contractor will perform a RF emission safety study and provide a report to the Authority for each System site detailing the theoretical modeling and prediction of the emission level from all equipment at the site including existing equipment. The report findings will demonstrate that the RF emission level complies with the FCC guidelines and regulations on Maximum Permissible Exposure (MPE) for the General Public/Uncontrolled and for the Occupational/Controlled groups per OET Bulletin 65. The Contractor will identify, resolve and correct any non-compliance (including the posting of appropriate signage) until compliance can be demonstrated. Theoretically derived emission level shall be provided to the Authority in advance of the planning and permitting process (in Phase 1) to support compliance with FCC MPE guidelines and regulations. Actual measurements will be provided at all sites after installation and operation of the PSBN.
- 3.5.2 The Contractor will coordinate with the Authority’s third party environmental services consultant to provide necessary data for CEQA and NEPA related environmental resource impact analysis.

SUBTASK 3.5 DELIVERABLE – Contractor will submit studies and/or reports regarding RF emissions and other work product resulting from Subtask 3.5, all meeting the requirements of Subtask 3.5 and all provided by the date specified in the approved Project Schedule.

3.6 SUBTASK 3.6 – DESIGN REVIEW

The Contractor will submit to the Authority, for the Authority’s review and approval, Contractor’s proposed Design Review Process. Following the Authority’s approval of a Design Review Process, Contractor and Authority will participate in the Design Review Process for the System Design for the PSBN and each PSBN Site’s set of Site Design Documents. Contractor will submit, including but not limited to, the Deliverables itemized below for the Authority’s review, comment, and approval, in order to develop a detailed design for the PSBN and each PSBN Site’s set of Side Design Documents ("Design Review"). In the event that changes to the PSBN System Design or any set of Site Design Documents are required following the approval

of the System Design and/or applicable Site Design Documents in the initial Design Review (e.g., due to unavailable site candidates), the changes in the System Design/applicable Site Design Documents will trigger a new Design Review for all impacted portions of the PSBN. At a minimum, in addition to the requirements of the Base Document regarding design review, the Design Review will consist of Contractor's performance of each of the following:

- 3.6.1 Assist the Authority in selecting and acquiring sites by providing coverage maps, test measurements of candidate sites, cost estimates, and other information as necessary;
- 3.6.2 Provide final Site Improvement development requirements for each site, including structural analyses of existing towers, shelters/buildings (including roof and wall that will be used for roof and wall mounted installations), and other existing antenna support structures to be a part of the PSBN, and space, power and other utilities, Intermodulation and Site Interference study, HVAC, civil and earthwork Specifications, geotechnical investigation report, and predicted RF emission levels after the PSBN equipment installation to the Authority and its environmental services consultant Actual measurements will be provided at all sites after installation and operation of the PSBN.
- 3.6.3 Provide a detailed review of coverage and capacity modeling including, but not limited to, propagation, link budget, interference analysis, geospatial data, and engineering assumptions;
- 3.6.4 Use the same assumptions, link budgets, propagation parameters, clutter losses, and other factors in its coverage guarantee during the Design Review process unless otherwise directed by the Authority;
- 3.6.5 Provide a detailed technical design for each PSBN Subsystem, including determinations of coverage, capacity, frequency, and throughput, detailed system architectures, detailed descriptions of user interfaces and features, detailed definitions of Baseline PSBN Interfaces to other subsystems, Baseline PSBN Interfaces to Member agencies' LANs and WANs, and Baseline PSBN Interfaces to legacy systems, detailed antenna system designs and detailed frequency plans;
- 3.6.6 Provided a detailed technical design for Baseline PSBN Interfaces to Member agencies' networks including security and IP routing and addressing if they are to be connected to the PSBN;
- 3.6.7 Provide the FCC ID of all applicable Components;

- 3.6.8 Provide failure-mode and recovery analysis;
- 3.6.9 Provide an updated Acceptance Test Plan;
- 3.6.10 Provide IP planning and Integration Security, including:
 - 3.6.10.1 The Contractor will provide a comprehensive IP address plan for approval by the Authority as part of their Design Review submittals. The proposed IP addressing scheme will conform to IETF best practices document RFC-3513, RFC-3879 and RFC-4193.
 - 3.6.10.2 The Contractor will coordinate with the Members' IT staffs when preparing the proposed IP address plan.
 - 3.6.10.3 The Authority and the Contractor will jointly coordinate every aspect of the integration of additional networks (e.g., CAD, Commercial Data Network) into the PSBN. The Contractor will include any proposed additional fixed Components required for the integration.
- 3.6.11 Achieve Reliability and Fault Tolerance, including:
 - 3.6.11.1 Contractor will provide, install and configure all network Components necessary to achieve the fault tolerance and reliability specified for the PSBN.
 - 3.6.11.2 Contractor will provide a high level design document for each of these locations in its System Design.
 - 3.6.11.3 The Contractor will identify each of the major Components of the PSBN (e.g., EPC, eNodeBs, etc.) and describe in detail each of the potential failure modes as well as failure mitigation strategies.
 - 3.6.11.4 The Contractor will describe how the offered solution will best ensure continuous operations under a variety of failure scenarios.
 - 3.6.11.5 Contractor will describe any other security mechanisms offered within their proposed solution.

- 3.6.12 Contractor will provide a product road map for the PSBN technology that will include life expectancy, length of time the proposed Components will be sold and manufactured and how long the product or technology will be supported.
- 3.6.13 Approvals and Signoff
- 3.6.14 The Contractor will document the information developed during Design Review in a single report ("Design Review Document") which, as with all Deliverables, will be submitted to the Authority for approval prior to the start of implementation of the PSBN.

SUBTASK 3.6 DELIVERABLE – Contractor will provide a Final Design Package to the Authority within sixty (60) days after issuance of a Notice to Proceed for Phase. The Final Design Package will include all approved (wet stamped and signed) design plans, drawings, specification documents and other related documents, organized by site in binders and all meeting the requirements of Subtask 3.2, 3.3 and 3.6. Contractor will provide six (6) copies of Final Design as well as three (3) electronic copies in PDF and AutoCAD.

4. TASK 4: PHASE 2 – SITE CONSTRUCTION AND SITE MODIFICATION

Under this Task, Contractor shall perform all Work necessary or appropriate to construct the Site Improvements on each PSBN Site pursuant to the Site Improvement Documents for such PSBN Sites, such that, upon Contractor’s full completion and delivery of all Work under Phases 1 through 4, the PSBN shall be fully functional and operational without any additional purchased options required, and shall perform in accordance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.

4.1 SUBTASK 4.1 – GENERAL CRITERIA FOR PHASE 2

Contractor will perform the following Work as necessary throughout the duration of Phase 2 Subtasks:

4.1.1 Contractor will perform all Phase 2 Work in accordance with Exhibit K (Additional Site Work Provisions) to the Base Document, Attachment 2 (Construction Management Requirements) to Exhibit J (Confidential Supplement) and otherwise with the Base Document.

4.1.2 The Contractor will be responsible for preparing all permit applications, including, but not limited to:

4.1.2.1 Federal Aviation Administration (FAA);

4.1.2.2 South Coast Air Quality Management District (SCAQMD);

4.1.2.3 State Water Resource Board;

4.1.2.4 California Coastal Commission;

4.1.2.5 California Office of Historic Preservation;

4.1.2.6 Local Offices of Historic Preservation;

4.1.2.7 Federal Bureau of Land Management (BLM);

4.1.2.8 United States Forest Service (USFS);

- 4.1.2.9 US Army Corps of Engineers (USACE);
 - 4.1.2.10 National Park Service (NPS);
 - 4.1.2.11 Local planning and zoning permits; and
 - 4.1.2.12 Construction permits and licenses in compliance with all OSHA, federal, state, and local codes and ordinances.
- 4.1.3 The Contractor will mitigate its deficient compliance with any California Coastal Commission, Conservancy, and any other jurisdictional agency permitting requirements. Should there be new requirements after the Effective Date of this Agreement, by these agencies that impact the scope or cost of the Work, Contractor shall be entitled to request an Amendment pursuant to Section 2 (Changes to Agreement).
- 4.1.4 The Contractor will obtain and pay all permit and inspection fees, including building permit fees.
- 4.1.5 The Contractor will obtain all required Jurisdictional Approvals for work, including, but not limited to, permits, licenses, certificates, entitlements, variances and other approvals required by law.
- 4.1.6 The Contractor will provide expert witnesses as required to obtain permits and zoning approvals.
- 4.1.7 The Contractor will coordinate and perform the necessary tasks in conjunction with the Authority’s third party environmental services consultant that is performing the environmental assessment under CEQA and/or NEPA, in order to expedite the approval of all sites within the PSBN including implementing construction management requirements, developing and undertaking a monitoring and reporting program, and implementing all other measures necessary for the approval of the environmental documents in compliance with CEQA and NEPA.
- 4.1.8 The Contractor will provide all Site Improvement planning, design and construction to satisfy and to comply with the Waste Discharge Requirements for Municipal Storm Water and Urban Runoff Discharges within the appropriate jurisdictions, (Order number 01-182, National Pollution Discharge Elimination System (“NPDES”) number CAS 004-001) and with Los Angeles County Code, Chapter 12.80 as

- required, and will satisfy the Standard Urban Storm Water Mitigation Plan (“SUSMP”) requirements when applicable. The Contractor will obtain and utilize the most current versions of these codes.
- 4.1.9 The Contractor will provide an independent inspection and testing firm to perform all required on-site construction inspections, including but not limited to: concrete, reinforcing steel, electrical, tower steel and all other such inspections required to ensure conformance with approved construction drawings and performance criteria and to ensure conformance with all applicable laws, codes, regulations and permit requirements. Inspection reports will be provided to the Authority.
- 4.1.10 The Contractor will maintain site access roads in passable condition during the time periods Project work is being performed at the site and will be responsible for obtaining road permits if necessary. All costs for unexpected road repairs or snow removal (not including the planned initial grading or construction of the access road) may be the subject of an Amendment to the Agreement pursuant to Section 2 (Changes to Agreement) of the Base Document. The Contractor will take and provide video documentation to the Authority of any non-public access roads before starting Work at the site and after Site Improvement and construction activities are completed.
- 4.1.11 Site Cleanliness
- 4.1.11.1 In addition to Exhibit K (Additional Site Work Provisions) to the Base Document:
- 4.1.11.1.1 Sites will be kept clean and free of debris throughout the Project. Packing material, excess wire and other discarded material will be removed by the Contractor daily.
- 4.1.11.1.2 Floors will be swept or vacuumed daily.
- 4.1.11.1.3 Upon completion of the work at the site, the Contractor will remove all of its tools, materials and other articles from the site. Should the Contractor fail to take prompt action to this end, the Authority, at its option and without waiver of such other rights as it may have, upon thirty (30) calendar days’ notice, may treat such items as abandoned property.

4.1.11.1.4 The Contractor will clean all exterior and interior surfaces including floors and windows at the completion of construction work.

4.1.11.1.5 Authority or Member owned on-site waste bins and portable restrooms will not be utilized for disposal of any waste material. The Contractor will be responsible for providing the appropriate waste bins and portable restrooms for equipment installation and testing.

4.1.11.1.6 As with all Work, damage to Authority or any Member agency property at a site will be repaired, or the damaged item will be replaced at the Contractor's expense in accordance with the terms of the Agreement.

4.1.12 Contractor will perform all other Phase 2 Work described in Exhibit B (PSBN Specifications) and the Base Document.

SUBTASK 4.1 DELIVERABLE – Contractor will provide permits, applications, reports and other work product resulting from Subtask 4.1, all meeting the requirements of Subtask 4.1. Deliverables are to be provided on a monthly basis by the date specified in the approved Project Schedule. The requirements of 4.1 will be met upon the Contractor's delivery of a building permit construction design package on a site-by-site basis, which must include an issued building permit submitted in ProLog.

4.2 SUBTASK 4.2 – SITE PREPARATION

Contractor will perform all Work necessary or appropriate at each PSBN Site in order to fully prepare such site for construction of the Site Improvements at each site. Such Work includes but is not limited to, the following:

4.2.1 The Contractor will have all sites utilized for the PSBN individually inspected by a qualified Environmental Professional certified by an accredited organization (such as certification from the National Registry of Environmental Professional or similar professional organization). Following the inspection at each site, the qualified Environmental Professional will provide the Contractor and the Authority with a report detailing whether the site is suitable for the construction and the intended use, and if necessary, what additional work may be required. As with all Work under the Agreement work will not begin until the Contractor receives a Notice to Proceed ("NTP") from the Authority. The Authority will issue individual NTPs for each Phase of the Work, and potentially for each site.

- 4.2.2 Contractor will not commence any Work at a site until the report per Section 4.2.1 has been issued for that site.
- 4.2.3 The Contractor will perform and provide a structural engineering study, per the latest TIA 222 standards (currently Version TIA 222-G), for all towers and other antenna support structures used in the System Design for the PSBN.
- 4.2.4 The Contractor will make all necessary provisions for site access and transportation of equipment and personnel. Some PSBN Sites will require special permit and transportation arrangements.
- 4.2.5 The Contractor will perform all necessary land survey and staking to establish and verify the property boundary, right-of-ways, easements (e.g., for ingress/egress access), topography and monopole coordinates for site development planning and Site Improvement design and construction.
- 4.2.6 The Contractor will be responsible for contacting the necessary company for locating all underground utilities. Damage to the existing utilities during excavation will be repaired immediately by the Contractor at the Contractor's expense. The Contractor will include this information on all appropriate Documentation provided to the Authority.
- 4.2.7 The Contractor will verify and establish first order survey points for all sites, new or existing, and will establish lines, levels, grades, benchmarks, survey reference points, and measurements necessary for the accurate layout of the work.
- 4.2.8 Contractor will provide notification to the Authority of the placement of concrete at the earliest possible opportunity but no less than twenty-four (24) hours prior.
- 4.2.9 Authority Members and the independent inspection and testing firm or their designated representative will inspect the placement and condition of the steel reinforcing and to observe concrete placement.
- 4.2.10 Failure to meet this notification requirement will result in additional testing for which all costs will be borne by the Contractor.
- 4.2.11 The Contractor will provide all site survey and layout operations including, but not limited to, the following:

- 4.2.11.1 Employ an independent, State of California licensed land surveyor or registered civil engineer licensed to practice surveying to establish horizontal and vertical control points, establish property lines, encroachments, constraints and encumbrances, topographic survey mapping and other required staking.
- 4.2.11.2 Provide topographic survey mapping, for areas to be improved and/or impacted by site development, at a scale of 1-inch = 40' with one foot contour intervals.
- 4.2.11.3 Locate and set elevations of all Site Improvements and establish temporary and permanent control points and benchmarks adequate for the use by all trades so that all parts of the Work are within the specified and indicated tolerances.
- 4.2.11.4 Contractor will verify throughout all Phases of the Work (Phase 1 through 4), all grades, lines, and dimensions indicated on the drawings, and will report errors and inconsistencies to the Contractor's architect/engineer in writing, with a copy of such report to the Authority. Contractor will not proceed with such Work until errors and inconsistencies are corrected and as directed by the Authority's Project Manager.
- 4.2.11.5 The Contractor will maintain staking as required by construction progress and maintain construction progress and maintain control points and benchmarks until Final PSBN Acceptance.
- 4.2.12 Contractor will perform all Work necessary or appropriate to fully provide appropriate grounding and lightning protection at each PSBN Site. Such Work includes, but is not limited to, the following:
 - 4.2.12.1 Most recent versions of ANSI/TIA 607-BMotorola R56 or Harris (formerly M/A-COM) AE/LZT 123 4618/1 Site Installation, Grounding, and Lightning Protection or equivalent will be used throughout the PSBN for all aspects of the Site Improvements, interior and exterior. Whenever PSBN performance criteria (this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), and the Base Document) are more stringent than these standards, the PSBN performance criteria will take precedence. A copy of the standard being proposed shall be provided to the Authority for approval at the Authority's discretion.

- 4.2.12.2 The Contractor will provide theft deterrent features on lightning protection and grounding cables, or any other fixtures and cables that are prone to theft.
- 4.2.12.3 The Authority will inspect and approve the grounding system at each PSBN Site prior to Contractor covering the underground portions of the PSBN.
- 4.2.12.4 All Site Grounding and Lightning Protection engineering, construction and installation will include all material, labor, Components, and appliances. The Contractor will perform all operations in connection with the installation of Components or construction of sites, including the installation, permitting and removal for any temporary facilities.
- 4.2.12.5 The Contractor will include any modifications to Site Grounding and Lightning Protection (on a facility-by-facility basis) that are necessary to make the site ready for PSBN installation and to meet the applicable performance criteria (this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document).
- 4.2.13 The Contractor will remove from the Project site, transport and dispose at authorized dump sites any existing structure to be replaced unless directed otherwise by the Authority at its sole discretion. This includes any existing flag pole, or antenna support structure that will be replaced except for a monopole, hose rack, guyed tower, or self-supporting communication tower. The Authority shall recover any salvage value from the disposal of these structures. The removal, transport and disposal work for a monopole, hose rack, guyed tower, or self-supporting communication tower will be authorized through an Amendment pursuant to Section 2 (Changes to Agreement) of the Base Document for any cumulative work in excess of \$250,000.
- 4.2.14 The Contractor will coordinate with the Authority and its Member to relocate any existing equipment or hardware on existing antenna support structures that will be replaced first to a temporary facility, and later re-install on the new antenna support structure for the PSBN. The equipment relocation work will be authorized through an Amendment pursuant to Section 2 (Changes to Agreement) of the Base Document at the Authority's sole discretion.

SUBTASK 4.2 DELIVERABLE – Contractor will fully prepare each PSBN Site for construction of the Site Improvements as described in Subtask 4.2 by the date specified in the approved Project Schedule. The requirements of Subtask 4.2 will be met, and should also include the Contractor's delivery of an approved preconstruction package to the Authority and a copy of the issued permit.

4.3 SUBTASK 4.3 – CONSTRUCT SITE IMPROVEMENTS

Contractor will perform all Work necessary or appropriate at each PSBN Site in order to fully construct the Site Improvements at such site, as described in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document. Such Work includes, but is not limited to, the following:

- 4.3.1 Contractor will perform all necessary civil work required to implement the PSBN at each site, including grading, trenching, boring, drainage, preparation of environmental reports, mitigation of environmental issues where necessary, modification and/or repair of access roads where necessary and provision or modification of electrical power and any other utility services where necessary;
- 4.3.2 Contractor will take all steps necessary to protect Work during construction and to protect any existing structures or other property effected by such construction;
- 4.3.3 Contractor will survey the site and chose the optimal location for the antenna support structure and all necessary additional equipment.
- 4.3.4 Contractor will apply and obtain required building and safety permits for the construction of the antenna support structure.
- 4.3.5 Contractor will furnish materials, design, fabricate, and erect a tapered, self-supporting, hollow steel, custom designed, telecommunications applications monopole, at the height prescribed by Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement), drilled, cast in place concrete foundation, mounting structures and support systems for LTE antennas and microwave antennas, etc. as designated by the approved Design Review and site plan for all sites requiring such facilities.
- 4.3.6 The Contractor will provide all work and material necessary for the electrical and communications connections.
- 4.3.7 The Contractor will coordinate with the property proprietor to jointly identify the antenna support structure, equipment cabinet/shelter, fencing, generator, pull-box and required site infrastructure locations.

- 4.3.8 Contractor will construct antenna sites, in conformance Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement) and applicable sections in Exhibit B (PSBN Specifications) as required to implement the PSBN.
- 4.3.9 In the layout and design of any Site Improvements, considerations will be given to the following:
- 4.3.9.1 Placement of new structures and facilities at existing sites will not block the access to existing facilities for use, service and maintenance. This includes space around existing antenna support structures for the installation and removal of antennas.
 - 4.3.9.2 Placement of new antenna support structures will avoid trees or other microwave line-of-sight obstructions and potential environmental interferences. Trees will be topped or trimmed as necessary where permitted.
 - 4.3.9.3 Where existing surface cover (e.g. asphalt, concrete, gravel, etc.) is disturbed or removed for the installation of new facilities (e.g. antenna support structures, cabinets, fuel tanks, etc.), the ground surfaces surrounding the new facilities will be repaired, patched and reinstated.
 - 4.3.9.4 Contractor will perform other Work that is necessary to obtain any required Jurisdictional Approval of the Site Improvements, including but not limited to passing final inspections and obtaining permits, Certificates of Occupancy, etc.
- 4.3.10 Site Signage
- 4.3.10.1 For all sites, all required warning and informational signs (including, but not limited to, FCC ASR number, Broadband Technologies Opportunity Program (BTOP) sign, a sign designating the telephone number to be dialed in an emergency, the international symbol of electrical shock hazard, No Trespassing and Maximum Permissible Exposure) will be furnished and installed in appropriate locations on the exterior of all sides of the shelter and fence.
 - 4.3.10.2 Signs will be installed in a manner to resist detachment from wind-lift and harsh weather (e.g., intense heat, rain, and icy conditions)

4.3.10.3 All signs will be mounted to avoid ease of removal by vandals.

SUBTASK 4.3 DELIVERABLE (MILESTONE) – Contractor will provide permits, applications, reports, signs, Certificates of Occupancy and other work product resulting from Subtask 4.3, all meeting the requirements of 4.3. Deliverables are to be provided on a monthly basis by the date specified in the approved Project Schedule. Contractor will submit a Certification, from Contractor’s Project Director or Project Manager, to confirm that the Contractor has performed all Work necessary or appropriate at each PSBN site in order to fully construct the Site Improvements at each PSBN site, with the exception of open punch list items as set forth in the Work Acceptance Certificate. Concerning the punch list items, Contractor will provide an approved schedule for the completion of the punch list items and complete the work within the approved schedule.

5. TASK 5: PHASE 3 – SUPPLY PSBN COMPONENTS

5.1 SUBTASK 5.1 – SUPPLY PSBN COMPONENTS

In Phase 3, Contractor is responsible for ordering, supplying, fabricating, securely storing (if necessary), and delivering the Components for the PSBN and all of its Subsystems, including all hardware, equipment, devices, parts, materials, and other goods, software, firmware, and physical and network infrastructure, as described in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document, such that, upon Contractor's full completion and delivery of all Work under Phases 1 through 4, the PSBN will be fully functional and operational and will perform in accordance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document. Such Work includes, but is not limited to, the following:

- 5.1.1 The PSBN Components ordered, supplied, fabricated, securely stored (if necessary) and delivered will be in accordance with the approved final System Design for the PSBN.
- 5.1.2 Contractor will provide a product road map for the PSBN technology that will include life expectancy, length of time the proposed Components will be sold and manufactured and how long the product or technology will be supported.
- 5.1.3 Firmware and software will be the same for all like devices at the time of Final PSBN Acceptance;
- 5.1.4 PSBN Hardware and Software shall be the latest versions as of the date of Final PSBN Acceptance, irrespective of when installed at any PSBN Site.
- 5.1.5 All PSBN Components will be of current design and manufacture at the time of implementation; all PSBN Components will be versions and models currently supported by the supplying vendors. The Contractor will not use any Components not in current production or that is scheduled for discontinuance within ten (10) years of from the Effective Date.
- 5.1.6 Contractor will negotiate and enter into a lease, license or other instrument for necessary rights to use all Contractor Provided Leased Circuits, if any, to be used in the PSBN, if any, in accordance with Section 3.15 of Exhibit B (PSBN Specifications) and Section 38.3 (Contractor-Provided Leased Circuits) of the Base Document.

5.1.7 Shipping and Storage

5.1.7.1 Contractor will provide secure warehousing for all PSBN Components until such time that Contractor can install such Components at each prepared PSBN Site. The Authority will take possession, including title and risk of loss, and provide storage for all equipment procured pursuant to an NTP for sites that are removed or delayed, except for the equipment Contractor was required by the Authority to cancel or return, pursuant to its rights under the Agreement.

5.1.7.2 Contractor will not store Components onsite without prior written approval from the Authority.

SUBTASK 5.1 DELIVERABLE – Contractor will have ordered, supplied, fabricated, securely stored (if necessary) and delivered all Components for the PSBN and all of its Subsystems as described in Subtask 5.1 by the date set forth in the approved Project Schedule.

5.2 SUBTASK 5.2 – STAGING

5.2.1 Contractor will perform all Work necessary or appropriate to stage all PSBN Components for each PSBN Site as described in Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), and the Base Document, including but not limited to securely storing if necessary, prior to installation thereof. Such Work includes, but is not limited to, the following:

5.2.1.1 Contractor will conduct a Factory Acceptance Testing (FAT) staging to verify operation of the equipment, cables and other Components of the PSBN.

5.2.2 The tests will include demonstration of the following:

5.2.2.1 Basic services including handover, priority and QOS;

5.2.2.2 Security; and

5.2.2.3 Failure and Failover recovery scenarios.

5.2.3 The PSBN staging test will include not less than twenty-five (25) eNodeBs and the core elements.

5.2.4 The location of the PSBN staging test will occur at either at the Contractor’s factory location or at an alternative location approved by the Authority.

SUBTASK 5.2 DELIVERABLE – Contractor will provide test results, reports and other work product resulting from Subtask 5.2, all meeting the requirements of Subtask 5.2 and all provided by the date specified in the approved Project Schedule.

6. TASK 6: PHASE 4 – SYSTEM IMPLEMENTATION

Under Phase 4 Subtasks, Contractor will (a) install, optimize, test, commission, and deploy the PSBN and all of its Components and Subsystems, pursuant to the approved System Design, including, without limitation, all hardware, equipment, parts, materials, goods, software, data, and all other Deliverables and Work as is necessary or reasonably inferable for the PSBN to be fully functional and operational without any additional purchased options required, and to perform in accordance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document, and (b) perform PSBN Training Services regarding the PSBN. Such Work is described in Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.

6.1 SUBTASK 6.1 – INSTALLATION AND COMMISSION

As part of this Subtask, Contractor will perform all Work necessary or appropriate to install, optimize and commission the PSBN to ensure that the PSBN, and all of its Subsystems and Components, are fully functional in their respective service environments, as described in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), and the Base Document. This Work includes, but is not limited to, the following:

- 6.1.1 The Contractor will perform all installation, optimization and commissioning services in strict compliance with approved plans and all local, state, and federal (including FCC and FAA requirements) building, electrical, construction and fire codes. In the case where governing codes conflict, the most stringent codes will be applied.
- 6.1.2 As with all Work during any Phase, Contractor shall, at its own expense, remedy damage caused by the Contractor to the real or personal property of Member agencies and others in accordance with Section 72 (Damage to Property) of the Base Document.
- 6.1.3 Contractor shall coordinate all Work in advance with the Authority.
- 6.1.4 The Contractor will coordinate with each site owner’s representative to assure compliance with any special provisions applicable to the site.
- 6.1.5 The Contractor will not take any action that will prevent or interfere with the continuous operation of all existing communications systems during the implementation of and migration to the PSBN.

- 6.1.6 Short scheduled outages may be approved at the discretion of the Authority.
- 6.1.7 Any action with the potential to effect live system(s) must be coordinated with and approved by the Authority before the action is taken.
- 6.1.8 The Contractor will utilize industry best practices for the physical placement of antennas. The mounting of antennas will not alter the antenna's radiation pattern. The Contractor will provide information on the standards utilized to ensure that adequate isolation is included in the proposed System Design for the PSBN and ultimately carried through the installation process.
- 6.1.9 Field Modifications and Approvals
- 6.1.9.1 The Contractor will obtain Authority approval in accordance with Section 2 (Changes to Agreement) of the Base Document for all site related field modifications that result in material change at each PSBN site.
- 6.1.9.2 The Contractor will document and report all field modifications to the Authority.
- 6.1.10 Workmanship
- 6.1.10.1 Contractor shall ensure that all workmanship under the Agreement will be of a quality that meets or exceeds public safety expectations as defined in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document. As with all Work, the use of inferior practices or Components whether knowingly or unknowingly by the Contractor may result in the rework or replacement, at the Contractor's expense, the Components or other Work or determined to be inadequate by the Authority.
- 6.1.10.2 All installation, optimization and commissioning services will be performed in a manner that will comply with all warranty provisions.
- 6.1.10.3 All lead installation engineers and technicians will have appropriate training and a minimum of three years of experience installing components for public safety entities or broadband enterprise networks.
- 6.1.10.4 All installation staff with less than three years of installation experience will be supervised by a lead engineer or technician on site at all times.

- 6.1.10.5 Engineers and technicians assigned to perform installation work will have received appropriate training from the manufacturer of the components. The Contractor will make manufacturer installation certifications available to the Authority upon request.
- 6.1.10.6 At the direction of the Authority, equipment that is to be removed as part of the implementation of PSBN will be removed by the Contractor (e.g., transmitters, consoles, cables, antenna systems, etc.) for the benefit of the Authority/applicable Member agency. Once the cost of removal and transport in Sections 6.1.10.6 and 6.1.10.7 exceeds a \$500,000 cumulative total, Contractor will provide a quotation for removal through the Amendment procedure as addressed in Section 2 (Changes to Agreement) of the Base Document.
- 6.1.10.7 Contractor, at its sole expense, will transport removed equipment to the original owner's receiving location or dispose of said equipment, as designated by the Authority's Project Manager. Once the cost of removal and transport in Sections 6.1.10.6 and 6.1.10.7 exceeds \$500,000 cumulative total, Contractor will provide a quotation for removal through the Amendment procedure pursuant to Section 2 (Changes to Agreement) of the Base Document.
- 6.1.10.8 As with all Work, removal of existing equipment will not commence except by a written Notice to Proceed (NTP) from the Authority.
- 6.1.10.9 Disposal of removed equipment will be at the direction of the Authority and the Member agencies to which the equipment belongs for the benefit of the Authority/applicable Member agency.
- 6.1.10.10 The Contractor will maintain a detailed inventory of the removed equipment detailing at a minimum, the owning agency, serial numbers, asset numbers, and location of removal. The information will be entered and maintained in the Inventory and Management System to be provided by the Contractor as part of the PSBN. Performance criteria for the Inventory and Maintenance System are found in Section 6 (Inventory Management Subsystem) of Exhibit B (PSBN Specifications).

6.1.10.11 All Components will present a neat symmetrical appearance and be installed in a highly stable and rigid manner meeting local and Zone 4 seismic requirements.

6.1.10.12 All Components will be installed in a manner that allows for easy preventive maintenance and servicing based on the most recent revisions of Motorola R-56, Harris AE/LZT 123 4618/1 Site Installation, Grounding, and Lightning Protection guidelines or equivalent industry site installation and grounding standards.

6.1.11 Nameplates

6.1.11.1 Nameplates will be provided on all major equipment. Specific equipment to be labeled will be defined during Design Review.

6.1.11.2 Nameplates will be plastic laminate, white face with black engraved characters.

6.1.12 Installation and Cabling of Components

6.1.12.1 All Components will be installed according to best industry practices and adhere to manufacturer standards and procedures.

6.1.12.2 The cabling required to facilitate proper functioning of the Components will adhere to best industry practices and manufacturer standards and procedures. Cables will follow a standardized color coding and indexing for all sites and will be appropriately labeled and documented.

6.1.13 Optimization

6.1.13.1 Optimization is an engineering process to improve the reliability and availability of the PSBN.

6.1.13.2 Once an eNodeB is installed, Contractor will test the eNodeB for basic specifications, such as power, transmission and receiving, and basic call processing. Individual eNodeB optimization will be performed to make sure that these basic functions are optimized based on the test results.

- 6.1.13.3 Key performance indicators (KPI) described in Exhibit B (PSBN Specifications) such as throughput, interference, handoff, blocking will be tested.
- 6.1.13.4 Network parameters will be adjusted based on the test results until the KPIs are performing at the desired or specified values or all remedial actions stated in Exhibit B (PSBN Specifications), Section 1.2.9 or any other reasonable remedial actions have been exhausted.
- 6.1.13.5 During PSBN optimization process, Contractor will provide the Authority with KPI data Contractor uses in the optimization process including drive test and SMMS data. In addition, the Contractor will provide fill, read-only access to the Authority to the SMMS performance information during and following the optimization process.

6.1.14 Site Cleanliness

In addition to Exhibit K (Additional Site Work Provisions) to the Base Document:

- 6.1.14.1 Sites will be kept clean and free of debris throughout the Project. Packing material, excess wire and other discarded material will be removed by the Contractor daily.
- 6.1.14.2 Floors will be swept or vacuumed daily.
- 6.1.14.3 Upon completion of the work at the site, the Contractor will remove all of its tools, materials and other articles from the property. Should the Contractor fail to take prompt action to this end, the Authority, at its option and without waiver of such other rights as it may have, upon thirty (30) calendar days' notice, may treat such items as abandoned property.
- 6.1.14.4 The Contractor will clean all exterior and interior surfaces including floors and windows at the completion of construction work.
- 6.1.14.5 Authority or Member owned on-site waste bins and portable restrooms will not be utilized for disposal of any waste material. The Contractor will be responsible for providing the appropriate waste bins and portable restrooms for equipment installation and testing.

- 6.1.14.6 As with all Work, damage to Authority or any Member agency property at a site will be repaired, or the damaged item will be replaced at the Contractor's expense in accordance with Section 72 (Damage to Property) of the Base Document.

SUBTASK 6.1 DELIVERABLE (MILESTONE) – Contractor will submit a Certifications, from Contractor's Project Director or Project Manager, to confirm that the Contractor has performed all installation and commission Work necessary or appropriate at each PSBN, as required by Subtask 6.1 by September 30, 2015.

6.2 SUBTASK 6.2 – SPARES MANAGEMENT

- 6.2.1 During all times prior to Final PSBN Acceptance, the Contractor will be responsible for providing and maintaining the spares inventory as described in Exhibit B (PSBN Specifications) and for ensuring that all Components included as spares inventory will be entered into the Inventory Management Subsystem upon initial purchase so that they do not need to be entered when they are being put into service. This Inventory Management Subsystem will be approved by the Authority during the Design Review process.

- 6.2.2 The Contractor will replace the spares inventory throughout Phase 4 with new spare parts whenever the Authority's spare Components are employed to replace failed or deficient Components. The replacement spare Components, at no additional cost to the Authority, will be delivered within 15 business days of use with a one year warranty starting on the date the spare inventory Component is logged into the Authority's inventory database.

- 6.2.3 In the event that the Authority's spare inventory is used to replace failed or deficient equipment during Phase 4, the Contractor will supply a new replacement spare(s) within 15 business days of use and update the spare inventory database.

SUBTASK 6.2 DELIVERABLE – The Contractor will provide a spares inventory and input them into the Inventory Tracking System as required by Subtask 6.2 by the dates specified in Subtask 6.2 and as may be included in the approved Project Schedule.

6.3 SUBTASK 6.3 – ACCEPTANCE TESTING

As a part of this Subtask, Contractor will perform all Work necessary or appropriate to fully test the PSBN and all of its Subsystems and Components to ensure that the PSBN is fully functional and operational without any additional purchased options required, and performs in accordance

with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document. Such Work consists of:

- 6.3.1 The Contractor will provide a comprehensive Acceptance Testing Procedure (“ATP”) in accordance with the approved Testing and Acceptance Plan detailing for each Acceptance Test defined below the methodology supporting Acceptance Testing for the entire PSBN and all of its Subsystems, including a demonstration of capacity and all functionality from RAN, through the aggregation network and the core. The ATP will be sufficiently detailed for each Acceptance Test defined below to ensure that, once tested in accordance with it, the PSBN and all of its Subsystems meets all performance criteria in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and otherwise performs in accordance with the Base Document. The ATP shall be consistent with any Acceptance Testing requirements adopted by FirstNet between the Effective Date and the completion of Acceptance Testing subject to an amendment under Section 2 (Changes to Agreement) of the Base Document for any differences between the approved ATP and the FirstNet requirements.
- 6.3.2 As with all Work, the ATP process will not commence without issuance of a NTP.
- 6.3.3 Broadband infrastructure Components and all User Equipment will have been subjected to testing as defined in the 3GPP standards.
- 6.3.4 The Contractor will demonstrate that its infrastructure and User Equipment provided as part of this Agreement are in full compliance with 3GPP and Public Safety Communications Research (“PSCR”) specifications and will demonstrate through standards conformance testing. Standards conformance testing must be minimally based on 3GPP test suites from the PCS Type Certification Review Board (“PTCRB”), Global Certification Forum (“GCF”) and FirstNet suites if available. Should the Authority require detailed interoperability testing, Contractor will provide Interoperability Testing (IoT) procedures to the Authority for review and approval. These vendors will be selected at the discretion of the Authority. Testing will be through an amendment according to Section 2 (Changes to Agreement) of the Base Document.
- 6.3.5 The ATP will include tests as described below and any additional tests required to determine the Contractor’s compliance with all PSBN performance criteria in Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), the Base Document. For example, the ATP will demonstrate that every sector is capable of handover with all

- of its neighbors and that the test session will stream continuous packets without interruption beyond the 3GPP specification.
- 6.3.6 With the exception of the Pre-Installation Test covered by Section 6.3.25 which must be completed by September 30, 2015, the PSBN will pass a series of tests which at a minimum include those described in this Section 6 to clearly and definitively demonstrate that:
- 6.3.6.1 The entire PSBN meets or exceeds all the performance criteria of the Agreement Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), the Base Document);
 - 6.3.6.2 The equipment is correctly installed, fully functional, has been configured in an optimal manner, and will perform at the required levels of service or better;
 - 6.3.6.3 The PSBN properly delivers reliable packet transmissions to Authority Public Safety Enterprise Networks (PSEN) and commercial cellular, Public Switched Telephone Network (PSTN), public internet destinations as required and call completion records can be traced through the EPC.
- 6.3.7 The PSBN will not be eligible for Final PSBN System Acceptance until all PSBN Acceptance Tests Plans have been delivered and accepted by the Authority, with shall occur by no later than August 31, 2015
- 6.3.8 The Contractor will submit an updated, finalized ATP as part of Design Review.
- 6.3.9 The Authority’s representatives will be provided at least 48 hours advance notice before testing is to occur, and have the option to witness and validate all Acceptance Tests in order to validate all testing is performed according to the performance criteria in the ATP.
- 6.3.10 For all Acceptance Testing, the Authority has the sole discretion to halt the testing at any point, if deemed necessary.
- 6.3.11 As with Work, the Contractor will supply all personnel and equipment necessary to carry out the Acceptance Tests.
- 6.3.12 Test equipment will be properly calibrated and provide records of the most recent calibration to the Authority.

- 6.3.13 In the event of a failure of any Acceptance Test, the Contractor will immediately determine the cause of the failure. The Contractor then will repair any defective work and replace or repair any defective materials. The Contractor will document and submit the cause and remediation of the failed test. The Acceptance Test will then be repeated when remediation is completed by the Contractor. The procedures relating to failed Acceptance Testing are further described in Section 14.1 (Acceptance Tests) of the Base Document.
- 6.3.14 Upon the successful completion of any test, the Authority’s representative witnessing the test and the Authority’s Project Manager will sign their concurrence that the test was successful.
- 6.3.15 At the completion of any test, successful or unsuccessful, the Contractor will record all test data in a mutually agreed format (test report) and submit copies to the Authority.
- 6.3.16 The test report(s) will include all samples taken as well as a record of all failures and the corrective action taken.
- 6.3.17 Tests will be conducted at a time and date approved by the Authority.
- 6.3.18 As with all Work site/facility access will be coordinated in advance with the Authority.
- 6.3.19 Prior to the start of any test, the Contractor will ensure that all software, firmware and configuration of the devices(s) under test are the most current version.
- 6.3.20 Each individual piece of equipment will be tested before being connected to other devices (e.g., the eNodeB will be tested against published manufacturer specifications to ensure correct operation prior to being connected to the system link).
- 6.3.21 A checklist for each major Component of the PSBN will be designed during the Design Review process. It is intended to ensure that the PSBN has been installed correctly and is ready to enter the next testing phase. The checklist can be completed as the installation progresses or immediately preceding entry to the Acceptance Test period. The document will be provided as supporting evidence of the readiness to begin the official Acceptance Testing.

- 6.3.22 If coverage testing occurs during a period of time when foliage on trees is not at its peak, the Contractor will work with the Authority to identify a mutually agreeable RF loss to be associated with foliage.
- 6.3.23 Contractor will conduct intermodulation testing and receiver desensitization on all installed PSBN Components to assure no inter-system and intra-system interference.
- 6.3.24 PSBN coverage will be tested separately.
- 6.3.25 Pre – Installation Test
- 6.3.25.1 Pre-installation Testing will consist of the Contractor staging the Components and verifying features and functionality.
 - 6.3.25.2 As part of the ATP, the Contractor will develop and provide a complete list of features and functionality to be tested.
 - 6.3.25.3 The staging of the Components will be at a mutually agreed upon location.
 - 6.3.25.4 During the Pre-installation process, wherever possible, the Components will be mounted in the racks/cabinets that will be used at the sites and cables will be cut to the anticipated install lengths.
 - 6.3.25.5 Pre-installation testing will be conducted on the Components at the staging facility.
 - 6.3.25.6 Pre-installation testing will be considered successfully completed when each feature and function is successfully demonstrated.
- 6.3.26 Installation Test
- 6.3.26.1 Installation Testing will consist of verifying manufacturer recommended installation functionality and configuration of all equipment at a given location. Contractor will provide a sample Installation Test Plan for all sites (existing and new).
 - 6.3.26.2 A birth certificate consisting of a checklist designed to ensure that the Component has been installed and is operating correctly will be completed for each piece of Component installed.

6.3.26.3 Installation Testing will be considered successfully completed if all performance criteria (Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), the Base Document) are met at all of the locations, and these performance criteria are successfully demonstrated as part of the Installation Testing Plan.

6.3.26.4 Individual equipment tests will be based upon the published manufacturer specifications.

6.3.27 Functional Testing

6.3.27.1 Functional testing will be performed after the PSBN has been completely installed and optimized.

6.3.27.2 Functional Testing will consist of demonstrating the correct operation for all Components provided as well as any Baseline PSBN Interfaces to the PSBN.

6.3.27.3 The Functional Testing will demonstrate that the PSBN can recover from numerous faults as well as the expected operation when failures are induced (e.g., unexpected commercial power failure, base station power supply(s) removed, antenna failure, cabinet/shelter environmental failure).

6.3.27.4 For each Component, the Contractor will demonstrate the correct operation of the Component based on the manufacturers published specifications and instructions.

6.3.27.5 The Contractor will demonstrate that data integrity is maintained (e.g, a successful file transfer despite BLER reported during the transfer) at varying SINR.

6.3.27.6 Functional Testing will be considered successfully completed if all tests successfully pass.

6.3.27.7 The Contractor will demonstrate every feature or function provided by the installed PSBN, as set forth in this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), and otherwise performs in accordance with the Base Document, in accordance with the approved Acceptance Test Plan.

6.3.28 Stress Test

6.3.28.1 A Stress Test of the EPC and all five sites installed for the Special Operations Test (SOT) will be conducted for two hours per sector during the test period, up to and beyond the licensed capacity of the System. The full Stress Test will occur one sector at a time while the remaining sectors of the same eNodeB will be peak loaded using single UEs. Testing will be limited to 2 hours per sector and one day per site not to exceed a total of 5 days. The Contractor will develop a test procedure that is acceptable to the Authority.

6.3.28.2 During the Stress Test, the use of an automated load generation application will be acceptable to simulate some of the load, provided the tool can accurately model the projected load. If simulation is utilized, there must also be some live users performing the test.

6.3.29 PSBN Coverage Test General Performance Criteria

6.3.29.1 Coverage Testing will consist of demonstrating the coverage meets or exceeds the Contractor's specified performance parameters for each zone identified in Exhibit B (PSBN Specifications).

6.3.29.2 Acceptance testing will be based on the minimum performance parameters and usage/system environment as identified Exhibit B (PSBN Specifications). During Design Review, the Contractor will submit a test application for the Authority's review and approval that will be utilized to measure and log the uplink and downlink data throughput under loaded downlink conditions and unloaded uplink per Exhibit B, Section 1.7.1.1.

6.3.29.3 The Authority requires all PSBN testing to be performed from user device to the designated dispatch center (uplink), designated dispatch center to user device (downlink) and user device to user device. Coverage testing will be an automated process, testing Uplink and Downlink coverage independently.

6.3.29.4 Extrapolation of results from tests in one direction, to reach conclusions about the other direction, will not be acceptable.

6.3.29.5 All eNodeBs in the LTE Subsystem will be fully operational and optimized, and roaming among eNodeBs enabled, prior to radio coverage testing.

- 6.3.29.6 If a User Equipment fails to affiliate with, handover to, or roam to the proper eNodeB, the test will be deemed as a failure.
- 6.3.29.7 All results from coverage tests will be provided to the Authority in an electronic format such that it can be imported into Member agencies' GIS (Geographical Information Systems) databases. An ESRI format is preferred.
- 6.3.30 Wide Area Coverage Test
- 6.3.30.1 For the coverage test, the Authority requires the grid size to be no larger than ¼ mile by ¼ mile in the area defined as the LA Basin.
- 6.3.30.2 For the coverage test, the Authority requires the grid size to be no larger than ¼ mile by ¼ mile in the area defined as the Santa Monica Mountains.
- 6.3.30.3 For the coverage test, the Authority requires the grid size to be no larger than ¼ mile by ¼ mile in the area defined as the Angeles National Forest.
- 6.3.30.4 For the coverage test, the Authority requires the grid size to be no larger than one ¼ mile by ¼ mile in the area defined as the Northern Desert.
- 6.3.30.5 For the coverage test, the Authority requires the grid size to be no larger than ¼ mile by ¼ mile in the area defined as the Freeways.
- 6.3.30.6 For the coverage test, the Authority requires the grid size to be no larger than ¼ mile by ¼ mile in the area defined as the Foothills.
- 6.3.30.7 For the coverage test, the Authority requires the grid size to be no larger than ½ mile by ½ mile in the area defined as the Waterway.
- 6.3.30.8 The Contractor will be required to individually test every grid that is shown as having reliable coverage.
- 6.3.30.9 Inaccessible tiles, as determined by the Authority, will not be counted as passed or failed and will be excluded from the tally of the total number of tiles tested.
- 6.3.30.10 For the Coverage Test, successful communications is defined as achieving the minimum throughput specified in Exhibit B (PSBN Specifications), Section

1.7.1.1 in the downlink and uplink. The Contractor will report the highest uplink (UL) and downlink (DL) throughput achieved for a single test UE without limiting the attempted throughput to the minimum throughput specified in Exhibit B (PSBN Specifications), Section 1.7.1.1 in the downlink and uplink.

6.3.30.11 The Contractor will demonstrate that the covered area meets or exceeds the required reliability requirement of that area shown as covered in the Contractor's coverage maps at a 99% confidence level.

6.3.30.12 The Contractor will describe the methodology used for automated throughput testing.

6.3.30.13 In the grid-based drive test, the Contractor will include testing for coverage in each zone as specified in Exhibit B (PSBN Specifications).

6.3.31 Wide Area Coverage Test Results

6.3.31.1 The Coverage Test logs will include success or failure status of each throughput test including the actual throughput measured.

6.3.31.2 The Coverage Test logs will include the location of each throughput test.

6.3.31.3 The Coverage Test logs will include the time of each throughput test.

6.3.31.4 The Coverage Test logs will include the direction of each throughput test (uplink or downlink).

6.3.31.5 The Coverage Test logs will include a site designator to identify the eNodeB and sector used for the throughput test.

6.3.31.6 The Contractor will develop an Acceptance Test Plan for the Authority's review and approval. The Acceptance Test Plan will address the test equipment, test method, testing volume, statistical analysis methods, and pass/fail criteria based on the coverage related specifications of Exhibit A (Statement of Work) and Exhibit B (PSBN Specifications) for the Coverage Test. The Coverage Test will be conducted under mobile conditions (i.e., a UE in motion). The Acceptance Test Plan will measure the coverage in an unbiased fashion and adhere to TSB 88 methods to the extent feasible.

- 6.3.31.7 The Coverage Test logs will include the signal level, and SINR of the sites the user device is detecting as data is transmitted and received.
- 6.3.31.8 The Coverage Test logs will include the channel/antenna identification as messages are transmitted and received.
- 6.3.31.9 Each wide area coverage test, the Contractor will provide maps that include the grid used for testing with each grid color coded to indicate pass or fail status and a point color coded to indicate pass or fail for each test conducted. The maps will be provided in the following formats:
- 6.3.31.9.1 One paper copy in ANSI E size;
 - 6.3.31.9.2 An Adobe Acrobat (.pdf) file of sufficient resolution and quality to print in ANSI E size;
 - 6.3.31.9.3 A shape file in ESRI format, including an attribute table containing the latitude, longitude, BER, and predicted signal strength and measured signal strength for each point. The attribute table will:
 - 6.3.31.9.3.1 Use WGS84 datum
 - 6.3.31.9.3.2 Be provided in text (.txt) or comma separated value (.csv) format
 - 6.3.31.9.4 A Google Earth© KMZ file (.kmz);
- 6.3.31.10 Wide area Coverage Testing will be considered successfully completed if each geographic area meets or exceeds the required coverage percentages specified in Exhibit B (PSBN Specifications), Section 1.7.1.5 (Coverage Performance Criteria by Zone).

6.3.32 Waterway Coverage Test

The Waterway Coverage Testing will include a throughput test. This test will meet the minimum criteria in accordance with Exhibit B (PSBN Specifications). The Contractor will describe how this testing will be accomplished.

6.3.33 Freeway Coverage Test

- 6.3.33.1 The Freeway Coverage Testing will include driving on all of the freeways in the County, regardless if the area was previously tested during one of the other tests.
- 6.3.33.2 The Freeway Coverage Testing will include speeds up to 55 mph.
- 6.3.33.3 The PSBN will be tested using the User Equipment provided in Exhibit B (PSBN Specifications).
- 6.3.33.4 For reasons of safety, the test will be conducted at non-peak vehicular traffic hours.
- 6.3.33.5 The Freeway Coverage Testing will include capturing throughput measurements during the entire test.
- 6.3.33.6 The Freeway Coverage Test will include performing throughput tests to check for compliance with the minimum throughput in accordance with Exhibit B (PSBN Specifications), in each grid.
- 6.3.33.7 The Contractor will provide a map clearly depicting the results of the Freeway coverage test. The map will minimally include the grid used for testing with each grid color coded to indicate pass or fail status and a point color coded to indicate pass or fail for each test conducted.
- 6.3.33.8 During the Freeway Coverage Testing any test that occurred in a tile previously agreed to as not covered during Design Review, will be disregarded (not counted as part of the test).
- 6.3.33.9 The Freeway Coverage Testing will be considered successful if the defined region the test occurred within meets or exceeds the zone's coverage reliability percentage.
- 6.3.34 Special Operational Test
- 6.3.34.1 The Contractor will initially build out all Subsystems proposed, based on the Final System Design for the PSBN, to provide a complete solution for a Special Operational Test service area. The Authority and the Contractor mutually determine the Test based on the completion of site development within a contiguous geographic area of sufficient sites to facilitate a

reasonable Operational Test area. Once the Test area has been determined, the Contractor will provide a radio frequency (RF) propagation and projected data throughput map, depicting the eNodeB site locations.

- 6.3.34.2 The Special Operational Test System will be built out using original Components that were successfully tested as part of the FAT. Used or Demo Components will not be used as part of the Special Operational Test.
- 6.3.34.3 The use of Emergency Deployable equipment, such as rapid deployment sites, will be acceptable for use during the Special Operational Test on a limited basis (e.g., use of a rapid deployment site for cell to cell roaming), provided this equipment was tested during the FAT. The Authority will approve the use of rapid deployment sites prior to the beginning of the Special Operational Tests.
- 6.3.34.4 The Special Operational Test System will consist of a minimum of two (2) permanent sites to support testing of site-to-site handover operation.
- 6.3.34.5 The Special Operational Test will consist of a minimum of five (5) eNodeB sites to support testing of cell-to-cell and sector-to-sector handover.
- 6.3.34.6 All features and functionality of the Special Operational Test System will be during the Special Operational Test.
- 6.3.34.7 Prior to the start of deploying users on the Special Operational Test System all Acceptance Test for the Components involved with the testing (other than the burn-in test) must have been successfully completed.
- 6.3.34.8 The successful completion of the Acceptance Testing for the Special Operational Test will consist of a mutually agreed upon Functional and limited coverage test for the defined Special Operational Test area. The ATP supporting the Special Operational Test will be employed to support Test System performance testing. The ATP will be refined by the Contractor if determined to have limitations over the course of Special Operational Test System testing.
- 6.3.34.9 Upon successful completion of testing, the Users will begin using the PSBN for fourteen (14) calendar days. The Contractor will provide 25 (of the total 1,000 required) User Equipment to support Operational Test.

- 6.3.34.10 Upon successful completion of the fourteen (14) day test, all Components used during the test will become a permanent part of the overall PSBN.
- 6.3.34.11 The test will include all field units assigned to the test area.
- 6.3.34.12 Any Deficiencies, which surface during the test period, will result in an extension of the test period for as long as required for correction and retest. The severity of the fault, as defined in the Burn-in test, will determine the length of the retest.
- 6.3.34.13 In no case will the retest period be less than fifteen (15) calendar days.
- 6.3.34.14 During the Special Operational testing process, the PSBN projected applicable peak load for data must be introduced into each of the sectors (over the air) as defined in this Exhibit A (Statement of Work), Section 6.3.28 (Stress Test) while the pilot users are continuing to exercise the PSBN. If a centralized data controller exists, the controller must be loaded with the remaining traffic that was projected in the System Design otherwise the load must be applied into the message switch. The loading simulation must also include the CAD and RMS user interface load. If a centralized voice controller exists, the controller must be loaded with the remaining traffic that was projected in the System Design for the PSBN.
- 6.3.34.15 The Contractor will describe in detail within the Acceptance Test Plan how the projected maximum load value was calculated. This will include a spreadsheet type document that allows for likely variables such as message size, frequency, etc. to be adjusted and the calculations to be automatically updated.
- 6.3.34.16 The PSBN will achieve 300 simultaneous Attach Events per second or better.
- 6.3.34.17 Contractor will provide a description of the impact on the PSBN when the number of 3GPP Attach events exceeds the PSBN's capability to process Users.
- 6.3.34.18 The Contractor will demonstrate the simultaneous 3GPP Attach events will not cause degradation to the Users already on the network or cause delays to 3GPP Attach events process.

- 6.3.34.19 The duration of the peak load testing will be as described in this Exhibit A (Statement of Work), Section 6.3.28 (Stress Test) per site.
- 6.3.34.20 Higher priority UE or applications will successfully connect and transfer data for the Special Operational Test peak load test while the sector is at full capacity. The higher priority UE will connect and transfer data at the requested rate. The Contractor will conduct this test on one of the sectors during the peak load test period of the Special Operations Test.
- 6.3.34.21 Successful completion of the Special Operational Test will be defined as being able to run for fourteen (14) calendar days without a Major or Minor failure. The definitions of Major and Minor faults and the process for successful completion are set forth herein in the description of the Burn-in test.
- 6.3.34.22 The Contractor will incorporate the Special Operational Test into the overall Project Schedule as a Project Milestone.
- 6.3.35 PSBN Burn-In Test
- 6.3.35.1 If a sectored or rolling implementation approach is proposed, the Contractor will perform a burn-in test as each segment of the PSBN is brought on-line. The Burn-in test will consist of running each segment of the PSBN for a period of 30 calendar days on a 7 x 24 basis. This includes both the fixed infrastructure and the mobile end user having reliable connectivity.
- 6.3.35.2 A Burn-in test will be conducted when the entire PSBN and all of its Subsystems are connected and operational. The test will consist of running the PSBN for a period of thirty (30) calendar days on a 7 x 24 basis. This includes both the fixed infrastructure and the mobile end user having reliable connectivity.
- 6.3.35.3 Prior to the Burn-in testing process, the PSBN downlink peak amplifier power must be introduced into each of the transmitter sites (over the air).
- 6.3.35.4 The duration of the peak power testing will be eight (8) hours.
- 6.3.35.5 Burn-in Testing will be considered successfully completed if less than five (5) points worth of faults occur and are resolved to the satisfaction of the

Authority in the allocated time. Each major fault counts as two (2) points and each minor fault counts as one (1) point.

- 6.3.35.6 A Major Fault is an abnormal condition or a failure of one or more parts of the Components provided by the Contractor that results in a communication outage or degradation to communications quality. Examples of a Major Fault are (but are not limited to):
- 6.3.35.6.1 The failure of two or more eNodeBs due to local failure or link failure;
 - 6.3.35.6.2 The complete failure of a PSBN Subsystem used by administrative or maintenance personnel; and
 - 6.3.35.6.3 The complete or partial failure for the same cause of 3% or more of all field User Equipment provided by the Contractor.
- 6.3.35.7 If a Major Fault occurs due to mass Component failure (e.g., when 5% or more of a single Component fail for related reasons) during the Burn-in testing period, then the Authority must authorize the proposed repair or modification needed to fix the fault. The Contractor then will perform the repair on all like Components.
- 6.3.35.8 If a Major Fault occurs for reasons that are attributable to the Work performed or the materials provided by the Contractor, the test will be suspended, the faulty Work or defective materials will be repaired or replaced and the thirty (30) day counter will be set back to zero but not the failure points.
- 6.3.35.9 Major Faults that are not attributable to the Work performed or the materials provided by the Contractor will not be charged against the test. If a Major Fault occurs, the test will be suspended until the problem is corrected. The test will then be re-started from the time it was suspended. The duration of the test suspension will not count as part of the test.
- 6.3.35.10 A Minor Fault is an abnormal condition or a failure of one or more parts of the purchased PSBN that does not have a noticeable effect on the end user(s). Examples of a Minor Fault include, but are not limited to, the malfunction of MIMO at any site; the partial failure of a Subsystem used by administrative or maintenance personnel; or the complete or partial failure for the same cause of less than 3% of all field user equipment provided by the Contractor.

- 6.3.35.11 A Minor Fault that is attributable to work or materials provided by the Contractor that is not corrected within seven (7) calendar days, or a plan for correcting the fault is not submitted within seven (7) calendar days of the fault, will be deemed a Major Fault and treated as such from that time forward.
- 6.3.35.12 If a Minor Fault occurs, the cause will be determined jointly by the Contractor and the Authority and corrective action will be taken by the party having responsibility. If the Minor Fault is attributable to work or materials provided by the Contractor, the Contractor will take corrective action. If the Minor Fault is not attributable to work or materials provided by the Contractor, the Authority will take corrective action.
- 6.3.35.13 The Contractor will work diligently to determine the cause(s) of any Major Fault or Minor Fault and will continue to do so until the Fault has been remedied. In the event of the occurrence of two Major Faults having the same cause, the Contractor will immediately bring in additional staff members who are experts or specialists in the particular type of Components under test.
- 6.3.35.14 After the condition that caused a test to fail is remedied and prior to restarting the Burn-In Test, the Contractor will retest the failed condition as well as any test(s) necessary to revalidate Components altered in any way during the resolution process.
- 6.3.35.15 During the Burn-in Testing the Contractor will document all faults. For each fault documented, the Contractor will at a minimum, provide the Authority a description of the fault, the time the fault occurred, the time the fault was resolved, the action taken to clear the fault, and, if the action taken to clear the fault is not anticipated to prevent future reoccurrences of the fault, the steps necessary to prevent the fault from reoccurring.
- 6.3.35.16 The PSBN will pass the agreed upon test procedures based upon the approved Acceptance Test Plan.
- 6.3.36 Development of Punch List
- 6.3.36.1 The Contractor will in advance schedule walk through inspections of all site and PSBN Subsystem facilities with the appropriate Authority representatives to inspect and facilitate final acceptance of the facilities.

- 6.3.36.2 The Contractor will prepare, and provide to the Authority for approval, a site and PSBN Subsystem facility inspections punch list matrix for various sites and subsystem facility testing. This punch list matrix will facilitate site inspections and acceptance requirements.
- 6.3.36.3 The Contractor and the Authorities representatives will conduct walk through inspections of site and PSBN Subsystem facilities and a punch list will be developed documenting all outstanding work to be completed for the Authority to accept affected facilities. The Contractor and the Authority will execute signatures on the punch list following inspections to demonstrate mutual agreement on to be completed items.
- 6.3.36.4 The Contractor will promptly address punch list items and reschedule a walk through inspection for the Authority. The Authority will determine, based on the magnitude of the facility punch list, the extent of Authority representation to review and accept the facility on the second visit.
- 6.3.36.5 As with all defective Work, the Contractor will remediate all planned and required punch list items at the sole cost of the Contractor.
- 6.3.36.6 The Contractor will maintain a comprehensive punch list of all site and PSBN Subsystem construction and installation actions required for the Authority to formally accept Contractor work products. Punch list status will be presented during the course of Project status meetings.

SUBTASK 6.3.A DELIVERABLE (MILESTONE) – The Contractor will produce a comprehensive ATP and commence and conduct the ATP to warrant and validate that the PSBN meets or exceeds the operational performance expectations of the Authority, as described in Subtask 6.3.

SUBTASK 6.3.B DELIVERABLE (MILESTONE) – Contractor shall provide a report that demonstrates in detail that the PSBN and all of its Subsystems and Components have successfully completed all Acceptance Tests described in Subtask 6.3.

6.4 SUBTASK 6.4 – TRAINING

The Contractor will provide operational, technical and other training on the PSBN and all Components of the PSBN in accordance with the approved Training Plan.

SUBTASK 6.4 DELIVERABLE (MILESTONE) – The Contractor will provide a comprehensive training program and deliver sufficient hard and soft copies of the training materials, in accordance with the approved Training Plan, and all by the date specified in the approved Project Schedule.

6.5 SUBTASK 6.5 – DOCUMENTATION

Contractor will provide comprehensive Documentation for all aspects of the Project (including but not limited to the PSBN, each Subsystem, and each PSBN Site), in accordance with the approved Documentation Plan. The Documentation will reflect all aspects of the Project as delivered by Contractor and Accepted by the Authority, and will be in sufficient detail that the Documentation may be used by the Authority for maintenance of the PSBN and as the basis for the future engineering of upgrades or add-ons. Documentation includes all Documentation required pursuant to the construction, installation and acceptance of the PSBN including each Subsystem and PSBN Site.

SUBTASK 6.5 DELIVERABLE – Contractor will provide comprehensive Documentation for all aspects of the Project, including but not limited to, the PSBN, each Subsystem and each PSBN Site, all meeting the requirements of Subtask 6.5 and all by the date specified in the approved Project Schedule. Contractor will organize Documentation by Subsystem and site and provide three (3) copies in binders and three (3) copies in electronic media format (USB Flash Drive or CDs) with electronic copies of all final Documentation.

6.6 SUBTASK 6.6 – IMPLEMENTATION PHASE ACCEPTANCE

Contractor will achieve Implementation Phase Acceptance as defined in Section 14.2 of the Base Document.

SUBTASK 6.6 DELIVERABLE – Implementation Phase Acceptance: For each Implementation Phase, a certification from a responsible officer of Contractor that Contractor has successfully completed all prerequisites to Implementation Phase Acceptance for such implementation phase as a described in Subtask 6.6, each by the date specified in the approved Project Schedule.

6.7 SUBTASK 6.7 – FINAL PSBN ACCEPTANCE

Contractor will achieve Final PSBN Acceptance as defined in Section 14.2 of the Base Document by August 15, 2015.

SUBTASK 6. 7 DELIVERABLE (MILESTONE) – A certification from a responsible officer of Contractor that Contractor has successfully completed all prerequisites to Final PSBN Acceptance as described in Subtask 6.6, by August, 15, 2015.

7. TASK 7: PHASE 5 – WARRANTY AND MAINTENANCE**7.1 SUBTASK 7.1 – SPARES MANAGEMENT**

- 7.1.1 During the Warranty Period and all Option Terms exercised by the Authority, the Contractor will be responsible for providing and maintaining spares inventory as described in Exhibit B (PSBN Specifications) and ensuring that all Components included as spares inventory will be entered into the Inventory Management System upon initial purchase so that they do not need to be entered when they are being put into service. As with all Work, this Inventory Management System will be approved by the Authority during the Design Review process.
- 7.1.2 The Contractor will replace the spares inventory throughout the Warranty Period and all Option Terms with new spare parts whenever the Authority's spare Components are employed to replace failed or deficient Component. The replacement spare Components, at no additional cost to the Authority, will be delivered with a one year warranty starting on the date the spare inventory Component is logged into the Authority's inventory database.
- 7.1.3 Contractor will provide a sufficient local supply of spare parts that will be maintained to allow rapid restoration of operation of the PSBN and its Components.
- 7.1.4 In the event that the Authority's spare inventory is used to replace failed or deficient equipment during the PSBN Warranty Period or any Option Term, the Contractor will supply a new replacement spare(s), and update the spare inventory database within 15 business days of use of the spare. Replacement stock will also be available via emergency request with expedited delivery within twenty-four (24) hours of the Component failure.

SUBTASK 7.1 DELIVERABLE – The Contractor will provide a spares inventory and input them in the Inventory Management Subsystem as required by Subtask 7.1, during the Warranty Period and all Option Terms. Deliverables will be provided on a monthly basis by the dates specified in Subtask 7.1 and as may be included in the approved Project Schedule.

7.2 SUBTASK 7.2 – WARRANTY

During the Warranty Period, Contractor will provide all Maintenance Work for the PSBN as specified in Exhibit D (PSBN Maintenance and Warranty) to the Base Document, including, but not limited to, the following Work:

- 7.2.1 The Contractor will warrant that all Components furnished hereunder are new and currently in production.
- 7.2.2 The Contractor will warrant that all Components and the installation of such Components conform to this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document, or the manufacturer's published specifications, whichever is most stringent, that it will be free from Deficiencies for a period of at least one (1) year from the date of Final PSBN System Acceptance (as further defined in the Base Document, Warranty Period).
- 7.2.3 If the Manufacturer's warranty period is longer for individual Components, the Authority will receive the extended warranty beyond the Warranty Period. Interim periods between the manufacturer's standard warranty and the date of acceptance will be the Contractor's responsibility.
- 7.2.4 The Contractor will be responsible for all warranties including warranties obtained from Subcontractors, manufacturers and/or suppliers under the Warranty Period for the PSBN. Copies of all warranties will be provided to the Authority upon delivery to the Authority of the applicable Component but in no event later than in connection with delivery of all Documentation under Subtask 7.6 (Documentation).
- 7.2.5 During the Warranty Period, warranty repairs/replacement on all furnished equipment and other Components will be made at no cost to the Authority for parts, materials, and labor.
- 7.2.6 The Contractor will be responsible for all shipping costs incurred to send equipment or other Components to manufacturers for any repair or replacement. The Authority reserves the right to closely monitor and observe repair service.
- 7.2.7 The Contractor will warrant and guarantee further that the Components furnished hereunder are of good workmanship and materials and, that the same is properly designed, operable and equipped for the proposed use by the Authority, and is in strict

- conformance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.
- 7.2.8 All test equipment used in the provision or delivery of warranty services provided to the Authority, will at all times be functioning properly and have current equipment calibration certificates.
- 7.2.9 Technicians must be properly trained, experienced and certified, if applicable, to utilize the required test equipment. Technicians that are dispatched or assigned to service LA-RICS facilities will be familiar with PSBN configuration.
- 7.2.10 The Contractor will provide a copy of provisions and terms of the proposed PSBN warranties in compliance with applicable state and local codes. The Contractor will be the single point of contact for all PSBN warranty claims.
- 7.2.11 Contractor will provide as part of warranty, PSBN Updates for the PSBN and each of its PSBN Subsystems (a) as Contractor provides to its general customer base; and (b) to keep current with technology, security, public safety and industry standards; and (c) to keep current evolving public safety interoperability; (d) to keep the operating software compatibility packs and security patches up-to-date; and (e) to maintain compliance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document; and (f) to maintain compatibility among and between various PSBN Components, including with User Equipment that meets the requirements specified by the Contractor in response to Exhibit B (PSBN Specifications).
- 7.2.12 Without limiting the above Section, Contractor will make available to the Authority all mandatory and non-mandatory software and firmware revisions, patches and/or hotfixes as part of Contractor's obligations to provide PSBN Updates under warranty.
- 7.2.13 Within a reasonable time in advance of the release of each proposed PSBN Update, the Contractor will provide the Authority with information regarding the PSBN Update, including but not limited to proposed release date, purpose, functionality, urgency, impact on the other PSBN or Subsystem Components, and ramifications of accepting or rejecting the proposed PSBN Update.
- 7.2.14 Implementation of PSBN Updates requires prior approval of the Authority.
- 7.2.15 The Contractor will test the PSBN Updates prior to implementation thereof.

- 7.2.16 The Contractor will perform all work needed in order to ensure the PSBN Updates are compatible with the other PSBN Components, including previously provided PSBN Modifications and Interfaces.
- 7.2.17 The Contractor will perform all work needed to install and implement the PSBN Updates. Such work will be performed during scheduled maintenance as defined in this Subtask.
- 7.2.18 The Contractor will handle all Component maintenance and repair.
- 7.2.19 The Contractor will respond to all repair calls and notices and remediate the cause of the PSBN Deficiency and other problems in accordance with this Subtask.
- 7.2.20 The Contractor will establish a local Network Operations Center ("NOC") to allow the Authority to monitor and perform maintenance on the PSBN. The NOC will be located at an Authority designated operational location. The NOC will have full capability with no restrictions on the Authority's ability to monitor and operate the PSBN.
- 7.2.21 The Contractor will provide a fully redundant NOC at a remote facility. The remote facility will be located at a location mutually agreeable to the Contractor and the Authority such as the Contractor's own facility.
- 7.2.22 The NOC will support all System Management and Monitoring Subsystem functions.
- 7.2.23 The NOC will perform independent testing (e.g., testing of other system subscriber devices without degradation of the live system). The location of the NOC will be at a location designated by the Authority.
- 7.2.24 The NOC will have the capability to remotely troubleshoot and reset network failures.
- 7.2.25 The NOC and all associated Components and capabilities will be the property of the Authority.
- 7.2.26 The Contractor will maintain adequate staff and spare parts inventory located within the LA-RICS area to provide technical support and assure compliance with network availability and response time performance criteria below in this Exhibit A (Statement of Work), and/or in Exhibit B (PSBN Specifications) or Exhibit D (PSBN Maintenance and Warranty) to the Base Document.

- 7.2.27 The Contractor will provide ongoing maintenance service support to the local service facility and the Authority during the installation and warranty period of the PSBN.
- 7.2.28 Without limiting Contractor's obligations to comply with the response and restoration timeframes set forth in this Exhibit A (Statement of Work), Contractor will repair and return all Components within fifteen (15) business days. Also without limiting Contractor's obligations to comply with the response and restoration timeframes set forth in this Exhibit A (Statement of Work), the Contractor will address all factory repair issues within fifteen (15) business days.
- 7.2.29 Warranty service will be on a 24-hour per day, 7-day per week, 365-366 day per year basis.
- 7.2.30 After the Contractor has removed the failed Component from the PSBN and service is restored, failed parts will be repaired or replaced and returned to the spare pool within fifteen (15) business days.
- 7.2.31 A Severity Level 1 problem is a major Deficiency with the PSBN or any Component thereof and is defined as one that results in the inability of any portion of the PSBN to conduct business as usual. This includes, but is not limited to:
- 7.2.31.1 Any complete system or Component or element failure;
 - 7.2.31.2 Any backhaul failure that results in more than one PSBN Site out of service;
 - 7.2.31.3 Loss of two (2) or more System Manager/Alarm Terminals;
 - 7.2.31.4 Interface failure;
 - 7.2.31.5 Aggregation Site UPS or DC Power System Failure;
 - 7.2.31.6 Loss of service from EPC;
 - 7.2.31.7 Loss of service from an eNodeB; and
 - 7.2.31.8 Antenna System Failure affecting one sector.

- 7.2.32 If Users on the PSBN report a Severity Level 1 problem, the Authority will notify the Contractor and the remediation of the problem will occur based on the Severity Level 1 timetable.
- 7.2.33 A Severity Level 2 problem is a minor Deficiency with the PSBN or any Component thereof and is defined as, one in which some PSBN features are inoperative but Authority and its Members are able to conduct its business as usual. This includes, but is not limited to:
- 7.2.33.1 Loss of a component resulting in the loss of 2x2 Multiple Input Multiple Output (“MIMO”);
 - 7.2.33.2 Disturbances affecting limited network functionality but not the entire network; and
 - 7.2.33.3 If users on the PSBN report a Severity Level 2 problem, the Authority will notify the Contractor and the remediation of the problem will occur based on the Severity Level 2 timetable.
- 7.2.34 A Severity Level 3 is defined as any type non-emergency, non User effecting problem, including but not limited to:
- 7.2.34.1 Questions or inquiries on network upgrades or intermittent problems;
 - 7.2.34.2 Questions or inquiries on network problems currently being monitored;
 - 7.2.34.3 Questions or inquiries regarding parts or work to be performed later; and
 - 7.2.34.4 Any Deficiency with a Component of the System Management and Monitoring Subsystem, Inventory and Maintenance subsystem or other supporting systems, where such failure does not rise to the level of Severity Level 1 or 2.
- 7.2.35 A Severity Level 4 is defined as scheduled maintenance or upgrades.
- 7.2.36 Scheduled maintenance and/or upgrades will be conducted during off-peak hours and approved by the Authority.
- 7.2.37 Response times are defined in two (2) ways:

7.2.37.1 Technical Support – This is the response from the Contractor to an initial notification of a PSBN Deficiency or other problem. This includes acknowledgement of the problem, assignment and dispatch of support personnel to the problem and issuance of appropriate problem tracking information.

7.2.37.2 Dispatch Support – This is the actual dispatching of local vendor service personnel to a site or location to resolve the reported Deficiency or other problem from the initial notification of the problem.

7.2.38 Response times for Technical Support will be as follows:

7.2.38.1 Severity Level 1 – Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) days a year-Three Hundred Sixty Six (366), within five (5) minutes.

7.2.38.2 Severity Level 2 - Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) - Three Hundred Sixty Six (366) days a year, within one (1) hour.

7.2.38.3 Severity Level 3 – Standard business day, eight (8) AM to five (5) PM (PST), Monday through Friday, within eight (8) hours.

7.2.38.4 Severity Level 4 – Standard business day, eight (8) AM to five (5) PM (PST), Monday through Friday, within twenty-four (24) hours.

7.2.39 Response times to have technician on-site will be as follows:

7.2.39.1 Severity Level 1 – Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) - Three Hundred Sixty Six (366) days a year, within two (2) hours.

7.2.39.2 Severity Level 2 - Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) - Three Hundred Sixty Six (366) days a year, within four (4) hours.

7.2.39.3 Severity Level 3 – Standard business day, eight (8) to five (5) (PST), Monday through Friday, within eight (8) hours.

- 7.2.39.4 Severity Level 4 – Standard business day, eight (8) to five (5) (PST), Monday through Friday, within twenty-four (24) hours.
- 7.2.40 Restoration times are defined as the amount of time from notification of a Deficiency or other problem to the return of the PSBN to full functionality. Restoration times for Severity Level 1 and Level 2 are as follows:
- 7.2.40.1 Severity Level 1 – Six (6) hours.
- 7.2.40.2 Severity Level 2 – Ten (10) hours.
- 7.2.41 The Authority reserves the right to decide whether a PSBN Deficiency or other problem is classified as Severity Level 1 or Level 2. The Authority also reserves the right to escalate or downgrade a Severity Level of any Deficiency or other problem if the Deficiency or other problem meets the definition of the Severity Level as escalated or downgraded, or if the Contractor fails to respond to or resolve a Deficiency or other problem as required by this Section.
- 7.2.42 Contractor will provide disaster recovery and special events services in accordance with the approved Disaster Recovery and Special Events Plan.
- 7.2.43 Without limiting the above section, in the event of an impending disaster or other emergency, as determined by the Authority, the Contractor will provide additional dedicated and local technicians twenty-four (24) hours prior to the event. The technicians will be dedicated to LA-RICS prior to the event, during and for a minimum of twenty-four (24) hours after.
- 7.2.44 In the event of the declaration of a disaster or other emergency, by the Authority or otherwise, the Contractor will provide on-site technicians within four (4) hours of the declaration of the disaster or other emergency. The technicians will be dedicated to LA-RICS during the disaster or other emergency and for a minimum of twenty-four (24) hours after.
- 7.2.45 The Authority has the right, at Contractor's expense, to perform warranty repairs, including, but not limited to, engaging another contractor to perform such repairs, if the Contractor is unable to satisfactorily complete such repairs within the timeframes required by this Section (as such timeframes may be extended in accordance with the Base Document). The Contractor will reimburse the Authority for all invoices for labor, materials required and the shipping/handling costs thereof to perform such

- repairs, within thirty (30) calendar days from presentation of such invoices. Without limiting any other rights and remedies available to the Authority under the Base Document, at law, or in equity, the cost for such repairs will not exceed the actual parts and labor replacement price of the repair.
- 7.2.46 Preventative maintenance will be performed by the Contractor on all Contractor installed Components and where the preventive maintenance may impact the operation of the System get Authority approval prior to the performance of said maintenance.
- 7.2.47 In addition to the services Contractor is obligated to provide pursuant to other provisions of this Agreement, the Contractor will offer for purchase by the Authority the same technical training, support (e.g., remote technical support, on-site field technical support and in the event of a difficult resolution, factory engineering support when the issue dictates), and manuals that Contractor provides to its authorized servicers at prices equal to the prices paid by authorized servicers. The Contractor will also establish a Motorola On-Line account for the Authority, which will provide the Authority access to the latest field service bulletins, repair notes, and notices of cancellations. The Motorola On-Line account will also enable the Authority to order repair parts at the then current authorized servicer discount pricing. If the Authority is performing any maintenance work, the performance of any such work will not void or impair any applicable warranty, to the extent the work is performed by trained personnel.
- 7.2.48 Warranty includes maintenance of the hardware and software to meet the capacity expectations and the stated functional, reliability and other performance criteria (Exhibit A (Statement of Work), Exhibit B (PSBN Specifications), the Base Document). In the event the PSBN or any Component fails to meet any of the stated capacity expectations, functional, reliability and other performance criteria the Contractor must take appropriate steps under this Subtask to correct the Deficiency so that the PSBN/applicable Component complies with capacity expectations, functional, reliability and other performance criteria.
- 7.2.49 The Contractor will include, for all Components and spare parts, support to repair, replace and provide PSBN Updates for the term of the Agreement.
- 7.2.50 Contractor will make certain that firmware version is the same for all like devices unless otherwise approved by the Authority.

- 7.2.51 Contractor will make certain that the software revision is the same for all like devices.
- 7.2.52 Upon the end of Warranty Period, if the Authority does not elect any Option Term, the Contractor is to relinquish all administrator rights, access to the PSBN and return all property: hardware (including servers), software modules, and all associated database records to the Authority.
- 7.2.53 The Contractor will, upon relinquishment, make all features of the hardware and software to be active, accurate, and accessible to, and able to be maintained and supported by, Authority personnel.
- 7.2.54 Twenty Five (25) licensed copies of all software necessary to program, administer, and maintain the Components will be provided to the Authority.
- 7.2.55 Twenty Five (25) complete sets of programming software, hardware cables and any required interface devices will be provided for each model of software programmable equipment included in the PSBN. Contractor will provide a complete list, including model number and price, for each piece of software and hardware required to program the new equipment and any associated passwords required to maintain the PSBN.
- 7.2.56 While under any form of maintenance contract with the Contractor, during the five (5) year period from the date of Final PSBN System Acceptance, if a mass failure of any type of equipment or other component in the PSBN System occurs, Contractor will perform a root cause analysis to establish the cause of such mass failure, and implement a program to replace (i) all such failing equipment or components, and (ii) all other like equipment or components, which are either installed in the PSBN System or maintained as a spare (which replacement program will include a detailed mitigation plan, replacement of all such equipment and components, physical installation, and any necessary testing to validate operation of the impacted component/service). For purposes of this section, a “Mass Failure” is defined as (i) a like failure of 10% of any type of equipment or component that numbers at least 100 units in the PSBN System in a one-year period; (ii) a like failure of 10 or more units of any type of equipment or component that numbers less than 100 units in the PSBN System in a one-year period, which, in either scenario, causes the PSBN System to no longer perform in accordance with any applicable Specifications; or (iii) a cumulative like failure of at least 15% of any type of equipment or component that numbers at least 100 units in the PSBN System, or a cumulative like failure of 15 or more such units. A Mass Failure does not apply if the failure only compromises capabilities

- above and beyond the Components ability to meet applicable Specification. The Contractor will be responsible for tracking and reporting Component failures during the PSBN Warranty Period and maintenance.
- 7.2.57 The nature and extent of the replacement program defined in this Section will be at the sole discretion of the Authority, which will be reasonably exercised.
- 7.2.58 During the Warranty Period, the hardware and software Components of the PSBN must remain fully operational and available at a rate of 99.99% measured on a monthly basis.
- 7.2.59 During the Warranty Period, the Contractor will provide a monthly status report, at a minimum, itemizing the following: PSBN availability, uniquely numbered list of outages/failures that occurred since last report, uniquely numbered list of outstanding problems that have not been resolved since last report.
- 7.2.60 The list of outages/failures will at a minimum include: issue number, date of outage, time of outage, outage duration, description of failure, time/date stamped list of actions performed and resolution.
- 7.2.61 All entries on the list of outages will include information documenting who has made each entry listed on the report (e.g., who opened the issue, who updated the issue, who closed the issue, etc.).

SUBTASK 7.2 DELIVERABLE – Contractor will provide Maintenance Work for the PSBN as required by Subtask 7.2, during the Warranty Period. Deliverables will be provided on a monthly basis by the dates specified in Subtask 7.2 and as may be included in the approved Project Schedule.

7.3 SUBTASK 7.3 – MAINTENANCE

During all Option Terms that have been exercised by the Authority in accordance with the Agreement, Contractor will provide all Maintenance Work for the PSBN as specified in Exhibit D (PSBN Maintenance and Warranty) to the Base Document, including, but not limited to, the following Work:

- 7.3.1 The Contractor understands that the Authority may exercise an option to extend system maintenance and support on an annual basis for up to fifteen (15) years following expiration of the PSBN Warranty Period, including, but not limited to,

- maintenance of the PSBN's performance in accordance with this specifications and other requirements of this Agreement.
- 7.3.2 The Contractor will be responsible for all shipping costs incurred to send equipment or other components to manufacturers for any repair or replacement. The Authority reserves the right to closely monitor and observe repair service.
- 7.3.3 The Contractor will warrant and guarantee further that the Components furnished hereunder are of good workmanship and materials and, that the same is properly designed, operable and equipped for the proposed use by the Authority, and is in strict conformance with this Exhibit A (Statement of Work) and Exhibit B (PSBN Specifications) except as agreed upon within the Agreement.
- 7.3.4 During the maintenance period, all test equipment used in the provision or delivery of maintenance services provided to the Authority, will at all times be functioning properly and have current equipment calibration certificates.
- 7.3.5 Technicians must be properly trained, experienced and certified, if applicable, to utilize the required test equipment. Technicians that are dispatched or assigned to service LA-RICS facilities will be familiar with LA-RICS' configuration. The Contractor will provide a copy of provisions and terms of the proposed System Warranty in compliance with applicable state and local codes. The Contractor will be the single point of contact for all System Maintenance claims.
- 7.3.6 The Contractor will provide a copy of provisions and terms of the proposed PSBN warranties in compliance with applicable state and local codes that extend into any Option Term. The Contractor will be the single point of contact for all PSBN maintenance claims.
- 7.3.7 The Contractor will provide as part of maintenance, PSBN Updates for PSBN Subsystem, and in each of the following situations, and as approved by the Authority:
- 7.3.7.1 As the Contractor provides to its general customer base;
 - 7.3.7.2 To keep current with technology, security, public safety and industry standards;
 - 7.3.7.3 To keep current evolving public safety interoperability;

- 7.3.7.4 To keep the operating software compatibility packs and security patches up-to-date;
- 7.3.7.5 To maintain compliance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document; and
- 7.3.7.6 To maintain compatibility among and between various PSBN Components, including with User Equipment that meets the requirements specified by the Contractor in response to Exhibit B (PSBN Specifications).
- 7.3.8 Without limiting the above Section, the Contractor will make available to the Authority all mandatory and non-mandatory software and firmware revisions, patches and/or hotfixes as part of Contractor's obligations to provide PSBN Updates under maintenance.
- 7.3.9 Within a reasonable time in advance of the release of each proposed PSBN Update, the Contractor will provide the Authority with information regarding the PSBN Update, including but not limited to proposed release date, purpose, functionality, urgency, impact on the other PSBN or Subsystem Components, and ramifications of accepting or rejecting the proposed PSBN Update.
- 7.3.10 Implementation of PSBN Updates requires prior approval of the Authority.
- 7.3.11 The Contractor will test the PSBN Updates prior to implementation thereof.
- 7.3.12 The Contractor will perform all work needed in order to provide the PSBN Updates which are compatible with the other PSBN Components, including previously provided PSBN or subsystem Modifications and Interfaces.
- 7.3.13 The Contractor will perform all work needed to install and implement the PSBN Updates. Such work will be performed during scheduled maintenance as defined in this Subtask.
- 7.3.14 The Contractor will warrant and guarantee further that the Components furnished hereunder are of good workmanship and materials and, that the same is properly designed, operable and equipped for the proposed use by the Authority and is in strict conformance with this Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document.

- 7.3.15 The Contractor will respond to all repair calls and notices and remediate the cause of the PSBN Deficiency and other problems in accordance with this Subtask.
- 7.3.16 The Contractor will establish a local Network Operations Center (“NOC”) to allow the Contractor and the Authority to monitor and perform maintenance on the PSBN. The NOC will be located at an Authority designated operational location. The NOC will have full capability with no restrictions on the Authority’s ability to monitor and operate the PSBN.
- 7.3.17 The Contractor will provide a fully redundant NOC at a remote facility. The remote facility will be located at a location mutually agreeable to the Contractor and the Authority such as the Contractor’s own facility.
- 7.3.18 The NOC will support all System Management and Monitoring Subsystem functions.
- 7.3.19 The NOC will perform independent testing (e.g., testing of other system subscriber devices without degradation of the live system). The location of the NOC will be at a location designated by the Authority.
- 7.3.20 The NOC will have the capability to remotely troubleshoot and reset network failures.
- 7.3.21 The NOC and all associated Components and capabilities will be the property of the Authority.
- 7.3.22 The Contractor will maintain adequate staff and spare parts inventory located within the LA-RICS area to provide technical support and assure compliance with network availability and response time performance criteria below in this Exhibit A (Statement of Work), and/or in Exhibit B (PSBN Specifications) or Exhibit D (PSBN Maintenance and Warranty) to the Base Document.
- 7.3.23 The Contractor will provide a PSBN Maintenance Plan which describes ongoing factory engineering and service support that the Contractor will provide to the local service facility and the Authority during the installation of the PSBN and during the maintenance period.
- 7.3.24 The Contractor will detail in the PSBN Maintenance Plan the name, location and capabilities of the repair facility(s), which will provide any or all of the installation, service and warranty, both initially and on a continuing basis.

- 7.3.25 The Contractor will also include a thorough description of the proposed repair facilities in the Maintenance Plan, including but not limited to:
- 7.3.25.1 Size and location of the facilities;
 - 7.3.25.2 Size and qualifications of its staff;
 - 7.3.25.3 Number of years in business; and
 - 7.3.25.4 List of customers (with names and telephone numbers) who operate systems of similar size and complexity for whom installation and warranty services are performed.
- 7.3.26 The Contractor will provide a local service facility(s) which is capable of installing, optimizing, and maintaining the PSBN and subsystems.
- 7.3.27 The Contractor will allocate staff that is experienced and qualified in working on or with the specific type of PSBN and subsystems that is being deployed for Authority.
- 7.3.28 The Contractor will identify all Subcontractors that will be utilized during the maintenance period in the PSBN Maintenance Plan and provide comprehensive information on each Subcontractor and the size of their team and their role in the Project. As with all Subcontractors, the Authority reserves the right to accept or reject a Subcontractor.
- 7.3.29 Without limiting the Contractor’s obligations to comply with the response and restoration timeframes set forth in this Exhibit A (Statement of Work), the Contractor will provide a PSBN Maintenance Plan which details the response times of factory support for both repair and engineering to be met as the Contractor. The factory support referenced here will be provided directly to the local service facility for assistance in fulfilling the terms of the installation agreements.
- 7.3.30 Without limiting Contractor’s obligations to comply with the response and restoration timeframes set forth in this Exhibit A (Statement of Work), Contractor will repair and return all Components within fifteen (15) business days. Also without limiting Contractor’s obligations to comply with the response and restoration timeframes set forth in this Exhibit A (Statement of Work), the Contractor will address all factory repair issues within fifteen (15) business days.

- 7.3.31 The Contractor will provide PSBN Maintenance Work on a 24-hour per day, 7-day per week, 365-366 day per year basis.
- 7.3.32 The Contractor will respond to all repair calls and notices and remediate the cause of the PSBN Deficiency(s) in accordance with this Subtask. After the Contractor has removed the failed Component from the PSBN and service is restored, failed parts will be repaired or replaced and returned to the spare pool within fifteen (15) business days.
- 7.3.33 The Contractor will provide a PSBN Maintenance Plan which outlines the description of Severity Levels, detailed in this Subtask.
- 7.3.34 A Severity Level 1 problem is a major Deficiency with the PSBN or any Component thereof and is defined as one that results in the inability of any portion of the PSBN to conduct business as usual. This includes, but is not limited to:
- 7.3.34.1 Any complete system or Component or element failure;
 - 7.3.34.2 Any backhaul failure that results in more than one PSBN Site out of service;
 - 7.3.34.3 Loss of two (2) or more System Manager/Alarm Terminals;
 - 7.3.34.4 Interface failure;
 - 7.3.34.5 Aggregation Site UPS or DC Power System Failure;
 - 7.3.34.6 Loss of service from EPC;
 - 7.3.34.7 Loss of service from an eNodeB; and
 - 7.3.34.8 Antenna System Failure affecting one sector.
 - 7.3.34.9 If Users on the PSBN report a Severity Level 1 problem, the Authority will notify the Contractor and the remediation of the problem will occur based on the Severity Level 1 timetable.
- 7.3.35 A Severity Level 2 problem is a minor Deficiency with the PSBN or any Component thereof and is defined as, one in which some network features are inoperative but

- Authority and its Members are able to conduct its business as usual. This includes, but is not limited to:
- 7.3.35.1 Loss of a component resulting in the loss of 2x2 Multiple Input Multiple Output (“MIMO”);
 - 7.3.35.2 Disturbances affecting limited network functionality but not the entire network; and
 - 7.3.35.3 If users on the PSBN report a Severity Level 2 problem, the Authority will notify the Contractor and the remediation of the problem will occur based on the Severity Level 2 timetable.
- 7.3.36 A Severity Level 3 is defined as any type non-emergency, non-User effecting problem, including but not limited to:
- 7.3.36.1 Questions or inquiries on network upgrades or intermittent problems;
 - 7.3.36.2 Questions or inquiries on network problems currently being monitored;
 - 7.3.36.3 Questions or inquiries regarding parts or work to be performed later; and
 - 7.3.36.4 Any Deficiency with a Component of the System Management and Monitoring Subsystem, Inventory and Maintenance subsystem or other supporting systems, where such failure does not rise to the level of Severity Level 1 or 2.
- 7.3.37 A Severity Level 4 is defined as scheduled maintenance or upgrades.
- 7.3.38 Scheduled maintenance and/or upgrades will be conducted during off-peak hours and approved by the Authority.
- 7.3.39 Response times are defined in two (2) ways:
- 7.3.39.1 Technical Support – This is the response from the Contractor to an initial notification of a PSBN Deficiency or other problem. This includes acknowledgement of the problem, assignment and dispatch of support personnel to the problem and issuance of appropriate problem tracking information.

7.3.39.2 Dispatch Support – This is the actual dispatching of local vendor service personnel to a site or location to resolve the reported Deficiency or other problem from the initial notification of the problem.

7.3.40 Response times for Technical Support will be as follows:

7.3.40.1 Severity Level 1 – Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) days a year-Three Hundred Sixty Six (366), within five (5) minutes.

7.3.40.2 Severity Level 2 - Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) - Three Hundred Sixty Six (366) days a year, within one (1) hour.

7.3.40.3 Severity Level 3 – Standard business day, eight (8) AM to five (5) PM (PST), Monday through Friday, within eight (8) hours.

7.3.40.4 Severity Level 4 – Standard business day, eight (8) AM to five (5) PM (PST), Monday through Friday, within twenty-four (24) hours.

7.3.41 Response times to have technician on-site will be as follows:

7.3.41.1 Severity Level 1 – Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) - Three Hundred Sixty Six (366) days a year, within two (2) hours.

7.3.41.2 Severity Level 2 - Twenty-four hours (24) a day, Seven (7) days a week, Three Hundred Sixty Five (365) - Three Hundred Sixty Six (366) days a year, within four (4) hours.

7.3.41.3 Severity Level 3 – Standard business day, eight (8) to five (5) (PST), Monday through Friday, within eight (8) hours.

7.3.41.4 Severity Level 4 – Standard business day, eight (8) to five (5) (PST), Monday through Friday, within twenty-four (24) hours.

7.3.42 Restoration times are defined as the amount of time from notification of a Deficiency or other problem to return of the PSBN to full functionality. Restoration times for Severity Levels 1 and 2 are as follows:

- 7.3.42.1 Severity Level 1 – Six (6) hours.
- 7.3.42.2 Severity Level 2 – Ten (10) hours.
- 7.3.43 The Authority reserves the right to decide whether a PSBN Deficiency or other problem is classified as Severity Level 1 or Level 2. The Authority also reserves the right to escalate or downgrade a Severity Level of any Deficiency or other problem if the Deficiency or other problem meets the definition of the Severity Level as escalated or downgraded, or if the Contractor fails to respond to or resolve a Deficiency or other problem as required by the Agreement.
- 7.3.44 Contractor will provide disaster recovery and special events services in accordance with the approved Disaster Recovery and Special Events Plan.
- 7.3.45 Without limiting the above Section, in the event of an impending disaster or other emergency, as determined by the Authority, the Contractor will provide additional dedicated and local technicians twenty-four (24) hours prior to the event. The technicians will be dedicated to LA-RICS prior to the event, during and for a minimum of twenty-four (24) hours after.
- 7.3.46 Also without limiting the above Section, in the event of the declaration of a disaster or other emergency, by the Authority or otherwise, the Contractor will provide on-site technicians within four (4) hours of the declaration of the disaster or other emergency. The technicians will be dedicated to LA-RICS during the disaster or other emergency and for a minimum of twenty-four (24) hours after.
- 7.3.47 The Authority has the right, at Contractor's expense, to perform maintenance repairs, including, but not limited to, engaging another contractor to perform such repairs, if the Contractor is unable to satisfactorily complete such repairs within the timeframes required this Subtask (as such timeframes may be extended in accordance with the Base Document). The Contractor will reimburse the Authority for all invoices for labor, materials required, and the shipping/handling costs thereof to perform such repairs, within thirty (30) calendar days from presentation of such invoices. Without limiting any other rights and remedies available to the Authority under the Base Document, at law, or in equity, the cost for such repairs will not exceed the actual parts and labor replacement price of the repair.

- 7.3.48 The PSBN Maintenance Plan will specify the preventive maintenance schedule and estimate the amount of non-scheduled maintenance (system downtime) for each Component of the proposed PSBN.
- 7.3.49 In addition to the services Contractor is obligated to provide pursuant to other provisions of this Agreement, the Contractor will offer for purchase by the Authority the same technical training, support (e.g., remote technical support, on-site field technical support and in the event of a difficult resolution, factory engineering support when the issue dictates), and manuals that Contractor provides to its authorized servicers at prices equal to the prices paid by authorized servicers. The Contractor will also establish a Motorola On-Line account for the Authority, which will provide the Authority access to the latest field service bulletins, repair notes, and notices of cancellations. The Motorola On-Line account will also enable the Authority to order repair parts at the then current authorized servicer discount pricing. If the Authority is performing any maintenance work, the performance of any such work will not void or impair any applicable warranty, to the extent the work is performed by trained personnel.
- 7.3.50 Preventative maintenance will be performed by the Contractor on all Contractor installed Components and where the preventive maintenance may impact the operation of the PSBN get Authority approval prior to the performance of said maintenance.
- 7.3.51 The PSBN Maintenance Plan will specify the number of maintenance personnel, where they are located, and the extent to which they will be available to support the PSBN.
- 7.3.52 Maintenance Work includes maintenance of the hardware and software to meet the capacity expectations and the stated functional, reliability, and other performance criteria (Exhibit A (Statement of Work), Exhibit B (PSBN Specifications) and the Base Document). In the event the System or any Component fails to meet any of the stated capacity expectations, functional, reliability and other performance criteria the Contractor must take appropriate steps under this Subtask to correct the Deficiency so that the PSBN complies with capacity expectations, functionality, reliability and other performance criteria.
- 7.3.53 The Contractor will include as a part of maintenance, for all Components and spare parts, support to repair, replace and provide PSBN Updates required by this Subtask for the term of the Agreement.

- 7.3.54 The Contractor will make certain that the firmware version is the same for all like devices unless otherwise approved by the Authority.
- 7.3.55 The Contractor will make certain that the software revision is the same for all like devices.
- 7.3.56 Upon the end of the term of the Agreement, or in the event of transition of the PSBN maintenance to the Authority or any Member, the Contractor will relinquish all administrator rights, access to the PSBN, and return all property, including hardware (including servers), software modules and all associated database records to the Authority.
- 7.3.57 Twenty Five (25) licensed copies of all software necessary to program, administer, and maintain the Components will be provided to the Authority.
- 7.3.58 Twenty Five (25) complete sets of programming software, hardware cables and any required interface devices will be provided for each model of software programmable equipment included in the PSBN. Contractor will provide a complete list, including model number and price, for each piece of software and hardware required to program the new equipment and any associated passwords required to maintain the PSBN.
- 7.3.59 The Contractor will, upon relinquishment, make all features of the hardware and software to be active, accurate, and accessible to, and able to be maintained and supported by, Authority personnel.
- 7.3.60 During Phase 5, the hardware and software Components of the PSBN will remain fully operational and available at a rate of 99.99% measured on a monthly basis.
- 7.3.61 During Phase 5, the Contractor will provide a monthly status report, at a minimum, itemizing the following; PSBN availability, uniquely numbered list of outages/failures that occurred since last report, uniquely numbered list of outstanding problems that have not been resolved since last report.
- 7.3.62 The list of outages/failures will include, at a minimum:
- 7.3.62.1 Issue number;
 - 7.3.62.2 Date of outage;

- 7.3.62.3 Time of outage;
- 7.3.62.4 Outage duration;
- 7.3.62.5 Description of failure;
- 7.3.62.6 Time/date stamped list of actions performed; and
- 7.3.62.7 Resolution.

7.3.63 All entries on the list of outages will include information documenting who has made each entry listed on the report (e.g., who opened the issue, who updated the issue, who closed the issue, etc.).

7.3.64 The Contractor will clearly identify in the PSBN Maintenance Plan those items covered under maintenance and support, and clearly delineate items that are not included or conditions that would invalidate maintenance and support.

SUBTASK 7.3 DELIVERABLE – Contractor will provide Maintenance Work for the PSBN as required by Subtask 7.3 during each Option Term exercised by the Authority in accordance with the Agreement. Deliverables will be provided on a monthly basis by the dates specified in Subtask 7.3 and as may be included in the approved Project Schedule

8. TASK 8: TRANSITION SERVICES

If elected by the Authority in accordance with Section 30 (Transition of Services) to the Base Document, Contractor shall provide transition services to the Authority and/or applicable Member(s) in accordance with the approved Transition Plan.

TASK 8 DELIVERABLE 8 – Contractor will provide transition services for the PSBN as required by Task 8 by the dates specified in the Authority’s notice of election transition services.

PSBN SPECIFICATIONS

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1. General Performance Criteria Applicable to All Portions of the System

1.1 General Performance Criteria

- 1.1.1 The Contractor will provide a Public Safety Broadband Network (as further defined in the Base Document, "PSBN"), capable of providing secure and reliable connectivity between mobile and portable computing devices and network services infrastructure.
- 1.1.2 The PSBN will be compliant with the Long Term Evolution (as further defined in the Base Document, "LTE") Release 10 3GPP standards and future releases when available and tested by the Contractor.
- 1.1.3 The PSBN will be backwards compatible with Release 9 and earlier LTE release features provided by the Contractor.
- 1.1.4 All infrastructure equipment will be capable of seamless operations over the entire public safety broadband 700 MHz spectrum allocated to public safety in the "Middle Class Tax Relief and Job Creation Act of 2012."
- 1.1.5 The PSBN will satisfy all requirements specified in the National Public Safety Telecommunications Council (NPSTC) Launch Requirements Statement of Requirements (SoR). All references to SoR in this Exhibit are subject to the Contractor response to the NPSTC SoR, January 13, 2015 version.
- 1.1.6 Contractor will comply with the LA-RICS Authority Broadband Technology Opportunities Program (BTOP) grant award.
- 1.1.7 The PSBN will use all 20 MHz of the 700 MHz spectrum leased to LA-RICS Authority by FirstNet unless such use causes harmful interference or is otherwise prohibited by the Federal Communications Commission (FCC).
- 1.1.8 The PSBN and the Contractor will be compliant with the Spectrum Manager Lease Agreement in accordance with Section 4.2 (FirstNet Participation) of the Base Document.

- 1.1.9 The PSBN will be capable of utilization of less than 20 MHz of spectrum should interference, border issues, or other factors limit the total usable spectrum on one or more cells (i.e., customizable for individual sectors).
- 1.1.10 The Contractor will be responsible for providing all necessary PSBN Components and Work to achieve the results required by this Exhibit B (PSBN Specifications), Exhibit A (Statement of Work) and the Base Document, unless otherwise specifically stipulated in Section 2.1.2 (Authority Responsibilities) of Exhibit A (Statement of Work) or in this Exhibit B (PSBN Specifications) or Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement) that the Authority, or its Members, will provide the required work or components.
- 1.1.11 The PSBN will support dual-stack Internal Protocol (IP) Version 6 and IP-Version 4 Packet Data Networks (PDN) types defined in 3rd Generation Partnership Project (3GPP) TS 23.401. The IP Version 6 implementation will comply with FirstNet and other Federal government requirements and mandates. The PSBN will provide wireless broadband transport for LA-RICS Member applications that remain on IPv4 and those that migrate to IPv6.
- 1.1.12 The Contractor will not be permitted to charge fees associated with number of users, usage, and the number of sites other than those specifically identified in Section 3 (Detailed Breakdown of Pricing for Delivery of the Base PSBN) of Contractor's Response to Appendix H (Pricing Requirements – Scored) contained in Exhibit C (Schedule of Payments).
- 1.1.13 The PSBN must provide end-to-end IP transport services for all IP based applications operated by the Authority, its Members, and authorized visitors to the network. The Authority reserves the right to test the PSBN's capability to provide transport with any application to demonstrate compliance with this requirement.
- 1.1.14 As directed by the Authority, the PSBN will allow Users to connect to local Public Safety Enterprise Network when visiting other public safety networks.
- 1.1.15 The Contractor will provide a description of how long the product or the technology will be supported, including the length of time replacement parts and software will remain available after the Component has been discontinued.
- 1.1.16 All software licenses will be a one-time cost.

- 1.1.17 All PSBN Components will be new and unused at the time of installation.
- 1.1.18 Firmware and software will be the same for all like devices at the time of Final PSBN Acceptance.
- 1.1.19 All PSBN Components will be of current design and manufacture. The PSBN will not contain any Components not in current production or that is scheduled for discontinuance within ten (10) years of the Effective Date of the Agreement.
 - 1.1.19.1 At the time of Final System Acceptance, the Contractor will verify that all PSBN System Components are of current design and manufacture. The Contractor will not provide any Components out of current production. If a Component is scheduled for discontinuation within ten (10) years of the date of the Agreement it must be identified by the Contractor.
 - 1.1.19.2 The Contractor will identify the Components that are not currently in production or commercially available for purchase.
 - 1.1.19.3 The Contractor will provide an estimate of the overall lifecycle of the PSBN, excluding subscriber equipment, and estimate lifecycle costs for operating and maintaining the PSBN and will provide the recommended replacement rate (in years) for all products provided, based upon the installation environment including, not limited to, recommended upgrades for software and hardware, system support, and features/functionality of the PSBN.

Table 1 - LTE System Anticipated Component Lifecycle

Equipment	Life Expectancy	Product Lifecycle	Component Obsolescence
LTE Major Components	The information in this column is Contractor’s estimate and does not constitute any form of guaranty or warranty to the customer	No Current End of Production Notice	Contractor will use commercially reasonable efforts to provide replacement parts, firmware, and software support for Contractor manufactured fixed infrastructure equipment for the noted years indicated below from the date of last manufacture but not less than ten years from the Effective Date.
Evolved Packet Core (EPC)			
Mobility Management Entity (MME)	5 years	See above note	7 years

Equipment	Life Expectancy	Product Lifecycle	Component Obsolescence
Evolved Packet Gateway (EPG) -Serving Gateway / Packet Data Gateway	5 years	See above note	7 years
Home Subscriber Service (HSS)	5 years	See above note	7 years
Policy Control Rules Function (PCRF)	5 years	See above note	7 years
Core Networking Equipment			
Network Switches/ Routers	5 years	See above note	5 years
Operation and Support System Radio and Core (OSS-RC)			
OSS Hardware Platform	5 years	See above note	7 years
Radio Access Network			
Evolved NodeB (eNodeB)	9-11 years	See above note	7 years
Microwave Major Components			
Radio Unit	12-15 years	See above note	7 years
Site Networking Equipment	7-10 years	See above note	7 years

- 1.1.20 The PSBN will be scalable, both upwards and downwards, in order to meet the capacity and coverage needs of the Authority.
- 1.1.21 The PSBN will be designed so that, at the time of Final PSBN Acceptance, no more than 80% of any device’s capacity (excluding UEs) is utilized (e.g., if 11 of 12 ports of a router are used, a larger router will be furnished) unless a more stringent requirement is specified in this Agreement for specific PSBN Components.
- 1.1.22 The PSBN will comply with Maximum Permissible Exposure and other FCC requirements.
- 1.1.23 Contractor's System Design, Site Design Document, and performance of all other Work will comply with California Assembly Bill 1486, chaptered as Section 21081.25 of the California Public Resources Code.
- 1.1.24 The PSBN will provide first responders, emergency response support and all other mutual aid responders access to the Public Safety Enterprise Networks and LA-RICS Authority network to carry out incident objectives.

- 1.1.25 Land Mobile Radio Gateway Devices - Contractor will provide Association of Public Safety Officials (APCO) Project 25 Land Mobile Radio connection and operation of IP-based voice interoperability gateways using open Inter Subsystem Interface (ISSI) interfaces.
- 1.1.26 Field-Based Server Applications - The PSBN will support field-deployed server applications (e.g., static IP address).
- 1.1.27 The PSBN will be capable of providing public safety subscribers with access to the global Internet via Public Safety Enterprise Networks as directed by the Authority.
- 1.1.28 The PSBN will allow the devices outside of LA-RICS service area to connect to a local packet data network and to the LA-RICS packet data network to carry out incident objectives.
- 1.1.29 The Contractor's PSBN will enable local entities the ability to install, update and manage their own applications. This may include security, transport and local APN provisioning.
- 1.1.30 The software systems that comprise the PSBN will provide published and version-controlled subscriber provisioning interfaces to enable end-to-end subscriber provisioning by the local entities. These interfaces will be verified during interoperability testing.
- 1.1.31 If there is a conflict between codes, ordinance, regulations, standards, and this Performance Criteria the most stringent requirement will govern. If there is a conflict within this Performance Criteria, the most stringent requirement will govern.

1.2 Reliability and Fault Tolerance

- 1.2.1 The PSBN will have a high level of reliability, fault tolerance with corresponding levels of redundancy, and failover options. Single points of failure will be limited to:
 - 1.2.1.1 eNodeB DUL, Ethernet interface, and power distribution unit
 - 1.2.1.2 SP415 unless the Authority elects to purchase redundant solution.

- 1.2.1.3 Metro Ethernet lease circuit
- 1.2.1.4 Satellite lease circuit
- 1.2.1.5 If changes to the PSBN are made during design review, Contractor will identify any additional single points of failure.
- 1.2.2 PSBN sites using microwave backhaul will be connected to each other via a Contractor provided redundant transport network wherever possible. The network may be part of the LA-RICS Members existing networks.
- 1.2.3 All PSBN Components, except eNodeB's and those listed in Section 1.2.1, will be backed up by additional Components or internal redundancy that will automatically and immediately restore the PSBN to full functionality if any primary Component fails.
- 1.2.4 All PSBN NOC, System Management and Monitoring, and non-spur microwave Components that support more than one site or the PSBN as a whole will be geographically redundant in that there must be redundant Components at a different site such that a complete failure at one site will allow continued operations. The EPC Components that support more than one site or the PSBN as a whole will be geographically redundant in that there must be redundant Components at a different site such that a complete failure at one site will allow continued operations, provided that the Authority exercises Additive Alternate 2, Redundant EPC
- 1.2.5 All PSBN Components that may support the entire PSBN as a whole will be configured for separate ingress/egress cabling paths such that a cut (or similar disruption) in an entire cable bundle will not impact PSBN performance or function.
- 1.2.6 PSBN Component software parameters will be stored in non-volatile memory, and be locally available without re-download in the event of reset or interruption of power.
- 1.2.7 The PSBN subsystems must be available as noted across the LA-RICS service area (geographic area covered by the PSBN) measured on a monthly basis.
 - 1.2.7.1 Single EPC: 99.99%

- 1.2.7.2 Geo redundant EPC: 99.999%
- 1.2.7.3 Microwave backhaul subsystem: as noted in 3.16
- 1.2.7.4 eNodeB: 99.9986%
- 1.2.8 The PSBN will perform at 100% of its stated capacity. The PSBN will not suffer a hard system crash when in overcapacity situations (e.g., system rebooting, disconnection of all attached users, eNodeB disconnection)
- 1.2.9 The Contractor will establish that the PSBN in the Basin Zone will meet the PSBN pre-launch Key Performance Indicators (KPIs) as set forth below in Table 2below. KPI measurements in the Basin Zone will be conducted within the coverage footprint of the uplink geographic percentage (column 4) of Table 3in Section 1.7.1.5 of this Exhibit B. The Contractor will also establish that the PSBN meet the PSBN pre-launch median throughput KPIs for the respective zones as set forth in Table 2below. KPI measurements for median throughput for each zone will be conducted within the coverage footprint of the uplink geographic percentage (column 4) of Table 3in Section 1.7.1.5 of this Exhibit B. In the event that the applicable target values for the KPIs are not achieved, the Contractor will take the following remedial actions, and other reasonable remedial actions:
 - 1.2.9.1 Verify that the installed equipment is functioning properly
 - 1.2.9.2 Verify that the equipment is configured properly
 - 1.2.9.3 Verify that the equipment is optimized to achieve coverage, throughput, and KPI targets to the extent possible
 - 1.2.9.4 During the site commissioning and RAN optimization process, the Contractor will measure and use the following pre-launch KPIs to tune the PSBN:
 - 1.2.9.4.1 Attach Delay
 - 1.2.9.4.2 RRC Drop
 - 1.2.9.4.3 DL and UL peak physical layer throughput

- 1.2.9.4.4 DL and UL median physical layer throughput
- 1.2.9.4.5 Packet latency (round trip delay)
- 1.2.9.4.6 End-to-End user plane one-way latency
- 1.2.9.4.7 User plane packet delay variation
- 1.2.9.5 The Contractor will include the following pre-launch KPI measurements during the wide area Coverage Acceptance Test Plan (CATP) within the guaranteed coverage area:

Table 2 - LTE System Pre-Launch Key Performance Indicators

Key Performance Indicators	Required Value	Testing Scope
RRC Setup Connection Failure Rate	2.0%	Cell Cluster
Attach Failure Rate	2.50%	Cell Cluster
Service Request Failure Rate	2.50%	Cell Cluster
Service Request Delay	1 sec	Cell Cluster
The PSBN will have end-to-end user plane latency (one way) not to exceed the latency contained in Table 6.1.7 in 3GPP TS 23.203, excluding sites connected via satellite or leased circuits.	50 ms	System
DL Median Physical Layer Throughput		
Basin	8.5 Mbps	Zone
Northern Desert	9.0 Mbps	Zone
Santa Monica	10.0 Mbps	Zone
Foothills	10.0 Mbps	Zone
Foothills Developed	10.0 Mbps	Zone
CA-14	10.0 Mbps	Zone
Angeles National Forest	7.0 Mbps	Zone
Waterway	7.5 Mbps	Zone
UL Median Physical Layer Throughput		
Basin	5.0 Mbps	Zone
Northern Desert	2.0 Mbps	Zone
Santa Monica	1.5 Mbps	Zone
Foothills	2.5 Mbps	Zone
Foothills Developed	3.5 Mbps	Zone

Key Performance Indicators	Required Value	Testing Scope
CA-14	2.0 Mbps	Zone
Angeles National Forest	1.5 Mbps	Zone
Waterway	4.0 Mbps	Zone
Key Performance Indicators	Target Value	Testing Scope
X2 HandOver Failure Rate	Report only	Cell cluster
MME Tracking Area Unit Failure Rate	Report only	System
Paging Failure Rate	Report only	Tracking Area
Bearer Drop Rate	Report only	Cell cluster

Note 1: KPI measurements will be conducted within the coverage footprint of the uplink geographic percentage (column 4) of Table 3.

- 1.2.9.5.1 If any of the measured KPIs of a cell, cell cluster or tracking area is twice the target value set forth above, the Contractor will collect or provide additional data demonstrating compliance and take remedial actions and retest that cell or cluster if necessary.
- 1.2.9.5.2 The parties will mutually agree on KPIs that do not have specific target values in the table above prior to the optimization process that identify instances where end-user Quality of Service (QoS) experiences would be poor and address with reasonable remedial actions.
- 1.2.9.5.3 The Contractor and the Authority will mutually agree, during Design Review, on the test plan, including the number of test samples required to give statistical significance to each of the KPIs. If statistical significance cannot be achieved during the CATP test route and schedule then the values will only be reported, however Section 1.2.9.5.2 will still apply. If statistical significance cannot be achieved in the testing scope identified in Table 2 the testing scope will be increased, for example from cell to site.
- 1.2.9.5.4 In all of the zones outside of the Basin Zone, during the wide area CATP, Contractor will measure the pre-launch PSBN KPIs in Table 2 within the coverage footprint of both the uplink and downlink geographic percentages in (columns 1 and 4) of Table 3 in Section 1.7.1.5 of this Exhibit B. After the optimization process, the parties will mutually agree on pre-launch KPI levels that would indicate instances where end-user Quality of Service (QoS) experiences would be poor, and address with reasonable remedial actions. The term “poor” for the purposes of this

Subsection 1.2.9.5.4 will be determined by the parties in the context of the PSBN System Design including for example the predicted coverage in test areas included in the KPI measurements.

1.2.10 During the Warranty Period, the following KPIs will be measured and collected and the parties will establish a baseline for such KPIs that will be used as one of the tools to monitor the performance of the PSBN:

- 1.2.10.1 RRC Setup Failure Rate
- 1.2.10.2 Attach Failure Rate
- 1.2.10.3 Service Request Failure Rate
- 1.2.10.4 Bearer Activation Failure Rate
- 1.2.10.5 Bearer Drop Rate
- 1.2.10.6 Context Drop
- 1.2.10.7 DL Mean PDCP Layer Throughput
- 1.2.10.8 UL Mean PDCP Layer Throughput
- 1.2.10.9 RLC ARQ/HARQ Retransmission Rate
- 1.2.10.10 X2 Handover Failure Rate
- 1.2.10.11 S1 Handover Failure Rate
- 1.2.10.12 MME TAU Failure Rate
- 1.2.10.13 Paging Failure Rate
- 1.2.10.14 Cell Availability

1.3 Security

1.3.1 General Security Requirements

- 1.3.1.1 Local Area Networks (LAN), Wide Area Networks (WAN), or any other IP-based network that is part of the PSBN will meet the minimum LA-RICS network security performance criteria as follows:
- 1.3.1.2 Sub-network(s) will be an isolated sub-net to ensure security.
- 1.3.1.3 The PSBN's IP network(s) will be completely isolated from non-PSBN IP networks except that a limited number of secure entry points to the network will be permitted.
- 1.3.1.4 Entry points will be protected by firewalls, intrusion detection systems and all other appropriate security measures.
- 1.3.1.5 Networks will meet the DOJ CLETS Technical Guide Requirements, which can be found in Attachment 3 (DOJ CLETS Technical Guide) to Exhibit J (Confidential Supplement).
- 1.3.1.6 The IP addressing design and plan will conform to Internet Engineering Task Force (IETF) best practices document RFC-3513, RFC-3879 and RFC-4193.
- 1.3.1.7 The PSBN must transport secure Virtual Private Networking (VPN) sessions administered individually by LA-RICS Member agencies.
- 1.3.1.8 The Authority and the Contractor will jointly coordinate every aspect of the integration of additional networks (e.g., CAD, Commercial Data Network) into the PSBN.
- 1.3.1.9 The PSBN will be resistant to jamming and denial of service (DoS) attacks.
- 1.3.1.10 The PSBN will report on any suspected incidents of jamming and denial of service to the System Management and Monitoring Subsystem.
- 1.3.1.11 The PSBN will meet the following security requirements:

- 1.3.1.12 The PSBN will utilize secure, standards-based, user authentication techniques.
- 1.3.1.13 The PSBN will comply with NPSTC security requirement section 5.5 "User Authentication for User Services and Hosted Applications Access."
- 1.3.1.14 The PSBN will provide end-to-end encrypted transmissions.
- 1.3.1.15 The PSBN will comply with NPSTC SoR security requirements section 5.14 "Encryption, Certificates, and Keys."
- 1.3.1.16 The PSBN will utilize mechanisms to detect rouge units or unauthorized usage on the network.
- 1.3.1.17 The PSBN will comply with all NPSTC SoR section 5.0 security requirements for monitoring, detecting, and disabling unauthorized users.
- 1.3.1.18 The PSBN will have auditing capability, to track Users and usage will be included within the network management system.
- 1.3.1.19 The PSBN will comply with NPSTC SoR security requirements section 5.12 Network Monitoring, Logging, and Analytics.
- 1.3.1.20 The PSBN will use FirstNet approved nationwide common security profile for user plane and control plane traffic between User Equipment (UE), eNodeBs and Mobility Management Entities (MMEs), in accordance with 3GPP LTE Network Access Domain protocols.
- 1.3.1.21 The PSBN will comply with 3GPP Technical Specification 33.310 as the authentication framework for Public Key Infrastructure to authenticate network interfaces.
- 1.3.1.22 To enable interoperable authentication, the Universal Subscriber Identity Module (USIM) and Home Subscriber Server (HSS) will be capable of supporting the same key derivation functions identified by FirstNet when they become available.

- 1.3.1.23 The PSBN will be protected with a FirstNet-approved security mechanism if available as of Phase 1 NTP date. In the absence of FirstNet approved security mechanism, the PSBN will be protected as per the requirements in NPSTC SoR for security section 5.0 per Exhibit B.3 (NPSTC SoR Compliance Assessment).
- 1.3.1.24 The User Domain Security will be implemented in accordance with 3GPP TS 33.102, TS 31.101, and TS 22.022 and NPSTC SoR for security section 5.17 "UE Security" per Exhibit B.3 (NPSTC SoR Compliance Assessment)..
- 1.3.1.25 In such cases where the user is allowed to control the security parameters or their usage, the PSBN will comply with 3GPP TS 33.102 and TS 22.101.
- 1.3.1.26 The PSBN will enable the compliant transmission of highly secure public safety applications such as NCIC and HIPPA.
- 1.3.1.27 PSBN will comply with NPSTC SoR security requirements section 5.3 "Information Assurance" per Exhibit B.3 (NPSTC SoR Compliance Assessment).
- 1.3.1.28 The PSBN will support Virtual Private Networking (VPN) sessions administered individually by LA-RICS Member agencies.
- 1.3.1.29 The security mechanism included in the proposed PSBN will not inhibit interoperability for Users visiting from outside of the PSBN.
- 1.3.1.30 It will comply with NPSTC SoR security requirements, section 5.14 "Encryption, Certificates, and Keys" and section 5.18 "Transport Security Requirements" per Exhibit B.3 (NPSTC SoR Compliance Assessment).The PSBN will support the cipher suites AES-256, AES-128, AES-192, 3DES, DES for the interconnection between the National Public Safety Broadband Network and public safety agencies.
- 1.3.1.31 The PSBN will comply with NPSTC SoR security requirements section 5.18 "Transport Security", section 5.19 "Physical Security", and section 5.3 "Information Assurance" per Exhibit B.3 (NPSTC SoR Compliance Assessment).

1.4 Encryption

- 1.4.1.1 The PSBN will provide end-to-end encryption. Decryption and re-encryption will only occur at Authority controlled locations or the Contractor’s NOC.
- 1.4.1.2 Cryptographic modules will be compliant with Federal Information Processing Standards Publications 140 (FIPS-PUB-140) or latest version.
- 1.4.1.3 The use of encryption will not delay the transmission or receipt of any communications beyond 3GPP TS 23.203 latency specifications.

1.5 Maintainability Requirements

- 1.5.1 All PSBN Components will have a modular architecture and must be hot-swappable Field Replaceable Units (FRU).
- 1.5.2 The PSBN must automatically reinitialize both the software and configuration settings of the new FRU without interruption of services after replacing faulty FRUs.
- 1.5.3 The PSBN must automatically reinitialize both the software and configuration settings of all Components upon the restoration of power after a power failure.
- 1.5.4 The PSBN will allow modification or replacement of software and firmware in any Component with minimal interruption of services. Components requiring interruption of service for software or firmware updates are:
 - 1.5.4.1 Non-Geo-Redundant EPC: HSS, PCRF, MME, EPG
 - 1.5.4.2 Geo-Redundant EPC: EPG
 - 1.5.4.3 eNodeB
 - 1.5.4.4 MPLS routers – Upgrade of an MPLS router will not impact other MPLS routers. MPLS routers on a ring or spur may impact eNodeB’s on downstream spur sites that depend on the MPLS router for connectivity to the ring.

- 1.5.4.5 For Additive Alternate Scenarios where EPC components are not under the control of LA-RICS, coordination of the third-party network operator (FirstNet, BTOP entity, Third Party) will determine interruption of service behavior.
- 1.5.5 The PSBN will include Components and software that enable remotely deploying software and firmware upgrades, rollbacks, updates, and fixes and other PSBN Updates for all PSBN Components containing software or firmware.
- 1.5.6 All PSBN Components provided by the Contractor will be suitable for the environment in which it will be installed, with the exception of COW site locations where the environment may be changing due to COW mobility. For example, Components installed at antenna sites will be resistant to electromagnetic fields and will perform properly in a high RF environment. This requirement includes operating temperature and humidity, altitude, electromagnetic compatibility, primary power voltage, backup power voltage, frequency and phase.
- 1.6 Network Compatibility and Interfaces**
- 1.6.1 All infrastructure deployed on the PSBN will be included in the FirstNet-required First Office Application (FOA) process if available.
- 1.6.2 The Contractor will provide any Work necessary, for the PSBN to comply with FirstNet mandated requirements, consistent with Section 4.2 (FirstNet Participation) of the Base Document.
- 1.7 Coverage Performance Criteria**
- 1.7.1.1 The PSBN will provide Mobile Broadband Coverage based on the following performance criteria: Delivers minimum throughput of 768 kbps downlink and 256 kbps uplink at the IP layer (i.e., throughput available to users at Layer 3 in the OSI model). The minimum uplink throughput shall be tested in unloaded conditions as specified in the Table 3 in Section 1.7.1.5 of this Exhibit B.
- 1.7.1.2 The coverage will be modeled and tested in a manner consistent with the functionality of the eNodeB scheduler and according to the modeled load level.

- 1.7.1.3 All sectors will have 25% loading with a uniform User distribution (location based) to simulate expected interference levels.
- 1.7.1.4 Mobile Broadband Coverage is defined as achieving at least the minimum performance as specified in Section 1.7.1.1 of this Exhibit B, while using a Vehicular Router or equivalent, with a roof mounted external antenna.
- 1.7.1.5 Coverage performance criteria vary by zone. The Authority has divided Los Angeles County geographically into zones (LA-RICS Coverage Zones). GIS files delineating the boundaries of each LA-RICS Coverage Zone are provided in Attachment 5 (Coverage Zone Boundaries) of Exhibit J (Confidential Supplement). The Contractor will meet or exceed the Portable Outdoor Coverage requirement for each LA-RICS Coverage Zone (defined as a percentage of the zone covered) per the table below at 95% covered area reliability:

Table 3 - LTE System Coverage and Data Rates

LA-RICS Coverage Zones	25% Load 95% Covered Area Reliability		Uplink Unloaded 95% Covered Area Reliability	
	1. Geo % Downlink (768 kbps)	2. Geo %Uplink (256 kbps)	3. UDP Data Rate (kbps)	4. Geo % Uplink
LA Basin	96.5	91.7	320	91.8
Santa Monica Mts.	62.6	36.2	320	36.1
Angeles Nat. Forest	35.0	11.6	320	11.9
Foothills	70.4	43.2	320	43.8
Foothills - Developed	91.2	76.8	320	76.8
CA-14 Corridor	42.2	16.9	288	16.9
Northern Desert	90.9	73.7	320	73.2
Waterway	70.8	66.0	480	66.9

- 1.7.1.6 The PSBN will exceed or achieve the guaranteed geographic coverage percentage for each of the LA-RICS Coverage Zones. In the Basin Zone, downlink and uplink coverage testing will be conducted within the coverage footprint of the uplink geographic percentage (column 4) of Table 3. In the other zones, uplink and downlink coverage will be conducted within the coverage footprint of the respective test, i.e., for the uplink test, the geographic listed in column 4 of Table 3 will be used for the downlink test,

column 1 of Table 3 will used. As with other Deficiencies, any Deficiency in coverage will be corrected at the Contractor's sole expense.

- 1.7.1.7 The Contractor will identify and specify coverage percentage for any LA-RICS Member agency located in the Basin LA-RICS Coverage Zone that does not meet the 95% percent coverage requirement. GIS files delineating the geographical boundaries of each Member agency are provided in Attachment 6 (City Boundaries) of Exhibit J (Confidential Supplement).
- 1.7.1.8 Contractor will provide detailed coverage, interference, and throughput studies based on the RF performance parameters in Section 1.7.1.1 at a vehicle speed of 80 mph and below.
- 1.7.1.9 Contractor will provide separate coverage prediction maps based on the Performance Criteria and will include the following maps:
 - 1.7.1.9.1 Mobile Broadband Coverage depicting prescribed reliability, uplink (talkback, field-to-base);
 - 1.7.1.9.2 Mobile Broadband Coverage depicting prescribed reliability, downlink (talk-out, base-to-field);
 - 1.7.1.9.3 Uplink throughput; and
 - 1.7.1.9.4 Downlink throughput.
- 1.7.1.10 Each prediction map provided by the Contractor will be provided to the Authority in the following formats:
 - 1.7.1.10.1 One paper copy in American National Standards Institute (ANSI) E size;
 - 1.7.1.10.2 An Adobe Acrobat (.pdf) file of sufficient resolution and quality to print in ANSI E size;
 - 1.7.1.10.3 A shape file in ESRI format, including an attribute table containing the latitude, longitude and signal strength for each predicted point. The data will be in:

- 1.7.1.10.3.1 Format: GRID
- 1.7.1.10.3.2 Cell size (X, Y): 30 meters, 30 meters
- 1.7.1.10.3.3 Pixel Type: Floating Point
- 1.7.1.10.3.4 Pixel Depth: 32 Bit
- 1.7.1.10.3.5 Projected Coordinate System: State Plane, California Zone V
- 1.7.1.10.3.6 Projection: Lambert Conformal Conic
- 1.7.1.10.3.7 Linear Unit: Foot US
- 1.7.1.10.3.8 Geographic Coordinate System: GCS North American 1983
- 1.7.1.10.3.9 Datum: North American 1983
- 1.7.1.10.3.10 Signal Strength in dBm
- 1.7.1.10.3.11 Reference LA-RICS Coverage Zone shape files
- 1.7.1.10.3.12 State the coordinate system used if different from above.
- 1.7.1.10.3.13 Output Format - .csv, .txt or ESRI shapefile format.
- 1.7.1.10.3.14 A Google Earth© KMZ file (.kmz);
- 1.7.1.11 The Contractor will provide throughput, overall, and per sector statistics, from multiple Monte Carlo simulations using the loading expressed in Section 1.7.1.1.
- 1.7.1.12 All PSBN coverage modeling, simulation, and verification will be performed according to the most current Telecommunications Industry Association (TIA) Technical Service Bulletin (TSB) TSB-88 recommendations.

1.8 Capacity and Performance

- 1.8.1 The PSBN will have sufficient capacity to meet identified needs of public safety, including day to day activities and during times of emergency.
- 1.8.2 The PSBN will have the capacity and throughput to support Next Generation wireless data application as identified in the SAFECOM Statement of Requirements for Public Safety Wireless Communications & Interoperability, in addition to the capacity and throughput performance criteria of this Section.
- 1.8.3 The PSBN will meet the end-to-end capacity performance criteria of the Authority, as specified in this document.
- 1.8.4 The PSBN EPC will provide service to 100,000 idle or active mode Users simultaneously.
- 1.8.5 The PSBN EPC will provide service to 50,000 active Users simultaneously transmitting or receiving data.
- 1.8.6 The active User distribution will only be constrained by the capacity limitations of the individual sites or sectors. The physical limitation is 3,000 UEs per site or 100 UEs per cell in RRC connected mode.
- 1.8.7 The Evolved Packet Core (EPC) will have the licensed capacity of 500 eNodeBs and 5,000 Mbps.
- 1.8.8 Such capacity and licensing shall cover scenarios whereby a system failure causes all traffic and sites to be homed by a single EPC location.
- 1.8.9 Any costs associated with increased sites, usage, or throughput will only be accepted if the Contractor clearly indicated in its response to Section 3 (Detailed Breakdown of Pricing for Delivery of the Base PSBN) of Contractor's Response to Appendix H (Pricing Requirements – Scored) that such cost may apply and has included such costs in response to Section 15.1 of Contractor's Response to Appendix I (Pricing Requirements – Unscored Options), both responses are contained in Exhibit C (Schedule of Payments).

- 1.8.10 The Contractor will provide automated monthly reports that provide number of Users and total system usage (traffic and number of successful connections) per agency.
- 1.8.11 The PSBN will deliver sufficient system capacity, as allowable by the 10 Mbps leased fiber services chosen by the Authority, based on both the day-to-day and disaster scenarios in terms of the numbers of Users and types of applications used.
- 1.8.12 The PSBN will manage capacity and priority in high eNodeB or system utilization (e.g., by terminating or queuing non-critical User traffic) using ARP and QCI parameters defined in 3GPP TS 23.203.
- 1.8.13 The PSBN will deliver median sector throughput as set forth in Section 1.2.9.
- 1.8.14 The PSBN capacity modeling will include, for each LA-RICS Coverage Zone, the User data modeling will clearly identify the average User data consumption per shift/day, User traffic profile, number of concurrent Users per coverage zone, average cell edge data rate and average peak data rate.

1.9 Network Priority and Quality of Service (QoS)

- 1.9.1 The PSBN will prioritize data traffic by User Equipment (UE) as well as by application and various application situations (e.g., emergency trigger associated with a video application). Dynamic QoS configuration will be provided via the 3GPP Rx interface.
- 1.9.2 The PSBN will apply User Equipment (UE), and application priority and Quality of Service (QoS) end-to-end (from the User Equipment (UE) to the Public Safety Enterprise Network (PSEN)). Dynamic QoS configuration will be provided via the 3GPP Rx interface.
- 1.9.3 The PSBN will support multiple levels of priorities that can be separately assignable to User Equipment or applications on an agency-by-agency basis. Dynamic QoS configuration will be provided via the 3GPP Rx interface.
- 1.9.4 The PSBN will support all 9 Quality of Service Class Identifier (QCI) classes specified in table 6.1.7 of 3GPP 23.203 v9.11 or future equivalents.

- 1.9.5 The PSBN will ensure that higher priority User Equipment (UE) and/or applications retain their demanded flow rates to include pre-emption of other traffic even as many critical and non-critical UE attempt to use the network and the network becomes saturated. Dynamic QoS configuration will be provided via the 3GPP Rx interface.
- 1.9.6 The PSBN will support the Allocation and Retention Priority (ARP) pre-emption capability and vulnerability functions as defined in 3GPP 23.203.
- 1.9.7 The PSBN will support the usage of all 15 ARP values defined in 3GPP 23.203.
- 1.9.8 The PSBN will ensure that critical UEs are able to connect to and send data over the network, regardless of use or saturation even if non-critical UEs must be disconnected or limited.
- 1.9.9 The PSBN will ensure high priority UEs and/or applications retain their demanded flow rates as they change point of attachment from cell to cell.
- 1.9.10 The PSBN will notify any Authority designated Users from the Network Operations Center (NOC) of network saturation events and, in the event of saturation, provide any Authority designated Users the appropriate information to quickly assess the saturating usage and modify the appropriate policy controls (UEs and/or application) to optimize the Quality of Service for the incident.
- 1.9.11 The PSBN will enforce LA-RICS Authority defined policies for priority and pre-emption based on cell ID-based location.
- 1.9.12 The PSBN must, if so configured by LA-RICS Authority, assign different priorities to visiting UEs through a coordinated plan approved by the Authority for QCI/ARP assignments. This includes visiting LA-RICS Authority UEs who are not the local responders. For example, if an incident occurs in LA-RICS Member jurisdiction A, LA-RICS Authority will have the capability to prioritize Member A UEs above those of other LA-RICS Members UEs. The PSBN can enable an entirely different set of priorities for visiting UEs from non-LA-RICS Member agencies per the coordinated QCI/ARP assignment plan.
- 1.9.13 The PSBN will provide an Application Programming Interface (API) that allows dynamic modification of user priority levels from third party applications (e.g.,

from Computer Aided Dispatch systems). The Contractor will support the 3GPP defined Rx interface to enable third party application control of user priorities.

- 1.9.14 The PSBN will support Quality of Service (QoS), IPv6 network addressing, preemption, and partitioning on the access and transmission channels.
- 1.9.15 The Contractor will implement the nationwide scheme adopted by FirstNet, if provided prior to Phase 3 NTP date, for assigning Access Classes to public safety users and secondary users following the 3GPP recommendations in TS 22.011, Section 4.2. If a nationwide scheme is not provided prior to the Phase 3 NTP date, the Contractor will propose a scheme for LA-RICS.
- 1.9.16 The PSBN will support any default Quality of Service (QoS) profile template if defined by FirstNet prior to Phase 3 NTP date for each responder function (e.g. police, fire, EMS), associated with a UE, including default values for ARP, Access Class, UE Aggregate Maximum Bit-Rate (UE-AMBR), and Access Point Name Maximum Bit-Rate (APN-AMBR). If a nationwide scheme is not provided prior to the Phase 3 NTP date, the Contractor will propose a scheme for LA-RICS.
- 1.9.17 Every UE of the PSBN (public safety and secondary Users) will be assigned a default prioritization and QoS profile using the set of pre-defined QoS profile templates.
- 1.9.18 The Contractor will support the 3GPP Rx interface allowing national, regional, and local applications to have access to Priority and QoS control.
- 1.9.19 The PSBN control systems will allow the establishment of priority levels as defined by the Authority for approved and assigned UE, network, application, and services, via UE device identification (i.e., International Mobile Station Identifier (IMSI)). An IMSI series will be provided by the Authority 90 days prior to delivery of UEs.
- 1.9.20 The PSBN will support Quality of Service parameter assignment from the field using the subscriber provisioning tool and will enable allocation of the highest priority levels to authorized UEs.
- 1.9.21 QoS will be considered as the full class of mechanisms that are found at multiple IP layers in the network (both RAN and Core) to provision and apply priority for IP packet based traffic.

- 1.9.22 The PSBN will support the nationwide scheme that FirstNet will define, if available prior to Phase 3 NTP date, for assigning QoS Class Identifier priority to IP network and backhaul priority across the entire Nationwide Public Safety Broadband Network (NPSBN). If a nationwide scheme is not provided prior to the Phase 3 NTP date, the Contractor will propose a scheme for LA-RICS.
- 1.9.23 The assignment of network resources will take into account the UEs and/or application priority as well as the QoS performance criteria of the application.
- 1.9.24 The PSBN will support multiple QoS flows between a UE and PSBN, where each flow may have a different QoS requirement, priority and pre-emption level.
- 1.9.25 The PSBN will allow LA-RICS Authority administrators to configure the system such that certain UEs, applications, or application instance (e.g., emergency trigger for a video application) flows are pre-emptible and which flows can pre-empt other flows. Dynamic QoS configuration will be provided via the 3GPP Rx interface.
- 1.9.26 The PSBN must enable the Authority to change these configurations as needed.
- 1.9.27 If PSBN resources are not available to meet a resource request the PSBN will provide queuing or pre-emption of lower priority traffic. In such cases, applicable Users will be notified of the event and be capable of UE and application policy configuration to resolve such congestion.
- 1.9.28 The PSBN will support the use of industry standard VPN and MVPN technology while providing priority and Quality of Service for encapsulated applications for statically configured non-GBR flows in the PCRF or with customer provided solutions using unencrypted headers. Dynamic QoS configuration will be provided via the 3GPP Rx interface.
- 1.9.29 The PSBN will maintain both VPN and QoS performance criteria for all non-GBR traffic and the applications used inside and outside the VPN tunnel (i.e., considers priority based on all UE and application traffic including those applications that are contained within a VPN tunnel).
- 1.9.30 Hardware and software systems comprising the PSBN will enable QoS control for Public Safety Applications Network (PSAN) hosted applications via the 3GPP Rx interface.

1.10 Network Services and Applications

- 1.10.1 The PSBN will transport all LA-RICS Member approved IP traffic.
- 1.10.2 The PSBN will meet the required network performance and routing parameters specified in 3GPP TS 23.203.
- 1.10.3 The PSBN will deliver automated mechanisms for monitoring the network adherence and conformance to availability, system repair, component repair, service quality and performance standards specified in this Performance Criteria. At a minimum this will include:
 - 1.10.3.1 Service level metrics and associated key performance indicators (KPI) definition, metrics, and reporting.
 - 1.10.3.2 Service Level Agreement (SLA) conformance oversight and management.
 - 1.10.3.3 SLA violation and shortfall identification, and notification. Upon request from the Authority, Contractor will provide a quotation for KPI corrective actions.
- 1.10.4 The PSBN will produce a comprehensive set of standard and customizable reports compliant with 3GPP standards and attributes that can be configured as desired.
- 1.10.5 The PSBN will provide access to raw counter level information and will provide all necessary aggregation methods to provide meaningful statistics regarding the performance of the PSBN.
- 1.10.6 The PSBN will generate reports on an hourly, daily, weekly, and monthly basis and will allow statistical aggregation of performance data over each of these periods. Reports will be published to folders in PDF, CSV, TXT, and Excel formats.
- 1.10.7 Any available system parameter or KPI will be accessible, as input to or for display in the report, by the report writer.
- 1.10.8 The reports system will provide common consumable report formats including Microsoft Office products and Adobe PDF Reader.

- 1.10.9 The PSBN will also provide statistics regarding traffic usage for all network subscribers.
- 1.10.10 The PSBN will also provide statistics regarding high (excessive) Users (both in total usage and maximum throughput demand).
- 1.10.11 The PSBN will also provide statistics regarding network availability and congestion statistics

1.11 Interoperability

- 1.11.1 The PSBN and User Equipment will support intra-system (single Public Safety PLMN ID) and nationwide inter-system roaming, interoperability and compatibility. Upon request from the Authority, Contractor will provide a quotation for IOT services to achieve interoperability and compatibility with LTE systems using non-Ericsson equipment.
- 1.11.2 The PSBN will roam and handover with adjacent LTE public safety systems when constructed, as directed by the Authority and Contractor will provide costs for enabling this functionality.
- 1.11.3 The PSBN will handover between adjacent cells via both the S1 and X2 interfaces if those cells are provided by the Contractor. For cells outside the PSBN, Contractor will provide a cost for enabling this functionality.
- 1.11.4 The PSBN will provide seamless mobility (inbound and outbound) with other public safety systems utilizing the same PLMN ID (313-100) comprising the NPSBN and Contractor will provide a cost for enabling this functionality.
- 1.11.5 The PSBN EPC will be interoperable with at least three RAN vendors based on their participation in the Public Safety Communications Research (PSCR), in particular, Phase 3 – Part 1: Network Interoperability and Drive Test testing and/or other independent interoperability test results (e.g., Network Vendors Interoperability Testing Forum (NVIOT), MultiService Forum (MSF)).
- 1.11.6 The PSBN RAN will be interoperable with at least three other EPC vendors based on their participation in PSCR Program, in particular, PSCR Phase 3 – Part 1: Network Interoperability and Drive Test testing and/or other independent

interoperability test results (e.g., Network Vendors Interoperability Testing Forum (NVIOT), MultiService Forum (MSF)).

- 1.11.7 The PSBN will be based on FirstNet requirements for interface interoperability, thus allowing interoperability and sourcing of components from multiple vendors if such requirements are available at Phase 1 NTP date.
- 1.11.8 Hardware and software systems comprising the PSBN will implement interfaces consistent with Table 2: Standards Implementation Methodology, contained in the Appendix A of the FCC order "Recommendations of the Technical Advisory Board for First Responder Interoperability" (PS Docket No 12-74).
- 1.11.9 Required LTE interfaces - The Contractor will provide devices and all interfaces needed to ensure roaming and interoperability to and from other regional public safety networks.
- 1.11.10 The network will support the following interfaces and will support future LTE releases as they are mandated by FirstNet:
 - 1.11.10.1 Uu- LTE air interface
 - 1.11.10.2 S6a – Visited MME to Home HSS
 - 1.11.10.3 S8 – Visited SGW to Home PGW
 - 1.11.10.4 S9 – Visited PCRF to Home PCRF for dynamic policy arbitration to be provided post-launch during the Warranty Period. Any interoperability testing (IOT) that may be required to integrate the S9 interface with other systems is not included. Upon request from the Authority, Contractor will provide a quotation.
 - 1.11.10.5 S10 – MME to MME support for Category 1 handover support
 - 1.11.10.6 X2 – eNodeB to eNodeB
 - 1.11.10.7 S1-u – between eNodeB and SGW
 - 1.11.10.8 S1 - MME–between eNodeB and MME

- 1.11.10.9 S5 – between SGW and PGW;
- 1.11.10.10 S6a – between MME and HSS
- 1.11.10.11 S11 – between MME and SGW
- 1.11.10.12 SGi – between PGW and external PDN
- 1.11.10.13 Gx – between PGW and PCRF (for QoS policy, filter policy and charging rules)
- 1.11.10.14 Rx – between PCRF and AF located in a PDN
- 1.11.10.15 Gy/Gz – offline/online charging interfaces.
- 1.11.11 The Contractor will certify that Interface Interoperability Testing (IOT) was performed on the following interfaces:
 - 1.11.11.1 S1 - MME (interface between eNodeB and MME)
 - 1.11.11.2 S1 -u (interface between eNodeB and SGW)
 - 1.11.11.3 Uu - LTE air interface
- 1.11.12 Prior to operational deployment on the PSBN, the Contractor will certify that the infrastructure equipment has passed FirstNet-required Performance Testing of individual interfaces, nodes and overall system, if FirstNet required testing procedures are available at Phase 1 NTP date.
- 1.11.13 The Contractor will support any additional interface enumerated in Table 1 of Appendix A of the FCC order "Recommendations of the Technical Advisory Board for First Responder Interoperability" (PS Docket No 12-74).
- 1.11.14 The PSBN will be compatible and interoperable with the National Public Safety Broadband Network (NSPBN) and other public safety networks as required as a condition of the Authority's spectrum obligations from the First Responder Network Authority (FirstNet).

1.12 Mobility and Handoff

- 1.12.1 The PSBN will provide mobile, high speed (80 mph terrestrial) mobility and seamless handoffs between sectors.
- 1.12.2 The PSBN will provide seamless mobility across sectors including while maintaining a secure connection (VPN session) and session persistence in a mobile environment.

1.13 System Management and Performance Enhancement

- 1.13.1 Self Organizing Network (SON): The PSBN will employ SON features that deliver, but are not limited to: automatic site configuration, load balancing, site optimization, and recovery from failures.
- 1.13.2 The PSBN will employ enhanced Inter-Cell Interference Coordination (eICIC) capabilities that will improve system performance due to intra-system and neighboring and interconnected LTE Subsystem interference.
- 1.13.3 The PSBN will be resistant to and avoid interference from other Radio Access Technologies (RAT) or unknown sources.
- 1.13.4 The Contractor will implement a scheme for engineering RAN boundaries according to a national cell coordination plan if one is available at Phase 1 NTP date.
- 1.13.5 In case such plan is not defined, the Contractor will coordinate with adjacent public safety LTE network operators to minimize interference and maximize handover performance at the boundary.
- 1.13.6 The PSBN will include performance enhancing features at launch including Cooperative Multi-Point, 2x4 MIMO, TTI Bundling, Semi-Persistent Scheduling, and other performance enhancing features Exhibit A (Statement of Work), this Exhibit B (PSBN Specifications) and Contractor's Response to Appendix H (Pricing Requirements – Scored), contained in Exhibit C (Schedule of Payments).
- 1.13.7 The Contractor will provide software and firmware upgrades and other PSBN Updates that enable the Authority to have the same capabilities as commercial wireless carriers as they are available and remain interoperable with other public

safety networks. The PSBN will continue to comply with FirstNet standards for interoperability with other public safety networks. Contractor will inform the Authority if any additional costs are associated with any of these features.

- 1.13.8 In accordance with Agreement, the PSBN will improve coverage, capacity, spectral efficiency and performance over time consistent with 3GPP defined targets.

1.14 Spares and Test Equipment

1.14.1 The Contractor will provide spares for all PSBN Components necessary to achieve and maintain the coverage and Key Performance Indicators (KPIs) requirements. The Contractor's spare levels will consider each Component's failure rate, removal rate, time to repair (restock time), sparing pool size, and mean time between failure. The stockout probability will not exceed 0.1 percent. With respect to spares, surplus equipment will be taken into consideration in fulfilling spares equipment set forth in this Section 1.14.

1.14.2 The Contractor will provide a Spare Parts List for the PSBN that reflects the agreed upon spare levels in accordance with section 1.14.1 and should take into consideration the Contractor's estimated failure rate or if available, Mean Time Between Failure (MTBF), for all critical components and meets the Authority's PSBN Specifications under the Agreement. In addition, spare equipment inventory volumes will factor in the equipment removal rate due to external causes (e.g., lightning, high temperature, human error, etc.) repair intervals, and warehousing distributions. Critical components include, but are not limited to hot standby cards, power supply, core network components, routers, workstations, servers, RAID Arrays, HDD storage, database storage, controllers, inventory of commonly used components, antenna systems, base stations, transceivers, data modems, etc.

1.14.3 The Contractor will provide PSBN Component spares at the following levels as part of base system. These levels are constrained by the Authority's BTOP grant:

1.14.3.1 eNodeB: 7.22%

1.14.3.2 EPC: 10.0%

1.14.3.3 Microwave: 6.0%

- 1.14.4 The Contractor's comprehensive list of recommended spares will include a description of how these spares will be utilized, stored, and replaced in order to meet Section 7.2 (Warranty) and Section 7.3 (Maintenance) of Exhibit A (Statement of Work).

1.15 PSBN Site Use

- 1.15.1 The PSBN will include an LTE Subsystem (Section 2), Backhaul Subsystem (Section 3), Ancillary Site Subsystems (Section 4), System Management and Monitoring Subsystem (Section 5), Inventory Management Subsystem (Section 6), and PSBN User Equipment (Section 7).
- 1.15.2 The PSBN will employ:
- 1.15.2.1 Each and every PSBN Site identified in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement) to this RFP as a site at which eNodeB equipment will operate in its System Design; and
 - 1.15.2.2 No other site as a site at which eNodeB, EPC and/or backhaul equipment will operate in its System Design other than the sites identified in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement).
- 1.15.3 The required PSBN Components to support the eNodeB at each site varies based on the type of site indicated for each site in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement).
- 1.15.4 The Authority will endeavor to secure all of those site locations at the prescribed height, or taller height if existing antenna support structure with height taller than the structural height prescribed at those site locations can be used as determined during System Design, however, the Authority does not guarantee that all site and heights will be available to the Contractor.
- 1.15.5 In the event of loss of sites or reduced structural height, the Contractor will minimize any reductions in PSBN coverage.
- 1.15.6 In the event of either (a) loss of sites as specified in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement) or (b) structural height change that is lower than as specified in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement), the Contractor will use the same modeling parameters used to create

the Contractor's proposed coverage guarantee to create an amended coverage guarantee. The Authority, at its sole discretion, may utilize the modeling software provided by the Contractor, and using the Contractor's modeling parameters used in the development of the proposed coverage guarantee with the modifications caused by loss of sites or reduced structural height, to define the Contractor's amended coverage guarantee. No other reductions in guaranteed coverage will be permitted. Notwithstanding the foregoing, in the event that either loss of sites or reduced structural height is caused by Contractor, its employees, Subcontractors, or other agents, then contractor shall not be allowed to amend its coverage guarantee under this Section 1.15.6

- 1.15.7 In the event of either (a) sites are added to those specified in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement) or (b) structural height change that is higher than as specified in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement), the Contractor will use the same modeling parameters used to create the Contractor's proposed coverage guarantee to create an amended coverage guarantee. The Authority, at its sole discretion, may utilize the modeling software provided by the Contractor, and using the Contractor's modeling parameters used in the development of the proposed coverage guarantee with the modifications caused by the added sites or increased structural height, to define the Contractor's amended coverage guarantee.
- 1.15.8 The net change in coverage and performance resulting from the difference between the Contractor's design and the Final System Design using the Contractor provided software, will be applied to the proposed coverage guarantee to form the final coverage guarantee.
- 1.15.9 The Contractor will not be permitted to reduce its proposed coverage or performance guarantees in the event that the site is built as specified in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement).
- 1.15.10 In the event of increased height availability, the Contractor will maximize the improvement in coverage. However, if the Contractor can secure more advantageous antenna support structure heights than what was proposed by Contractor, increases in coverage or performance guarantees will be provided under Section 1.15.7.
- 1.15.11 In accordance with this Agreement, the Contractor will correct any Deficiency in guaranteed coverage, performance, or functionality in the system at its sole expense

including initial capital costs and ongoing operational costs, except to the extent a Deficiency in coverage is due to loss of sites or reduced structural height as specified in Section 1.15.6.

1.15.12 At all PSBN Sites, with the exception of those listed as Collocation in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement), the Contractor is required to provide a generator and other PSBN Components according to Section 4.3 (Emergency Power Generating Systems).

1.15.13 In the event of loss of site or reduction of structural height as specified in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement), the Contract Sum and Maximum Contract Sum contained in Exhibit C (Schedule of Payments) will be reduced based on the reduced scope of work by the full amount indicated on Exhibit C (Schedule of Payments) to the Agreement.

1.16 General Installation Requirements

1.16.1 For equipment to be installed indoors, the Authority will direct the Contractor to utilize outdoor cabinets or to provide an indoor rated cabinet otherwise consistent with the requirements of Section 4.1 (Equipment Cabinets/Enclosures and HVAC). For indoor installations using an indoor rated cabinet, the cabinet will maintain the appropriate interior conditions, regardless of the temperature within the shelter.

1.16.2 All site fixtures, equipment and cabling installed outdoors will be designed and installed to withstand the antenna support structure environmental performance criteria of Section 4.5 (Antenna Support Structures) (e.g., basic wind speed per Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplemental) and ice load) and meet or exceed the most stringent of applicable codes and standards.

1.16.3 All LTE, microwave and battery equipment to be installed outdoors will be installed in RBS 6000 or BBS 6000 series cabinets which have a locking cabinet unless otherwise approved by the Authority.

1.16.4 All exposed equipment will be adequately treated for protection from the geographical environmental conditions (e.g., salt water, industrial contaminants, snow and ice, etc.).

1.16.5 All cabinets requiring keys will be keyed the same systemwide.

- 1.16.6 Where possible, the Contractor will leave the bottom 12 inches of rack space unused. As an alternative, low maintenance equipment will be installed in the lowest spaces of the racks.
- 1.16.7 Wherever practical the heaviest equipment will be mounted low in the rack.
- 1.16.8 All power, signal, and transmission line cables will be routed according to TIA-568, TIA-569, or Motorola R-56, Harris (formerly M/A-COM) Site Installation, Grounding, and Lightning Protection guidelines, whichever is more stringent. Cables will be appropriately separated based on type to prevent interference. The Contractor will be responsible for mitigating and/or correcting any interference between disparate types of transmission cables.
- 1.16.9 Cables will be installed in such a manner to facilitate ease of removal of existing cabling.
- 1.16.10 For equipment designed to be rack-mounted, it will be properly attached to the rack or cabinet in which it is housed.
- 1.16.11 Any loose equipment (monitors, printers, etc.) on rack trays/shelves within the racks or cabinets will be earthquake braced or secured by straps.
- 1.16.12 Coaxial cable will be anchored using the coaxial cable manufacturer's recommended hardware and using the cable manufacturer's recommended methods of installation.
- 1.16.13 Each run of cable will be one continuous piece without a splice or connectors.
- 1.16.14 All cabling will attach to consoles and to racks in the electronic equipment room through appropriate cable connectors to facilitate ease of removal for maintenance.
- 1.16.15 Plenum rated and riser rated cable will be provided and installed where required.
- 1.16.16 Nameplates will be plastic laminate, white face with black engraved characters and will comply with BTOP labeling requirements.
- 1.16.17 All cables, terminal, interface panels and demarcation points will be properly labeled and referenced in the PSBN Documentation.

1.16.18 All cables, where applicable, will be routed through a properly labeled demarcation point with the capability of isolation and monitoring. All cables will be protected from damage (bends, sharp edges, etc).

1.17 Antenna Placement

1.17.1 The Contractor will utilize industry best practices for the physical placement of antennas. The mounting of antennas will not alter the antenna's radiation pattern. The Contractor will provide information on the standards utilized to ensure that adequate isolation is included in the proposed System Design and ultimately carried through the installation process.

1.18 Alarm and Status Sensors

1.18.1 At a minimum, eNodeB cabinets will include the following sensors:

1.18.1.1 Ionization sensor(s) as required in each cabinet for smoke detection. The number of sensors will conform to the required applicable code.

1.18.1.2 A Hydrogen sensor if needed due to type of battery system.

1.18.1.3 A cabinet door intrusion detection sensor.

1.18.1.4 High and low temperature monitoring sensors.

1.18.1.5 An interface to the camera activation alarm (if applicable).

1.18.1.6 Other alarms and sensors will be available for:

1.18.1.7 Sleepy cell condition (operating cell, but no user traffic after an Authority defined period of time).

1.18.1.8 High voltage standing wave ratio (VSWR).

1.18.1.9 Any PSBN Component failure.

1.18.2 Sensors and alarms will be wired back to the site alarm interface panel and will be connected to the System Management and Monitoring Subsystem.

- 1.18.3 Appropriate software and licenses (including licenses for equipment/devices being monitored, if applicable) will be provided for each site to enable remote alarm reporting, management and monitoring of site alarms. All software and licenses will be part of the base software license agreement and the costs are identified in Section 3 (Detailed Breakdown of Pricing for Delivery of the Base PSBN) of Contractor's Response to Appendix H (Pricing Requirements – Scored) contained in Exhibit C (Schedule of Payments).

2. LTE Subsystem

2.1 Evolved Packet Core

- 2.1.1 The PSBN will include one (1) Evolved Packet Core (EPC) at the Los Angeles County Fire Command and Control Facility (FCCF). The Evolved Packet Core includes all network elements as defined by 3GPP standards, except the HSS, which is an Additive Alternate (see Section 8.1 (Home Subscriber Server) below). If the additive alternate HSS is from a third party, the Contractor will provide a quotation for all necessary services. The FCCF installation will also contain any other centralized element specifically required in this Agreement or otherwise to meet the functional and performance requirements. This includes Domain Name Services (DNS), Dynamic Host Configuration Protocol (DHCP), Multi-Protocol Label Switching (MPLS), and others.
- 2.1.2 The Contractor will provide the full facility requirements including space, power, and grounding, as part of the Site Survey Report (see Section 3.3.13 of Exhibit A (Statement of Work)) and implement necessary facility modifications in order for the PSBN to meet the performance criteria.
- 2.1.3 The Contractor will provide Electrical Power (Section 4.2), Batteries (Section 4.4), Equipment Cabinets/Enclosures and HVAC (Section 4.1) for all centralized PSBN Components (including EPC, MPLS core, DNS, security components, routers, switches) unless Contractor determines the Authority or its Members' existing facilities meet the Contractor's and the Authority's requirements during Design Review. The Authority will provide adequate space, with access to power, inside its EPC facilities. The Authority will provide generator backup power at these facilities. The Contractor is not required to provide a generator at these facilities supporting the centralized equipment.
- 2.1.4 In the event that the Authority, or its Members, have sufficient existing systems, the Contract Sum and Maximum Contract Sum contained in Exhibit C (Schedule of Payments) will be reduced based on the reduced scope of work by the full amount indicated on Exhibit C (Schedule of Payments) to the Agreement for such Electrical Power, Batteries, and Equipment Cabinets/Enclosures and HVAC.
- 2.1.5 The PSBN will support the 3GPP Multi-Operator Core Network (MOCN) network sharing standard whereby secondary Users can be serviced by the PSBN RAN in conjunction with a separate EPC.

- 2.1.6 The PSBN will be capable of multiple Public Land Mobile Network Identifiers (PLMN ID).
- 2.1.7 The PSBN will be capable of MOCN using the multiple PLMN IDs.
- 2.1.8 If directed by the Authority, the Contractor will configure the PSBN with multiple PLMN ID and configure all PSBN Components as required for MOCN.
- 2.1.9 The PSBN if so configured for MOCN will allow the PSBN EPC (the Authority's EPC) to control quality of service in the PSBN for the Authority's UEs. The Authority will work with the other MOCN operator to ensure:
 - 2.1.9.1 Coordination of plans/Service Level Agreements (SLAs) between the PSBN and the MOCN operators.
 - 2.1.9.2 MOCN operators agree to defined QCI and ARP usage.
 - 2.1.9.3 PSBN auditing for SLAs compliance.
- 2.1.10 In the event of lost connectivity with a HSS, the MME will temporarily continue to authenticate UEs using cached authenticate vectors. The cached authentication vectors will be configurable by the Authority in number of vectors and persistence duration of the vectors. The intent of these requirements is to continue to process traffic in the event of a catastrophic event that renders the HSS inaccessible and to provide flexibility for the Authority to allow its own and visiting (mutual aid) Users continued service.
- 2.1.11 In the event of lost connectivity with a Policy and Charging Rules Function (PCRF) the PSBN will provide continued operations and broadband wireless service to LA-RICS Authority Users in a failover mode.
- 2.1.12 In the failover mode, the PSBN must continue to provide default bearers. The intent of these requirements is to continue to provide broadband wireless operations in the event of a catastrophic event.
- 2.1.13 If purchased by the Authority, the IPX Service will include roaming with commercial carriers identified by the Authority.

- 2.1.14 If purchased, the Contractor will provide comprehensive management services associated with commercial carrier roaming including billing administration.
- 2.1.15 If purchased, the Contractor will provide billing services such that the Authority can segment roaming charges by agency or as otherwise determined by the Authority.
- 2.1.16 Roaming between the PSBN and commercial LTE networks will follow GSMA PRD IR.88.
- 2.1.17 Data roaming between the PSBN and commercial 3GPP 2G/3G networks will follow 3GPP TS 23.002 to support roaming into 3GPP 2G/3G networks.
- 2.1.18 As directed by the Authority, the Contractor will configure the PSBN to include Contractor provided primary and redundant Evolved Packet Core (EPC) elements (HSS, PCRF, MME, SGW, and PGW). Primary elements are those located at FCCF and redundant elements will be either the Additive Alternate core identified in Section 8.2.1 of this Exhibit B (PSBN Specifications) or with other Ericsson EPCs that will be hosted by FirstNet, another BTOP entity, or other third party. The Contractor will design, configure, and pool control and user plane PSBN EPC Components such that they automatically failover in the case of any core's failure, with minimal degradation of service. If the EPC hosted by FirstNet, another BTOP entity, or other 3rd party, is not provided by the Contractor, the Contractor upon request from the Authority and the Authority obtaining the cooperation and assistance of the third party vendor, will provide a quotation for IOT if the redundant core is not provided by the Contractor or Ericsson, or integration services if the redundant core is provided by Ericsson. Upon request from the Authority, the Contractor will provide a quotation to reconfigure the EPC from a redundant configuration to a single EPC configuration for proper operation.
- 2.1.19 In the event that secondary core uses PCRF and/or HSS Components from a different vendor, the Contractor will provide a quotation for IOT services to work with the other vendor to develop and implement a solution to integrate the other vendor's components and the Authority's data into the other vendor's system using industry standard solutions such as SPR (Subscriber Profile Repository, as defined by 3GPP TS23.203) User Data Repository (UDR), the Ud interface (3GPP TS 29.335), and LDAP (Lightweight Directory Access Protocol, as specified by the Internal Engineering Task Force,).

2.1.20 All EPC control plane elements provided by the Contractor will be compatible with a Diameter Routing Agent, as defined by 3GPP TS 29.213.

2.2 eNodeBs

2.2.1 The PSBN will include 3GPP compliant eNodeBs with transmission lines, antennas and filters as needed to provide the service in accordance with the performance criteria detailed in this Exhibit B (PSBN Specifications) and other requirements in detailed in this Agreement.

2.2.2 The transmit power of the eNodeBs will be 20W or higher per radio (10 W or higher if using Remote Radio Heads).

2.2.3 The eNodeBs will meet all FCC Technical Advisory Board mandatory requirements and any relevant requirements issued by FirstNet, consistent with Section 4.2 (FirstNet Participation) of the Base Document.

2.2.4 All eNodeBs will be provided as cabinet units.

2.2.5 Each PSBN site location will include an antenna support structure, eNodeB and backhaul subsystem.

2.2.6 The eNodeB will have cabinets that comply with the requirements of Section 4.1 (Equipment Cabinets/Enclosures and HVAC).

2.2.7 The cabinets will contain the 3GPP compliant eNodeBs as well as the performance criteria of Electrical Power (Section 4.2), Batteries (Section 4.4) and Equipment Cabinets/Enclosures and HVAC (Section 4.1) unless Contractor determines the Authority or its Members' existing facilities meet the Contractor's and the Authority's requirements during Design Review.

2.2.8 In the event that the Authority, or its Members, have sufficient existing systems, the Contract Sum and Maximum Contract Sum contained in Exhibit C (Schedule of Payments) will be reduced based on the reduced scope of work by the full amount indicated on Exhibit C (Schedule of Payments) to the Agreement for such Electrical Power, Batteries, Antenna Support Structures, Emergency Power Generating Systems and Equipment Cabinets/Enclosures and HVAC.

- 2.2.9 All PSBN LTE sector antennas will be cross polarized and support the entire 700 MHz band specified herein.
- 2.2.10 The antennas will be Remote Electrical Downtilt (RET) capable and will support AISG 2.0 standard. The Contractor will provide software and hardware required for RET operations.
- 2.2.11 The eNodeB will fall back to Single Input Single Output (SISO) in the event of a transceiver or power amplifier failure.

3. Backhaul Subsystem

3.1 General Requirements

- 3.1.1 The PSBN will include a Backhaul Subsystem that provides Internet Protocol interconnectivity among all Components of the PSBN.
- 3.1.2 The Backhaul Subsystem will include connectivity with the Public Safety Enterprise Networks (PSEN) located at LA-RICS Member agencies. Contractor will provide design and engineering to accommodate connections to the PSENs. Contractor will provide a quotation for any changes required to accommodate the bandwidth or connectivity beyond the PSBN sites.
- 3.1.3 In the case of the County of Los Angeles, the Backhaul Subsystem will deliver connectivity and backhaul to the FCCF facility.
- 3.1.4 The Contractor will deliver a Backhaul Subsystem that is scalable and can accommodate increased site quantities, increased spectrum allocations for each microwave radio, and increased throughput for each microwave radio.
- 3.1.5 The Backhaul Subsystem will provide transport bandwidth as agreed in the final design.
- 3.1.6 The Backhaul Subsystem will utilize fixed microwave and leased and customer fiber services to provide redundant connectivity wherever possible as agreed in the final design. The Contractor is permitted to provide temporary backhaul equipment if the permanent backhaul design solution is not available when the site is ready for connection to the core.
- 3.1.7 The Contractor will not be permitted to utilize existing LA-RICS Member backhaul facilities (microwave, fiber, or leased facilities) unless specifically authorized by LA-RICS Authority during the Design Review. The Contractor, if so directed by the Authority, will include LA-RICS Member backhaul facilities in the Backhaul Subsystem design. If such existing backhaul facilities reduce the need for Contractor provided backhaul facilities, the Contract Sum and Maximum Contract Sum will be reduced accordingly pursuant to Section 2 (Changes to Agreement) of the Base Document).
- 3.1.7.1 If fixed microwave backhaul is not possible from any PSBN Site then:

- 3.1.7.2 The Contractor will provide communication to and from this site using lease circuits or some other mutually agreeable solution; and
- 3.1.7.3 The Contractor's provision of leased circuits shall be in accordance with Section 38.3 (Contractor-Provided Leased Circuits) of the Base Document.
- 3.1.8 For microwave sites, the Contractor will guarantee the availability of the path from any spur site to a leased service or Member Agency PoP at 99.99%.
- 3.1.9 The Backhaul Subsystem will accommodate 15 year growth in foliage beyond current growth levels unless otherwise approved by both parties.
- 3.1.10 Any individual microwave link must have an availability of 99.999% or higher unless otherwise approved by both parties.
- 3.1.11 Any microwave link within the Backhaul Subsystem that does not have a complementary diverse route, will be configured with hot standby radios.
- 3.1.12 PSBN microwave dishes will be 3 feet in diameter or less unless otherwise authorized by the Authority.
- 3.1.13 All dishes will include dual polarization where the aggregate demand is in excess of fifty percent of the link capacity, if there is insufficient spectrum to support the required link capacity, or as otherwise directed by the Authority during Design Review.
- 3.1.14 In the event the Final Design configuration does not implement both polarizations, and this requirement triggers dual polarized dishes, the Contractor will cap and weather-seal any outdoor connectors.
- 3.1.15 The Contractor will be responsible for all frequency availability, coordination and license applications required for microwave design. All FCC licenses will be made under the Authority.
- 3.1.16 For roof mount antenna support structure microwave radio equipment will be placed as close to the antenna dishes as possible.

- 3.1.17 Except as noted herein, Backhaul Subsystem Components will be placed in a single cabinet compliant with Section 4.1 (Equipment Cabinets/Enclosures and HVAC), containing the required DC power plant of Section 4.2 (Electrical Power), with HVAC elements of Section 4.1, and with battery backup of Section 4.4 (Battery Power Subsystem).
- 3.1.18 PSBN microwave radios will include adaptive modulation and will be software upgradeable to provide higher throughput as directed by the Authority.

3.2 Multiprotocol Label Switching (MPLS)

- 3.2.1 The Backhaul Subsystem will include IETF Multiprotocol Label Switching (MPLS) compliant system.
- 3.2.2 The MPLS System will be fully compliant with all current and applicable IETF requirements and standards.
- 3.2.3 The MPLS functions must enable breakout of dedicated bandwidth, detailed traffic engineering, routing diversity (including routing over non Contractor provided transport) and Virtual Private Network connections across the System. This includes MPLS VPN to Member WAN/LAN facilities.
- 3.2.4 The MPLS system will provide Fast Reroute whereby, upon failure of a network element, the MPLS System will reconfigure the System using different resources within 50 mS. Where failover is handled by MPLS, the failover time will be within 50 msec. For the City of Los Angeles fiber, G.8032 is implemented to manage failover rather than MPLS, which is outside of the Contractor's control.
- 3.2.5 An MPLS edge router will be provided at every eNodeB site. It will have eight or more ports that can be field configured for the following:
 - 3.2.5.1 IPv4 Unicast
 - 3.2.5.2 L2VPN/VPWS
 - 3.2.5.3 L3VPN
 - 3.2.5.4 LDP/IGP Synchronization (RFC 5443)

- 3.2.5.5 BFD (RFC 5880, 5881)
- 3.2.6 The MPLS system will have sufficient ports to support 50% future capacity growth and will accommodate additional traffic, devices (including third party MPLS compliant equipment) and routers, and their increased demands.

4. Ancillary Site Subsystems

4.1 Equipment Cabinets/Enclosures and HVAC

- 4.1.1 The Contractor will provide cabinets that are sized to house the specified equipment at each site and meet all other criteria in this Exhibit B (PSBN Specifications). At all PSBN Sites, with the exception of those listed as collocation in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement), the Contractor is required to provide outdoor cabinets to house the PSBN Components. At all PSBN Sites listed as collocation in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement), the Contractor is required, if directed by the Authority, to provide indoor cabinets to house the PSBN Components.
- 4.1.2 The exterior of all outdoor cabinets will be fire resistant and will have a minimum two hour fire rating.
- 4.1.3 Cabinets will be attached to the foundations in accordance with the cabinet manufacturer's specifications and meet or exceed 2013 CBSC (Calif. Building Standards Code) seismic requirements.
 - 4.1.3.1 Concrete pad foundation is required for all ground-based outdoor equipment cabinets (i.e. excludes indoor equipment cabinets in shelters, roof-mounted and pole-mounted equipment).
- 4.1.4 Cabinets will be vandal resistant.
- 4.1.5 Cabinets will be lockable. All cabinets requiring keys will be keyed the same system-wide.
- 4.1.6 Cabinets will be RBS 6000 or BBS 6000 series for outdoor cabinets for LTE, microwave and battery equipment unless otherwise approved by the Authority, except for Authority provided indoor locations where the cabinet is not required to be weather resistant.
- 4.1.7 Cabinets will include alarm blocks including intrusion and thermal alarms and will be connected to and monitored via the System Management and Monitoring Subsystem.

- 4.1.8 Cabinets will include a service light.
- 4.1.9 Cabinets will have at least three feet of front and rear access space to perform repairs.
- 4.1.10 Indoor cabinets will be properly and seismically secured to the floor and to the cable ladders of the facility as well as to the adjacent racks to meet local and Zone 4 seismic requirements.
- 4.1.11 The cabinet will have the following configurations, but not limited to, roof mount and concrete foundation mount. Contractor will utilize the configuration that meets the needs of each site. Pole mount microwave ODU enclosure will be IP54 compliant (equivalent to NEMA 3S).
- 4.1.12 Climate control units will maintain the air quality inside the cabinet according to the most stringent interior equipment's specifications.
- 4.1.13 The Contractor will provide climate control on a site by site basis.
- 4.1.14 The climate control system will be rated for heavy duty, continuous operation and may be adaptively controlled by software.
- 4.1.15 The climate control system will not have any single point of failure that will affect the operation of the PSBN.
- 4.1.16 The climate control system will be backed up by the generator.
- 4.1.17 The climate control system will be designed and implemented to optimize air distribution and circulation throughout the cabinet.
- 4.1.18 The climate control system will be capable of remote diagnostics via the System Management and Monitoring Subsystem.
- 4.1.19 The climate control system will be capable of remote set point adjustments (e.g., temperature adjustments, unit on/off, etc.).
- 4.1.20 Wherever there are openings or apertures to the cabinet or to the equipment attached to the cabinet that exceed ¼" diameter (e.g., louvered opening, HVAC unit

casing, etc.), there will be 1/8" mesh screens, wire cloth with 0.035" wire, or other rodent proof shield or sheet metal guard to prevent rodent entry through the openings.

- 4.1.21 Rodent screen or shield will be easily removable to allow maintenance, repair, and replacement of the subject unit.
- 4.1.22 Climate controls and sensors will be mounted in such a fashion that it is not directly in the path of the output from the HVAC system, to avoid erroneous temperature control.
- 4.1.23 The climate controls will provide for automatic re-start in case of a power event.
- 4.1.24 The climate controls will default to the previous settings in case of a power event.
- 4.1.25 The climate controls will be designed in such a way as to maximize operational life of the thermal management components.
- 4.1.26 If the climate control system is floor-mounted on concrete pads, it will be mounted a minimum of 24" above grade (i.e. elevated above grade).
- 4.1.27 At sites where snow accumulation may occur, climate control units will be installed so that accumulated snow does not block air flow around the units.
- 4.1.28 Any portion of the climate control system extending from or mounted on the building exterior must include an ice and vandal shield to protect the unit from ice falling and vandals.
- 4.1.29 The equipment cabinets shall be equipped with an Emergency Ventilation System (EVS).
- 4.1.30 The EVS will be automatically activated when the temperature inside the cabinet reaches a pre-determined level to reduce heat inside the cabinet.
- 4.1.31 The proposed EVS shall not compromise the cabinet's weatherseal and shall keep the cabinet weatherproofed against outside environment including salt, fog, ocean spray, and wind-driven rain.

- 4.1.32 The level at which the Emergency Ventilation System (EVS) activates will be user-selectable or automatically controlled by software within a range of 80 and 120 deg. F.

4.2 Electrical Power

- 4.2.1 Power requirements for all PSBN Subsystems located at a site must support the worst case or maximum draws that would be experienced during a catastrophic event (i.e., all equipment drawing maximum rated power from the source at 100% duty).
- 4.2.2 Power systems will be sized to include a 50% future growth capacity.
- 4.2.3 Electrical systems will be, at a minimum, 50 Amp, 120 / 240-volt, 60 Hz, single phase, unless a greater capacity is needed.
- 4.2.4 Individual circuits will be a minimum of 20 amps.
- 4.2.5 A Transient Voltage Surge Suppressor (TVSS) device will be installed on individual load (i.e. each cabinet that has AC powered equipment will have a wire-in receptacle outlet TVSS installed inside the cabinet).
- 4.2.5.1 Transient Voltage Surge Suppressor (TVSS) devices will have a status output which will be connected to the site alarm system and the alarms will be provided to the System Management and Monitoring Subsystem.
- 4.2.5.2 Transient Voltage Suppression Systems (TVSS) will be provided to protect the electrical panel providing power to the PSBN Components.
- 4.2.6 Conductors to be buried will be run in a minimum 4 inch PVC conduit encased in concrete.
- 4.2.7 The Contractor will deliver AC power to each cabinet to backup equipment within the cabinet. and provide the appropriate DC power plant and battery backup within each cabinet (i.e., the Contractor will not provide a single DC power plant and battery power plant for multiple cabinets). The removal of any one cabinet will not affect backup power for the equipment in other cabinet(s)

- 4.2.8 The Contractor will provide an automatic transfer switch with manual override in a separate NEMA 3R powder coated aluminum, lockable outdoor enclosure.
- 4.2.8.1 The automatic transfer switch will be capable of bypass-isolation.
 - 4.2.8.2 The automatic transfer switch will be capable of remote diagnostics and monitoring via the System Management and Monitoring Subsystem.
 - 4.2.8.3 The automatic transfer switch will automatically switch the power source to the generator (or other backup power source) when commercial power (or the primary power source) is unavailable.
 - 4.2.8.4 Tower lighting, backhaul system cabinet, and eNodeB cabinet will be connected to the automatic transfer switch, and therefore, be backed up by the backup power source.
 - 4.2.8.5 A manual transfer switch with built-in remote start will be provided in NEMA 4X, lockable enclosure on the H-frame and pre-wired for connection of a mobile generator. Upon switching, the remote-start will automatically enable and remote site the appropriate generator and disable the unused generator.
- 4.2.9 Each power supply will be fed from a separate circuit with a separate breaker.
- 4.2.10 Electrical panel will be permanently labeled with panel identifier according to the electrical as-built drawing and panel schedule.
- 4.2.11 Electrical panels will be permanently labeled with circuit identification.
- 4.2.12 Electrical outlets will be permanently labeled showing panel ID and circuit number to enable cross-reference to the electrical panel schedule.
- 4.2.13 Interior AC power conductors will be installed in metallic conduit.
- 4.2.14 Exterior conductors will be installed in galvanized rigid metallic conduit.

- 4.2.15 A 20-amp GFCI convenience outlet in weatherproof enclosure will be provided on or near the H-frame. Location of the outlet will be determined during Design Review.
- 4.2.16 All power system Components (including Emergency Power Generating Systems) will be properly secured to meet local and Zone 4 seismic requirements.

4.3 Emergency Power Generating Systems

- 4.3.1 Each site will be equipped with an emergency power generating system, unless this Section 4.3 specifically indicates otherwise.
- 4.3.2 The emergency power system will be compliant with the performance criteria set forth in this Section 4.3.
- 4.3.3 The Contractor will provide a new diesel fueled AC generator for each PSBN Site with the exception of sites listed as Collocation in the PSBN Site List. In these cases, the Authority will provide access to backup power. The Contractor will evaluate existing Authority generators during Design Review. If, during Design Review, existing generators are available for PSBN use, the Contractor will integrate these generators into the design if they otherwise meet the overall requirements of the Agreement. If such existing generators or emergency power generating system reduce the need for Contractor provided generators or emergency power generating system, the Contract Sum and Maximum Contract Sum contained in Exhibit C (Schedule of Payments) will be reduced in accordance with Section 2 (Changes to Agreement) of the Base Document. In cases where existing generators are used or considered, the following requirements apply:
 - 4.3.3.1 The Contractor will test each existing generator using an appropriately sized load bank to prevent wet stacking if required by the Authority. Such test will be witnessed by Authority representative at the Authority's discretion.
 - 4.3.3.2 Existing generators failing the load test will be replaced with new generators.
 - 4.3.3.3 Contractor will provide all connections and interfaces required to integrate existing generators in the PSBN.

- 4.3.3.4 In addition to the existing load, the Contractor will include 50% growth factor for the proposed PSBN when determining if existing generators can be reused.
- 4.3.4 If a generator is impractical, cost-prohibitive, or physically impossible, then during Design Review, the Contractor will propose an alternative solution that meets the performance criteria of this Agreement and quote such costs.
- 4.3.5 The emergency generator will be provided with a day tank located underneath or adjacent to the generator or as close as permitted by code and regulation, unless otherwise directed by the Authority during Design Review.
- 4.3.6 Below-ground diesel storage tanks are not permitted.
- 4.3.7 Fuel tanks will be surrounded by a Concrete Masonry Unit (CMU) wall for fire protection and protection from gunfire. Contractor has provided the cost of the CMU wall in Section 3 (Detailed Breakdown of Pricing for Delivery of the Base PSBN) of Contractor's Response to Appendix H (Pricing Requirements – Scored) contained in Exhibit C (Schedule of Payments).
- 4.3.7.1 The wall will have an opening of sufficient size to permit easy fueling and maintenance. The opening will face the interior of the site compound.
- 4.3.7.2 If during Design Review it is determined that the Concrete Masonry Unit (CMU) wall is not feasible due to site-design or space constraints, the Contractor will provide a double-walled fuel tank with concrete outer wall.
- 4.3.8 Fuel tanks will be secured to an appropriately sized concrete foundation pad, which will be adjacent to the generator. To the greatest extent possible, generator with integrated sub-base fuel tank shall be implemented to minimize space required for the generator and fuel tank, unless existing fuel tank will be re-used.
- 4.3.9 The Contractor will consider existing Authority fuel tanks during Design Review. If existing fuel tank will be re-used, Contractor is responsible to furnish and install piping and any equipment necessary for the successful delivery (i.e. supply and return) of fuel between the generator and the fuel tank and comply with all applicable laws, regulations and codes, including design, furnish and install the appropriate secondary containment and overspill protection. If such existing fuel tank use reduces the need for Contractor provided facilities, the Contract Sum and

Maximum Contract Sum contained in Exhibit C (Schedule of Payments) will be reduced in accordance with Section 2 (Changes to Agreement) of the Base Document.

- 4.3.10 Fuel tanks and fuel delivery systems will be seismically protected per National Fire Protection Association (NFPA) 37.
- 4.3.11 Wherever a fuel tank is exposed to potential vehicular damage due to proximity to alleys, driveways, parking areas or roads, the Contractor will provide suitable protection. As a minimum, concrete filled steel bollards placed within 3 feet of the tank shall be installed.
- 4.3.12 Fuel containers will be designed, fabricated, tested, and marked (or stamped) in accordance with the Regulations of the U.S. Department of Transportation (DOT), the American Society of Mechanical Engineers (ASME) or jointly by the American Petroleum Institute and the American Society of Mechanical Engineers (API-ASME).
- 4.3.13 ASME containers will be marked with a stainless steel name plate that includes such information as container supplier, container water capacity in pounds or gallons, design pressure in pound-force per square inch gauge, year of container manufacture, manufacturer's serial number, ASME code symbol, etc.
- 4.3.14 Any fuel tanks provided will be filled to the maximum level according to manufacturer's recommendations at acceptance.
- 4.3.15 All fuel product (supply and return) lines will be primed at time of operations.
- 4.3.16 Contractor will provide generators that will meet all applicable regulations, zoning requirements and noise ordinances.
- 4.3.17 Contractor will provide generator exhaust that will be equipped with spark arrestors per applicable codes, ordinances, regulations and jurisdictional directives.
- 4.3.18 The generator and automatic transfer switch will be capable of remote diagnostics via Ethernet connection and will be connected, monitored, and managed by the System Management and Monitoring Subsystem and alarm system.

- 4.3.19 The Contractor will provide proper cooling and heating mechanisms for the emergency power systems (including fuel delivery systems).
- 4.3.20 The emergency power system will be sized to support 150% of the initial electrical load of all PSBN Components at each PSBN Site.
- 4.3.21 Generators will be equipped with a remote start function. The remote start function will be activated from the System Management and Monitoring Subsystem.
- 4.3.22 Fuel tanks provided will be steel, double-wall construction and will comply with NFPA 30 and meet or exceed UL 142 and UL 2085 and all applicable regulations, local codes and requirements, including secondary containment and overflow prevention, and vehicle protection.
- 4.3.23 The Contractor will provide sufficient space to permit easy maintenance and fueling.
- 4.3.24 Fuel tanks located at PSBN aggregation sites will be sized to provide 72 hours of operation at full rated load, 100% duty. Any changes to aggregation sites after design review may result in a change order to redistribute 72 hour generators to applicable aggregation sites and may result in the need to order additional generators.
- 4.3.25 Fuel tanks located at PSBN non-aggregation sites will be sized to provide 24 hours of operation at full rated load, 100% duty.
- 4.3.26 Fuel tanks will be installed to meet applicable fire codes or a minimum of twenty-five (25') feet, whichever is greater, from any external source of ignition or mechanical ventilation system.
- 4.3.27 Fuel tanks will meet all requirements of the State of California Environmental Protection Agency (EPA)/Water Resource Board.
- 4.3.28 The fuel tank and fuel level will be monitored with a leak detection and alarm system capable of remote diagnostics via Ethernet connection and will be connected to the System Management and Monitoring Subsystem.
- 4.3.29 The Contractor will evaluate commercial power adequacy during Design Review. Where commercial power is inadequate, greater than 300 feet away from the site,

or unavailable, the Contractor will describe and recommend a solution for primary and backup power which maintains the reliability of the PSBN.

4.4 Battery Power Subsystem

4.4.1 General Requirements for Battery Power Subsystem

- 4.4.1.1 For the Equipment Centers, a UPS, or the equivalent, will maintain operation of all centralized equipment (EPC, MPLS, DNS, DHCP, firewalls, and other centralized components) for a minimum of ten (10) minutes at maximum design load plus fifty percent (50%) future growth.
- 4.4.1.2 All PSBN Sites, except EPC sites, will be equipped with new -48VDC battery plant for the proposed PSBN Components sized with additional 50% capacity for future growth.
- 4.4.1.3 -48 VDC battery backup will be a minimum of eight (8) hours at maximum rated power, one hundred percent (100%) duty cycle for the following equipment:
 - 4.4.1.3.1 Microwave radio, MPLS routers, and all other Components required in the Backhaul System cabinet, except for HVAC.
 - 4.4.1.3.2 LTE eNodeB equipment, switches and all other Components required in the eNodeB cabinet, except for HVAC.
- 4.4.1.4 The battery system will have a recharge time of less than 12 hours.
- 4.4.1.5 The Contractor will provide a non pro-rated 7 year warranty for the battery backup system, from the date of installation provided that installation is not delayed by acts of the Authority (environmental and permitting approval and compliance will not constitute a delayed act of the Authority) for more than three months after shipment, in which case the warranty would commence three months after shipment date. .
- 4.4.1.6 All battery systems, including UPS at Equipment Centers, will have a battery monitoring system which will monitor the health of individual cells and report battery condition continuously.

- 4.4.1.7 The battery monitoring system will integrate with the System Management and Monitoring system.
 - 4.4.1.8 The battery monitoring system will have remote network Ethernet monitoring, alerting and diagnostic capability via the SMMS.
 - 4.4.1.9 All UPS and Battery Power Systems will be capable of hot swapping of modules.
 - 4.4.1.10 Batteries will be installed within enclosed, temperature-controlled environment for unit to operate within manufacturer specifications.
 - 4.4.1.11 The -48VDC battery backup system will include all necessary equipment at each PSBN site to provide power for the runtime and conditions identified in this document for each backhaul and eNodeB cabinets, including charger/charge controller, rectifiers, low voltage disconnect, alarm panel, breaker distribution panels, inverters and DC-DC converter.
- 4.4.2 Charge Controller
- 4.4.2.1 The charge controller must perform the following:
 - 4.4.2.2 Monitor the battery's charging process.
 - 4.4.2.3 Provide overcharge protection.
 - 4.4.2.4 Use maximum power point tracking (MPPT) technology.
 - 4.4.2.5 Providing fully charged state (float) indefinitely.
 - 4.4.2.6 Provide efficient battery charging.
 - 4.4.2.7 Have a Low Voltage Disconnect (LVD).
 - 4.4.2.8 Have Battery Temperature Compensation (BTC).
 - 4.4.2.9 Have major and minor alarm.

- 4.4.2.10 Prevent reverse current flow.
 - 4.4.2.11 Provide battery equalization.
 - 4.4.2.12 Not emit radio interference.
- 4.4.3 Batteries
- 4.4.3.1 The PSBN will use deep cycle batteries.
 - 4.4.3.2 The batteries will have a minimum of two banks in parallel for redundancy.
 - 4.4.3.3 If one battery fails the system will still provide 100% power to the site components.
 - 4.4.3.4 Absorbed glass mat (AGM) batteries are required.
- 4.4.4 Battery System Monitor
- 4.4.4.1 The battery system monitor will accommodate 500 total PSBN Sites and will be integrated into the System Management and Monitoring Subsystem. The following additional criteria apply to the battery system monitoring capabilities for each battery cell:
 - 4.4.4.2 Battery monitor will measure and record total amp-hours in and out of the batteries.
 - 4.4.4.3 Battery monitor will measure and record the battery's state and charge.
 - 4.4.4.4 Battery monitor will collect, process and log data measure and record battery temperature.
 - 4.4.4.5 Battery monitor will measure the voltage of two battery banks.
 - 4.4.4.6 Battery monitor will measure secondary voltage source.
 - 4.4.4.7 Battery will have an optional computer interface with software to control and read out all data locally.

4.4.4.8 Battery monitor will record battery efficiency data.

4.4.4.9 Battery monitor will have computer interfaces for monitoring and control.

4.5 Antenna Support Structures

4.5.1 General Antenna Support Structure Performance Criteria

4.5.1.1 The Contractor will attach its antennas, antenna mounts, GPS antennas, cables, and appropriate electronics cabinets to antenna support structures that meet the requirements of this section.

4.5.1.2 Three (3) antenna support structure types are included in the PSBN, which, for each PSBN Site listed in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement), is as indicated in such Attachment 1 (PSBN Site List):

4.5.1.2.1 New Undisguised Monopole to be provided by the Contractor (Section 4.5.2);

4.5.1.2.2 New roof mounts to be provided by Contractor in Section (4.5.3); and

4.5.1.2.3 Authority provided Collocation sites (Section 4.5.4).

4.5.1.2.4 Except as provided in Attachment 1 (PSBN Site List) to Exhibit J (Confidential Supplement), the Contractor will not be permitted to utilize existing LA-RICS Member antenna support structures unless specifically authorized by LA-RICS Authority during the Design Review. The Contractor, if so directed by the Authority, will include LA-RICS Member antenna support structures in the antenna support structure design. If such existing antenna support structures reduce the need for Contractor provided antenna support structures, the Contract Sum and Maximum Contract Sum contained in Exhibit C (Schedule of Payments) will be reduced accordingly pursuant to Section 2 (Changes to Agreement) of the Base Document. If a PSBN Site requires a specialized antenna support structure found in Section 17 of Contractor's Response to Appendix I (Pricing Requirements – Unsourced Options) contained in Exhibit C (Schedule of Payments), the Contract Sum and Maximum

Contract Sum contained in Exhibit C will be adjusted pursuant to Section 2 (Changes to Agreement) of the Base Document.

- 4.5.1.3 All proposed and provided antennas, antenna support structures and appurtenances and attachment, including their foundations, will meet requirements for Class III structures under the TIA-222 – G Classification of Structures.
- 4.5.1.4 Any new or modified antenna support structure will adhere to these performance criteria, and latest revision of all applicable standards and codes.
- 4.5.1.5 The Contractor will provide the antenna support structures for the PSBN to be self-supporting steel monopoles, or pipe mounts for building-mounted (wall-mounted), roof-mounted or other support structure antennas. During Design Review, Contractor will identify sites proposed for the PSBN where it is impractical or infeasible (cost prohibitive) to use such antenna support structures and provide appropriate solutions.
- 4.5.1.6 For all new antenna support structures and existing support structures (if applicable as determined during design process) to be modified for the PSBN, the Contractor will check against FAA airport airspace obstruction criteria to determine if FAA notification is required. If FAA notification is required, the Contractor will file with the FAA Form 7460-1 (Notice of Proposed Construction or Alteration) for airspace obstruction evaluation.
- 4.5.1.7 Upon approval by the FAA for the proposed antenna support structure height, the Contractor will file with FCC application Form 854R Antenna Structure Registration (ASR) to obtain an ASR number. Contractor shall coordinate with the Authority and its environmental assessment consultant before filing any FCC required environmental notifications and will comply with all FAA and FCC application approval conditions.
- 4.5.1.8 The Contractor will submit with the FAA Form 7460-1 a certified survey letter verifying the longitude and latitude coordinates of the antenna support structure in North American Datum (NAD) NAD-83 and the structure's base elevation in North American Vertical Datum (NAVD) NAVD-88. Survey will be to FAA 1A accuracy.

- 4.5.1.9 The Contractor will furnish and display the ASR Number in a conspicuous place so that it is readily visible near the base of the antenna support structure.
- 4.5.1.10 Materials used to display the ASR Number must be weather-resistant and of sufficient size to be easily seen at the base of the antenna support structure.
- 4.5.1.11 All antenna support structures and PSBN Component installation shall incorporate and comply with the Attachment 2 (Construction Management Requirements) of Exhibit J (Confidential Supplement) of the Agreement.
- 4.5.1.12 The Contractor will conduct a comprehensive/rigorous structural analysis of any existing structure to be used for the PSBN (as determined during Design Review) using the same set of criteria as specified in this Section 4.5 of this Exhibit B (PSBN Specifications). Such analysis will include the existing antennas, appurtenances and attachments, mounting, hardware, etc. on the existing structure to be used.
- 4.5.1.13 All fabrication will be in accordance with The American Institute of Steel Construction (AISC) requirements for fabrication of structural steel and Section 5.0 of ANSI/TIA-222-G.
- 4.5.1.14 Under no circumstances will dissimilar metals be used in contact with one another.
- 4.5.1.15 All welding processes and welding operators will be qualified in accordance with American Welding Society (AWS) Standard Qualification Procedure.
- 4.5.1.16 All materials will be properly marked and match-marked for field assembly.
- 4.5.1.17 All materials will be fabricated for a delivery sequence which will expedite erection and minimize field handling of materials.
- 4.5.1.18 All furnished materials will be new and of the best quality as measured by the highest standards of the trade. Any defect will be cause for rejection. Mill certificates will be available for all materials furnished and will be submitted upon request.

- 4.5.1.19 Contractor will fabricate items of structural steel in accordance with AISC Specifications and as indicated on the final approved shop drawings.
- 4.5.1.20 The structure and its individual members will be constructed so that there are no pockets, wells or traps in which moisture can condense or water collect. Tubular members will be sealed at the top of the structure, and weep holes will be provided where necessary.
- 4.5.1.21 Unless specified otherwise by the designer, straightness and shape of all members will meet the tolerances specified in ASTM A-6 after galvanizing.
- 4.5.1.22 Contractor will submit six (6) copies of the design drawings and construction plans for all new and modified antenna support structures including wind, seismic and other code-required loadings and structural calculations, bill of material and material specifications (type and grade), for the structure and its foundation certified by the Structural Engineer of record (SEOR) to the Authority for Design Review prior to plan check. Design Review is not intended to correct Contractor's design error and does not release Contractor from oversights made on the submittals.
- 4.5.1.23 The drawing will be in ANSI - E size format or as determined during Design Review. All engineering drawings will be folded to approximately 8 ½" x 11". The same drawing will also be provided in electronic format in AutoCAD and PDF on a CD-ROM or a DVD.
- 4.5.1.24 The structure's design drawings and construction plans will clearly and completely show all components and parts, material specification, part number and dimensions, antenna mount construction, placement of antenna mounts, cable ladders and cable support system, climbing ladders, any rest areas, and method of attachment for each. The drawings will also contain the following:
- 4.5.1.24.1 Cross-Reference: Commonly-used, logical and consistent cross-referencing symbols, conventions, and the like will be used on the drawing and structural analysis.
- 4.5.1.24.2 Title: Each and every sheet of the drawing will bear a Title block and drawing number of the issuing organization.

- 4.5.1.24.3 Identification: The drawing and plan shall include the signatory engineer's name, title, firm name, address, telephone number, facsimile number and e-mail address, on lower, right-hand side of each sheet.
- 4.5.1.25 Drawings and plans will show all design loading parameters. The antenna and other loads (ladders, obstruction lights and other appurtenances, etc.) will be tabulated and numbered / indexed so they can be easily cross-referenced to the elevation drawings of the antenna support structure.
- 4.5.1.26 Scaled and dimensioned drawings complete with parts and hardware lists for all items installed on the antenna support structure will be provided. This will include the following:
- 4.5.1.26.1 Specifications will indicate the various types of materials that will be used and will describe the methods not covered in the technical regulations which are to be used to obtain the required quality of the work shown on the plans. The grades and materials will be shown on the drawings for each item.
 - 4.5.1.26.2 Sectional details of the antenna support structure including the dimensions of all structural members.
 - 4.5.1.26.3 The antenna support structure and feedline brackets, antenna mounts, etc.
 - 4.5.1.26.4 The antenna support structure's anchoring details, sections and plan views.
 - 4.5.1.26.5 Antenna mounting details.
 - 4.5.1.26.6 Climbing ladder / step bolts and fall-arrest / safety climb cable details.
 - 4.5.1.26.7 Grounding and bonding details, including lightning rod details.
 - 4.5.1.26.8 Cable / waveguide vertical ladder and feedline bracket details.
 - 4.5.1.26.9 Any electrical conduit and junction box and obstruction lighting mounting details.

- 4.5.1.26.10 Cable / waveguide bridge or underground conduit and pull-box details.
- 4.5.1.26.11 Erection details for the antenna support structure.
- 4.5.1.27 Antenna layout elevations and plan views: Drawings and plans will show the elevation drawing (at least 2 different elevations from the north/south and east/west) of the antenna support structure with all antenna pipe mount details.
- 4.5.1.28 The structure's design drawings and construction plans will clearly and completely show all design loading parameters and will tabulate design loads, including antenna and transmission line types, sizes, weights, weldments, projected areas and location on the structure for wind load design. Cross-referencing will be provided to other relevant drawings, analysis or documents.
- 4.5.1.29 The design and structural calculations of the antenna support structure shall comply with the following requirements:
- 4.5.1.29.1 Contractor will provide a structural analysis report for each new or modified antenna support structure that includes elevation drawing and profile of the antenna support structure, computations, stress diagrams and other pertinent data so that calculations for individual structural members can be readily interpreted.
- 4.5.1.29.2 The computation will be prefaced by a statement of calculation criteria that clearly and concisely outlining the basis for the structural design and indicating the manner in which the structure will resist vertical loads and horizontal forces.
- 4.5.1.29.3 Loads and Forces: The computation will clearly and correctly establish that the structure will resist the loads and forces in accordance with ANSI/TIA-222-G and the California Building Standards Code (CBSC) and Title 24, CCR.
- 4.5.1.29.3.1 Calculations will clearly show how all vertical and horizontal loads are transferred from the steel antenna support structure to the concrete foundation. Calculations for anchor rods design will be

included with the design drawings and construction plans of the antenna support structure and its foundation.

- 4.5.1.29.3.2 Maximum forces and specified strengths of members will be included in computations and noted on plans and drawings.
- 4.5.1.29.3.3 Where unusual conditions occur, such additional data as are pertinent to the design and construction of the antenna support structure or its foundation shall be identified and submitted to the Authority during Design Review and to the local jurisdiction for construction plan check.
- 4.5.1.29.3.4 Eccentricities: Calculations used to determine member stresses will include the effects of horizontal and vertical eccentricities at the connection joints.
- 4.5.1.29.3.5 Any assumptions used in the structural analysis and calculations and the basis of assumption will be explicitly identified and described in the structural analysis report. Any presumptive parameters used as allowed by codes and standards in the absence of actual value will also be explicitly identified in the report.
- 4.5.1.29.3.6 A finite element analysis computer program using a 3-dimensional (space) model in conformance with ANSI-TIA-222-G will be used to structurally design the antenna support structure. The structure's design will consider at a minimum eight (8) wind directions: four (4) face winds and four (4) apex winds. When excessive shear forces and moments occur on locations other than joints, an additional second order analysis is required.
- 4.5.1.29.3.7 The software computer analysis program name, program provider, release number, and a brief description of the theoretical basis and theories used for the structural calculations for the design of the antenna support structure and its foundation will be provided and noted in the structural analysis report.
- 4.5.1.29.3.8 The software computer analysis program's calculation output will include but be not limited to the following items which will be clearly labeled and identified:

- 4.5.1.29.3.8.1 Elevation drawing and profile of the antenna support structure representing the graphical analytical model with the bracing configurations.
- 4.5.1.29.3.8.2 Load forces, uniform and concentrated.
- 4.5.1.29.3.8.3 Member sizes and their material.
- 4.5.1.29.3.8.4 Effective Projected Areas and Weights of appurtenances.
- 4.5.1.29.3.8.5 Deflection Twist and Sway at design and operational loads.
- 4.5.1.29.3.8.6 Maximum forces and design strength of all members.
- 4.5.1.29.3.8.7 Foundation reaction loads.

4.5.2 Undisguised Monopole

4.5.2.1 General Requirements for Undisguised Monopole

- 4.5.2.1.1 Contractor will design, fabricate and provide the antenna support structure as required by this Exhibit B (PSBN Specifications). The antenna support structure with the base antenna loads shall meet or exceed the operational and design requirements of applicable codes, regulations and standards, and the requirements of this Exhibit B (PSBN Specifications), whichever are more stringent.
- 4.5.2.1.2 Antenna support structures will be self-supporting steel monopoles and their installation will meet or exceed the requirements of the most current TIA 222 standards (TIA-222 – G or later and all addendums). In this Exhibit B (PSBN Specifications), the Authority is specifying certain performance criteria greater than the minimums required by TIA-222.
- 4.5.2.1.3 The Contractor will furnish materials, design, fabricate, and erect a tapered, self-supporting, hollow steel, custom designed, telecommunications applications monopole, at the height prescribed by Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement), drilled, cast in place concrete foundation, mounting structures and support

systems for LTE antennas and microwave antennas, etc. as designated by the approved Design Review and Site Design Documents for all sites requiring such facilities.

- 4.5.2.1.4 California Building Standards Code (CBSC): The antenna, antenna support structure and appurtenances and attachments will be classified as Essential Facilities per the California Building Standards Code (CBSC) and will meet or exceed the CBSC requirements except where it references the ANSI/TIA-222.
- 4.5.2.1.5 All structural steel and hardware is to be hot-dipped galvanized steel after fabrication. All exposed surfaces of auxiliary equipment to the antenna support structure (including cable ladders, climbing ladders/step bolts, safety climb system and devices and antenna mounts and struts) will be galvanized to resist rust.
- 4.5.2.1.6 Any galvanized surfaces which are damaged for any reason, will be painted immediately with two coats of high zinc content paint.
- 4.5.2.1.7 Bolts will be hot dip galvanized according to the latest revision of the American Society for Testing and Materials (ASTM) A-325.
- 4.5.2.1.8 All hot-dipped components will include a minimum zinc coating of two (2) ounces per square foot.
- 4.5.2.1.9 Correct length of bolts will be used for all connections in accordance with the bolt assembly lists furnished by the antenna support structure manufacturer.
- 4.5.2.1.10 All bolts will be equipped with self-locking nuts.
- 4.5.2.1.11 The antenna support structure (except hardware) and major parts on the shop and/or assembly drawings will be permanently marked by the manufacturer. Marks will correspond with the marks on the assembly drawings.
- 4.5.2.1.12 The antenna support structure will be labeled, with a metal nameplate securely fastened near the base, indicating, as a minimum, the

manufacturer's name, antenna support structure model and reference number, antenna support structure height, and date of manufacture.

- 4.5.2.1.13 The Contractor will file with the FAA and FCC as required per the determination or registration approval conditions from each agency, or as per applicable rules from each, within the stipulated timeframe, to notify them that the antenna support structure has reached its maximum height and the construction of the antenna support structure is complete.
- 4.5.2.1.14 If required by the FAA, the antenna support structure will be lit and/or marked according to FAA Advisory Circular AC 70/7460-1 (latest revision).
- 4.5.2.1.15 Contractor will provide FAA approved obstruction lighting systems that are equal to or better than LED lighting system for energy efficiency, life cycle and mean time between failures.
- 4.5.2.1.16 The lighting systems will include controller, lamps, lightning protection units, mounting hardware, service cords and/or conduit, conduit drain-breather system, wiring and other material required for a complete installation.
- 4.5.2.1.17 The lighting systems will be controlled by a solid state control unit and power supply.
- 4.5.2.1.18 The lighting system power will be backed up by the Emergency Power Generating System for PSBN equipment in accordance with Section 4.3 of this Exhibit B (PSBN Specifications).
- 4.5.2.1.19 The lighting system will provide separate automatic relays for ON-OFF status of lights.
- 4.5.2.1.20 The lighting system will provide automatic fail-safe during nighttime and automatic reset upon power source failure.
- 4.5.2.1.21 The lighting system will provide test switch in controller to simulate daytime, nighttime, and auto modes.

- 4.5.2.1.22 The lighting system will provide separate automatic alarm relays (Form C dry contact) for control unit failure.
- 4.5.2.1.23 The lighting system will provide individual automatic alarm relays (Form C dry contact) for each light provided (e.g., beacon light, side light, etc.).
- 4.5.2.1.24 All lighting system alarms will be wired back to the alarm interface panel to interface with the System Management and Monitoring Subsystem.
- 4.5.2.1.25 All lighting system wiring will be of service cord type design, or contained within rigid galvanized conduit, junction boxes, and lighting equipment housing.
- 4.5.2.1.26 All levels of lighting will be clearly visible from any direction of approach to the antenna support structure.
- 4.5.2.1.27 All lighting system controller components will be installed in a standardized manner for all sites.
- 4.5.2.1.28 All lighting equipment will be installed per manufacturer's direction.
- 4.5.2.1.29 The lighting system cable will be attached in a way to minimize additional loading of the antenna support structure (e.g., metal conduit).
- 4.5.2.1.30 One weatherproof, ground fault circuit interrupter (GFCI) protected, 120-volt, 20-amp, NEMA 5-20R receptacle duplex convenience electrical outlet will be installed near each of the FAA obstruction lights. The duplex outlet will be installed on a dedicated, breaker protected circuit. The duplex outlet circuit voltage drop will be limited to 4% maximum at the outlet under a 16-amp load.
- 4.5.2.1.31 If the antenna support structure requires FAA marking, under no circumstances will any coating on any metal member or fastener be cathodic relative to the base material.
- 4.5.2.1.32 During construction of an antenna support structure, the required FAA obstruction lighting fixtures will be installed and operational at each required level as each such level is exceeded in height during construction.

- 4.5.2.1.33 The Contractor will protect all existing buildings, structures, and equipment from falling objects during the assembly, erection and modification of any antenna support structures. The Contractor will be liable for any damage caused to such buildings and equipment.
- 4.5.2.1.34 At the sole discretion of the Authority, the Contractor will pursue a conditional use permit.
- 4.5.2.1.35 If the new monopole is constructed at the site of an existing monopole, the Contractor will restore the existing equipment on the newly constructed monopole. During Design Review, a site-by-site analysis will be performed to determine the components to be transferred to the new monopole.
- 4.5.2.1.36 The final monopole height will be at the discretion of the Authority and will be a function of the optimal RF performance, cost, and what can be successfully zoned and permitted.
- 4.5.2.1.37 The steel monopole and all its appurtenances and attachments that are fabricated or constructed at the jobsite will be fabricated or constructed by California-licensed contractors.
- 4.5.2.1.38 The Contractor will be licensed as a California General Engineering Contractor, specifically experienced in the construction of steel communication monopole towers.
- 4.5.2.1.39 The steel monopole and all its appurtenances and attachments will meet or exceed the performance criteria of this document including, but not limited to, the steel monopole, foundation, antenna mounts, earthwork retaining systems, FAA lighting (if required), lightning protection, and grounding.
- 4.5.2.1.40 An appropriately sized panel/termination block on H-frame will be provided next to the monopole to be used as a demarcation to interconnect any electrical and communications cables and conduits from the monopole and outdoor PSBN equipment to the utility point of entry or nearest available connection with adequate capacity in the existing building on site.

4.5.2.2 The Base Antenna Loads for the Monopoles

- 4.5.2.2.1 The monopole will support all appurtenances and attachments (e.g., fall-arrest safety-climb system, step bolts, any stealthing or camouflage, FAA tower lights and controller if applicable, lightning rod, conduits and cables, etc.).
- 4.5.2.2.2 Monopole will support all antennas (allowing 4x4 MIMO for three sectors) and feedlines (allowing 4x4 MIMO for three sectors) and all other pole mounted PSBN Components.
- 4.5.2.2.3 Monopole will support T-arms and antenna mounts for the Authority's sector antennas and antenna mounts for any microwave backhaul equipment. For purpose of structural design of the monopole, the T-arms and antenna mounts will be as described in Section 4.5.2.13.
- 4.5.2.2.4 The monopole and all its appurtenances and attachments will also accommodate two additional commercial cellular carriers with typical carrier configurations including 12 cellular antennas per carrier, antenna support structure mounted electronics, microwave antennas, and the T-arms with standoffs and mounts for these antennas will be as they are commonly used by commercial carriers. The monopole will be equipped with flexible cable ports to support other non-LA-RICS tenants and accommodate those tenants with the appropriate antenna spacing to avoid harmful interference. The monopole will support T-arms with standoffs and antenna mounts using industry accepted practices for those additional carriers provided that these practices exceed the requirements in this Exhibit B (PSBN Specifications).
- 4.5.2.2.5 The monopole will have a lightning rod mounted at the top of the pole. The maximum length of the lightning rod is provided in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement).
- 4.5.2.2.6 Ice Loading: For sites at elevations higher than 3000 feet above sea level, a 1 ½ inches clear radial ice will be included in the design load for the monopole. Ice load is not required otherwise for the antenna support structure.

- 4.5.2.2.7 The antenna support structure (and its appurtenances and attachments) will sustain the basic wind speed (3-second gust), exposure category and topographic category stated in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement). The Topographic and exposure category for each site will be reviewed during Design Review.
- 4.5.2.2.8 Exposure Category: The antenna support structure Exposure Category is provided in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement).
- 4.5.2.2.9 Topographic Category: The antenna support structure Topographic Category is provided in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement). The antenna support structure Topographic Category will be determined by the Structural Engineer and/or Land Surveyor of Record based on site-specific data and actual local terrain and topographic feature in conformance with ANSI/TIA-222-G and as approved by the Authority during Design Review for site identified with a category other than one (1) in the PSBN Site List.
- 4.5.2.2.10 Base Antenna Loads, mounts, monopole appurtenances, and step bolts will meet or exceed the following listed standards:
- 4.5.2.2.10.1 ANSI/TIA - 222: Structural Standards for Antenna Supporting Structures and Antennas, the latest adopted revision and all addendums.
 - 4.5.2.2.10.2 California Building Standards Code (CBSC)
- 4.5.2.2.11 Lightning Protection & Grounding: The communications monopole ground, bonding and lightning protection will also conform to the requirements of ANSI/TIA-222-G, Section 10 inclusive, TIA 607-B, NFPA-780 for the Installation of Lightning Protection Systems, or Motorola R56 or Harris (formerly M/A-COM) AE/LZT 123 4618/1 Site Installation, Grounding, Lightning Protection guidelines or equivalent, whichever is more stringent.
- 4.5.2.2.12 Twist and Sway: The maximum limit of communications monopole twist and sway will not exceed 0.5 degrees at the uppermost antenna attachment point of the monopole section per ANSI/TIA-222-G.

- 4.5.2.2.13 The twist and sway requirement will be maintained through operational wind speeds to seventy (70) mph (3 second gust).
- 4.5.2.2.14 The communications monopole twist and sway at all antenna mounting elevations will be determined by analytical methods and will be noted on the formal stress analysis. Where multiple microwave frequencies are co-located on the monopole, the most critical twist, sway and displacement limits will govern compliance with codes and standards. For purpose of the structural design of the monopole, the twist and sway limits of the structure at the elevation of a microwave antenna will be calculated per Annex D of ANSI/TIA-222-G assuming 3dB degradation in radio frequency signal level is allowed.
- 4.5.2.2.15 Monopole Deflection: The communications monopole deflection limits will be held both vertically and horizontally. Deflection must be determined at each specific point on the monopole where an antenna is attached.
- 4.5.2.2.16 Seismic Load: Monopole will have a spectral response acceleration coefficient of $S_s = 2.0$ or greater as required per codes based on site-specific data.
- 4.5.2.3 Step Bolts
- 4.5.2.3.1 Contractor will provide ten (10) safety cable slider and climbing harness to the Authority to allow a climber constantly attached to the safety cable while moving or resting on the Step Bolts.
- 4.5.2.3.2 The Step bolts will conform to CCR Title 8, Industrial Relations, Subchapter 7, General Industry Safety Orders, Group, Article 4, Section 3277.
- 4.5.2.3.3 Step bolts will meet the requirements of ANSI/TIA-222-G, strength requirements and dimensional requirements.
- 4.5.2.3.4 The maximum allowable spacing of the horizontal step rungs will be fifteen (15) inches. The Step bolts will support a concentrated load of 300 pounds minimum.

- 4.5.2.3.5 The monopole will be equipped with a 3/8-inch diameter DBI-SALA galvanized steel safety cable. The cable will be equipped with top, bottom, and intermediate cable brackets in accordance with the manufacturer's recommendations.
- 4.5.2.3.6 The monopole will be equipped with equipped with step bolts beginning from ten (10) feet above the base plate of the monopole to top of the monopole.
- 4.5.2.3.7 Extra resting step bolts will be provided for installers below all T-Arms and below the joints of monopole sections.
- 4.5.2.4 Feedline Cable Supports
- 4.5.2.4.1 The feedline support system will be internal routing systems.
- 4.5.2.4.2 Monopole will provide three (3) ports (6"WX18"H) three (3) feet from the top of the antenna support structure elevation (or otherwise approved by Authority during Design Review) and positions the ports at 0°, 120°, and 240° from true north (or as otherwise approved by the Authority). The ports will accommodate 1.¼ inch coaxial cables or larger that enable MIMO 4x4 for all sectors. The monopole will provide additional ports for microwave cables.
- 4.5.2.4.3 Monopole will provide three additional ports each for two additional cellular carriers at additional industry accepted elevations that consider interference and carrier needs and are developed through the Design Review process with the Authority.
- 4.5.2.5 Top Flange
- 4.5.2.5.1 Provide a top flange (2-3/8" OD x 3') be mounted on the top, and at the center of the monopole top cap plate. The top flange will be extended six (6) inches below the bottom of the monopole top cap plate. This is to allow the accessibility between the monopole inner tube and the top flange inner tube.
- 4.5.2.5.2 The top flange will be covered with a removable threaded cap.

- 4.5.2.5.3 The top flanges will be designed to support an equivalent load of a 2-3/8" OD x 10' long antenna, and shall allow the attachment of an air terminal/lightning rod.
- 4.5.2.6 Monopole Grounding
- 4.5.2.6.1 Three 5/8 inch diameter, copper plated steel, 8 foot minimum length ground rods will be installed within five (5) feet of the monopole. Each ground rod will be exothermically welded to its respective copper main conductor, which will be connected to the monopole.
- 4.5.2.6.2 The monopole will be connected directly to a 5/8 inch ground rod with a # 2 tinned, solid, bare copper conductor. Attachment will be done by exothermic welding directly to the base plate.
- 4.5.2.6.3 Grounding rods are to be connected by a peripheral ground ring constructed from # 2/0 soft-drawn, bare, stranded, tinned, copper ground conductor. Grounding rods and ground ring will have as minimum 18 inches of ground cover. Bending radius for any grounding conductor will be no less than 8 inches.
- 4.5.2.6.4 Contractor will connect the monopole grounding to equipment cabinet and other PSBN components grounding as well as the building / facility's grounding system where commercial power is supplied at the PSBN site location.
- 4.5.2.7 Design and Calculations
- 4.5.2.7.1 Contractor will provide a design for each site and provide drawings, bill of materials, specifications, and structural calculations prepared and stamped by a California licensed professional engineer and other specialty (e.g. architect, surveyor, etc.) as applicable.
- 4.5.2.8 Components
- 4.5.2.8.1 Structural steel used will be pre-qualified steel in conformance with the requirements of section 5 of ANSI/TIA-222-G. Manufacturer's standard components parts may be used, providing components, accessories, and

complete structure conformance to the performance criteria as specified herein.

4.5.2.8.2 Components will be factory drilled for field assembly, easily erected, capable of being dismantled and re-erected without damage to components.

4.5.2.9 Zinc Coatings

4.5.2.9.1 ASTM A525, G90 coating class.

4.5.2.9.2 Hot-dip galvanized: All steel items inside and out after fabrication per ASTM A123. Fabrication includes shearing, punching, bending, forming, or welding. Fabricate units complete or in largest practical sections before galvanizing.

4.5.2.9.3 Clean welded and damaged galvanized surfaces. Removal weld spatter, burns, char, smoke, flux, oil, grease, and other deleterious matter.

4.5.2.9.4 Repair air exposed galvanized finish work (not to be painted) with hot process field galvanizing (Re-galv, Galvalloy, Galvweldalloy, or equal) per manufacturer's published directions.

4.5.2.10 Shapes, Plates, and Bars

4.5.2.10.1 All structural steels used for the monopole structure will conform to section 5.0 of ANSI/TIA-222-G and to one of the pre-qualified steel material standards listed in Table 5.1 of ANSI/TIA-222-G.

4.5.2.10.2 The use of A36 modified material to obtain the 50 ksi minimum yield strength is prohibited.

4.5.2.10.3 Utilizing mill certifications to obtain minimum yield strengths is prohibited. Yield strengths will be based upon ASTM designated minimums.

4.5.2.10.4 Proper drainage of all moisture and condensation will be provided for all members.

4.5.2.10.5 Minimum thickness of any structural steel member will be 1/8 inch.

4.5.2.11 Structural Bolts and Anchor Bolts

4.5.2.11.1 All structural bolts and anchor bolts used for the antenna support structure will conform to section 5.0 of ANSI/TIA-222-G and to one of the pre-qualified steel material standards listed in Table 5.1 therein. Provide zinc-plated or cadmium-plated bolts throughout except unpainted anchor bolts and high-strength bolts.

4.5.2.11.2 All bolts will be domestic A-325 Type X high strength bolts or equal.

4.5.2.11.3 A449 bolts or A325 type N bolts are acceptable if the designer discounts the capacity of the bolts in accordance with AISC specifications.

4.5.2.11.4 All bolts will be constructed utilizing a Heavy Hex Structural head.

4.5.2.11.5 The use of A-325M bolts is prohibited unless the designer utilizes an A449 capacity.

4.5.2.11.6 All bolts will be hot dipped in accordance with ASTM A153 or mechanically galvanized in accordance with B695 class 50.

4.5.2.11.7 All fasteners will project a minimum of two threads beyond the nut and nut locking devices when the nut is properly tensioned.

4.5.2.11.8 Pre-tensioning will be defined as a snug tight condition unless modified by the engineer of record.

4.5.2.12 Connections

4.5.2.12.1 Shop connections will be bolted and/or welded.

4.5.2.12.2 Field connections will be bolted.

4.5.2.12.3 Drawings will indicate where high tensile bolts are used. Such bolts will bear the identifying head mark. Tighten nuts for high strength bolts to specifications therefore.

- 4.5.2.12.4 All nuts will have a Class A fit. Use beveled washers under bolt heads and nuts on beveled surfaces.
- 4.5.2.12.5 No field welding will be permitted unless specifically approved in writing.
- 4.5.2.12.6 All members will be connected with galvanized structural bolts unless otherwise approved.
- 4.5.2.12.7 All threaded fasteners will extend not less than 1 ½ threads beyond nuts and locking devices.

- 4.5.2.13 Antenna and Cable Supports
 - 4.5.2.13.1 Contractor will provide 3 T-Arm, 10 feet cross-arm at one foot below the top elevation of the monopole at 0°, 120°, and 240° from true north (or other Authority approved locations).
 - 4.5.2.13.1.1 Each T-Arm will support four (4) antenna mounts for panel antennas.
 - 4.5.2.13.1.2 Contractor will provide a solution that readily enables six (6) additional T-arms installed with mounting hardware that can allow the T-arm locations to be adjusted to be mounted at a different elevation for potential future use by commercial carriers as determined by the Authority in Design Review.
 - 4.5.2.13.1.3 Provide four underground conduits (of sufficient size to accommodate the baseline need and future expansion) from the monopole inner tube to a stub out location determined during Design Review. The minimum bending radius of all conduits will be twenty-four (24) inches.
 - 4.5.2.13.1.4 All ports, cable raceways, and conduit will support the necessary cables based on industry accepted design practices.

4.5.3 Roof Mount

- 4.5.3.1 The Contractor will install PSBN Components on the roof for PSBN Sites specified in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement), where a roof mount is specified for a particular site.
- 4.5.3.2 The general antenna support structure performance criteria of section 4.5.1 apply.
- 4.5.3.3 Contractor will conduct a structural analysis and designs for roof mount sites and will apply the general requirements of Section 4.5.2, Undisguised Monopole, where applicable.
- 4.5.3.4 The Contractor will install antenna mounts and associated antennas on a penthouse or parapet wall as directed by the Authority and comply with Attachment 2 (Construction Management Requirements) of Exhibit J (Confidential Supplement), where applicable.
- 4.5.3.5 The Contractor will install a generator backup, consistent with Section 4.3 (Emergency Power Generating Systems) of this Exhibit B (PSBN Specifications) on the ground. The Contractor will install a concrete pad of sufficient size and scope to support the generator.
- 4.5.3.6 The Contractor will provide associated power cables from the ground based generator to the rooftop power system through the building and in compliance with Authority and building owner requirements and comply with Attachment 2 (Construction Management Requirements) of Exhibit J (Confidential Supplement), where applicable.
- 4.5.3.7 The Contractor will accommodate all building code and site owner requirements for the equipment installed at the site, including, but not limited to specific requirements for roof and other penetrations.
- 4.5.3.8 The Contractor will install cable trays, conduit or equivalent mechanisms to protect cables from damage or disturbance resulting from foot traffic or other public access.
- 4.5.3.9 The Contractor will install the Backhaul Subsystem and eNodeB cabinets on the roof.

- 4.5.3.10 Contractor will perform a structural engineering analysis for roof cabinet installation to demonstrate the existing roof will adequately support the cabinets with interior PSBN equipment where the cabinets will be placed on the roof.
- 4.5.3.10.1 Contractor will provide a solution where placement is infeasible during Design Review and implement solution as approved and directed by the Authority. If the proposed solution impacts the scope of work and/or impacts the cost of such work, the Contractor may seek an amendment pursuant to Section 2 (Changes to Agreement) of the Base Document.
- 4.5.3.10.2 Rooftop cabinet and equipment installation will meet and comply with applicable Construction Management Requirements for the PSBN sites.
- 4.5.3.10.3 At hospital PSBN sites, system design and installation will also comply with California Office of Statewide Health Planning and Development (OSHPD) requirements.
- 4.5.4 Collocation
- 4.5.4.1 The Contractor will mount the appropriate antennas, lines, and other appropriate contractor supplied equipment on an existing Authority (or Authority Member) provided collocation tower for PSBN Sites specified in Attachment 1 (PSBN Site List) of Exhibit J (Confidential Supplement), where a collocation is specified for a particular site.
- 4.5.4.2 All performance criteria of Section 4.5.1 apply.
- 4.5.4.3 The Authority provided collocation tower identified in the PSBN Site List will not be required to be structurally enhanced to support the load of the tower mounted equipment, unless determined otherwise during Design Review and the Contractor will perform any required structural modifications.
- 4.5.4.4 The Contractor will install any necessary support arms required to achieve horizontal separation between antennas or to achieve sufficient spatial separation from the tower legs.

- 4.5.4.5 The Contractor will install an ice bridge between the tower and the site PSBN electronics.
- 4.5.4.6 The Contractor will provide and install associated cable hangers and all related transmission cable hardware.
- 4.5.4.7 With the exception of performance criteria that specifically call for the construction of a monopole, the existing tower implementation will be consistent with Section 4.5.2. The Contractor will demonstrate during Design Review how the site meets these performance criteria.
- 4.5.4.8 In the instances where an existing tower is used, the Authority will provide an existing shelter for the equipment with adequate generator backup power for the Contractor's PSBN Components for that site. The Contractor will not be required to provide these PSBN Components at these sites.
- 4.5.4.9 The Contractor will install its equipment at the Authority provided PSBN Site in cabinets consistent with Section 4.1 (Equipment Cabinets/Enclosures and HVAC).
- 4.5.4.10 During design review, the Contractor will evaluate all Authority provided equipment and infrastructure and determine if it meets the required performance criteria of this Exhibit B (PSBN Specifications).

4.6 Site Preparation and Construction

- 4.6.1 Contractor will perform site preparation that will include all clearing, grading, trenching, boring, excavation and construction required for the antenna support structure (if applicable), equipment cabinet/enclosure, access road modification and/or repair (if necessary), security fencing (if necessary), and utility service. All civil work will follow and comply with Attachment 2 (Construction Management Requirements) of Exhibit J (Confidential Supplement).
- 4.6.2 The Contractor will not provide perimeter security fencing unless, during Design Review and following Contractor's inspection of all existing fencing systems at each PSBN Site, it is determined that any portion of an existing fencing system at any PSBN Site is unacceptable. The Contractor will include repair or replacement, as applicable, of the affected portions of the existing fencing system in its System Design and all impacted Site Design Documents as required to enclose the

applicable antenna support structure, equipment cabinet, generator, fuel tank and any other associated equipment according to the total linear length of the fence. The cost per foot for the repaired or replaced perimeter security fence will require a change to the Agreement in accordance with Section 2 (Changes to Agreement) of the Base Document, which change will be priced no greater than the cost per foot that the Contractor identified in its response to Section 17 of Contractor's Response to Appendix I (Pricing Requirements – Unscored Options) contained in Exhibit C (Schedule of Payments). The repaired or replaced perimeter fence provided by Contractor shall meet the requirements of Section 17 of Contractor's Response to Appendix I (Pricing Requirements – Unscored Options) contained in Exhibit C (Schedule of Payments).

- 4.6.3 The sites must be left in a satisfactory usable condition when site work is completed as determined by the Authority individual members.
- 4.6.4 Clearing will consist of removal of all trees, tree stumps, bushes, shrub stumps, weeds and roots. Power poles will be cleared to a minimum width of ten (10) feet or local code whichever is greater.
- 4.6.5 The Contractor will export unsuitable materials from the site and properly dispose of in a licensed landfill or a permitted site approved by the Authority.
- 4.6.6 All structures being provided as part of the PSBN will be designed and constructed as essential structures, in accordance with all applicable building codes. Contractor is responsible for obtaining all current copies of the relevant building codes.
- 4.6.7 The Contractor will install concrete pads and the top of foundation pad shall be a minimum of twelve (12) inches above the one hundred (100) year flood plain, be in no case less than six inches above finished grade, and will meet applicable flood hazard ordinances. For project sites in coastal region (i.e., within five (5) miles of tidal line), the top of foundation pad must be twenty-four (24) inches minimum above high tides or comply with applicable codes and ordinances, whichever more stringent.
- 4.6.8 Adequate erosion controls, drainage, and drainage structures will be provided to prevent water from accumulating in such a manner as to prohibit or restrict access to the PSBN Site or to cause damage to installed equipment both during and after site construction.

- 4.6.9 All graded slopes will have a surface gradient of not less than a two (2) horizontal to one (1) vertical ratio unless required otherwise by local jurisdiction codes or per the Geotechnical Investigation Report recommendations.
- 4.6.10 Topsoil is to be stockpiled and redistributed to disturbed areas not receiving aggregate surfacing unless required otherwise by local jurisdiction codes.
- 4.6.11 All slopes and disturbed areas not receiving aggregate surfacing are to be prepared and seeded for erosion protection as approved by the Authority.
- 4.6.12 If utilities are to remain in place, the Contractor will provide adequate means of protection for those utilities during earthwork operation.
- 4.6.13 No buildings or other structures will be located within the defined utility service or other right of ways.
- 4.6.14 Where necessary, the Contractor will furnish and apply aggregate surface course over the access road, fence area including one (1) foot outside the fence perimeter, guy anchor fencing, vehicular turn around, and parking area. Crushed stone (#3 gravel with a minimum depth of four (4) inches) will consist of clean, round, tough, durable particles.
- 4.6.15 The Contractor will furnish and apply Amoco (or approved equal) woven fabric underlayment under all aggregate surfacing. The Contractor will submit the specifications for the underlayment during Design Review.
- 4.6.16 Finish grading will be performed after the work in the area is complete and just prior to placing gravel surfacing. Fill, if necessary, will be brought to finished grades indicated and will be graded to drain water away from structures. A minimum slope of 2% will be provided for positive drainage away from proposed structures. Grading will provide an even, smooth surface free from cellulose materials, large rocks, and other deleterious materials.
- 4.6.17 All sub-surface or below grade materials installed per design specification, particularly metallic pipes, rods and tubing, will be suitable for the soil condition findings in the geotechnical investigation report and will be protected against corrosion with means and methods as recommended in the Report.

- 4.6.18 The Contractor will provide suitable materials for fill and backfill as defined in Uniform Soil Classification System: as GW, GP, SW, SP, or SM, and which is free from cellulose materials and debris.
- 4.6.19 Excavation will be carried to depths and contours indicated or necessary.
- 4.6.20 Excavations will be kept free from water while work therein is in progress.
- 4.6.21 Excavated materials of suitable quality as defined hereinbefore may be used for fill or backfill.
- 4.6.22 Unsuitable and surplus excavated material will be removed from the Authority's property and legally disposed of by the Contractor.
- 4.6.23 Fill and backfill will be placed in layers not exceeding six (6) inches in depth and each layer compacted to at least 95% of the maximum dry density in accordance with ASTM D 1557, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort, ASTM International, West Conshohocken, PA, <http://www.astm.org/>.
- 4.6.24 All antenna support structure foundation designs will have a minimum safety factor of 2.0 and will be designed per the applicable geotechnical investigation report. The Contractor will submit the report to the Authority during Design Review and the appropriate jurisdiction(s).
- 4.6.25 The geometric center of the antenna support structure will be the coordinate point for the site for purpose of PSBN frequency coordination, licensing, and other coordinates-based filing, unless directed otherwise by the Authority during Design Review.
- 4.6.26 Care will be exercised to keep inserts in position until concrete has set.
- 4.6.27 Foundation construction will include all related and incidental operations required to complete the excavating, filling and backfilling related to the construction of the foundations as specified herein.
- 4.6.28 The Contractor's Engineer of Record will provide a mix design for all concrete poured on-site.

- 4.6.29 The Contractor's Engineer of Record will provide reinforcing steel designs for all concrete structures.
- 4.6.30 All reinforcing steel will be new deformed bars, conforming to ASTM A-615, Grade 60.
- 4.6.31 All foundation and soil work will conform to the recommendations of the geotechnical investigation report.
- 4.6.32 Concrete will be consolidated with the use of vibrators.
- 4.6.32.1 If honeycombs are present after forms are removed the structure will be rejected.
- 4.6.32.2 There will be a spare vibratory device on site during concrete placement.
- 4.6.32.3 Concrete will be provided from a certified and licensed batch plant.
- 4.6.33 Concrete delivery tickets will specify the truck's time of departure from the batch plant and the drum rotation counter number, and copies will be provided to the Authority Project Manager.
- 4.6.34 Concrete will be mixed and placed only when the temperature is at least forty (40) degrees F. and rising. When temperature is ninety (90) degrees F. or above, or is likely to rise above ninety (90) degrees F. within the twenty-four (24) hour period after concrete placement, follow recommendations of ACI 305. Alternatively, when the temperature of the surrounding air is below forty degrees (40) F., concrete will have a temperature between sixty (60) degrees F. and ninety (90) degrees F. When placing concrete, the Contractor will follow recommendations of ACI 306 or the latest version.
- 4.6.35 Concrete for drilled foundations will be placed with a tremie having a diameter of at least eight times the maximum size of the aggregate. Concrete will be placed with the aid of mechanical vibration equipment applied directly to the concrete for the top 10 feet. The intensity of vibration will be sufficient to cause flow or settlement of concrete in place without causing segregation of the mix.
- 4.6.36 Concrete will be placed continuously to avoid cold joints. Cold joints are not permitted and will result in rejection of the structure.

- 4.6.37 The Contractor will engage a certified testing lab (Lab) to be on-site during delivery and placement of concrete. The Lab will be the sole judge of the acceptability of the concrete arriving at the site.
- 4.6.37.1 The Lab will provide concrete testing during placement and will inspect and certify reinforcing steel and form work prior to placement.
 - 4.6.37.2 Concrete tests will include time of placement, temperature, drum rotation, slump, and air entrainment.
 - 4.6.37.3 Time of placement will be no greater than ninety minutes from departure from the batch plant.
 - 4.6.37.4 Drum rotations will be three hundred or less.
 - 4.6.37.5 Temperature will be eighty degrees or less.
 - 4.6.37.6 Slump will be no greater than specified by the Engineer of Record.
 - 4.6.37.7 Air entrainment will be no greater than specified by the Engineer of Record.
- 4.6.38 The Lab will take four cylinder samples for compressive testing. The cylinders will be tested, one at seven days and two at twenty-eight days. If the concrete samples fail the compressive test, the structure will be rejected and the concrete will be removed and replaced at no cost to the Authority.
- 4.6.39 Slabs must be poured level with no cross fall slope provided.
- 4.6.40 One (1) inch chamfer will be provided on edges of exposed footing.
- 4.6.41 The Contractor will comply with all Federal, State and local trenching requirements including OSHA standards for trenching and excavation.
- 4.6.42 Contractor shall locate known existing installations before proceeding with trenching or other operations that may cause damage, shall maintain them in service where appropriate, and shall repair any damage to them caused by the Work, requiring no increase to the Contract Sum. If unknown utilities are encountered by Contractor, Contractor shall immediately report their existence to

the Authority. In addition to such reporting, if any utility is damaged, Contractor shall take appropriate action as provided in Section 7.3.3 (Emergencies) of the Base Document. In the event that Contractor must take reasonable action to protect or repair unknown utilities encountered during performance of the Work, then Contractor may submit a request for an Amendment in accordance with Section 2 (Changes to Agreement) of the Base Document.

- 4.6.43 The Contractor will cause minimal disturbance to the surroundings.
- 4.6.44 The Contractor will be responsible for contacting the necessary company for locating all underground utilities. Damage to the existing utilities during excavation will be repaired immediately by the Contractor at the Contractor's expense. All utilities aboveground or underground that needs re-routing will be done so at Contractor's expense. The Contractor will include this information on all appropriate documentation provided to the Authority.
- 4.6.45 Following the completion of burying all underground facilities associated with the trench, the Contractor will restore the surface to its original condition.

5. System Management and Monitoring Subsystem

5.1 General Performance Criteria

- 5.1.1 Contractor will provide a System Management and Monitoring Subsystem able to manage and monitor all of the PSBN performance criteria in this Exhibit B (PSBN Specifications). Additionally, the System Management and Monitoring Subsystem will have the capability of being securely partitioned to allow participating LA-RICS entities to manage their respective User Equipment, access detailed PSBN usage statistics, and continuously monitor overall network integrity (health), as well as remote site environmental and power conditions, if desired.
- 5.1.2 The System Management and Monitoring Subsystem will have both local and remote operational status monitoring and local and remote management capabilities.
- 5.1.3 The System Management and Monitoring Subsystem will include features to immediately notify PSBN Administrators and maintenance personnel when a condition that affects them occurs.
- 5.1.4 The System Management and Monitoring Subsystem controller will be fully redundant.
- 5.1.5 The Contractor will provide System Management and Monitoring Subsystem servers that have dedicated screens, keyboards, PC mouse, and local printers.
- 5.1.6 System Management and Monitoring Subsystem functions will be protected by tiered levels of security, including passwords for access to System Management and Monitoring Subsystem functions.
- 5.1.7 All actions taken on the PSBN will be logged and retrievable by the System Management and Monitoring Subsystem.
- 5.1.8 The System Management and Monitoring Subsystem functions will be accessible via a browser based interface from any point in the LA-RICS local or any remote location.

- 5.1.9 The PSBN will prevent User logged content from being delivered to a PSEN that does not have one of its users participating in the call or session via authorized administrative users. The intent is to prevent agency 1 (PSE-1) from receiving logged content for users belonging to agency 2 (PSE-2).
- 5.1.10 The System Management and Monitoring Subsystem will include reporting on an ad hoc or automatically scheduled basis for alarms, performance, and administrative actions (e.g., query by any alarm criteria, data time range).
- 5.1.11 The System Management and Monitoring Subsystem will be sized to accommodate existing and all PSBN Components at each site.
- 5.1.12 The Contractor will thoroughly assess the presence and functionality of existing site environmental/security alarm systems necessary to alarm Contractor provided equipment. Where such environmental, security or system functional alarming is 1) not present, 2) inadequate or 3) connection to an alarm system for reporting said alarms to the appropriate monitoring point is absent or inadequate, the Contractor will provide the site alarm system for Contractor-provided equipment at the site.
- 5.1.13 The PSBN will provide alarm monitoring for all PSBN Components for all sites.
- 5.1.14 The System Management and Monitoring Subsystem will be accessible by only authorized Users and will be administered by Authority personnel and will integrate the System Management and Monitoring System with a Microsoft Active Directory® server.
- 5.1.15 The alarm monitoring system will be capable of paging, emailing, and text messaging Authority-defined messages to service personnel.
- 5.1.16 The alarm notification and how each is handled will be configurable by the Authority, e.g., high/low priority, email, page, etc.
- 5.1.17 Control of PSBN parameters will be accomplished through a System Manager's terminal by properly authorized personnel. Parameters will include, at a minimum, all configurable elements described within this document and others required to successfully maintain and operate the PSBN.
- 5.1.18 At a minimum, the proposed System Management and Monitoring System will monitor and report the following:

- 5.1.18.1 Smoke and/or fire alarms;
- 5.1.18.2 Indoor temperature and alarms;
- 5.1.18.3 Outdoor temperature;
- 5.1.18.4 Climate control alarms;
- 5.1.18.5 Cabinet intrusion;
- 5.1.18.6 Exterior motion detector alarms;
- 5.1.18.7 Tower lighting;
- 5.1.18.8 Interconnect equipment;
- 5.1.18.9 Low/Low battery voltage for each battery;
- 5.1.18.10 UPS automatic bypass operation;
- 5.1.18.11 Rectifier/inverter failure;
- 5.1.18.12 UPS common trip alarm (form C);
- 5.1.18.13 High/low battery temperature for each battery;
- 5.1.18.14 Low/high -48 VDC;
- 5.1.18.15 All rectifier alarms;
- 5.1.18.16 Low/high temperature of the -48 VDC system;
- 5.1.18.17 Generator fuel level;
- 5.1.18.18 Generator low fuel alarms;
- 5.1.18.19 Generator fuel overfill alarms;

- 5.1.18.20 Generator battery alarms;
 - 5.1.18.21 Generator online alarms;
 - 5.1.18.22 Generator high temperature alarms;
 - 5.1.18.23 Generator over crank alarms;
 - 5.1.18.24 Generator over speed alarms;
 - 5.1.18.25 Generator low oil alarms;
 - 5.1.18.26 Generator transfer switch status;
 - 5.1.18.27 AC surge suppression alarm indication;
 - 5.1.18.28 Master time source loss of sync;
 - 5.1.18.29 Voltage Standing Wave Ration (VSWR) on output of the combining system;
 - 5.1.18.30 Low forward power;
 - 5.1.18.31 High reflected power;
 - 5.1.18.32 Interference monitoring;
 - 5.1.18.33 Loss of connectivity on any microwave or backhaul link;
 - 5.1.18.34 Loss of connectivity to the Internet;
 - 5.1.18.35 Power amplifier failure and high/low voltage; and
 - 5.1.18.36 Alarms from site frequency and time standards (e.g., GPS, etc.).
- 5.1.19 The subsystem will detect, monitor and report liquid/fuel in the annular space of the double-wall generator fuel tank.

- 5.1.20 Diagnostic functions will allow maintenance personnel to view current status and status history of the system.
- 5.1.21 The PSBN will perform remote diagnostic tests on system devices (e.g., microwave radios, power amplifiers, modems, switches, etc.) to verify component and path integrity.
- 5.1.22 The PSBN will be able to remotely restart any Component and modify each Component's firmware/software (e.g., roll back or upgrade).
- 5.1.23 A diagnostic and alarm history will include, but not be limited to, alarm history (daily, weekly, monthly), alarm acknowledgement history, including ID of user that acknowledged the alarm.
- 5.1.24 The diagnostic and alarm history will include, but not be limited to, alarm history (by Component).
- 5.1.25 The diagnostic and alarm history will include, but not be limited to, technician's notes.
- 5.1.26 The alarm and performance reporting of the PSBN will be displayed using a hierarchical and geographic representation of the PSBN and its subsystems using graphical icons.
- 5.1.27 Selecting an icon such as a site will reveal the next level of system detail, allowing the user to then select lower subsystem, down to the board level.
- 5.1.28 Alarms will appear as flashing icons, representing the component and sub-systems affected. Flashing icons will alternate between the priority color and their normal appearance.
- 5.1.29 The alarm system will support administratively configurable audible alarms by priority.
- 5.1.30 The System will allow an administrator to configure alarm priority levels. The Contractor will state the available alarm priority levels and how they may be changed.

- 5.1.31 The System will allow an administrator to define the color associated with each alarm priority.
- 5.1.32 The System will allow a system administrator to define/redefine any alarm.
- 5.1.33 All alarms triggered by related events will be aggregated, reported and cleared as a single alarm (e.g., only one alarm will be triggered in case of an eNodeB connectivity failure and microwave radio failure supporting the eNodeB).

5.2 PSBN Performance Criteria

- 5.2.1 All PSBN system configuration management, alarm management, change management, performance management, and other system functions will be integrated into the System Management and Monitoring Subsystem in order to provide a single User interface for the Authority.
- 5.2.2 The PSBN will provide real-time and near real-time network OSS/NMS-based visibility to network and service quality status.
- 5.2.3 The PSBN will be capable of supporting services that may require elements of IP Multimedia Subsystem (IMS) environments for the control and management of services.
- 5.2.4 The PSBN will provide LA-RICS Member agencies the capability to efficiently provision, delete, and modify Users and User groups. The PSBN will allow partitioning by Member agency Users.
- 5.2.5 The PSBN will provide LA-RICS Member agencies with the ability to establish UE and application priorities.
- 5.2.6 The PSBN will provide LA-RICS Member agencies detailed PSBN usage statistics, and the ability to continuously monitor overall network and localized network integrity (health), as well as eNodeB environmental and power conditions by affected Member (that portion of the PSBN that affects the Member's service).
- 5.2.7 The PSBN System Management and Monitoring Subsystem will provide partitioning the PSBN by affected Member (e.g., providing alarms and performance management capabilities for the core, sectors, and backhaul serving one city within

Los Angeles County). The Contractor will provide the proposed configuration of partitioning during Design Review.

- 5.2.8 The PSBN will provide over-the-air management for end-user devices (individually or in groups of devices) to provision, modify and disable devices. Such over-the-air management will be based on Open Mobile Alliance Device Management version 1.2.1 standards.
- 5.2.9 The PSBN will provide automatic notifications of malfunctions or failures that impact end Users' services and applications.
- 5.2.10 The PSBN will provide automated notification to LA-RICS Members of system downtime (or any work that may affect service or system performance) due to planned maintenance, configuration changes, or PSBN Updates.
- 5.2.11 The System Management and Monitoring Subsystem will aggregate all alarm and network status information as a "manager of managers".
- 5.2.12 The System Management and Monitoring Subsystem will support additional Simple Network Management Protocol (SNMP) Version 1, Version 2 and Version 3 managed devices, agents and network management systems. Traps and Management Information Bases (MIBs) outside of Contractor supplied Components and such costs are included in Section 3 (Detailed Breakdown of Pricing for Delivery of the Base PSBN) of Contractor's Response to Appendix H (Pricing Requirements – Scored) contained in Exhibit C (Schedule of Payments). Contractor will provide SNMP traps and MIBs for all PSBN Components to be served as managed devices/agents by a third party management system.
- 5.2.13 The System Management and Monitoring Subsystem will support double the total amount of data and interfaces above the initial PSBN deployment.
- 5.2.14 All PSBN Components will be monitored using the System Management and Monitoring Subsystem.
- 5.2.15 The System Management and Monitoring Subsystem will deliver a detailed history of PSBN activities including call detail records for a minimum of twenty-four (24) months.

- 5.2.16 The database of the System Management and Monitoring Subsystem will use Open Database Connectivity (ODBC) standards or the equivalent, and will be fully accessible by third party reporting and management systems (e.g., Crystal Reports).
- 5.2.17 The System Management and Monitoring Subsystem will retain aggregated data at the daily, weekly, monthly, and annually levels for a longer period of time to be determined during Design Review. Administrative activities (e.g., system parameter changes) will be logged permanently or as otherwise determined by the Authority.
- 5.2.18 The System Management and Monitoring Subsystem will be licensed to accommodate fifty (50) Authority users plus in addition to Users required by the Contractor to accommodate its role in network operations.
- 5.2.19 The System Management and Monitoring Subsystem will provide historical information for all post launch KPI and SLA parameters. KPIs and SLA parameters available in real-time will be defined during design review. Aggregation (e.g., at system-wide levels) will be developed during design review.
- 5.2.20 The System Management and Monitoring Subsystem will provide real-time and historical information on interference levels per sector.

5.3 Network Operations Center

- 5.3.1 The Contractor will establish a local Network Operations Center (NOC) to allow the Authority to monitor and perform maintenance on the PSBN.
- 5.3.2 The local NOC will support all System Management and Monitoring Subsystem functions.
- 5.3.3 The location of the NOC will be at a location designated by the Authority.
- 5.3.4 The NOC will have the capability to remotely troubleshoot and reset system failures with the PSBN.
- 5.3.5 The NOC will include six User workstations each complete with dual twenty-three (23) inch or larger screens, computer, keyboard, mouse, and speakers.

6. Inventory Management Subsystem

6.1 General Performance Criteria

- 6.1.1 The PSBN will include an Inventory Management Subsystem that tracks all Components in the PSBN.
- 6.1.2 The Contractor will utilize and update the Inventory Management Subsystem from the initial Component delivery to the end of term of the Agreement.
- 6.1.3 The Contractor will enter every piece of equipment delivered to the Authority into this database program.
- 6.1.4 The database will be capable of tracking equipment based on an individual LA-RICS Member agency.
- 6.1.5 The Contractor will utilize this same database program to perform asset management, inventory tracking, work order management, repair parts management, and report generation, parts inventory management, software/hardware version management and service history management.
- 6.1.6 The Contractor will recommend and provide the method of tracking, e.g., Radio Frequency Identification (RFID) technology, barcode, etc. that would be suitable for LA-RICS.
- 6.1.7 Contractor will affix paper inventory labels to applicable Contractor provided equipment upon receipt in the project warehouse.
- 6.1.8 The database will be a web based application to allow users with proper authorization to access the database. The Contractor will provide 1000 levels of access.
- 6.1.9 The database access will be partitioned, at a minimum by agency and jurisdiction(s).
- 6.1.10 The Contractor will provide 200 Users that can simultaneously access the application without negatively impacting performance/response time.

- 6.1.11 At a minimum, the database will support most current version of Microsoft Internet Explorer, Google Chrome, and Firefox, at the time of implementation.
- 6.1.12 The Contractor will allow Authority personnel to access the database via Virtual Private Network (VPN) or other means of secure access public Internet network acceptable by the Authority.
- 6.1.13 The Contractor will allow Authority personnel to access the database via LA-RICS backhaul network.
- 6.1.14 Access to the database will be timed out after a predetermined amount of time, based on user inactivity detected by the database application.
- 6.1.15 The database system will provide User access logs for audit trail.
- 6.1.16 The Contractor is to provide and setup database server at an LA-RICS location to be determined at the time of handoff.
- 6.1.17 The recommended replacement rate based upon the installation environment must be provided in years for all products provided.
- 6.1.18 The Inventory Management Subsystem will provide a mechanism for reporting and tracking component problems encountered in the field. Users will be provided a means for entering component problems into the Inventory Management Subsystem.
- 6.1.19 The Inventory Management Subsystem will include an enterprise authentication system that will integrate with other platforms, such as Microsoft Active Directory®, Radius, etc.
- 6.1.20 LA-RICS access to this Inventory Management Subsystem will start when the Authority accepts the first hardware delivery.
- 6.1.21 The Inventory Management Subsystem will be configured for automatic backup on a daily basis. Contractor will provide a recommendation for the backup medium as part of this Agreement.

6.2 Inventory and Maintenance Database Performance Criteria

6.2.1 The Inventory and Maintenance Database will include, but not be limited to the following:

- 6.2.1.1 Real-time access.
- 6.2.1.2 Asset number, serial number, firmware, software version, and make/ model tracking.
- 6.2.1.3 Complete asset history of components tracked.
- 6.2.1.4 Asset search by vehicle, building, location, employee, agency ID and incident number.
- 6.2.1.5 Work Order Entry and Invoicing.
- 6.2.1.6 Technician work order tracking.
- 6.2.1.7 Project tracking, i.e., tracking multiple work orders related to one project.
- 6.2.1.8 Available to run on industry standard PDA devices, such as Smartphones and tablets.
- 6.2.1.9 Automatic Accounting and Billing by department/agency, and Employee.
- 6.2.1.10 Web Applications.
- 6.2.1.11 Point-of-sale and batch invoicing.
- 6.2.1.12 Work in-progress reports with date/time stamps.
- 6.2.1.13 Technician and administrative notes with date/time stamps.
- 6.2.1.14 Multiple service locations and contacts for a single customer.
- 6.2.1.15 Routing Information.

- 6.2.1.16 Allow transfer of work orders from one internal repair shop to another.
- 6.2.1.17 Allow customer to enter initial trouble report from customer terminal.
- 6.2.1.18 Maintenance terms.
- 6.2.1.19 Audit trails.
- 6.2.1.20 Serialized number tracking and component history.
- 6.2.1.21 Alternate ID number tracking (Asset, Vehicle ID, Electronic Serial Number).
- 6.2.1.22 Equipment frequencies, PL/ID codes, Radio IDs, Alias IDs, GStar, MDC signaling.
- 6.2.1.23 Warranty tracking and reporting.
- 6.2.1.24 Cost detail and summary.
- 6.2.1.25 Sale and installation dates.
- 6.2.1.26 Work order, service, ownership, and transfer history.
- 6.2.1.27 Work order scheduling via daily status reports.
- 6.2.1.28 Service reporting which includes service orders, technicians, billing, service and status codes, warranty and maintenance file listings, and history reporting.
- 6.2.1.29 Fully customizable work orders, packing lists and invoice forms.
- 6.2.1.30 Time and material, maintenance and recall reports.
- 6.2.1.31 Multiple work codes.
- 6.2.1.32 Complete historical recall.

- 6.2.1.33 Breakdown of hours worked and billed, total tickets worked by period and year-to-date, total hours billed by period and year-to-date.
 - 6.2.1.34 Cost and income reports for parts, labor, travel, and installation.
 - 6.2.1.35 Interface to a scheduling program as determined by the Authority during Design Review.
 - 6.2.1.36 View account balances and open items.
 - 6.2.1.37 View open sales and work orders and their real time status.
 - 6.2.1.38 Re-print open invoices to Adobe, Personal Document Format (PDF).
 - 6.2.1.39 View payment history.
 - 6.2.1.40 View historical sales and service orders.
 - 6.2.1.41 Customer views for their equipment and component information (warranty, etc.).
 - 6.2.1.42 Automatic pricing or manual override.
 - 6.2.1.43 Inventory transfer program.
 - 6.2.1.44 Work order request and work order entry.
 - 6.2.1.45 Signatures labeled for "Drop Off" or "Pick Up".
 - 6.2.1.46 Signature verification on screen, via signature capture pad, and saved when completed.
 - 6.2.1.47 Efficient and accurate way of filing signatures for historical retrieval.
- 6.2.2 This module will provide basic inventory capabilities that serve LA-RICS Member agencies needs for the accounting of equipment and supplies installed, in inventory, or assigned to personnel.

- 6.2.3 The Inventory and Maintenance Database will support Authority defined categories of equipment and supplies to be tracked and consistent with BTOP requirements. The Authority defined categories will be defined during Design Review.
- 6.2.4 At a minimum, data entry fields will be provided for Personnel Identifier, Type of Equipment, Make, Model, Year purchased, Year for replacement, Vendor information.
- 6.2.5 Fixed assets such as office furniture, equipment, and other items of capital equipment will be recorded and tracked within this Inventory and Maintenance Database.
- 6.2.6 Inventory of equipment assigned to Departmental vehicles will be recorded within this Inventory and Maintenance Database.
- 6.2.7 This Inventory and Maintenance Database will be used to assist the various agencies within LA-RICS in managing the inspection and maintenance of components other than vehicles.
- 6.2.8 The Inventory and Maintenance Database will track downtime and maintenance costs.
- 6.2.9 The outputs will include a report, which may be selected by any database field (e.g., equipment ID numbers, type of equipment, type of activity, date range, etc.).
- 6.2.10 This module will track maintenance activities and schedules, operation and maintenance costs, and work order completion/scheduling.
- 6.2.11 This module will provide reporting that would allow the completion of comparative analyses on a variety of cost items (e.g., compare the relative costs (over time) of two different vehicles of the same type).
- 6.2.12 The Contractor will provide all software, hardware and procedures for the restoration of the Inventory and Maintenance Database to full operation after a failure in both paper and softcopy formats.

7. PSBN User Equipment

7.1 General User Equipment Criteria

- 7.1.1 The PSBN will be compatible with any Category 3 or higher User Equipment (UE) meeting 3GPP specifications as defined in Section 4.2 of 3GPP TS 36.306.
- 7.1.2 All User Equipment (UEs) deployed on the PSBN will conform to the 3GPP Release 9 Uu interface enumerated in "Recommendations of the Technical Advisory Board for First Responder Interoperability" (PS Docket No 12-74) Table 1: Minimum Interoperable Interfaces.
- 7.1.3 All User Equipment (UEs) deployed on the PSBN will conform to the 3GPP Release 9 Uu interface and to the 3GPP TS 36.306 UE Radio Access Capabilities, Release 9.
- 7.1.4 All UEs deployed on the PSBN that support roaming onto commercial LTE networks will operate on any FirstNet LTE roaming partner network using bands supported by the device.
- 7.1.5 All UEs will support interworking of the device with the Universal Subscriber Identity Module (USIM) / USIM Application Toolkit (USAT) applications on the UICC in accordance with the relevant 3GPP 31.101, 31.102, and 31.111 standards. The Contractor will program the UE SIM with the correct IMSI and other information required to enable the UE to operate on the PSBN.
- 7.1.6 All UEs deployed on the NPSBN that support roaming onto commercial LTE networks will operate on any FirstNet roaming partner network using bands supported by the device.
- 7.1.7 The Contractor provided UEs, with the exception of the USB modem, will support dual IPv4/IPv6 stacks.
- 7.1.8 Prior to interoperability and System-Level testing, UEs will have already met 3GPP conformance and certification requirements per an independent conformance testing organization (e.g., the PCS Type Certification Review Board (PTCRB)).

- 7.1.9 Prior to operational deployment on the PSBN, UEs will have passed FirstNet required Interoperability Testing (e.g., using a subset of applicable test cases from the Cellular Telephone Industry Association (CTIA) Interoperability Testing (IOT) and Universal Integrated Circuit Card (UICC) functional test cases, vendor IOT or similar commercial LTE industry practice) if such test plans are available at Phase 1 NTP.
- 7.1.10 Prior to operational deployment on the PSBN, UEs will have passed FirstNet-required UICC functional testing if such test plans are available at Phase 1 NTP.

7.2 Vehicular Routers

- 7.2.1 The Contractor will provide 1,000 vehicular routers User Equipment with the following requirements:
- 7.2.2 The Contractor will provide a multi-radio mobile router that meets minimum UE Performance Criteria required to satisfy all coverage and KPI requirements in this Exhibit B (PSBN Specifications).
- 7.2.3 The User Equipment will be capable of IPv6 and backward compatible with IPv4.
- 7.2.4 The router will be over the air upgradable/configurable and provide web based configuration, status and troubleshooting access.
- 7.2.5 The router will be fully compliant with Release 9 of the 3GPP specifications and backward compatible with Release 8. The Contractor will indicate any Release 8 or 9 specifications that are not supported by the proposed hardware.
- 7.2.6 The vehicular router will include slots for at least two modems, one that provides LTE connectivity to the PSBN and is provided by the Contractor, and another modem that provides connectivity to one of the 3G or LTE commercial carriers, provided by the Authority. The slots will use standard, field serviceable slots (e.g., PC Express) installed by trained personnel. The router will allow secure and seamless switching between the two modems to select the best available network. The router will have configuration settings to determine the point at which a switch occurs.
- 7.2.7 The router will include a GPS receiver and the capability to autonomously report location to a centralized server or be polled by a centralized server and using

standards based location reports or methods compatible with Member agency Computer Aided Dispatch systems.

- 7.2.8 The router will support Downlink MIMO 2x2 configuration.
- 7.2.9 The router will transmit 200 mW maximum output power per 3GPP TS 36.101 power class 3 in the public safety band and will support at least 16QAM modulation scheme in the uplink.
- 7.2.10 The router will have an RJ-45 Ethernet interface and support connectivity to client computers.
- 7.2.11 The router shall serve as an 802.11 b/g/n access point with WPA2 security capabilities. Wi-Fi will have a web based configuration interface and will enable modification of all settings (SSID, security and encryption parameters, etc.).
- 7.2.12 The router will be ruggedized. The Contractor will provide test data attesting the device meets MIL SPEC 810G specifications.
- 7.2.13 The router will run on standard vehicle 12VDC power and will automatically power-up on ignition and will be configurable for automatic shutdown when ignition is turned off.
- 7.2.14 The router dimension will not exceed 10 (L) x 8.0 (W) x 2 (H) in and it will not weigh more than 6 pounds.
- 7.2.15 The router shall have a standard RF connector port to allow a detachable antenna or RF cable for roof-mounted vehicular installations.
- 7.2.16 The router will provide link/connectivity status indicators.
- 7.2.17 The router will include a roof penetrating antenna capable of supporting all bands supported by the UE, RF cable (for connection to the UE), integrated GPS antenna and power cable. These elements must be included in the single unit pricing for each rugged router.
- 7.2.18 The router will also include the following interfaces:

- 7.2.18.1 RJ45 Ethernet port
- 7.2.18.2 USB 2.0 of higher
- 7.2.18.3 Antenna Connectors for RF cable and GPS antenna
- 7.2.19 The router will be configured by a USB or RJ45 cable connected computer via a web based interface.
- 7.2.20 The router will support common Connection Manager (CM) framework that use the following open standards:
 - 7.2.21 Mobile Broadband Interface Model (MBIM);
 - 7.2.22 Secure On Device API (SODA);
 - 7.2.23 OMA Open Connection Manager API (Open CMAPI); and
 - 7.2.24 Pricing for the router will be inclusive of packaging, shipping and handling.

7.3 UICC (Standalone)

- 7.3.1 Contractor will provide, at additional cost and upon request, standalone UICCs for use with third party User Equipment on the PSBN.
- 7.3.2 The Contractor shall offer a 2FF plug-in form factor and a 3FF plug-in form factor for UICCs in support of the PSBN. If available, the Authority prefers that the electronics on the 2FF card type be compatible with 3FF. Resizing either card will void any Contractor support.
- 7.3.3 The Contractor shall offer a variety of quantity pricing for UICCs with a minimum order quantity of 1000 units. Contractor will evaluate on a case-by-case basis smaller quantity orders based upon inventory and material availability. Contractor will provide any additional pricing to fulfill smaller quantities at time of order.
- 7.3.4 The Contractor shall ensure that the PSBN profile information is included on the UICC and shall supply the UICC information file that supports a subscriber provisioning file format which is compatible with the PSBN subscriber provisioning system.

- 7.3.5 The Parties agree that Contractor is not responsible for the successful operation of the third party devices on the PSBN or any harm it may cause to the PSBN. Contractor recommends that before a third party device is provisioned on the system, the Authority require the device to have successfully passed device interoperability testing at a lab that tests the device on a system that essentially duplicates the PSBN. The test should be designed to confirm base level compatibility of the device for providing LTE service only on the PSBN. At the Authority's discretion, additional test cases may be required to confirm other feature compatibilities. Contractor has a test lab capable of performing the above-described test and pricing for the basic device Interoperability testing is included in Exhibit C.11.
- 7.3.6. The Parties agree to have the Contractor include the bulk uploading for purchased UICC into the subscriber provisioning manager in the unassigned state as part of their warranty or maintenance services.

8. Additive Alternates

8.1 Home Subscriber Server (HSS)

8.1.1 In addition to the Evolved Packet Core Components provided and installed by the Contractor pursuant to the above sections of this Exhibit B (PSBN Specifications), the Contractor will provide and install an HSS at FCCF. This additional installation will also contain any other Components and other Work specifically required in this Agreement or otherwise in order for the PSBN to meet the functional and performance requirements of this Exhibit B (PSBN Specifications) when operated with the HSS.

8.1.2 The HSS will have a minimum capacity of 150,000 UEs.

8.2 Redundant Evolved Packet Core

8.2.1 The PSBN will also include redundant SGW, PGW, MME, PCRF, and HSS at the LAPD Valley Dispatch Center (LAPDVDC). The LAPDVDC installation will also contain any other centralized Components and other Work specifically required in this Agreement or otherwise in order for the PSBN to meet the functional and performance requirements of this Exhibit B (PSBN Specifications) in the event of a total failure of the primary core components located at FCCF. This includes Domain Name Services (DNS), Dynamic Host Configuration Protocol (DHCP), Multi-Protocol Label Switching (MPLS), and others. The Contractor will have included pricing for the Components in each location in response to Section 4 of Contractor's Response to Appendix H (Pricing Requirements – Scored) contained in Exhibit C (Schedule of Payments).

8.3 Location Services

8.3.1 If so exercised, the PSBN will provide the capability to collect and convey User Equipment location in real time based on network assisted methods and fully compliant with 3GPP TS 23.271. The Contractor will assess the PSBN's ability to meet the Enhanced 911 location accuracy requirements if the OTDOA option in Appendix I is purchased.

8.3.2 The Contractor will provide a geo-location estimate, absent GPS information.

- 8.3.3 The Contractor will provide an Application Programming Interface (API) or other output in industry standard formats to allow sharing of geo-location content with other Member systems (e.g., to interface with the Members CADs). In addition, the Contractor will provide interoperable location content using the Open Geospatial Consortium (or equivalent) standards. Such content will be consumable on Member Geographical Information Services (GIS) systems (e.g., ArcGIS).
- 8.3.4 The Location Services system will be capable of segmenting user geolocation by agency (i.e., only authorized users or systems of a particular agency can have access to the geolocation information for that agency).

Table 4 - PSBN LTE Major Components and Software

Nothing in this Table 4 is intended to override or replace any requirements set forth in this Agreement. In the event of a conflict with anything contained in this Table 4 and a requirement otherwise set forth in this Agreement, that requirement will control.

PSBN LTE Major Components and Software	PSBN System Licensing Limitations
Primary EPC	
Mobility Management Entity (MME) Solution	100,000 SAU
Base offer includes MME Package 1, MME Package 2, MME Package 3	
LTE_MME_Software_Features - Package 1	
MME Base Platform License (8 blades)	1
MME Pool	100,000 SAU
Network-Initiated Dedicated Bearers	100,000 SAU
ANR Support	100,000 SAU
Roaming Restrictions	100,000 SAU
Access Aware Core Edge Support	100,000 SAU
IPSec for Secure Network Traffic	100,000 SAU
Lawful Intercept	100,000 SAU
MME SW Feature Package License	100,000 SAU
MME Capacity SW License (incl IP Sessions)	100,000 SAU
LTE_MME_Software_Features - Package 2	
Multiple PLMN Support	100,000 SAU
Geographically Redundant Pool	100,000 SAU
Multi-Operator Core Network	100,000 SAU
Control-Plane-Based Positioning	100,000 SAU
LTE_MME_Software_Features - Package 3	
Integrated Traffic Capture	100,000 SAU

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PSBN LTE Major Components and Software	PSBN System Licensing Limitations
Event-Based Monitoring	100,000 SAU
UE Tracer	100,000 SAU
Cause code extensions in CDR	100,000 SAU
Enhanced Packet Gateway	100,000 IP Sessions
Base offer includes EPG Package 1, EPG Package 2	
IP OPERATING SYS 12.2 SSR 8010	Embedded on Single Device
SSR 8010 BASE SYSTEM BUNDLE	Embedded on Single Device
PGW/SGW SSC Platform License	Embedded on Single Device
LTE_EPG_Software_Features - Package 1	
PDN Gateway Support	100,000 IP Sessions
Serving Gateway Support	100,000 IP Sessions
Network Initiated Dedicated Bearers (incl. 1 Dedicated Bearer per IP Sessions)	100,000 IP Sessions
Network Initiated Dedicated Bearers, expansion 1	100,000 IP Sessions
Network Initiated Dedicated Bearers, expansion 2	100,000 IP Sessions
Network Initiated Dedicated Bearers, expansion 3	100,000 IP Sessions
IMS-Based Telephony - MMTel	100,000 IP Sessions
Event Based Monitoring (EBM) - EPG Control plane events	100,000 IP Sessions
Smart Paging	100,000 IP Sessions
Lawful Intercept	100,000 IP Sessions
IP Sessions Capacity Basic SW License	100,000 IP Sessions
1 Mbps Capacity Basic SW License	5,000
LTE_EPG_Software_Features - Package 2	
Usage Monitoring	100,000 IP Sessions
Policy and Charging Rules Function (PCRF) Solution	
Base offer includes PCRF_Package 1	
LTE_PCRF_Software_Features - Package 1	
Enhanced Policy Control	100,000 IP Sessions
Basic Policy Control	100,000 IP Sessions
SAPC 3GPP Gx.	100,000 IP Sessions
Default Bearer QoS Control.	100,000 IP Sessions
Dedicated Bearer QoS Control.	100,000 IP Sessions
Usage Reporting for Gx	100,000 IP Sessions
External DB Access	100,000 IP Sessions
User Notifications.	100,000 IP Sessions
O&M Via Web Services.	100,000 IP Sessions
Dynamic Policy Control.	10,000 AF Sessions

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PSBN LTE Major Components and Software	PSBN System Licensing Limitations
SOAP Notifications	100,000 IP Sessions
Enhanced subscription handling	100,000 IP Sessions
Multimedia Priority Services - Rx Interface	10,000 AF Sessions
Analytics (Event Based Monitoring)	100,000 IP Sessions
Multimedia Priority Services - Gx interface	100,000 IP Sessions
Diameter Signaling Controller (DSC) Solution	
DSC SW	Embedded on Single Device
Diameter Message Screening and Topology Hiding	5x100 TPS
DSC 13A Basic SW package	5x100 TPS
Rate Limiting and Throttling	5x100 TPS
LTE Operation Support System Solution - RAN and EPC (OSS)	
Base offer includes OSS Package 1, OSS Package 2	
LTE OSS Operating SW	Embedded on Single Device
LTE_OSS_Software_Features - Package 1	
LTE RAN Starter OSS-RC	500 eNodeBs
IP RAN Configuration Manager	500 eNodeBs
Auto Provisioning (per Integrated eNB)	500 eNodeBs
MME Pool Manager	100,000 SAU
Pool Load Balance	100,000 SAU
Core Network Starter Package	100,000 SAU
Network Status Display	100,000 SAU
Configuration Manager	100,000 SAU
Network Surveillance eXpert	100,000 SAU
Core Network Status Analyzer	100,000 SAU
Event Based Statistics	100,000 SAU
EPC Self Diagnosis	100,000 IP Sessions
Connection to OSS-RC FM (COF) for Telecom Nodes	1
Fault Management Expert II, Rule engine (FMXR II)	1
Connection to NMS (CON)	1
Storage Checkpoints AdmServer	1
OSS Software Bundle	1
Consistency Check	Included with OSS Software Bundle
Consistency Check - User Defined	Included with OSS Software Bundle
LTE Real-Time KPI's in NSD	Included with OSS Software Bundle
Automatic PCI Selection	Included with OSS Software Bundle
ANR support IRAT	Included with OSS Software Bundle

PSBN LTE Major Components and Software	PSBN System Licensing Limitations
Mobility Support	Included with OSS Software Bundle
Network Surveillance eXpert	Included with OSS Software Bundle
Export File Editor	Included with OSS Software Bundle
Automatic PCI Collision Resolution	Included with OSS Software Bundle
Configuration Profiles	Included with OSS Software Bundle
Undo Plan	Included with OSS Software Bundle
Network Status Display	Included with OSS Software Bundle
Fallback Area	Included with OSS Software Bundle
AMOS (CPP Scripting)	Included with OSS Software Bundle
Automated Neighbour Relations - LTE	Included with OSS Software Bundle
LTE RAN OSS-RC - Users	Included with OSS Software Bundle
OMBS Server License	Embedded on Single Device
IS/IT OMBS Client SW	10
LTE_OSS_Software_Features - Package 2 (SON Virtualization)	
LTE ANR and PCI Visualization	500 eNodeBs
SON Viz Starter Package	1
LTE Device Management System Solution	
LTE Device Management Software License	100,000 Subscribers
Load Balancing	1
Storage Area Network	2
LTE System Operation Support Platform (OSP)	
System Mgmt and Monitoring OSP Package	Embedded on Single Device
Fault Management	500 eNodeBs
Subscriber Management	100,000 Subscribers
Security Monitoring	500 eNodeBs
LTE OSP Software License	500 eNodeBs
-48V DC Indoor eNodeB - 3 Sector, 2x2 MIMO, 10+10 MHz, 40DL/20UL, 40W	2 eNodeBs
-48V DC 3 Sector 2x2 MIMO INDOOR eNodeB (40DL/20UL, 40W)	2x2 MIMO, 40 DL/20UL, 40 W
LTE-FDD 10+10 MHz Bandwidth	3 Sector, 10+10 MHz
Shared LTE RAN Feature	1 per eNodeB
LTE_eNB_Software_Features - Package 1	1 per eNodeB
LTE_eNB_Software_Features - Package 2A&2B	1 per eNodeB
Integrated IP Security	1 per eNodeB
LTE-FDD DL Throughput (Mbps) - 20DL/10UL (additional)	20 DL/10UL

PSBN LTE Major Components and Software	PSBN System Licensing Limitations
RET INTERFACE UNIT (RIU)	1 per eNodeB
-48V DC Outdoor eNodeB - 3 Sector, 2x2 MIMO 10+10 MHz, 40DL/20UL, 40W	230 eNodeBs
-48V DC 3 Sector 2x2 MIMO OUTDOOR eNodeB (40DL/20UL, 40W)	2x2 MIMO, 40 DL/20UL, 40 W
LTE-FDD 10+10 MHz Bandwidth	3 Sector, 10+10 MHz
Shared LTE RAN Feature	1 per eNodeB
LTE_eNB_Software_Features - Package 1	1 per eNodeB
LTE_eNB_Software_Features - Package 2A&2B	1 per eNodeB
Integrated IP Security	1 per eNodeB
LTE-FDD DL Throughput (Mbps) - 20DL/10UL (additional)	20 DL/10 UL
RET INTERFACE UNIT (RIU)	230 eNodeBs
4-Way Receive Diversity	Licensed for 120 eNodeBs
LTE_eNB_Software_Features - Package 1	per eNodeB
Multiple Radio Bearers per user	1 per eNodeB
Dual Antenna DL performance Package	1 per eNodeB
Data Forwarding at Intra LTE Handover	1 per eNodeB
Clock source over NTP	1 per eNodeB
Automated Neighbour Relations (ANR)	1 per eNodeB
Support for 3GPP Compatible RET Antennas	1 per eNodeB
Cell ID Based Location Support	1 per eNodeB
Streaming of Events	1 per eNodeB
QoS Aware Scheduler	1 per eNodeB
A-GPS, User Plane Location Support	1 per eNodeB
IPv6 Backhaul Support	1 per eNodeB
Cross-Sector Antenna Sharing Redundancy	1 per eNodeB
Firmware Download of Antenna Line Devices	1 per eNodeB
A-GPS, Control Plane Location Support	1 per eNodeB
Limited Services Mode Emergency Support	1 per eNodeB
Enhanced Cell ID in Traces	1 per eNodeB
OTDOA, User Plane Location Support	1 per eNodeB
Dynamic GBR Admission Control	1 per eNodeB
Differentiated Admission Control	1 per eNodeB
OTDOA, Control Plane Location Support	1 per eNodeB
LTE_eNB_Value_Added_Features - Package 2A	per eNodeB
VSWR Antenna Supervision	1 per eNodeB
Dynamic QoS modification	1 per eNodeB

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PSBN LTE Major Components and Software	PSBN System Licensing Limitations
PCI Conflict Reporting	1 per eNodeB
Mobility Control at Poor Coverage	1 per eNodeB
Advanced Cell Supervision	1 per eNodeB
LPPa-based OTDOA support	1 per eNodeB
LPPa-based E-CID Support	1 per eNodeB
LTE Air Interface Load Generator	1 per eNodeB
LTE_eNB_Value_Added_Features - Package 2B	per eNodeB
PM initiated UE Measurement	1 per eNodeB
Minimum Rate Proportional Fair Scheduling	1 per eNodeB
Uplink, Frequency-Selective Scheduling	1 per eNodeB
UE Level Oscillating Handover Minimization	1 per eNodeB
Relative Priority Scheduling	1 per eNodeB
LTE_eNB_Additional_Features_Included	per eNodeB
Delay-Based Scheduling and Grant Estimation	1 per eNodeB
Quad Antenna Uplink Performance Package	Licensed for 120 eNodeBs (outdoor)
TTI Bundling	1 per eNodeB

SCHEDULE OF PAYMENTS

EXHIBIT C.1 - PSBN PAYMENT SUMMARY

Description	Unilateral Option Sum	Contract Sum - Full Payable Amount	10% Holdback Amount	Payment Less 10% Holdback Amount
Phase 1 - System Design	\$ -	\$ 14,909,240	\$ 1,251,854	\$ 13,657,386
Phase 2 - Site Construction and Site Modification	\$ -	\$ 35,325,056	\$ 3,532,520	\$ 31,792,536
Phase 3 - Supply PSBN Components	\$ -	\$ 33,555,883	\$ 3,307,916	\$ 30,247,967
Phase 4 - PSBN Implementation	\$ -	\$ 16,938,070	\$ 1,693,853	\$ 15,244,217
Subtotal (Phases 1 to 4)	\$ -	\$ 100,728,249	\$ 9,786,143	\$ 90,942,106
Phase 5 - PSBN Maintenance (First 5 Years of Maintenance)	\$ 32,369,744	\$ -	\$ 3,236,974	\$ 29,132,770
Subtotal (Phases 1 to 5)	\$ 32,369,744	\$ 100,728,249	\$ 13,023,117	\$ 120,074,876
Additive Alternate 1 - Home Subscriber Server (HSS) (Notes 1 & 2)	\$ -	\$ 960,888	\$ 96,089	\$ 864,799
Additive Alternate 2 - Redundant Evolved Packet Core (Notes 1 & 2)	\$ -	\$ 3,581,366	\$ 358,137	\$ 3,223,229
Additive Alternate 3 - Location Services	\$ 2,592,246	\$ -	\$ 259,225	\$ 2,333,021
Maintenance for Additive Alternates 1 to 3 (First 5 Years of Maintenance)	\$ 6,166,090	\$ -	\$ 616,609	\$ 5,549,481
Subtotal (Additive Alternates)	\$ 8,758,336	\$ 4,542,254	\$ 1,330,060	\$ 11,970,530
Total ([Phases 1-5] + Additive Alternates)	\$ 41,128,080	\$ 105,270,503	\$ 14,353,177	\$ 132,045,406
Phase 1 Work for 15 Cell-on-Wheels (COWs)	\$ -	\$ 411,975	\$ 41,175	\$ 370,800
Phase 2 Work for 15 Cell-on-Wheels (COWs)	\$ -	\$ 1,197,000	\$ 119,715	\$ 1,077,285
Phase 3 Work for 15 Cell-on-Wheels (COWs)	\$ -	\$ 1,948,560	\$ 194,865	\$ 1,753,695
Phase 4 Work for 15 Cell-on-Wheels (COWs)	\$ -	\$ 125,175	\$ 12,525	\$ 112,650
Restoration Work	\$ -	\$ 2,378,664	\$ -	\$ -
Fiber Optic Equipment and Related Work	\$ -	\$ 1,275,000	\$ 2,000	\$ 18,000
Site Construction Changes	\$ -	\$ 150,740	\$ 127,500	\$ 1,147,500
TOTAL CONTRACT SUM		\$112,757,617		
MAXIMUM CONTRACT SUM (Total Unilateral Option Sum + Total Contract Sum)		\$153,885,697		

* The Authority will authorize payment to Contractor for the amount of the applicable invoices less ten percent (10%) as Holdback for each deliverable under Exhibit A (Statement of Work) and Exhibit B (PSBN Specifications), however not all deliverables (i.e. insurance, bonds) in the Exhibit C, Schedule of Payments, will be subject to a 10% holdback.

Note 1: Pursuant to Amendment No. 2, effective April 7, 2014, the Authority exercised the Unilateral Option Sum for Phase 1 for both Additive Alternate No. 1, System Design for the Home Subscriber Server (HSS), and Additive Alternate No. 2, System Design for the Redundant Evolved Packet Core (EPC). In connection therewith, the Unilateral Option Sum for System Design for Phase 1 for both Additive Alternate No. 1 and Additive Alternate No. 2, in a total amount of \$359,044 was converted into a Contract Sum. The cost for the System Design for Phase 1 for both Additive Alternate No. 1 and Additive Alternate No. 2 are reflected in Exhibit C. 7 (Additive Alternates) as amended and restated in Amendment No. 2. The balance of the remaining Unilateral Option Sum for Additive Alternate No. 1 and Additive Alternate No. 2 is reflected in Exhibit C.7 (Additive Alternates).

Note 2: Pursuant to Amendment No. 4, effective July 16, 2014, the Authority exercised the Unilateral Option Sum for all Work pertaining to (i) Phase 2 for Additive Alternate No. 1, Site Construction and Site Modification for Home Subscriber Server (HSS), (ii) Phase 3 for Additive Alternate No. 1, Supply PSBN Components for the HSS, (iii) Phase 2 for Additive Alternate No. 2, Site Construction and Site Modification for the Redundant Evolved Packet Core (EPC), and (iv) Phase 3 for Additive Alternate No. 2, Supply PSBN Components for the Redundant EPC. In connection therewith, the Unilateral Option Sum for (i) Phase 2 for Additive Alternate No. 1, Site Construction and Site Modification for the HSS, (ii) Phase 3 for Additive Alternate No. 1, Supply PSBN Components for the HSS, (iii) Phase 2 for Additive Alternate No. 2, Site Construction and Site Modification for the Redundant Evolved Packet Core (EPC), and (iv) Phase 3 for Additive Alternate No. 2, Supply PSBN Components for the Redundant EPC; all in a total amount of \$2,962,648 was converted into a Contract Sum. The cost for the Site Construction and Site Modification for Phase 2 for both Additive Alternate No. 1 and Additive Alternate No. 2 are reflected in Exhibit C. 7 (Additive Alternates) as amended and restated in Amendment No. 4. The cost for Supplying PSBN Components for both Additive Alternate No. 1 and Additive Alternate No. 2 are reflected in Exhibit C.7 (Additive Alternates) as amended and restated in Amendment No. 4. The balance of the remaining Unilateral Option Sum for Additive Alternate No. 1 and Additive Alternate No. 2 is reflected in Exhibit C.7 (Additive Alternates).

Note 3: Pursuant to Amendment No. 5, effective September 24, 2014, the Authority exercised the Unilateral Option Sum for all Work pertaining to (i) Phase 4 for Additive Alternate No. 1, PSBN Implementation Work for Home Subscriber Server (HSS), and (ii) Phase 4 for Additive Alternate No. 2, PSBN Implementation Work for the Redundant Evolved Packet Core (EPC). In connection therewith, the Unilateral Option Sum for (i) Phase 4 for Additive Alternate No. 1, PSBN Implementation Work for the HSS, and (ii) Phase 4 for Additive Alternate No. 2, PSBN Implementation Work for the Redundant EPC; all in a total amount of \$1,184,562 was converted into a Contract Sum. The cost for the PSBN Implementation Work for Phase 4 for both Additive Alternate No. 1 and Additive Alternate No. 2 are reflected in Exhibit C. 7 (Additive Alternates) as amended and restated in Amendment No. 5. The cost for PSBN Implementation Work for both Additive Alternate No. 1 and Additive Alternate No. 2 are reflected in Exhibit C.7 (Additive Alternates) as amended and restated in Amendment No. 5. The balance of the remaining Unilateral Option Sum for Additive Alternate No. 1 and Additive Alternate No. 2 is reflected in Exhibit C.7 (Additive Alternates).

Note 4: Pursuant to Amendment No. 7, effective December 31, 2014, credits for Phases 1 and 2 were realized in the amount of \$1,005,807. However, the cost for power load studies in Phase 1 in the amount of \$12,444 was taken from the Credits. The remaining Credit balance of \$991,585 is reserved for use for a future replacement site(s).

SCHEDULE OF PAYMENTS EXHIBIT C.2 - PHASE 1 - SYSTEM DESIGN					
Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum ^{Note 1}	Contract Sum - Payable Amount ^{Note 1}	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.1.1	Project Kick Off	\$ -	\$ 55,238	\$ 5,524	\$ 49,714
A.2.1	General Project Management Services	\$ -	Included	-	-
A.2.2	Project Schedule	\$ -	\$ 44,190	\$ 4,419	\$ 39,771
A.2.3	Staffing Plan	\$ -	\$ 4,419	\$ 442	\$ 3,977
A.2.4	Communications Plan	\$ -	\$ 4,419	\$ 442	\$ 3,977
A.2.5	Documentation Plan	\$ -	\$ 4,419	\$ 442	\$ 3,977
A.2.6	Quality Control Plan	\$ -	\$ 4,419	\$ 442	\$ 3,977
A.2.7	Change Order Process and Management Plan	\$ -	\$ 6,629	\$ 663	\$ 5,966
A.2.8	Risk Management Plan	\$ -	\$ 6,629	\$ 663	\$ 5,966
A.2.9	Network Design and Implementation Plan	\$ -	\$ 55,238	\$ 5,524	\$ 49,714
A.2.10	Site Design and Construction Plan	\$ -	\$ 17,676	\$ 1,768	\$ 15,908
A.2.11	Testing and Acceptance Plan	\$ -	\$ 15,467	\$ 1,547	\$ 13,920
A.2.12	Training Plan	\$ -	\$ 11,048	\$ 1,105	\$ 9,943
A.2.13	Transition Plan	\$ -	\$ 2,210	\$ 221	\$ 1,989
A.2.14	Value Engineering Plan	\$ -	\$ 2,210	\$ 221	\$ 1,989
A.2.15	Disaster Recovery and Special Events Plan	\$ -	\$ 4,419	\$ 442	\$ 3,977
A.2.16	Project Management and Work Plan	\$ -	Included	-	-
A.3.1	Project Description Review	\$ -	\$ 37,560	\$ 3,756	\$ 33,804
A.3.2	System Design	\$ -	\$ 2,391,257	\$ 239,126	\$ 2,152,131
A.3.3	Site Design Per Site:	\$ -	\$ -	\$ -	\$ -
A.3.3	Alhambra PD_ALHDPD01	\$ -	\$ 7,617	\$ 762	\$ 6,855
A.3.3	Arcadia PD_ARCPD01	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Azusa PD_AZPD001	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Bell Gardens PD_BGPD001	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Beverly Hills Rexford Drive_BHR	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Bald Mountain_BMT	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Baldwin Park PD_BPPD001	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Blue Rock_BRK	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Burnt Peak_BUR	\$ -	\$ 12,031	\$ 1,203	\$ 10,828
A.3.3	Burbank PD_BURPD01	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Criminal Court Building_CCT	\$ -	\$ 30,772	\$ 3,077	\$ 27,695
A.3.3	Century_CEN	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Carlton J. Peterson Park_CJP	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Claremont Microwave Tower_CLM	\$ -	\$ 37,492	\$ 3,749	\$ 33,743
A.3.3	Claremont PD_CLRMPD1	\$ -	\$ -	\$ -	\$ -
A.3.3	FS 2_CPTFD02	\$ -	\$ 15,861	\$ 1,586	\$ 14,275
A.3.3	FS 4_CPTFD04	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Culver City Communications Tower_CULV001	\$ -	\$ 37,492	\$ 3,749	\$ 33,743
A.3.3	Downey PD_DWNYPD1	\$ -	\$ 13,658	\$ 1,366	\$ 12,292
A.3.3	El Monte PD_ELMNTPD	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	El Segundo PD_ELSGDPP	\$ -	\$ 7,617	\$ 762	\$ 6,855
A.3.3	FCCF-HQ_FCCF	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 5_FSS	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Gardena_GARD001	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Glendale Civic Center-GCC	\$ -	\$ 7,617	\$ 762	\$ 6,855
A.3.3	Glendale Water & Power UOC_GDWP001	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 23_GLNDL23	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 24_GLNDL24	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 28_GLNDL28	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 3_LACF003	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 4_LACF004	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 16_LACF016	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 21_LACF021	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 23_LACF023	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 24_LACF024	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 28_LACF028	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 30_LACF030	\$ -	\$ 36,713	\$ 3,671	\$ 33,042

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum ^{Note 1}	Contract Sum - Payable Amount ^{Note 1}	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.3.3	FS 31_LACF031	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 38_LACF038	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 44_LACF044	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 48_LACF048	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 50_LACF050	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 53_LACF053	\$ -	\$ 24,032	\$ 2,403	\$ 21,629
A.3.3	FS 56_LACF056	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 58_LACF058	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 59_LACF059	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 61_LACF061	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 65_LACF065	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 68_LACF068	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 69_LACF069	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 71_LACF071	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 72_LACF072	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 73_LACF073	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 76_LACF076	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 77_LACF077	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 78_LACF078	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 79_LACF079	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 80_LACF080	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 81_LACF081	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 83_LACF083	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 84_LACF084	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 85_LACF085	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 86_LACF086	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 87_LACF087	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 88_LACF088	\$ -	\$ 21,198	\$ 2,120	\$ 19,078
A.3.3	FS 90_LACF090	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 91_LACF091	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 92_LACF092	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 93_LACF093	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 95_LACF095	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 96_LACF096	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 98_LACF098	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 99_LACF099	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 102_LACF102	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 105_LACF105	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 106_LACF106	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 107_LACF107	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS108_LACF108	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 111_LACF111	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 112_LACF112	\$ -	\$ 2,842	\$ 284	\$ 2,558
A.3.3	FS 114_LACF114	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 117_LACF117	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 118_LACF118	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 120_LACF120	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 123_LACF123	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 129_LACF129	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 132_LACF132	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 140_LACF140	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 141_LACF141	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 144_LACF144	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 146_LACF146	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 149_LACF149	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 151_LACF151	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS153_LACF153	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 154_LACF154	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 157_LACF157	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 159_LACF159	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 161_LACF161	\$ -	\$ 13,754	\$ 1,375	\$ 12,379
A.3.3	FS 162_LACF162	\$ -	\$ 13,754	\$ 1,375	\$ 12,379
A.3.3	FS 163_LACF163	\$ -	\$ 13,754	\$ 1,375	\$ 12,379
A.3.3	FS 164_LACF164	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 169_LACF169	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 171_LACF171	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 173_LACF173	\$ -	\$ 36,713	\$ 3,671	\$ 33,042

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum ^{Note 1}	Contract Sum - Payable Amount ^{Note 1}	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.3.3	FS 181_LACF181	\$ -	\$ 21,198	\$ 2,120	\$ 19,078
A.3.3	FS 183_LACF183	\$ -	\$ 22,631	\$ 2,263	\$ 20,368
A.3.3	FS 184_LACF184	\$ -	\$ 13,658	\$ 1,366	\$ 12,292
A.3.3	FS 187_LACF187	\$ -	\$ 13,658	\$ 1,366	\$ 12,292
A.3.3	FS 188_LACF188	\$ -	\$ 13,658	\$ 1,366	\$ 12,292
A.3.3	FS 192_LACF192	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 194_LACF194	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	CP 2_LACFCP02	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	CP 9_LACFCP09	\$ -	\$ 13,754	\$ 1,375	\$ 12,379
A.3.3	CP 14_LACFCP14	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	LAC/HARBOR+UCLA MEDICAL CENTER_LACHAR	\$ -	\$ 30,772	\$ 3,077	\$ 27,695
A.3.3	LAC/OLIVEVIEW+UCLA_LACOLV	\$ -	\$ 30,772	\$ 3,077	\$ 27,695
A.3.3	LAC/USC MEDICAL CENTER_LACUSC	\$ -	\$ 30,772	\$ 3,077	\$ 27,695
A.3.3	FS 005_LAFD005	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 012_LAFD012	\$ -	\$ 11,551	\$ 1,155	\$ 10,396
A.3.3	FS 015_LAFD015	\$ -	\$ -	\$ -	\$ -
A.3.3	FS 016_LAFD016	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 019_LAFD019	\$ -	\$ -	\$ -	\$ -
A.3.3	FS 029_LAFD029	\$ -	\$ 13,658	\$ 1,366	\$ 12,292
A.3.3	FS 035_LAFD035	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 042_LAFD042	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 044_LAFD044	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 047_LAFD047	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 049_LAFD049	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 055_LAFD055	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 061_LAFD061	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 066_LAFD066	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 074_LAFD074	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 076_LAFD076	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 077_LAFD077	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 079_LAFD079	\$ -	\$ 20,524	\$ 2,052	\$ 18,472
A.3.3	FS 080_LAFD080	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 081_LAFD081	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 082_LAFD082	\$ -	\$ 21,637	\$ 2,164	\$ 19,473
A.3.3	FS 084_LAFD084	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 085_LAFD085	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 088_LAFD088	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 093_LAFD093	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 094_LAFD094	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 095_LAFD095	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 096_LAFD096	\$ -	\$ 20,524	\$ 2,052	\$ 18,472
A.3.3	FS 097_LAFD097	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 101_LAFD101	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 105_LAFD105	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 114_LAFD114	\$ -	\$ 17,551	\$ 1,755	\$ 15,796
A.3.3	Hermosa HQ_LALG100	\$ -	\$ 10,495	\$ 1,050	\$ 9,445
A.3.3	Zuma Lifeguard HQ_LALG300	\$ -	\$ 21,198	\$ 2,120	\$ 19,078
A.3.3	Lifeguard Division_LALG_HQ	\$ -	\$ 13,590	\$ 1,359	\$ 12,231
A.3.3	Lancaster_LAN	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	77TH Street Area Complex_LAPD077	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Central Area Complex_LAPDCEN	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Devonshire Area station_LAPDDVN	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Foothill Area station_LAPDFTH	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Hollenbeck Area station_LAPDHLB	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Hollywood Area station_LAPDHWL	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Mission Area station_LAPDMIS	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Northeast Area station_LAPDNED	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	North Hollywood Area Station_LAPDNHD	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Newton_LAPDNWT	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Olympic Area station_LAPDOLY	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Pacific Area station_LAPDPAC	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Rampart Area station_LAPDRAM	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Topanga Area station_LAPDTOP	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Valley Dispatch Center_LAPDVDC	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Van Nuys Area station_LAPDVNS	\$ -	\$ 36,713	\$ 3,671	\$ 33,042

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum ^{Note 1}	Contract Sum - Payable Amount ^{Note 1}	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.3.3	Wilshire Area station_LAPDWIL	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	West Los Angeles Area station_LAPDWLA	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	West Valley Area facility_LAPDWVD	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Altadena_LASDALD	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Carson_LASDCSN	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Crescenta Valley_LASDCVS	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Industry_LASDIDT	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Lakewood_LASDLKD	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Lennox (Closed)_LASDLNX	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	North County Correctional Facility_LASDNCC	\$ -	\$ 37,492	\$ 3,749	\$ 33,743
A.3.3	Norwalk_LASDNWK	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Pico Rivera_LASDPRV	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Santa Clarita Valley_LASDSCV	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	San Dimas_LASDSDM	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Temple_LASDTEM	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 2_LBFD002	\$ -	\$ 16,214	\$ 1,621	\$ 14,593
A.3.3	FS 6_LBFD006	\$ -	\$ 11,551	\$ 1,155	\$ 10,396
A.3.3	FS 9_LBFD009	\$ -	\$ 8,966	\$ 897	\$ 8,069
A.3.3	FS 12_LBFD012	\$ -	\$ -	\$ -	\$ -
A.3.3	FS 13_LBFD013	\$ -	\$ 16,213	\$ 1,621	\$ 14,592
A.3.3	FS 21_LBFD021	\$ -	\$ 16,213	\$ 1,621	\$ 14,592
A.3.3	HQ_LBFD026	\$ -	\$ -	\$ -	\$ -
A.3.3	HQ_LBPDHQ	\$ -	\$ 30,772	\$ 3,077	\$ 27,695
A.3.3	Sylmar Converter Station_E_LDWP220	\$ -	\$ -	\$ -	\$ -
A.3.3	Lost Hills/Malibu_LHS	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 2_LVFD002	\$ -	\$ 1,157	\$ 116	\$ 1,041
A.3.3	La Verne PD_LVRNPD	\$ -	\$ 1,157	\$ 116	\$ 1,041
A.3.3	FS 1_MBF001	\$ -	\$ 8,292	\$ 829	\$ 7,463
A.3.3	Mira Loma Detention Facility_MLM	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Monrovia PD_MNRVPD	\$ -	\$ 20,873	\$ 2,087	\$ 18,786
A.3.3	Montebello PD_MNTBLPD	\$ -	\$ 20,777	\$ 2,078	\$ 18,699
A.3.3	Monterey Park PD_MNTPKPD	\$ -	\$ 18,643	\$ 1,864	\$ 16,779
A.3.3	Mount Olivet Reservoir_MOR	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 2_MRF002	\$ -	\$ 20,524	\$ 2,052	\$ 18,472
A.3.3	FS 3_MTBFD03	\$ -	\$ 7,617	\$ 762	\$ 6,855
A.3.3	Mount Washington_MTW	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Goodrich_PASA001	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 33_PASFD33	\$ -	\$ 674	\$ 67	\$ 607
A.3.3	Puente Hills_PHN	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Palmdale_PLM	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	LAC/RANCHO LOS AMIGOS NATIONAL REHAB CTR_RANCHO	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 2_RDBFD02	\$ -	\$ 11,551	\$ 1,155	\$ 10,396
A.3.3	Redondo Beach PD_RDNBPD	\$ -	\$ 11,551	\$ 1,155	\$ 10,396
A.3.3	Reservoir Hill_REH	\$ -	\$ 8,292	\$ 829	\$ 7,463
A.3.3	San Pedro City Hall_SCH	\$ -	\$ 30,772	\$ 3,077	\$ 27,695
A.3.3	Southeast Area station_SEP	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 3_SFSFD03	\$ -	\$ 13,658	\$ 1,366	\$ 12,292
A.3.3	FS 4_SFSFD04	\$ -	\$ 12,225	\$ 1,223	\$ 11,002
A.3.3	South L.A._SLA	\$ -	\$ 37,492	\$ 3,749	\$ 33,743
A.3.3	FS 2_SMFD002	\$ -	\$ 7,617	\$ 762	\$ 6,855
A.3.3	South Gate PD_SOGTPD	\$ -	\$ -	\$ -	\$ -
A.3.3	San Vicente Peak_SVP	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	Southwest Area station_SWP	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	City Hall Radio Tower_TORC001	\$ -	\$ 6,500	\$ 650	\$ 5,850
A.3.3	FS 2_TORFD02	\$ -	\$ 6,500	\$ 650	\$ 5,850
A.3.3	FS 3_TORFD03	\$ -	\$ 6,500	\$ 650	\$ 5,850
A.3.3	FS 4_TORFD04	\$ -	\$ 6,500	\$ 650	\$ 5,850
A.3.3	FS 1_VEFD001	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	FS 3_VEFD003	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
A.3.3	Walnut/Diamond Bar_WAL	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.3	FS 4_WCFD004	\$ -	\$ 6,500	\$ 650	\$ 5,850
A.3.3	FS 5_WCFD005	\$ -	\$ 6,500	\$ 650	\$ 5,850
A.3.3	West Hollywood_WHD	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
A.3.4	Coverage Modeling Tool	\$ -	\$ 425,875	\$ 42,588	\$ 383,287

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum ^{Note 1}	Contract Sum - Payable Amount ^{Note 1}	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.3.5	RF Emission Report	\$ -	\$ 751,125	\$ 75,113	\$ 676,012
A.3.6	Design Review	\$ -	\$ 363,741	\$ 36,374	\$ 327,367
B.6	Inventory Management System	\$ -	\$ 659,688	\$ 65,969	\$ 593,719
Base 22.2.1	Insurance	\$ -	\$ 2,325,000	\$ -	\$ 2,325,000
Base 22.3.2	Performance Bond for Phase 1 – System Design	\$ -	\$ 45,600	\$ -	\$ 45,600
SUBTOTAL		\$ -	\$ 14,439,883	\$ 1,206,917	\$ 13,232,966
ADDITIONAL SITES (AMENDMENT NO. 8)					
A.3.3	Site Design Per Site:				
	FS 101_LACF101 (replacing CLRMPD1)	\$ -	\$ 39,389	\$ 3,939	\$ 35,450
	Oat Mountain_ONK	\$ -	\$ 36,713	\$ 3,671	\$ 33,042
	Rolling Hills Transit_RHT	\$ -	\$ 674	\$ -	\$ 674
	San Dimas_SDW	\$ -	\$ 37,492	\$ 3,749	\$ 33,743
	Verdugo Peak City_VPC	\$ -	\$ 37,492	\$ 3,749	\$ 33,743
	FS 54_LACF054 (replacing SOGTPD)	\$ -	\$ 38,735	\$ 3,874	\$ 34,861
Total for Additional Sites (Amendment No. 8)		\$ -	\$ 190,495	\$ 18,982	\$ 171,513
ADDITIONAL SITES (AMENDMENT NO. 9)					
A.3.3	Site Design Per Site:				
	Baldwin Hills_BAH	\$ -	\$ 30,772	\$ 3,077	\$ 27,695
	Compton Court Building_CCB	\$ -	\$ 37,492	\$ 3,749	\$ 33,743
	FS 69_LAFD069 (Replacing LAFD019)	\$ -	\$ 42,100	\$ 4,210	\$ 37,890
	FS 12_LBFD012N (Replacing LBFD012(O))	\$ -	\$ 38,166	\$ 3,817	\$ 34,349
	City of Long Beach 911 Dispatch_LBECOC (Replacing LBFD026)	\$ -	\$ 38,840	\$ 3,884	\$ 34,956
	City of Los Angeles DWP_LDWP243 (Replacing LDWP220)	\$ -	\$ 40,064	\$ 4,006	\$ 36,058
Total for Additional Sites (Amendment No. 9)		\$ -	\$ 227,434	\$ 22,743	\$ 204,691
POWER LOAD STUDY COSTS (AMENDMENT NO. 7)					
	Power Load Study Costs				
	_CCB	\$ -	\$ 6,222	\$ -	\$ 6,222
	_CCT	\$ -	\$ 6,222	\$ -	\$ 6,222
Total for Power Load Study Costs		\$ -	\$ 12,444	\$ -	\$ 12,444
MOBILE HOSE DRYER RACKS (AMENDMENT NO. 7)					
	Mobile Hose Dryer Racks		\$ 6,864		\$ 6,864
Total for Mobile Hose Dryer Racks		\$ -	\$ 6,864	\$ -	\$ 6,864
SITE WORK PERFORMED FOR POTENTIAL SITE(S) (AMENDMENT NO. 9)					
A.3.3	Site Design Per Site:				
	Mount Lee_MLE	\$ -	\$ 674	\$ 67	\$ 607
Total for Site Work Performed for Potential Site(s) (Amendment No. 9)		\$ -	\$ 674	\$ 67	\$ 607
ADDITIONAL SITE (AMENDMENT NO. 11)					
A.3.3	Site Design Per Site:				
	Parking Lot at Pasadena PD_PASDNPD	\$ -	\$ 31,446	\$ 3,145	\$ 28,301
Total for Additional Site (Amendment No. 11)		\$ -	\$ 31,446	\$ 3,145	\$ 28,301
TOTAL FOR PHASE 1 - SYSTEM DESIGN:		\$ -	\$ 14,909,240	\$ 1,251,854	\$ 13,657,386
<p>Note 1: Pursuant to Amendment No. 1, effective as of March 6, 2014, the Authority exercised the Unilateral Option for all Work pertaining to Phase 1. In connection therewith, the Unilateral Option Sum for Phase 1 of \$16,040,248 was converted into a Contract Sum.</p> <p>Note 2: Pursuant to Amendment No. 6, effective as of October 3, 2014, the Authority removed 3 PSBN Sites from the PSBN Design. As such, credits were realized in the amount of \$153,792.</p>					

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum ^{Note 1}	Contract Sum - Payable Amount ^{Note 1}	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
<p>Note 3: Pursuant to Amendment No. 7, effective December 31, 2014, credits for Phases 1 and 2 were realized in the amount of \$1,005,807. However, the cost for power load studies in Phase 1 in the amount of \$12,444 was taken from the Credits. The remaining Credit balance of \$991,585 is reserved for use for a future replacement site(s).</p>					
<p>Note 4: Pursuant to Amendment No. 8, effective February 17, 2015, Exhibit C.2 (Schedule of Prices - System Design) was amended by Amendment No. 8 to reflect (a) the removal of thirty-six (36) sites, (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites, and (c) the costs of mobile hose dryer racks.</p>					
<p>Note 5: Pursuant to Amendment No. 9, effective March 23, 2015, Exhibit C.2 (Schedule of Prices - System Design) was amended by Amendment No. 9 to reflect (a) the removal of twenty-four (24) sites, (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites, and (c) Phase 1 site work performed for one (1) potential site.</p>					

SCHEDULE OF PAYMENTS

EXHIBIT C.3 - PHASE 2 - SITE CONSTRUCTION & SITE MODIFICATION

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum for Site Construction Only	Unilateral Option Sum Project Administration for Site Construction Note 1	Unilateral Option Sum Note 2	Contract Sum - Payable Amount Note 2	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.4.1	General Criteria for Phase 2 – Site Construction & Site Modification Per Site:	-	-	-	-	-	-
A.4.1	Alhambra_PD_ALHPD01		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	Arcadia_PD_ARCPD01	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Azusa_PD_AZPD001	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Bell Gardens_PD_BGPD001	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Beverly Hills Rexford Drive_BHR	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Bald Mountain_BMT	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Baldwin Park_PD_BPPD001	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Blue Rock_BRK	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Burnt Peak_BUR		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	Burbank_PD_BURPD01	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Criminal Court Building_CCT	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Century_CEN	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Carlton J. Peterson Park_CJP	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Claremont Microwave Tower_CLM	\$ 8,847	\$ 1,406	-	\$ 10,253	\$ 1,025	\$ 9,228
A.4.1	Claremont_PD_CLRMPD1				\$ -	\$ -	\$ -
A.4.1	FS 2_CPTFD02		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 4_CPTFD04	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Culver City Communications Tower_CULV001	\$ 8,847	\$ 1,406	-	\$ 10,253	\$ 1,025	\$ 9,228
A.4.1	Downey_PD_DWNYPD1		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	El Monte_PD_ELMNTPD	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	El Segundo_PD_ELSGDPD		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FCCF_HQ_FCCF	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 5_FS5	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Gardena_GARD001	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Glendale Civic Center_GCC		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	Glendale Water & Power UOC_GDWP001	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 23_GLNDL23	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 24_GLNDL24	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 28_GLNDL28	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 3_LACF003	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 4_LACF004	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 16_LACF016	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 21_LACF021	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 23_LACF023	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 24_LACF024	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 28_LACF028	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 30_LACF030	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 31_LACF031	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 38_LACF038	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 44_LACF044	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 48_LACF048	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 50_LACF050	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 53_LACF053		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 56_LACF056	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 58_LACF058	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 59_LACF059	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 61_LACF061	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 65_LACF065	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 68_LACF068	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 69_LACF069	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 71_LACF071	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 72_LACF072	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 73_LACF073	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 76_LACF076	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 77_LACF077	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 78_LACF078	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 79_LACF079	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 80_LACF080	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 81_LACF081	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 83_LACF083	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 84_LACF084	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 85_LACF085	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 86_LACF086	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 87_LACF087	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum for Site Construction Only	Unilateral Option Sum Project Administration for Site Construction Note 1	Unilateral Option Sum Note 2	Contract Sum - Payable Amount Note 2	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.4.1	FS 88_LACF088	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 90_LACF090	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 91_LACF091	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 92_LACF092	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 93_LACF093	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 95_LACF095	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 96_LACF096	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 98_LACF098	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 99_LACF099	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 102_LACF102	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 105_LACF105	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 106_LACF106	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 107_LACF107	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS108_LACF108	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 111_LACF111	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 112_LACF112	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 114_LACF114	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 117_LACF117	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 118_LACF118	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 120_LACF120	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 123_LACF123	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 129_LACF129	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 132_LACF132	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 140_LACF140	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 141_LACF141	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 144_LACF144	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 146_LACF146	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 149_LACF149	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 151_LACF151	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS153_LACF153	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 154_LACF154	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 157_LACF157	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 159_LACF159	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 161_LACF161		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 162_LACF162		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 163_LACF163		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 164_LACF164	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 169_LACF169	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 171_LACF171	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 173_LACF173	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 181_LACF181		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 183_LACF183		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 184_LACF184		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 187_LACF187		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 188_LACF188		\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 192_LACF192	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 194_LACF194	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	CP 2_LACFCP02	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	CP 9_LACFCP09	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	CP 14_LACFCP14	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	LAC/HARBOR+UCLA MEDICAL CENTER_LACHAR	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	LAC/OLIVEVIEW+UCLA_LACOLV	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	LAC/USC MEDICAL CENTER_LACUSC	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 005_LAFD005	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 012_LAFD012	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 015_LAFD015	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 016_LAFD016	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 019_LAFD019	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.1	FS 029_LAFD029	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 035_LAFD035	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 042_LAFD042	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 044_LAFD044	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 047_LAFD047	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 049_LAFD049	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 055_LAFD055	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 061_LAFD061	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 066_LAFD066	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 074_LAFD074	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 076_LAFD076	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 077_LAFD077	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 079_LAFD079	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 080_LAFD080	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 081_LAFD081	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649

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A.4.1	FS 082_LAFD082	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 084_LAFD084	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 085_LAFD085	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 088_LAFD088	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 093_LAFD093	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 094_LAFD094	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 095_LAFD095	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 096_LAFD096	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 097_LAFD097	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 101_LAFD101	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 105_LAFD105	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 114_LAFD114	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Hermosa HQ_LALG100	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Zuma Lifeguard HQ_LALG300	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Lifeguard Division_LALG_HQ	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Lancaster_LAN	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	77TH Street Area Complex_LAPD077	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Central Area Complex_LAPDCEN	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Devonshire Area station_LAPDDVN	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Foothill Area station_LAPDFTH	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Hollenbeck Area station_LAPDHLB	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Hollywood Area station_LAPDHWD	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Mission Area station_LAPDMIS	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Northeast Area station_LAPDNED	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	North Hollywood Area Station_LAPDNHD	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Newton_LAPDNWT	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Olympic Area station_LAPDOLY	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Pacific Area station_LAPDPAC	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Rampart Area station_LAPDRAM	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Topanga Area station_LAPDTOP	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Valley Dispatch Center_LAPDVDC	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Van Nuys Area station_LAPDVNS	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Wilshire Area station_LAPDWIL	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	West Los Angeles Area station_LAPDWLA	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	West Valley Area facility_LAPDWVD	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Altadena_LASDALD	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Carson_LASDCSN	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Crescenta Valley_LASDCVS	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Industry_LASDIDT	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Lakewood_LASDLKD	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Lennox (Closed)_LASDLNX	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	North County Correctional Facility_LASDNCC	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Norwalk_LASDNWK	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Pico Rivera_LASDPRV	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Santa Clarita Valley_LASDSCV	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	San Dimas_LASDSDM	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Temple_LASDTEM	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 2_LBFD002	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 6_LBFD006	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 9_LBFD009	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 12_LBFD012	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.1	FS 13_LBFD013	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 21_LBFD021	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	HQ_LBFD026	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.1	HQ_LBPDHQ	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Sylmar Converter Station_E_LDWP220	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.1	Lost Hills/Malibu_LHS	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 2_LVFD002	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	La Verne PD_LVRNPD	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 1_MBF001	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Mira Loma Detention Facility_MLM	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Monrovia PD_MNRVDP	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Montebello PD_MNTBLPD	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Monterey Park PD_MNTPKPD	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Mount Olivet Reservoir_MOR	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 2_MRFD002	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	FS 3_MTFD003	\$ -	\$ 1,013	-	\$ 1,013	\$ 101	\$ 912
A.4.1	Mount Washington_MTW	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Goodrich_PASA001	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 33_PASFD33	\$ -	\$ -	-	\$ -	\$ -	\$ -

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A.4.1	Puente Hills_PHN	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Palmdale_PLM	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	LAC/RANCHO LOS AMIGOS NATIONAL REHAB CTR_RANCHO	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 2_RDBFD02		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	Redondo Beach_PD_RDNBPD		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	Reservoir Hill_REH		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	San Pedro City Hall_SCH	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Southeast Area station_SEP	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 3_SFSFD03		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 4_SFSFD04		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	South L.A._SLA	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 2_SMFD002		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	South Gate_PD_SOGTPD				\$ -	\$ -	\$ -
A.4.1	San Vicente Peak_SVP	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Southwest Area station_SWP	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	City Hall Radio Tower_TORC001		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 2_TORFD02		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 3_TORFD03		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 4_TORFD04		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 1_VEFD001	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 3_VEFD003	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Walnut/Diamond Bar_WAL	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 4_WCFD004		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	FS 5_WCFD005		\$ 1,013		\$ 1,013	\$ 101	\$ 912
A.4.1	West Hollywood_WHD	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.2	Site Preparation Per Site:	-	-	-	\$ -	\$ -	\$ -
A.4.2	Alhambra_PD_ALHDP01		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	Arcadia_PD_ARCPD01	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	Azusa_PD_AZPD001	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	Bell Gardens_PD_BGPD001	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	Beverly Hills Rexford Drive_BHR	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	Bald Mountain_BMT	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	Baldwin Park_PD_BPPD001	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	Blue Rock_BRK	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	Burnt Peak_BUR	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	Burbank_PD_BURPD01	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	Criminal Court Building_CCT	\$ 19,080	\$ 3,032	-	\$ 22,112	\$ 2,211	\$ 19,901
A.4.2	Century_CEN	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	Carlton J. Peterson Park_CJP	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	Claremont Microwave Tower_CLM	\$ 5,020	\$ 798	-	\$ 5,818	\$ 582	\$ 5,236
A.4.2	Claremont_PD_CLRMPD1				\$ -	\$ -	\$ -
A.4.2	FS 2_CPTFD02	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 4_CPTFD04	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	Culver City Communications Tower_CULV001	\$ 5,020	\$ 798	-	\$ 5,818	\$ 582	\$ 5,236
A.4.2	Downey_PD_DWNYPD1		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	El Monte_PD_ELMNTPD	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	El Segundo_PD_ELSGDPD		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FCCF_HQ_FCCF	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 5_FS5	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	Gardena_GARD001	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	Glendale Civic Center_GCC	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	Glendale Water & Power UOC_GDWP001	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 23_GLNDL23	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 24_GLNDL24	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 28_GLNDL28	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 3_LACF003	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 4_LACF004	\$ 20,974	\$ 3,232	-	\$ 24,206	\$ 2,421	\$ 21,785
A.4.2	FS 16_LACF016	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 21_LACF021	\$ 18,758	\$ 3,232	-	\$ 21,990	\$ 2,199	\$ 19,791
A.4.2	FS 23_LACF023	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 24_LACF024	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 28_LACF028	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 30_LACF030	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 31_LACF031	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 38_LACF038	\$ 13,616	\$ 3,232	-	\$ 16,848	\$ 1,685	\$ 15,163
A.4.2	FS 44_LACF044	\$ 18,781	\$ 4,052	-	\$ 22,833	\$ 2,283	\$ 20,550
A.4.2	FS 48_LACF048	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 50_LACF050	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 53_LACF053	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647

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A.4.2	FS 56_LACF056	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 58_LACF058	\$ 13,616	\$ 3,232	-	\$ 16,848	\$ 1,685	\$ 15,163
A.4.2	FS 59_LACF059	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 61_LACF061	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 65_LACF065	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 68_LACF068	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 69_LACF069	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 71_LACF071	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 72_LACF072	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 73_LACF073	\$ 3,921	\$ 4,052	-	\$ 7,973	\$ 797	\$ 7,176
A.4.2	FS 76_LACF076	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 77_LACF077	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 78_LACF078	\$ 18,781	\$ 4,052	-	\$ 22,833	\$ 2,283	\$ 20,550
A.4.2	FS 79_LACF079	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 80_LACF080	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 81_LACF081	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 83_LACF083	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 84_LACF084	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 85_LACF085	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 86_LACF086	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 87_LACF087	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 88_LACF088	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 90_LACF090	\$ 13,616	\$ 3,232	-	\$ 16,848	\$ 1,685	\$ 15,163
A.4.2	FS 91_LACF091	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 92_LACF092	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 93_LACF093	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 95_LACF095	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 96_LACF096	\$ 13,373	\$ 3,232	-	\$ 16,605	\$ 1,661	\$ 14,944
A.4.2	FS 98_LACF098	\$ 25,887	\$ 3,232	-	\$ 29,119	\$ 2,912	\$ 26,207
A.4.2	FS 99_LACF099	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 102_LACF102	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 105_LACF105	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 106_LACF106	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 107_LACF107	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS108_LACF108	\$ 18,781	\$ 4,052	-	\$ 22,833	\$ 2,283	\$ 20,550
A.4.2	FS 111_LACF111	\$ 25,973	\$ 4,052	-	\$ 30,025	\$ 3,003	\$ 27,022
A.4.2	FS 112_LACF112	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 114_LACF114	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 117_LACF117	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 118_LACF118	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 120_LACF120	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 123_LACF123	\$ 18,781	\$ 4,052	-	\$ 22,833	\$ 2,283	\$ 20,550
A.4.2	FS 129_LACF129	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 132_LACF132	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 140_LACF140	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 141_LACF141	\$ 18,781	\$ 4,052	-	\$ 22,833	\$ 2,283	\$ 20,550
A.4.2	FS 144_LACF144	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 146_LACF146	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 149_LACF149	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 151_LACF151	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS153_LACF153	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 154_LACF154	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 157_LACF157	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	FS 159_LACF159	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 161_LACF161		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 162_LACF162		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 163_LACF163		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 164_LACF164	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 169_LACF169	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 171_LACF171	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 173_LACF173	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 181_LACF181		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 183_LACF183		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 184_LACF184		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 187_LACF187		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 188_LACF188		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 192_LACF192	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 194_LACF194	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	CP 2_LACFCP02	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	CP 9_LACFCP09	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	CP 14_LACFCP14	\$ 25,505	\$ 4,052	-	\$ 29,557	\$ 2,956	\$ 26,601
A.4.2	LAC/HARBOR+UCLA MEDICAL CENTER_LACHAR	\$ 19,080	\$ 3,032	-	\$ 22,112	\$ 2,211	\$ 19,901

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A.4.2	LAC/OLIVEVIEW+UCLA_LACOLV	\$ 19,080	\$ 3,032	-	\$ 22,112	\$ 2,211	\$ 19,901
A.4.2	LAC/USC MEDICAL CENTER_LACUSC	\$ 19,080	\$ 3,032	-	\$ 22,112	\$ 2,211	\$ 19,901
A.4.2	FS 005_LAFD005	\$ 20,340	\$ 3,232	-	\$ 23,572	\$ 2,357	\$ 21,215
A.4.2	FS 012_LAFD012	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 015_LAFD015	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 016_LAFD016	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 019_LAFD019	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.2	FS 029_LAFD029	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 035_LAFD035	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 042_LAFD042	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 044_LAFD044	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 047_LAFD047	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 049_LAFD049	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 055_LAFD055	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 061_LAFD061	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 066_LAFD066	\$ 13,617	\$ 3,232	-	\$ 16,849	\$ 1,685	\$ 15,164
A.4.2	FS 074_LAFD074	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 076_LAFD076	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 077_LAFD077	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 079_LAFD079	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 080_LAFD080	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 081_LAFD081	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 082_LAFD082	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 084_LAFD084	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 085_LAFD085	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 088_LAFD088	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 093_LAFD093	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 094_LAFD094	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 095_LAFD095	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 096_LAFD096	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 097_LAFD097	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 101_LAFD101	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 105_LAFD105	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 114_LAFD114	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	Hermosa HQ_LALG100	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	Zuma Lifeguard HQ_LALG300	\$ -	\$ 4,052	-	\$ 4,052	\$ 405	\$ 3,647
A.4.2	Lifeguard Division_LALG HQ	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	Lancaster_LAN	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	77TH Street Area Complex_LAPD077	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Central Area Complex_LAPDCEN	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	Devonshire Area station_LAPDDVN	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Foothill Area station_LAPDFTH	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Hollenbeck Area station_LAPDHLB	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Hollywood Area station_LAPDHWD	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Mission Area station_LAPDMIS	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Northeast Area station_LAPDNED	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	North Hollywood Area Station_LAPDNHD	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Newton_LAPDNWT	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Olympic Area station_LAPDOLY	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Pacific Area station_LAPDPAC	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Rampart Area station_LAPDRAM	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Topanga Area station_LAPDTPA	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Valley Dispatch Center_LAPDVDC	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Van Nuys Area station_LAPDVNS	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Wilshire Area station_LAPDWIL	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	West Los Angeles Area station_LAPDWLA	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	West Valley Area facility_LAPDWVD	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Altadena_LASDALD	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Carson_LASDCSN	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Crescenta Valley_LASDCVS	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Industry_LASDIDT	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Lakewood_LASDLKD	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Lennox (Closed)_LASDLNX	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	North County Correctional Facility_LASDNCC	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Norwalk_LASDNWK	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Pico Rivera_LASDPRV	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Santa Clarita Valley_LASDSCV	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	San Dimas_LASDSDM	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Temple_LASDTEM	\$ 25,506	\$ 4,052	-	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 2_LBFD002	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 6_LBFD006	\$ -	\$ 3,232	-	\$ 3,232	\$ 323	\$ 2,909

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A.4.2	FS 9_LBFD009		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 12_LBFD012	\$ -	\$ -		\$ -	\$ -	\$ -
A.4.2	FS 13_LBFD013		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 21_LBFD021		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	HQ_LBFD026	\$ -	\$ -		\$ -	\$ -	\$ -
A.4.2	HQ_LBPDHQ	\$ 19,081	\$ 3,032		\$ 22,113	\$ 2,211	\$ 19,902
A.4.2	Sylmar Converter Station - E_LDWP220	\$ -	\$ -		\$ -	\$ -	\$ -
A.4.2	Lost Hills/Malibu_LHS	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 2_LVFD002	\$ -	\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	La Verne_PD_LVRNPD	\$ -	\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 1_MBFD001		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	Mira Loma Detention Facility_MLM	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Monrovia_PD_MNRVDP		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	Montebello_PD_MNTBLPD		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	Monterey Park_PD_MNTPKPD	\$ -	\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	Mount Olivet Reservoir_MOR	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 2_MRFD002		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 3_MTBFD03		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	Mount Washington_MTW	\$ 20,341	\$ 3,232		\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Goodrich_PASA001	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 33_PASFD33	\$ -	\$ -		\$ -	\$ -	\$ -
A.4.2	Puente Hills_PHN	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Palmdale_PLM	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	LAC/RANCHO LOS AMIGOS NATIONAL REHAB CTR_RANCHO	\$ 20,341	\$ 3,232		\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 2_RDBFD02		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	Redondo Beach_PD_RDNBPD		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	Reservoir Hill_REH		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	San Pedro City Hall_SCH	\$ 19,081	\$ 3,032		\$ 22,113	\$ 2,211	\$ 19,902
A.4.2	Southeast Area station_SEP	\$ 20,341	\$ 3,232		\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 3_SFSFD03		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 4_SFSFD04		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	South L.A._SLA	\$ 19,080	\$ 3,232		\$ 22,312	\$ 2,231	\$ 20,081
A.4.2	FS 2_SMF002		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	South Gate_PD_SOGTPD				\$ -	\$ -	\$ -
A.4.2	San Vicente Peak_SVP	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	Southwest Area station_SWP	\$ 20,341	\$ 3,232		\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	City Hall Radio Tower_TORC001		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 2_TORFD02		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 3_TORFD03		\$ 3,232		\$ 3,232	\$ 323	\$ 2,909
A.4.2	FS 4_TORFD04		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 1_VEFD001	\$ 20,341	\$ 3,232		\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	FS 3_VEFD003	\$ 20,341	\$ 3,232		\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Walnut/Diamond Bar_WAL	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 4_WCFD004		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	FS 5_WCFD005		\$ 4,052		\$ 4,052	\$ 405	\$ 3,647
A.4.2	West Hollywood_WHD	\$ 25,506	\$ 4,052		\$ 29,558	\$ 2,956	\$ 26,602
A.4.3	Construct Site Improvements Per Site:				\$ -	\$ -	\$ -
A.4.3	Alhambra_PD_ALHPD01		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Arcadia_PD_ARCPD01	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Azusa_PD_AZPD001	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Bell Gardens_PD_BGPD001	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Beverly Hills Rexford Drive_BHR	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Bald Mountain_BMT	\$ 131,284	\$ 20,858		\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	Baldwin Park_PD_BPPD001	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Blue Rock_BRK	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Burnt Peak_BUR	\$ -	\$ 16,763		\$ 16,763	\$ 1,676	\$ 15,087
A.4.3	Burbank_PD_BURPD01	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Criminal Court Building_CCT	\$ 62,869	\$ 9,988		\$ 72,857	\$ 7,286	\$ 65,571
A.4.3	Century_CEN	\$ 131,284	\$ 20,858		\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	Carlton J. Peterson Park_CJP	\$ 131,284	\$ 20,858		\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	Claremont Microwave Tower_CLM	\$ 16,528	\$ 2,626		\$ 19,154	\$ 1,915	\$ 17,239
A.4.3	Claremont_PD_CLRMPD1				\$ -	\$ -	\$ -
A.4.3	FS 2_CPTFD02	\$ -	\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 4_CPTFD04	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Culver City Communications Tower_CULV001	\$ 16,528	\$ 2,626		\$ 19,154	\$ 1,915	\$ 17,239
A.4.3	Downey_PD_DWNYPD1		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	El Monte_PD_ELMNTPD	\$ 131,284	\$ 20,858		\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	El Segundo_PD_ELSGDPD		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FCCF_HQ_FCCF	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 5_FSS	\$ 143,077	\$ 22,732		\$ 165,809	\$ 16,581	\$ 149,228

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A.4.3	Gardena_GARD001	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	Glendale Civic Center_GCC	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	Glendale Water & Power UOC_GDWP001	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 23_GLNDL23	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 24_GLNDL24	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 28_GLNDL28	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 3_LACF003	\$ 248,552	\$ 22,732	-	\$ 271,284	\$ 27,128	\$ 244,156
A.4.3	FS 4_LACF004	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 16_LACF016	\$ 222,983	\$ 22,732	-	\$ 245,715	\$ 24,572	\$ 221,143
A.4.3	FS 21_LACF021	\$ 14,504	\$ 20,858	-	\$ 35,362	\$ 3,536	\$ 31,826
A.4.3	FS 23_LACF023	\$ 172,577	\$ 22,732	-	\$ 195,309	\$ 19,531	\$ 175,778
A.4.3	FS 24_LACF024	\$ 275,214	\$ 22,732	-	\$ 297,946	\$ 29,795	\$ 268,151
A.4.3	FS 28_LACF028	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 30_LACF030	\$ 196,248	\$ 22,732	-	\$ 218,980	\$ 21,898	\$ 197,082
A.4.3	FS 31_LACF031	\$ 36,113	\$ 22,732	-	\$ 58,845	\$ 5,885	\$ 52,960
A.4.3	FS 38_LACF038	\$ 169,681	\$ 20,858	-	\$ 190,539	\$ 19,054	\$ 171,485
A.4.3	FS 44_LACF044	\$ 16,246	\$ 22,732	-	\$ 38,978	\$ 3,898	\$ 35,080
A.4.3	FS 48_LACF048	\$ 131,283	\$ 22,732	-	\$ 154,015	\$ 15,402	\$ 138,613
A.4.3	FS 50_LACF050	\$ 130,232	\$ 22,732	-	\$ 152,964	\$ 15,296	\$ 137,668
A.4.3	FS 53_LACF053	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 56_LACF056	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 58_LACF058	\$ 164,041	\$ 20,858	-	\$ 184,899	\$ 18,490	\$ 166,409
A.4.3	FS 59_LACF059	\$ 246,844	\$ 22,732	-	\$ 269,576	\$ 26,958	\$ 242,618
A.4.3	FS 61_LACF061	\$ 26,298	\$ 20,858	-	\$ 47,156	\$ 4,716	\$ 42,440
A.4.3	FS 65_LACF065	\$ 255,808	\$ 20,858	-	\$ 276,666	\$ 27,667	\$ 248,999
A.4.3	FS 68_LACF068	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 69_LACF069	\$ 263,421	\$ 20,858	-	\$ 284,279	\$ 28,428	\$ 255,851
A.4.3	FS 71_LACF071	\$ 103,115	\$ 16,383	-	\$ 119,498	\$ 11,950	\$ 107,548
A.4.3	FS 72_LACF072	\$ 131,284	\$ 16,383	-	\$ 147,667	\$ 14,767	\$ 132,900
A.4.3	FS 73_LACF073	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 76_LACF076	\$ 223,697	\$ 20,858	-	\$ 244,555	\$ 24,456	\$ 220,099
A.4.3	FS 77_LACF077	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 78_LACF078	\$ 107,672	\$ 20,858	-	\$ 128,530	\$ 12,853	\$ 115,677
A.4.3	FS 79_LACF079	\$ 130,231	\$ 20,858	-	\$ 151,089	\$ 15,109	\$ 135,980
A.4.3	FS 80_LACF080	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 81_LACF081	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 83_LACF083	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 84_LACF084	\$ 263,421	\$ 20,858	-	\$ 284,279	\$ 28,428	\$ 255,851
A.4.3	FS 85_LACF085	\$ 241,885	\$ 22,732	-	\$ 264,617	\$ 26,462	\$ 238,155
A.4.3	FS 86_LACF086	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 87_LACF087	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 88_LACF088	\$ -	\$ 16,383	-	\$ 16,383	\$ 1,638	\$ 14,745
A.4.3	FS 90_LACF090	\$ 74,965	\$ 22,732	-	\$ 97,697	\$ 9,770	\$ 87,927
A.4.3	FS 91_LACF091	\$ 263,421	\$ 20,858	-	\$ 284,279	\$ 28,428	\$ 255,851
A.4.3	FS 92_LACF092	\$ 130,231	\$ 22,732	-	\$ 152,963	\$ 15,296	\$ 137,667
A.4.3	FS 93_LACF093	\$ 142,025	\$ 22,732	-	\$ 164,757	\$ 16,476	\$ 148,281
A.4.3	FS 95_LACF095	\$ 227,213	\$ 20,858	-	\$ 248,071	\$ 24,807	\$ 223,264
A.4.3	FS 96_LACF096	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 98_LACF098	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 99_LACF099	\$ 103,115	\$ 16,383	-	\$ 119,498	\$ 11,950	\$ 107,548
A.4.3	FS 102_LACF102	\$ 275,214	\$ 22,732	-	\$ 297,946	\$ 29,795	\$ 268,151
A.4.3	FS 105_LACF105	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 106_LACF106	\$ 135,284	\$ 20,858	-	\$ 156,142	\$ 15,614	\$ 140,528
A.4.3	FS 107_LACF107	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS108_LACF108	\$ 10,011	\$ 20,858	-	\$ 30,869	\$ 3,087	\$ 27,782
A.4.3	FS 111_LACF111	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 112_LACF112	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 114_LACF114	\$ 131,283	\$ 20,858	-	\$ 152,141	\$ 15,214	\$ 136,927
A.4.3	FS 117_LACF117	\$ 260,345	\$ 22,732	-	\$ 283,077	\$ 28,308	\$ 254,769
A.4.3	FS 118_LACF118	\$ 275,214	\$ 22,732	-	\$ 297,946	\$ 29,795	\$ 268,151
A.4.3	FS 120_LACF120	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 123_LACF123	\$ 16,246	\$ 22,732	-	\$ 38,978	\$ 3,898	\$ 35,080
A.4.3	FS 129_LACF129	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 132_LACF132	\$ 190,806	\$ 20,858	-	\$ 211,664	\$ 21,166	\$ 190,498
A.4.3	FS 140_LACF140	\$ 21,038	\$ 20,858	-	\$ 41,896	\$ 4,190	\$ 37,706
A.4.3	FS 141_LACF141	\$ 25,607	\$ 20,858	-	\$ 46,465	\$ 4,647	\$ 41,818
A.4.3	FS 144_LACF144	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 146_LACF146	\$ 263,421	\$ 20,858	-	\$ 284,279	\$ 28,428	\$ 255,851
A.4.3	FS 149_LACF149	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 151_LACF151	\$ 275,214	\$ 22,732	-	\$ 297,946	\$ 29,795	\$ 268,151
A.4.3	FS153_LACF153	\$ 131,284	\$ 20,858	-	\$ 152,142	\$ 15,214	\$ 136,928
A.4.3	FS 154_LACF154	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228

AGENDA ITEM A - ENCLOSURE

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum for Site Construction Only	Unilateral Option Sum Project Administration for Site Construction Note 1	Unilateral Option Sum Note 2	Contract Sum - Payable Amount Note 2	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.4.3	FS 157_LACF157	\$ 263,421	\$ 20,858	-	\$ 284,279	\$ 28,428	\$ 255,851
A.4.3	FS 159_LACF159	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 161_LACF161		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 162_LACF162		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 163_LACF163		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 164_LACF164	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 169_LACF169	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 171_LACF171	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 173_LACF173	\$ 143,077	\$ 22,732	-	\$ 165,809	\$ 16,581	\$ 149,228
A.4.3	FS 181_LACF181		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 183_LACF183		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 184_LACF184		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 187_LACF187		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 188_LACF188		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 192_LACF192	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 194_LACF194	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	CP 2_LACFCP02	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	CP 9_LACFCP09	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	CP 14_LACFCP14	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	LAC/HARBOR+UCLA MEDICAL CENTER_LACHAR	\$ 62,870	\$ 9,988	-	\$ 72,858	\$ 7,286	\$ 65,572
A.4.3	LAC/OLIVEVIEW+UCLA_LACOLV	\$ 74,663	\$ 11,862	-	\$ 86,525	\$ 8,653	\$ 77,872
A.4.3	LAC/USC MEDICAL CENTER_LACUSC	\$ 62,870	\$ 9,988	-	\$ 72,858	\$ 7,286	\$ 65,572
A.4.3	FS 005_LAFD005	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 012_LAFD012	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 015_LAFD015	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 016_LAFD016	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 019_LAFD019	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.3	FS 029_LAFD029	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 035_LAFD035	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 042_LAFD042	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 044_LAFD044	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 047_LAFD047	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 049_LAFD049	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 055_LAFD055	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 061_LAFD061	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 066_LAFD066	\$ 205,873	\$ 22,732	-	\$ 228,605	\$ 22,861	\$ 205,744
A.4.3	FS 074_LAFD074	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 076_LAFD076	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 077_LAFD077	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 079_LAFD079	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 080_LAFD080	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 081_LAFD081	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 082_LAFD082	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 084_LAFD084	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 085_LAFD085	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 088_LAFD088	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 093_LAFD093	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 094_LAFD094	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 095_LAFD095	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 096_LAFD096	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 097_LAFD097	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 101_LAFD101	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 105_LAFD105	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 114_LAFD114	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Hermosa HQ_LALG100		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Zuma Lifeguard HQ_LALG300	\$ -	\$ 18,256	-	\$ 18,256	\$ 1,826	\$ 16,430
A.4.3	Lifeguard Division_LALG-HQ	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Lancaster_LAN	\$ 144,578	\$ 22,732	-	\$ 167,310	\$ 16,731	\$ 150,579
A.4.3	77TH Street Area Complex_LAPD077	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Central Area Complex_LAPDCEN	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	Devonshire Area station_LAPDDVN	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Foothill Area station_LAPDFTH	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Hollenbeck Area station_LAPDHLB	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Hollywood Area station_LAPDHWD	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Mission Area station_LAPDMIS	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	Northeast Area station_LAPDNED	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	North Hollywood Area Station_LAPDNHD	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Newton_LAPDNWT	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Olympic Area station_LAPDOLY	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Pacific Area station_LAPDPAC	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Rampart Area station_LAPDRAM	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Topanga Area station_LAPDTOP	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229

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A.4.3	Valley Dispatch Center_LAPDVDC	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Van Nuys Area station_LAPDVNS	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Wilshire Area station_LAPDWIL	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	West Los Angeles Area station_LAPDWLA	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	West Valley Area facility_LAPDWVD	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Altadena_LASDALD	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Carson_LASDCSN	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Crescenta Valley_LASDCVS	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Industry_LASDIDT	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Lakewood_LASDLKD	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Lennox (Closed)_LASDLNX	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	North County Correctional Facility_LASDNCC	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	Norwalk_LASDNWK	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Pico Rivera_LASDPRV	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	Santa Clarita Valley_LASDSCV	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	San Dimas_LASDSDM	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	Temple_LASDTEM	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 2_LBFD002		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 6_LBFD006		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 9_LBFD009		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 12_LBFD012	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.3	FS 13_LBFD013		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 21_LBFD021		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	HQ_LBFD026	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.3	HQ_LBPDHQ	\$ 62,870	\$ 9,988	-	\$ 72,858	\$ 7,286	\$ 65,572
A.4.3	Sylmar Converter Station - E_LDWP220	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.3	Lost Hills/Malibu_LHS	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 2_LVFD002	\$ -	\$ 22,732	-	\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	La Verne_PD_LVRNPD	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 1_MBF001		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Mira Loma Detention Facility_MLM	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Monrovia_PD_MNRVPD		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Montebello_PD_MNTBBLPD		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	Monterey Park_PD_MNTPKPD	\$ -	\$ 20,858	-	\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	Mount Olivet Reservoir_MOR	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 2_MRFD002		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 3_MTFD03		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Mount Washington_MTW	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Goodrich_PASA001	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 33_PASFD33	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.4.3	Puente Hills_PHN	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Palmdale_PLM	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	LAC/RANCHO LOS AMIGOS NATIONAL REHAB CTR_RANCHO	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 2_RDBFD02		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	Redondo Beach_PD_RDNBPD		\$ 19,178		\$ 19,178	\$ 1,918	\$ 17,260
A.4.3	Reservoir Hill_REH		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	San Pedro City Hall_SCH	\$ 62,870	\$ 9,988	-	\$ 72,858	\$ 7,286	\$ 65,572
A.4.3	Southeast Area station_SEP	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 3_SFSFD03		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 4_SFSFD04		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	South L.A._SLA	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 2_SMFD002		\$ 17,305		\$ 17,305	\$ 1,731	\$ 15,574
A.4.3	South Gate_PD_SOGTPD				\$ -	\$ -	\$ -
A.4.3	San Vicente Peak_SVP	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	Southwest Area station_SWP	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	City Hall Radio Tower_TORC001		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 2_TORFD02		\$ 22,732		\$ 22,732	\$ 2,273	\$ 20,459
A.4.3	FS 3_TORFD03		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 4_TORFD04		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 1_VEFD001	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	FS 3_VEFD003	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Walnut/Diamond Bar_WAL	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 4_WCFD004		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	FS 5_WCFD005		\$ 20,858		\$ 20,858	\$ 2,086	\$ 18,772
A.4.3	West Hollywood_WHD	\$ 131,285	\$ 20,858	-	\$ 152,143	\$ 15,214	\$ 136,929
Base 22.2.2	Builder's Risk Insurance	\$ 173,938	-	-	\$ 173,938	\$ 17,394	\$ 156,544
Base 22.3.2	Performance Bond for Phase 2 - Site Construction and Site Modification	\$ 288,800	-	-	\$ 288,800	\$ 28,880	\$ 259,920
Base 22.3.3	Materials and Labor Bond for Phase 2 - Site Construction and Site Modification	Included	-	-	\$ -	\$ -	\$ -
Subtotal:		\$ 27,367,531	\$ 5,830,559	\$ -	\$ 33,198,090	\$ 3,319,818	\$ 29,878,272

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum for Site Construction Only	Unilateral Option Sum Project Administration for Site Construction <small>Note 1</small>	Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
ADDITIONAL SITES (AMENDMENT NO. 8)							
A.4.1	General Criteria for Phase 2 – Site Construction & Site Modification Per Site:						
A.4.1	FS 101_LACFI01 (replacing CLRMPD1)	\$ 6,375	\$ 1,013.00	-	\$ 7,388	\$ 739	\$ 6,649
A.4.1	Oat Mountain_ONK	\$ 6,375	-	-	\$ 6,375	\$ 638	\$ 5,737
A.4.1	Rolling Hills Transit_RHT	\$ -	-	-	\$ -	\$ -	\$ -
A.4.1	San Dimas_SDW	\$ 6,375	-	-	\$ 6,375	\$ 638	\$ 5,737
A.4.1	Verdugo Peak City_VPC	\$ 6,375	-	-	\$ 6,375	\$ 638	\$ 5,737
A.4.1	FS 54_LACF054 (replacing SOGTPD)	\$ 6,375	\$ 1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.2	Site Preparation Per Site:				\$ -		
A.4.2	FS 101_LACFI01 (replacing CLRMPD1)	\$ 19,521	\$ 4,052	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	Oat Mountain_ONK	\$ 25,505	-	-	\$ 25,505	\$ 2,551	\$ 22,954
A.4.2	Rolling Hills Transit_RHT	\$ -	-	-	\$ -	\$ -	\$ -
A.4.2	San Dimas_SDW	\$ 25,505	-	-	\$ 25,505	\$ 2,551	\$ 22,954
A.4.2	Verdugo Peak City_VPC	\$ 25,505	-	-	\$ 25,505	\$ 2,551	\$ 22,954
A.4.2	FS 54_LACF054 (replacing SOGTPD)	\$ 20,341	\$ 3,232	-	\$ 23,573	\$ 2,357	\$ 21,216
A.4.3	Construct Site Improvements Per Site:				\$ -		
A.4.3	FS 101_LACFI01 (replacing CLRMPD1)	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
A.4.3	Oat Mountain_ONK	\$ 143,078	-	-	\$ 143,078	\$ 14,308	\$ 128,770
A.4.3	Rolling Hills Transit_RHT	\$ -	-	-	\$ -	\$ -	\$ -
A.4.3	San Dimas_SDW	\$ 143,078	-	-	\$ 143,078	\$ 14,308	\$ 128,770
A.4.3	Verdugo Peak City_VPC	\$ 143,078	-	-	\$ 143,078	\$ 14,308	\$ 128,770
A.4.3	FS 54_LACF054 (replacing SOGTPD)	\$ 143,078	\$ 22,732	-	\$ 165,810	\$ 16,581	\$ 149,229
Total for Additional Sites (Amendment No. 8)		\$ 863,642	\$ 54,774	\$ -	\$ 918,416	\$ 91,845	\$ 826,571
ADDITIONAL SITES (AMENDMENT NO. 9)							
A.4.1	General Criteria for Phase 2 – Site Construction & Site Modification Per Site:						
A.4.1	Baldwin Hills_BAH	\$ 6,375	\$ -	\$ -	\$ 6,375	\$ 638	\$ 5,737
A.4.1	Compton Court Building_CCB	\$ 6,375	\$ -	\$ -	\$ 6,375	\$ 638	\$ 5,737
A.4.1	FS 69_LAFD069 (Replacing LAFD019)	\$ 6,375	\$ 1,013	\$ -	\$ 7,388	\$ 739	\$ 6,649
A.4.1	FS 12_LBFD012(N) (Replacing LBFD012(O))	\$ 6,375	\$ 1,013	\$ -	\$ 7,388	\$ 739	\$ 6,649
A.4.1	City of Long Beach 911 Dispatch_LBECOC (Replacing LBFD026)	\$ 6,375	\$ 1,013	\$ -	\$ 7,388	\$ 739	\$ 6,649
A.4.1	City of Los Angeles DWP_LDWP243 (Replacing LDWP220)	\$ 6,375	\$ 1,013	\$ -	\$ 7,388	\$ 739	\$ 6,649
A.4.2	Site Preparation Per Site:				\$ -		
A.4.2	Baldwin Hills_BAH	\$ 25,505	\$ -	\$ -	\$ 25,505	\$ 2,551	\$ 22,954
A.4.2	Compton Court Building_CCB	\$ 25,505	\$ -	\$ -	\$ 25,505	\$ 2,551	\$ 22,954
A.4.2	FS 69_LAFD069 (Replacing LAFD019)	\$ 25,506	\$ 4,052	\$ -	\$ 29,558	\$ 2,956	\$ 26,602
A.4.2	FS 12_LBFD012(N) (Replacing LBFD012(O))	\$ 20,341	\$ 3,232	\$ -	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	City of Long Beach 911 Dispatch_LBECOC (Replacing LBFD026)	\$ 20,341	\$ 3,232	\$ -	\$ 23,573	\$ 2,357	\$ 21,216
A.4.2	City of Los Angeles DWP_LDWP243 (Replacing LDWP220)	\$ 25,506	\$ 4,052	\$ -	\$ 29,558	\$ 2,956	\$ 26,602
A.4.3	Construct Site Improvements Per Site:				\$ -		
A.4.3	Baldwin Hills_BAH	\$ 143,078	\$ -	\$ -	\$ 143,078	\$ 14,308	\$ 128,770
A.4.3	Compton Court Building_CCB	\$ 143,078	\$ -	\$ -	\$ 143,078	\$ 14,308	\$ 128,770
A.4.3	FS 69_LAFD069 (Replacing LAFD019)	\$ 131,285	\$ 20,858	\$ -	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	FS 12_LBFD012(N) (Replacing LBFD012(O))	\$ 131,285	\$ 20,858	\$ -	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	City of Long Beach 911 Dispatch_LBECOC (Replacing LBFD026)	\$ 131,285	\$ 20,858	\$ -	\$ 152,143	\$ 15,214	\$ 136,929
A.4.3	City of Los Angeles DWP_LDWP243 (Replacing LDWP220)	\$ 131,285	\$ 20,858	\$ -	\$ 152,143	\$ 15,214	\$ 136,929
Total for Additional Sites (Amendment No. 9)		\$ 992,250	\$ 102,052	\$ -	\$ 1,094,302	\$ 109,432	\$ 984,870

Deliverable/ Task No./ Subtask No./ Section No. (Exhibit A, B, or Base Document)	Deliverable	Unilateral Option Sum for Site Construction Only	Unilateral Option Sum Project Administration for Site Construction <small>Note 1</small>	Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
ADDITIONAL SITE (AMENDMENT NO. 11)							
A.4.1	General Criteria for Phase 2 – Site Construction & Site Modification Per Site:						
A.4.1	Parking Lot at Pasadena PD_PASDNPD	\$ 6,375	1,013	-	\$ 7,388	\$ 739	\$ 6,649
A.4.2	Site Preparation Per Site:				\$ -	\$ -	\$ -
A.4.2	Parking Lot at Pasadena PD_PASDNPD	\$ 19,080	4,052	-	\$ 23,132	\$ 2,313	\$ 20,819
A.4.3	Construct Site Improvements Per Site:				\$ -		
A.4.3	Parking Lot at Pasadena PD_PASDNPD	\$ 62,870	20,858	-	\$ 83,728	\$ 8,373	\$ 75,355
Total for Additional Site (Amendment No. 11)		\$ 88,325	\$ 25,923	\$ -	\$ 114,248	\$ 11,425	\$ 102,823
TOTAL FOR PHASE 2 - SITE CONSTRUCTION AND SITE MODIFICATION:		\$ 29,311,748	\$ 6,013,308	\$ -	\$ 35,325,056	\$ 3,532,520	\$ 31,792,536

Note 1: Project Administration costs for removed sites will be handled via the Amendment process set forth in Section 2 (Changes to Agreement) of the Base Document.

Note 2: Pursuant to Amendment No. 3, effective as of June 20, 2014, the Authority exercised the Unilateral Options for all Work pertaining to Phase 2. In connection therewith, the Unilateral Option Sum for Phase 2 of \$44,324,412 was converted into a Contract Sum.

Note 3: Pursuant to Amendment No. 6, effective as of October 3, 2014, the Authority removed 3 PSBN Sites from the PSBN Design. As such, credits were realized in the amount of \$501,289.

Note 4: Pursuant to Amendment No. 6, effective as of October 3, 2014, the Authority replaced certain PSBN Sites with disguised antenna support structures. The increases represent the difference between the original cost and the increased cost of disguised antenna support structures. As such, increased costs were realized in the amount of \$3,966,484. Please refer to Exhibit C.10 for detailed information on specific increases.

Note 5: Pursuant to Amendment No. 7, effective as of December 31, 2014, the Authority (a) replaced undisguised antenna support structures at certain PSBN Sites with various types of antenna support structures which resulted in credits or increases, (b) reflected an increase to add a parking light to one (1) site, and (c) reflected an increase to paint a monopole at one (1) site; all of which resulted in a cost increase of \$113,523 in Phase 2. Further, Amendment No. 7, Phase 2, reflects revised hose tower pricing which resulted in credits to 28 sites in the total amount of \$1,112,272. As such, Amendment No. 7 reflects an increase in credits from \$501,289 to \$1,889,118, an increase in Increases from \$3,966,484 to \$4,355,565, all of which reflects a net total increase of \$1,005,807 in credits between Phase 1 and Phase 2. However, the cost for power load studies in Phase 1 in the amount of \$12,444 was taken from the Credits. The remaining Credit balance of \$991,585 is reserved for use for a future replacement site(s). Please refer to Exhibit C.10 for detailed information on specific increases.

Note 6: Pursuant to Amendment No. 8, effective February 17, 2015, Exhibit C.3 (Schedule of Prices - Site Construction & Site Modification) was amended by Amendment No. 8 to reflect (a) the removal of thirty-six (36) sites, and (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites.

Note 7: Pursuant to Amendment No. 9, effective March 23, 2015, Exhibit C.3 (Schedule of Prices - Site Construction & Site Modification) was amended by Amendment No. 9 to reflect (a) the removal of twenty-four (24) sites, and (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites.

Note 8: Pursuant to Amendment No. 12 Exhibit C.3 (Schedule of Prices - Site Construction & Site Modification) was amended to reflect (a) the removal of forty-two (42) sites. These reductions to the Contract Sum are for the removal of 42 construction sites from the program. The reductions are from the Contract price for each site, adjusted by the agreed percentage completion for that site, as was jointly determined by the Authority and the Contractor. These reductions do not reflect any Contractor claims for additional above-scope work at any of these site. Review of those Contractor claims is still ongoing and will, if warranted, be reflected in future Contract amendments. In addition, the total Contract amounts for the Contractor's Project Management attributed to each site is presently being left in the Contract Sum, and will later be adjusted, as necessary, as part of the resolution of the Contractor's claims for Project Management expenses.

SCHEDULE OF PAYMENTS

EXHIBIT C.4 - PHASE 3 - SUPPLY PSBN COMPONENTS

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Unilateral Option Sum for Supply Components Only	Unilateral Option Sum Project Administration for Supply Components <small>Note 1</small>	Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.5.1	Supply PSBN Components:	-	-	-	\$ -	-	-
A.5.1	Primary EPC	\$ 2,641,266	\$ 392,564	-	\$ 3,033,830	\$ 303,383	\$ 2,730,447
A.5.1	Network Management System	\$ 1,201,185	\$ 168,242	-	\$ 1,369,427	\$ 136,943	\$ 1,232,484
A.5.1	System Spares	\$ 1,482,865		-	\$ 1,482,865	\$ 148,287	\$ 1,334,578
A.5.1	Vehicular Routers	\$ 2,345,485	-	-	\$ 2,345,485	\$ 234,549	\$ 2,110,936
A.5.1	Site Detail Summary for eNodeBs and Backhaul Per Site:	-	-	-	\$ -	\$ -	\$ -
A.5.1	Alhambra PD_ALHPPD01		\$ 2,909	-	\$ 2,909	\$ 291	\$ 2,618
A.5.1	Arcadia PD_ARCPD01	\$ 182,367	\$ 2,683	-	\$ 185,050	\$ 18,505	\$ 166,545
A.5.1	Azusa PD_AZPD001	\$ 173,314	\$ 2,550	-	\$ 175,864	\$ 17,586	\$ 158,278
A.5.1	Bell Gardens PD_BGPD001	\$ 181,614	\$ 2,672	-	\$ 184,286	\$ 18,429	\$ 165,857
A.5.1	Beverly Hills Rexford Drive_BHR	\$ 193,175	\$ 2,842	-	\$ 196,017	\$ 19,602	\$ 176,415
A.5.1	Bald Mountain_BMT	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	Baldwin Park PD_BPPD001	\$ 176,607	\$ 2,598	-	\$ 179,205	\$ 17,921	\$ 161,284
A.5.1	Blue Rock_BRK	\$ 190,857	\$ 2,808	-	\$ 193,665	\$ 19,367	\$ 174,298
A.5.1	Burnt Peak_BUR	\$ -	\$ 1,815	-	\$ 1,815	\$ 182	\$ 1,633
A.5.1	Burbank PD_BURPD01	\$ 178,192	\$ 2,621	-	\$ 180,813	\$ 18,081	\$ 162,732
A.5.1	Criminal Court Building_CCT	\$ 167,621	\$ 2,466	-	\$ 170,087	\$ 17,009	\$ 153,078
A.5.1	Century_CEN	\$ 157,292	\$ 2,314	-	\$ 159,606	\$ 15,961	\$ 143,645
A.5.1	Carlton J. Peterson Park_CJP Claremont Microwave Tower_CLM	\$ 172,845	\$ 2,543	-	\$ 175,388	\$ 17,539	\$ 157,849
A.5.1	Claremont CLM	\$ 167,289	\$ 2,583	-	\$ 169,872	\$ 16,987	\$ 152,885
A.5.1	Claremont PD_CLRMPD1			-	\$ -	\$ -	\$ -
A.5.1	FS 2_CPTFD02	\$ -	\$ 2,306	-	\$ 2,306	\$ 231	\$ 2,075
A.5.1	FS 4_CPTFD04 Culver City Communications Tower_CULV001	\$ 182,385	\$ 2,683	-	\$ 185,068	\$ 18,507	\$ 166,561
A.5.1	Downey PD_DWNYPD1	\$ 143,921	\$ 2,239	-	\$ 146,160	\$ 14,616	\$ 131,544
A.5.1	Downey PD_DWNYPD1		\$ 2,838	-	\$ 2,838	\$ 284	\$ 2,554
A.5.1	El Monte PD_ELMNTPD	\$ 156,377	\$ 2,300	-	\$ 158,677	\$ 15,868	\$ 142,809
A.5.1	El Segundo PD_ELSGDPD		\$ 2,221	-	\$ 2,221	\$ 222	\$ 1,999
A.5.1	FCCF -HQ_FCCF	\$ 494,106	\$ 7,269	-	\$ 501,375	\$ 50,138	\$ 451,237
A.5.1	FS 5_FS5	\$ 158,310	\$ 2,329	-	\$ 160,639	\$ 16,064	\$ 144,575
A.5.1	Gardena_GARD001	\$ 179,997	\$ 2,648	-	\$ 182,645	\$ 18,265	\$ 164,380
A.5.1	Glendale Civic Center_GCC Glendale Water & Power UOC_GDWP001	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	UOC_GDWP001	\$ 167,242	\$ 2,460	-	\$ 169,702	\$ 16,970	\$ 152,732
A.5.1	FS 23_GLNDL23	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 24_GLNDL24	\$ 173,339	\$ 2,550	-	\$ 175,889	\$ 17,589	\$ 158,300
A.5.1	FS 28_GLNDL28	\$ 171,986	\$ 2,530	-	\$ 174,516	\$ 17,452	\$ 157,064
A.5.1	FS 3_LACF003	\$ -	\$ 2,314	-	\$ 2,314	\$ 231	\$ 2,083
A.5.1	FS 4_LACF004	\$ -	\$ 2,329	-	\$ 2,329	\$ 233	\$ 2,096
A.5.1	FS 16_LACF016	\$ -	\$ 2,743	-	\$ 2,743	\$ 274	\$ 2,469
A.5.1	FS 21_LACF021	\$ -	\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS 23_LACF023	\$ -	\$ 2,824	-	\$ 2,824	\$ 282	\$ 2,542
A.5.1	FS 24_LACF024	\$ 172,732	\$ 2,541	-	\$ 175,273	\$ 17,527	\$ 157,746
A.5.1	FS 28_LACF028	\$ 156,377	\$ 2,300	-	\$ 158,677	\$ 15,868	\$ 142,809

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Unilateral Option Sum for Supply Components Only	Unilateral Option Sum Project Administration for Supply Components <small>Note 1</small>	Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.5.1	FS 30_LACF030	\$ 158,038	\$ 2,325	-	\$ 160,363	\$ 16,036	\$ 144,327
A.5.1	FS 31_LACF031	\$ -	\$ 2,661	-	\$ 2,661	\$ 266	\$ 2,395
A.5.1	FS 38_LACF038	\$ -	\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS 44_LACF044	\$ -	\$ 2,895	-	\$ 2,895	\$ 290	\$ 2,605
A.5.1	FS 48_LACF048	\$ 19,100	\$ 2,547	-	\$ 21,647	\$ 2,165	\$ 19,482
A.5.1	FS 50_LACF050	\$ 9,550	\$ 2,317	-	\$ 11,867	\$ 1,187	\$ 10,680
A.5.1	FS 53_LACF053	\$ -	\$ 2,530	-	\$ 2,530	\$ 253	\$ 2,277
A.5.1	FS 56_LACF056	\$ 191,448	\$ 2,816	-	\$ 194,264	\$ 19,426	\$ 174,838
A.5.1	FS 58_LACF058	\$ 9,550	\$ 2,314	-	\$ 11,864	\$ 1,186	\$ 10,678
A.5.1	FS 59_LACF059	\$ 44,859	\$ 2,687	-	\$ 47,546	\$ 4,755	\$ 42,791
A.5.1	FS 61_LACF061	\$ 19,100	\$ 1,864	-	\$ 20,964	\$ 2,096	\$ 18,868
A.5.1	FS 65_LACF065	\$ 19,100	\$ 1,864	-	\$ 20,964	\$ 2,096	\$ 18,868
A.5.1	FS 68_LACF068	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 69_LACF069	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 71_LACF071	\$ 123,167	\$ 1,812	-	\$ 124,979	\$ 12,498	\$ 112,481
A.5.1	FS 72_LACF072	\$ 123,167	\$ 1,812	-	\$ 124,979	\$ 12,498	\$ 112,481
A.5.1	FS 73_LACF073	\$ -	\$ 2,530	-	\$ 2,530	\$ 253	\$ 2,277
A.5.1	FS 76_LACF076	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 77_LACF077	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 78_LACF078	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 79_LACF079	\$ 120,245	\$ 2,553	-	\$ 122,798	\$ 12,280	\$ 110,518
A.5.1	FS 80_LACF080	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 81_LACF081	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 83_LACF083	\$ -	\$ 2,543	-	\$ 2,543	\$ 254	\$ 2,289
A.5.1	FS 84_LACF084	\$ 173,540	\$ 2,553	-	\$ 176,093	\$ 17,609	\$ 158,484
A.5.1	FS 85_LACF085	\$ 19,100	\$ 2,898	-	\$ 21,998	\$ 2,200	\$ 19,798
A.5.1	FS 86_LACF086	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 87_LACF087	\$ 114,185	\$ 2,314	-	\$ 116,499	\$ 11,650	\$ 104,849
A.5.1	FS 88_LACF088	\$ -	\$ 1,812	-	\$ 1,812	\$ 181	\$ 1,631
A.5.1	FS 90_LACF090	\$ -	\$ 2,598	-	\$ 2,598	\$ 260	\$ 2,338
A.5.1	FS 91_LACF091	\$ 172,902	\$ 2,543	-	\$ 175,445	\$ 17,545	\$ 157,900
A.5.1	FS 92_LACF092	\$ -	\$ 2,560	-	\$ 2,560	\$ 256	\$ 2,304
A.5.1	FS 93_LACF093	\$ 19,100	\$ 2,721	-	\$ 21,821	\$ 2,182	\$ 19,639
A.5.1	FS 95_LACF095	\$ 9,550	\$ 2,838	-	\$ 12,388	\$ 1,239	\$ 11,149
A.5.1	FS 96_LACF096	\$ -	\$ 2,662	-	\$ 2,662	\$ 266	\$ 2,396
A.5.1	FS 98_LACF098	\$ -	\$ 2,669	-	\$ 2,669	\$ 267	\$ 2,402
A.5.1	FS 99_LACF099	\$ 171,493	\$ 2,523	-	\$ 174,016	\$ 17,402	\$ 156,614
A.5.1	FS 102_LACF102	\$ 171,986	\$ 2,530	-	\$ 174,516	\$ 17,452	\$ 157,064
A.5.1	FS 105_LACF105	\$ 157,292	\$ 2,314	-	\$ 159,606	\$ 15,961	\$ 143,645
A.5.1	FS 106_LACF106	\$ 171,986	\$ 2,530	-	\$ 174,516	\$ 17,452	\$ 157,064
A.5.1	FS 107_LACF107	\$ -	\$ 2,543	-	\$ 2,543	\$ 254	\$ 2,289
A.5.1	FS108_LACF108	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 111_LACF111	\$ -	\$ 2,530	-	\$ 2,530	\$ 253	\$ 2,277
A.5.1	FS 112_LACF112	\$ -	\$ 2,543	-	\$ 2,543	\$ 254	\$ 2,289
A.5.1	FS 114_LACF114	\$ 120,245	\$ 2,547	-	\$ 122,792	\$ 12,279	\$ 110,513
A.5.1	FS 117_LACF117	\$ 122,431	\$ 2,628	-	\$ 125,059	\$ 12,506	\$ 112,553
A.5.1	FS 118_LACF118	\$ 167,138	\$ 2,459	-	\$ 169,597	\$ 16,960	\$ 152,637
A.5.1	FS 120_LACF120	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 123_LACF123	\$ -	\$ 2,688	-	\$ 2,688	\$ 269	\$ 2,419

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A.5.1	FS 129_LACF129	\$ 173,540	\$ 2,553	-	\$ 176,093	\$ 17,609	\$ 158,484
A.5.1	FS 132_LACF132	\$ 122,431	\$ 2,543	-	\$ 124,974	\$ 12,497	\$ 112,477
A.5.1	FS 140_LACF140	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 141_LACF141	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 144_LACF144	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 146_LACF146	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 149_LACF149	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 151_LACF151	\$ 178,516	\$ 2,626	-	\$ 181,142	\$ 18,114	\$ 163,028
A.5.1	FS153_LACF153	\$ 171,986	\$ 2,530	-	\$ 174,516	\$ 17,452	\$ 157,064
A.5.1	FS 154_LACF154	\$ 184,917	\$ 2,720	-	\$ 187,637	\$ 18,764	\$ 168,873
A.5.1	FS 157_LACF157	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 159_LACF159	\$ 190,920	\$ 2,809	-	\$ 193,729	\$ 19,373	\$ 174,356
A.5.1	FS 161_LACF161		\$ 2,456	-	\$ 2,456	\$ 246	\$ 2,210
A.5.1	FS 162_LACF162		\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS 163_LACF163		\$ 2,664	-	\$ 2,664	\$ 266	\$ 2,398
A.5.1	FS 164_LACF164	\$ 157,280	\$ 2,314	-	\$ 159,594	\$ 15,959	\$ 143,635
A.5.1	FS 169_LACF169	\$ 167,792	\$ 2,468	-	\$ 170,260	\$ 17,026	\$ 153,234
A.5.1	FS 171_LACF171	\$ 168,156	\$ 2,474	-	\$ 170,630	\$ 17,063	\$ 153,567
A.5.1	FS 173_LACF173	\$ 167,056	\$ 2,457	-	\$ 169,513	\$ 16,951	\$ 152,562
A.5.1	FS 181_LACF181		\$ 2,675	-	\$ 2,675	\$ 268	\$ 2,407
A.5.1	FS 183_LACF183		\$ 2,445	-	\$ 2,445	\$ 245	\$ 2,200
A.5.1	FS 184_LACF184		\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS 187_LACF187		\$ 2,547	-	\$ 2,547	\$ 255	\$ 2,292
A.5.1	FS 188_LACF188		\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 192_LACF192	\$ 157,292	\$ 2,314	-	\$ 159,606	\$ 15,961	\$ 143,645
A.5.1	FS 194_LACF194	\$ 157,235	\$ 2,313	-	\$ 159,548	\$ 15,955	\$ 143,593
A.5.1	CP 2_LACFCP02	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	CP 9_LACFCP09	\$ -	\$ 2,897	-	\$ 2,897	\$ 290	\$ 2,607
A.5.1	CP 14_LACFCP14	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	LAC/HARBOR+UCLA MEDICAL CENTER_LACHAR	\$ 157,486	\$ 2,317	-	\$ 159,803	\$ 15,980	\$ 143,823
A.5.1	LAC/OLIVEVIEW+UCLA_LACOLV LAC/USC MEDICAL CENTER_LACUSC	\$ 183,099	\$ 2,693	-	\$ 185,792	\$ 18,579	\$ 167,213
A.5.1	FS 005_LAFD005	\$ 151,597	\$ 2,230	-	\$ 153,827	\$ 15,383	\$ 138,444
A.5.1	FS 012_LAFD012	\$ -	\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS 015_LAFD015	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.5.1	FS 016_LAFD016	\$ 156,377	\$ 2,300	-	\$ 158,677	\$ 15,868	\$ 142,809
A.5.1	FS 019_LAFD019	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.5.1	FS 029_LAFD029	\$ -	\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS 035_LAFD035	\$ -	\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 042_LAFD042	\$ 162,155	\$ 2,385	-	\$ 164,540	\$ 16,454	\$ 148,086
A.5.1	FS 044_LAFD044	\$ 157,280	\$ 2,314	-	\$ 159,594	\$ 15,959	\$ 143,635
A.5.1	FS 047_LAFD047	\$ 111,131	\$ 1,635	-	\$ 112,766	\$ 11,277	\$ 101,489
A.5.1	FS 049_LAFD049	\$ 168,842	\$ 2,484	-	\$ 171,326	\$ 17,133	\$ 154,193
A.5.1	FS 055_LAFD055	\$ 156,377	\$ 2,300	-	\$ 158,677	\$ 15,868	\$ 142,809
A.5.1	FS 061_LAFD061	\$ 167,550	\$ 2,465	-	\$ 170,015	\$ 17,002	\$ 153,013
A.5.1	FS 066_LAFD066	\$ 9,550	\$ 2,444	-	\$ 11,994	\$ 1,199	\$ 10,795
A.5.1	FS 074_LAFD074	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 076_LAFD076	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Unilateral Option Sum for Supply Components Only	Unilateral Option Sum Project Administration for Supply Components <small>Note 1</small>	Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
A.5.1	FS 077_LAFD077	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 079_LAFD079	\$ -	\$ 2,757	-	\$ 2,757	\$ 276	\$ 2,481
A.5.1	FS 080_LAFD080	\$ 111,131	\$ 1,635	-	\$ 112,766	\$ 11,277	\$ 101,489
A.5.1	FS 081_LAFD081	\$ 157,280	\$ 2,314	-	\$ 159,594	\$ 15,959	\$ 143,635
A.5.1	FS 082_LAFD082	\$ -	\$ 2,618	-	\$ 2,618	\$ 262	\$ 2,356
A.5.1	FS 084_LAFD084	\$ 173,339	\$ 2,550	-	\$ 175,889	\$ 17,589	\$ 158,300
A.5.1	FS 085_LAFD085	\$ 158,038	\$ 2,325	-	\$ 160,363	\$ 16,036	\$ 144,327
A.5.1	FS 088_LAFD088	\$ 182,691	\$ 2,687	-	\$ 185,378	\$ 18,538	\$ 166,840
A.5.1	FS 093_LAFD093	\$ 182,748	\$ 2,688	-	\$ 185,436	\$ 18,544	\$ 166,892
A.5.1	FS 094_LAFD094	\$ 162,583	\$ 2,392	-	\$ 164,975	\$ 16,498	\$ 148,477
A.5.1	FS 095_LAFD095	\$ 156,377	\$ 2,300	-	\$ 158,677	\$ 15,868	\$ 142,809
A.5.1	FS 096_LAFD096	\$ -	\$ 2,546	-	\$ 2,546	\$ 255	\$ 2,291
A.5.1	FS 097_LAFD097	\$ 172,845	\$ 2,543	-	\$ 175,388	\$ 17,539	\$ 157,849
A.5.1	FS 101_LAFD101	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS 105_LAFD105	\$ -	\$ 2,530	-	\$ 2,530	\$ 253	\$ 2,277
A.5.1	FS 114_LAFD114	\$ -	\$ 2,329	-	\$ 2,329	\$ 233	\$ 2,096
A.5.1	Hermosa HQ_LALG100		\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	Zuma Lifeguard HQ_LALG300	\$ -	\$ 2,524	-	\$ 2,524	\$ 252	\$ 2,272
A.5.1	Lifeguard Division_LALG-HQ	\$ -	\$ 2,459	-	\$ 2,459	\$ 246	\$ 2,213
A.5.1	Lancaster_LAN	\$ 173,540	\$ 2,553	-	\$ 176,093	\$ 17,609	\$ 158,484
A.5.1	77TH Street Area Complex_LAPD077	\$ 156,295	\$ 2,299	-	\$ 158,594	\$ 15,859	\$ 142,735
A.5.1	Central Area Complex_LAPDCEN	\$ -	\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	Devonshire Area station_LAPDDVN	\$ 185,667	\$ 2,731	-	\$ 188,398	\$ 18,840	\$ 169,558
A.5.1	Foothill Area station_LAPDFTH	\$ 193,441	\$ 2,846	-	\$ 196,287	\$ 19,629	\$ 176,658
A.5.1	Hollenbeck Area station_LAPDHLB	\$ 156,453	\$ 2,301	-	\$ 158,754	\$ 15,875	\$ 142,879
A.5.1	Hollywood Area station_LAPDHWD	\$ 172,267	\$ 2,534	-	\$ 174,801	\$ 17,480	\$ 157,321
A.5.1	Mission Area station_LAPDMIS	\$ 173,339	\$ 2,550	-	\$ 175,889	\$ 17,589	\$ 158,300
A.5.1	Northeast Area station_LAPDNED	\$ 166,414	\$ 2,448	-	\$ 168,862	\$ 16,886	\$ 151,976
A.5.1	North Hollywood Area Station_LAPDNHD	\$ 178,411	\$ 2,625	-	\$ 181,036	\$ 18,104	\$ 162,932
A.5.1	Newton_LAPDNWT	\$ 158,108	\$ 2,326	-	\$ 160,434	\$ 16,043	\$ 144,391
A.5.1	Olympic Area station_LAPDOLY	\$ 175,749	\$ 2,585	-	\$ 178,334	\$ 17,833	\$ 160,501
A.5.1	Pacific Area station_LAPDPAC	\$ 169,072	\$ 2,487	-	\$ 171,559	\$ 17,156	\$ 154,403
A.5.1	Rampart Area station_LAPDRAM	\$ 151,633	\$ 2,231	-	\$ 153,864	\$ 15,386	\$ 138,478
A.5.1	Topanga Area station_LAPDTOP	\$ 156,383	\$ 2,300	-	\$ 158,683	\$ 15,868	\$ 142,815
A.5.1	Valley Dispatch Center_LAPDVDC	\$ 224,746	\$ 3,306	-	\$ 228,052	\$ 22,805	\$ 205,247
A.5.1	Van Nuys Area station_LAPDVNS	\$ 167,346	\$ 2,462	-	\$ 169,808	\$ 16,981	\$ 152,827
A.5.1	Wilshire Area station_LAPDWIL	\$ 157,729	\$ 2,320	-	\$ 160,049	\$ 16,005	\$ 144,044
A.5.1	West Los Angeles Area station_LAPDWLA	\$ 175,838	\$ 2,587	-	\$ 178,425	\$ 17,843	\$ 160,582
A.5.1	West Valley Area facility_LAPDWVD	\$ 176,213	\$ 2,592	-	\$ 178,805	\$ 17,881	\$ 160,924
A.5.1	Altadena_LASDALD	\$ 182,762	\$ 2,689	-	\$ 185,451	\$ 18,545	\$ 166,906
A.5.1	Carson_LASDCSN	\$ 186,920	\$ 2,750	-	\$ 189,670	\$ 18,967	\$ 170,703
A.5.1	Crescenta Valley_LASDCVS	\$ 183,185	\$ 2,695	-	\$ 185,880	\$ 18,588	\$ 167,292
A.5.1	Industry_LASDIDT	\$ 181,413	\$ 2,669	-	\$ 184,082	\$ 18,408	\$ 165,674
A.5.1	Lakewood_LASDLKD	\$ 158,257	\$ 2,328	-	\$ 160,585	\$ 16,059	\$ 144,526

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A.5.1	Lennox (Closed)_LASDLNX	\$ 156,295	\$ 2,299	-	\$ 158,594	\$ 15,859	\$ 142,735
A.5.1	North County Correctional Facility_LASDNCC	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	Norwalk_LASDNWK	\$ 192,962	\$ 2,839	-	\$ 195,801	\$ 19,580	\$ 176,221
A.5.1	Pico Rivera_LASDP RV	\$ 157,729	\$ 2,320	-	\$ 160,049	\$ 16,005	\$ 144,044
A.5.1	Santa Clarita Valley_LASDSCV	\$ 181,833	\$ 2,675	-	\$ 184,508	\$ 18,451	\$ 166,057
A.5.1	San Dimas_LASDSDM	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	Temple_LASDTEM	\$ 192,907	\$ 2,838	-	\$ 195,745	\$ 19,575	\$ 176,170
A.5.1	FS_2_LBFD002		\$ 2,445	-	\$ 2,445	\$ 245	\$ 2,200
A.5.1	FS_6_LBFD006		\$ 1,635	-	\$ 1,635	\$ 164	\$ 1,471
A.5.1	FS_9_LBFD009		\$ 2,933	-	\$ 2,933	\$ 293	\$ 2,640
A.5.1	FS_12_LBFD012	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.5.1	FS_13_LBFD013		\$ 1,635	-	\$ 1,635	\$ 164	\$ 1,471
A.5.1	FS_21_LBFD021		\$ 2,320	-	\$ 2,320	\$ 232	\$ 2,088
A.5.1	HQ_LBFD026	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.5.1	HQ_LBPDHQ	\$ 156,917	\$ 2,308	-	\$ 159,225	\$ 15,923	\$ 143,302
A.5.1	Sylmar Converter Station - E_LDWP220	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.5.1	Lost Hills/Malibu_LHS	\$ 126,741	\$ 1,864	-	\$ 128,605	\$ 12,861	\$ 115,744
A.5.1	FS_2_LVFD002	\$ -	\$ 2,687	-	\$ 2,687	\$ 269	\$ 2,418
A.5.1	La Verne PD_LVRNPD	\$ -	\$ 2,530	-	\$ 2,530	\$ 253	\$ 2,277
A.5.1	FS_1_MBFD001		\$ 2,303	-	\$ 2,303	\$ 230	\$ 2,073
A.5.1	Mira Loma Detention Facility_MLM	\$ 184,245	\$ 2,710	-	\$ 186,955	\$ 18,696	\$ 168,259
A.5.1	Monrovia PD_MNRVDP		\$ 2,669	-	\$ 2,669	\$ 267	\$ 2,402
A.5.1	Montebello PD_MNTBLPD		\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	Monterey Park PD_MNTPKPD	\$ -	\$ 2,314	-	\$ 2,314	\$ 231	\$ 2,083
A.5.1	Mount Olivet Reservoir_MOR	\$ 171,986	\$ 2,530	-	\$ 174,516	\$ 17,452	\$ 157,064
A.5.1	FS_2_MRFD002		\$ 2,663	-	\$ 2,663	\$ 266	\$ 2,397
A.5.1	FS_3_MTBFD03		\$ 2,374	-	\$ 2,374	\$ 237	\$ 2,137
A.5.1	Mount Washington_MTW	\$ 167,931	\$ 2,470	-	\$ 170,401	\$ 17,040	\$ 153,361
A.5.1	Goodrich_PASA001	\$ 182,872	\$ 2,690	-	\$ 185,562	\$ 18,556	\$ 167,006
A.5.1	FS_33_PASFD33	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.5.1	Puente Hills_PHN	\$ 230,824	\$ 3,396	-	\$ 234,220	\$ 23,422	\$ 210,798
A.5.1	Palmdale_PLM	\$ 172,713	\$ 2,541	-	\$ 175,254	\$ 17,525	\$ 157,729
A.5.1	LAC/RANCHO LOS AMIGOS NATIONAL REHAB CTR_RANCHO	\$ 156,786	\$ 2,306	-	\$ 159,092	\$ 15,909	\$ 143,183
A.5.1	FS_2_RDBFD02		\$ 2,324	-	\$ 2,324	\$ 232	\$ 2,092
A.5.1	Redondo Beach PD_RDNBPD		\$ 2,310	-	\$ 2,310	\$ 231	\$ 2,079
A.5.1	Reservoir Hill_REH		\$ 2,843	-	\$ 2,843	\$ 284	\$ 2,559
A.5.1	San Pedro City Hall_SCH	\$ 167,824	\$ 2,469	-	\$ 170,293	\$ 17,029	\$ 153,264
A.5.1	Southeast Area station_SEP	\$ 180,498	\$ 2,655	-	\$ 183,153	\$ 18,315	\$ 164,838
A.5.1	FS_3_SFSFD03		\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS_4_SFSFD04		\$ 2,314	-	\$ 2,314	\$ 231	\$ 2,083
A.5.1	South L.A._SLA	\$ 181,745	\$ 2,674	-	\$ 184,419	\$ 18,442	\$ 165,977
A.5.1	FS_2_SMFD002		\$ 2,478	-	\$ 2,478	\$ 248	\$ 2,230
A.5.1	South Gate PD_SOGTPD			-	\$ -	\$ -	\$ -
A.5.1	San Vicente Peak_SVP	\$ 172,902	\$ 2,543	-	\$ 175,445	\$ 17,545	\$ 157,900
A.5.1	Southwest Area station_SWP	\$ 158,108	\$ 2,326	-	\$ 160,434	\$ 16,043	\$ 144,391
A.5.1	City Hall Radio Tower_TORC001		\$ 2,679	-	\$ 2,679	\$ 268	\$ 2,411

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A.5.1	FS 2_TORFD02		\$ 2,688	-	\$ 2,688	\$ 269	\$ 2,419
A.5.1	FS 3_TORFD03		\$ 2,300	-	\$ 2,300	\$ 230	\$ 2,070
A.5.1	FS 4_TORFD04		\$ 2,530	-	\$ 2,530	\$ 253	\$ 2,277
A.5.1	FS 1_VEFD001	\$ 157,499	\$ 2,317	-	\$ 159,816	\$ 15,982	\$ 143,834
A.5.1	FS 3_VEFD003	\$ 158,327	\$ 2,329	-	\$ 160,656	\$ 16,066	\$ 144,590
A.5.1	Walnut/Diamond Bar_WAL	\$ 172,845	\$ 2,543	-	\$ 175,388	\$ 17,539	\$ 157,849
A.5.1	FS 4_WCFD004		\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	FS 5_WCFD005		\$ 1,864	-	\$ 1,864	\$ 186	\$ 1,678
A.5.1	West Hollywood_WHD	\$ 171,986	\$ 2,530	-	\$ 174,516	\$ 17,452	\$ 157,064
A.5.2	Staging	535,009	-	-	\$ 535,009	\$ 53,501	\$ 481,508
Base 22.3.2	Performance Bond for Phase 3 - Supply PSBN Components	214,400	-	-	\$ 214,400		\$ 214,400
Subtotal		\$ 30,409,833	\$ 1,101,738	\$ -	\$ 31,511,571	\$ 3,129,732	\$ 28,381,839
ADDITIONAL SITES (AMENDMENT NO. 8)							
A.5.1	Supply PSBN Components:						
	FS 101_LACF101 (replacing CLRMPD1)	\$ 181,833	\$ 2,675	\$ -	\$ 184,508	\$ 18,451	\$ 166,057
	Oat Mountain_ONK	\$ 117,238	\$ -	\$ -	\$ 117,238	\$ 11,724	\$ 105,514
	Rolling Hills Transit_RHT	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
	San Dimas_SDW	\$ 117,238	\$ -	\$ -	\$ 117,238	\$ 11,724	\$ 105,514
	Verdugo Peak City_VPC	\$ 117,238	\$ -	\$ -	\$ 117,238	\$ 11,724	\$ 105,514
	FS 54_LACF054 (replacing SOGTPD)	\$ 181,113	\$ 2,664	\$ -	\$ 183,777	\$ 18,378	\$ 165,399
Total for Additional Sites (Amendment No. 8)		\$ 714,660	\$ 5,339	\$ -	\$ 719,999	\$ 72,001	\$ 647,998
ADDITIONAL SITES (AMENDMENT NO. 9)							
A.5.1	Supply PSBN Components:						
	Baldwin Hills_BAH	\$ 117,238	\$ -	\$ -	\$ 117,238	\$ 11,724	\$ 105,514
	Compton Court Building_CCB	\$ 117,238	\$ -	\$ -	\$ 117,238	\$ 11,724	\$ 105,514
	FS 69_LAFD069 (Replacing LAFD019)	\$ 171,986	\$ 2,530	\$ -	\$ 174,516	\$ 17,452	\$ 157,064
	FS 12_LBFD012(N) (Replacing LBFD012(O))	\$ 157,292	\$ 2,314	\$ -	\$ 159,606	\$ 15,961	\$ 143,645
	City of Long Beach 911 Dispatch_LBECOC (Replacing LBFD026)	\$ 156,377	\$ 2,300	\$ -	\$ 158,677	\$ 15,868	\$ 142,809
	City of Los Angeles DWP_LDWP243 (Replacing LDWP220)	\$ 171,986	\$ 2,530	\$ -	\$ 174,516	\$ 17,452	\$ 157,064
Total for Additional Sites (Amendment No. 9)		\$ 892,117	\$ 9,674	\$ -	\$ 901,791	\$ 90,181	\$ 811,610
ADDITIONAL SITE (AMENDMENT NO. 11)							
A.5.1	Supply PSBN Components:						
	Parking Lot at Pasadena PD_PASDNPD	\$ 157,486	\$ 2,536	\$ -	\$ 160,022	\$ 16,002	\$ 144,020
Total for Additional Site (Amendment No. 11)		\$ 157,486	\$ 2,536	\$ -	\$ 160,022	\$ 16,002	\$ 144,020

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ADDITIONAL SITE (AMENDMENT NO. 12)							
UICC (5,000 units)							
	UICC 2FF Form Factor (Routers) (Quantity 4,000 at \$49 per UICC)	\$ 196,000			\$ 196,000	\$ -	\$ 196,000
	UICC 3FF Form Factor (Smartphones) (Quantity 1,000 at \$49 per UICC)	\$ 49,000			\$ 49,000	\$ -	\$ 49,000
CISCO ROUTERS (5 unit)							
	Cisco Routers (Quantity 5 at \$2,500 each)	\$ 12,500			\$ 12,500	\$ -	\$ 12,500
	Datat Service (5 units at \$1,000 each)	\$ 5,000			\$ 5,000	\$ -	\$ 5,000
Total for Additional Site (Amendment No. 12)		\$ 262,500	\$ -	\$ -	\$ 262,500	\$ -	\$ 262,500
TOTAL FOR PHASE 3 - SUPPLY PSBN COMPONENTS:		\$ 32,436,596	\$ 1,119,287	\$ -	\$ 33,555,883	\$ 3,307,916	\$ 30,247,967

Note 1: Project Administration costs for removed sites will be handled via the Amendment process in Section 2 (Changes to Agreement) of the Base Document.

Note 2: Pursuant to Amendment No. 3, effective as of June 20, 2014, the Authority exercised the Unilateral Options for all Work pertaining to Phase 3. In connection therewith, the Unilateral Option Sum for Phase 3 of \$47,648,311 was converted into a Contract Sum.

Note 3: Pursuant to Amendment No. 6, effective as of October 3, 2014, the Authority removed 3 PSBN Sites from the PSBN Design. As such, credits were realized in the amount of \$527,522.

Note 4: Pursuant to Amendment No. 8, effective February 17, 2015, Exhibit C.4 (Schedule of Prices - Supply PSBN Components) was amended by Amendment No. 8 to reflect (a) the removal of thirty-six (36) sites, and (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites.

Note 5: Pursuant to Amendment No. 9, effective March 23, 2015, Exhibit C.4 (Schedule of Prices - Supply PSBN Components) was amended by Amendment No. 9 to reflect (a) the removal of twenty-four (24) sites, and (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites.

Note 6: Pursuant to Amendment No. 12 Exhibit C.4 (Schedule of Prices - Supply PSBN Components) was amended to reflect (a) the removal of forty-two (42) sites. These reductions to the Contract Sum are for the removal of 42 construction sites from the program. The reductions are from the Contract price for each site, adjusted by the agreed percentage completion for that site, as was jointly determined by the Authority and the Contractor. These reductions do not reflect any Contractor claims for additional above-scope work at any of these site. Review of those Contractor claims is still ongoing and will, if warranted, be reflected in future Contract amendments. In addition, the total Contract amounts for the Contractor's Project Management attributed to each site is presently being left in the Contract Sum, and will later be adjusted, as necessary, as part of the resolution of the Contractor's claims for Project Management expenses.

SCHEDULE OF PAYMENTS
EXHIBIT C.5 - PHASE 4 - PSBN IMPLEMENTATION

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Installation and Commission Details						Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				
A.6.1	Installation and Commission:										
	Primary EPC	-	-	-	-	-	-	-	\$ 763,448	\$ 76,345	\$ 687,103
A.6.1	Network Management System and Inventory Management System	-	-	-	-	-	-	-	\$ 383,833	\$ 38,383	\$ 345,450
A.6.1	Site Detail Summary for eNodeBs and Backhaul Per Site:	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
A.6.1	Alhambra PD_ALHPD01						\$ 6,926		\$ 6,926	\$ 693	\$ 6,233
A.6.1	Arcadia PD_ARCPD01	\$ 6,510	\$ 22,219	\$ 16,242	\$ 12,867	\$ 8,765	\$ 6,926	-	\$ 73,529	\$ 7,353	\$ 66,176
A.6.1	Azusa PD_AZPD001	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,820	\$ 8,765	\$ 6,926	-	\$ 71,482	\$ 7,148	\$ 64,334
A.6.1	Bell Gardens PD_BGPD001	\$ 6,510	\$ 13,819	\$ 16,242	\$ 16,226	\$ 8,765	\$ 6,926	-	\$ 68,488	\$ 6,849	\$ 61,639
A.6.1	Beverly Hills Rexford Drive_BHR	\$ 6,510	\$ 22,219	\$ 16,242	\$ 15,310	\$ 8,765	\$ 6,926	-	\$ 75,972	\$ 7,597	\$ 68,375
A.6.1	Bald Mountain_BMT	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	Baldwin Park PD_BPPD001	\$ 6,510	\$ 13,819	\$ 16,242	\$ 15,094	\$ 8,765	\$ 6,926	-	\$ 67,356	\$ 6,736	\$ 60,620
A.6.1	Blue Rock_BRK	\$ 6,510	\$ 22,219	\$ 16,242	\$ 14,786	\$ 8,765	\$ 6,926	-	\$ 75,448	\$ 7,545	\$ 67,903
A.6.1	Burnt Peak_BUR	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Burbank PD_BURPD01	\$ 6,510	\$ 22,219	\$ 16,242	\$ 11,923	\$ 8,765	\$ 6,926	-	\$ 72,585	\$ 7,259	\$ 65,326
A.6.1	Criminal Court Building_CCT	\$ 2,184	\$ 18,034	\$ 19,133	\$ 13,000	\$ 8,765	\$ 6,926	-	\$ 68,042	\$ 6,804	\$ 61,238
A.6.1	Century_CEN	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,727	\$ 8,765	\$ 6,926	-	\$ 62,989	\$ 6,299	\$ 56,690
A.6.1	Carlton J. Peterson Park_CJP	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,714	\$ 8,765	\$ 6,926	-	\$ 71,376	\$ 7,138	\$ 64,238
A.6.1	Claremont Microwave Tower_CLM	\$ -	\$ 18,554	\$ 18,889	\$ 12,746	\$ 8,765	\$ 6,926	-	\$ 65,880	\$ 6,588	\$ 59,292
A.6.1	Claremont PD_CLRMPD1							-	\$ -	\$ -	\$ -
A.6.1	FS 2_CPTFD02	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 4_CPTFD04	\$ 6,510	\$ 13,819	\$ 16,242	\$ 16,400	\$ 8,765	\$ 6,926	-	\$ 68,662	\$ 6,866	\$ 61,796
A.6.1	Culver City Communications Tower_CULV001	\$ -	\$ 10,154	\$ 18,889	\$ 10,957	\$ 8,765	\$ 6,926	-	\$ 55,691	\$ 5,569	\$ 50,122
A.6.1	Downey PD_DWNYPD1						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	El Monte PD_ELMNTPD	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 62,782	\$ 6,278	\$ 56,504
A.6.1	El Segundo PD_ELSGDPD						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FCCF-HQ_FCCF	\$ 6,510	\$ 13,819	\$ 16,242	\$ 86,881	\$ 8,765	\$ 6,926	-	\$ 139,143	\$ 13,914	\$ 125,229
A.6.1	FS 5_FS5	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,957	\$ 8,765	\$ 6,926	-	\$ 63,219	\$ 6,322	\$ 56,897
A.6.1	Gardena_GARD001	\$ 6,510	\$ 13,819	\$ 16,242	\$ 15,860	\$ 8,765	\$ 6,926	-	\$ 68,122	\$ 6,812	\$ 61,310
A.6.1	Glendale Civic Center_GCC	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Glendale Water & Power UOC_GDWP001	\$ 6,510	\$ 22,219	\$ 16,242	\$ 9,447	\$ 8,765	\$ 6,926	-	\$ 70,109	\$ 7,011	\$ 63,098
A.6.1	FS 23_GLNDL23	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 24_GLNDL24	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,825	\$ 8,765	\$ 6,926	-	\$ 71,487	\$ 7,149	\$ 64,338
A.6.1	FS 28_GLNDL28	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 71,182	\$ 7,118	\$ 64,064
A.6.1	FS 3_LACF003	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 4_LACF004	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 16_LACF016	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 21_LACF021	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 23_LACF023	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233

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		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				
A.6.1	FS 24_LACF024	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,688	\$ 8,765	\$ 6,926	-	\$ 71,350	\$ 7,135	\$ 64,215
A.6.1	FS 28_LACF028	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 62,782	\$ 6,278	\$ 56,504
A.6.1	FS 30_LACF030	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,895	\$ 8,765	\$ 6,926	-	\$ 63,157	\$ 6,316	\$ 56,841
A.6.1	FS 31_LACF031	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 38_LACF038	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 44_LACF044	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 48_LACF048	\$ -	\$ 22,219	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 29,145	\$ 2,915	\$ 26,230
A.6.1	FS 50_LACF050	\$ -	\$ 13,819	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 20,745	\$ 2,075	\$ 18,670
A.6.1	FS 53_LACF053	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 56_LACF056	\$ 6,510	\$ 22,219	\$ 16,242	\$ 14,920	\$ 8,765	\$ 6,926	-	\$ 75,582	\$ 7,558	\$ 68,024
A.6.1	FS 58_LACF058	\$ -	\$ 13,819	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 20,745	\$ 2,075	\$ 18,670
A.6.1	FS 59_LACF059	\$ 6,510	\$ 22,219	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 35,655	\$ 3,566	\$ 32,089
A.6.1	FS 61_LACF061	\$ -	\$ 20,724	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 27,650	\$ 2,765	\$ 24,885
A.6.1	FS 65_LACF065	\$ -	\$ 20,724	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 27,650	\$ 2,765	\$ 24,885
A.6.1	FS 68_LACF068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 69_LACF069	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 71_LACF071	\$ 6,510	\$ 17,895	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 41,070	\$ 4,107	\$ 36,963
A.6.1	FS 72_LACF072	\$ 6,510	\$ 17,895	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 41,070	\$ 4,107	\$ 36,963
A.6.1	FS 73_LACF073	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 76_LACF076	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 77_LACF077	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 78_LACF078	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 79_LACF079	\$ 6,510	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 13,436	\$ 1,344	\$ 12,092
A.6.1	FS 80_LACF080	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 81_LACF081	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 83_LACF083	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 84_LACF084	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,871	\$ 8,765	\$ 6,926	-	\$ 71,533	\$ 7,153	\$ 64,380
A.6.1	FS 85_LACF085	\$ -	\$ 22,219	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 29,145	\$ 2,915	\$ 26,230
A.6.1	FS 86_LACF086	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 87_LACF087	\$ 6,510	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 13,436	\$ 1,344	\$ 12,092
A.6.1	FS 88_LACF088	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 90_LACF090	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 91_LACF091	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,727	\$ 8,765	\$ 6,926	-	\$ 71,389	\$ 7,139	\$ 64,250
A.6.1	FS 92_LACF092	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 93_LACF093	\$ -	\$ 22,219	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 29,145	\$ 2,915	\$ 26,230
A.6.1	FS 95_LACF095	\$ -	\$ 13,819	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 20,745	\$ 2,075	\$ 18,670
A.6.1	FS 96_LACF096	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 98_LACF098	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 99_LACF099	\$ 6,510	\$ 19,390	\$ 15,736	\$ 10,727	\$ 8,765	\$ 6,926	-	\$ 68,054	\$ 6,805	\$ 61,249
A.6.1	FS 102_LACF102	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 71,182	\$ 7,118	\$ 64,064
A.6.1	FS 105_LACF105	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,727	\$ 8,765	\$ 6,926	-	\$ 62,989	\$ 6,299	\$ 56,690
A.6.1	FS 106_LACF106	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 71,182	\$ 7,118	\$ 64,064
A.6.1	FS 107_LACF107	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 108_LACF108	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 111_LACF111	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 112_LACF112	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 114_LACF114	\$ 6,510	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 13,436	\$ 1,344	\$ 12,092

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		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				
A.6.1	FS 117_LACF117	\$ 6,510	\$ 22,219	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 35,655	\$ 3,566	\$ 32,089
A.6.1	FS 118_LACF118	\$ 6,510	\$ 13,819	\$ 16,242	\$ 12,953	\$ 8,765	\$ 6,926	-	\$ 65,215	\$ 6,522	\$ 58,693
A.6.1	FS 120_LACF120	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 123_LACF123	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 129_LACF129	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,871	\$ 8,765	\$ 6,926	-	\$ 71,533	\$ 7,153	\$ 64,380
A.6.1	FS 132_LACF132	\$ 6,510	\$ 22,219	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 35,655	\$ 3,566	\$ 32,089
A.6.1	FS 140_LACF140	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 141_LACF141	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 144_LACF144	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 146_LACF146	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 149_LACF149	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 151_LACF151	\$ 6,510	\$ 22,219	\$ 16,242	\$ 11,996	\$ 8,765	\$ 6,926	-	\$ 72,658	\$ 7,266	\$ 65,392
A.6.1	FS153_LACF153	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 71,182	\$ 7,118	\$ 64,064
A.6.1	FS 154_LACF154	\$ 6,510	\$ 22,219	\$ 16,242	\$ 13,443	\$ 8,765	\$ 6,926	-	\$ 74,105	\$ 7,411	\$ 66,694
A.6.1	FS 157_LACF157	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 159_LACF159	\$ 6,510	\$ 13,819	\$ 16,242	\$ 18,330	\$ 8,765	\$ 6,926	-	\$ 70,592	\$ 7,059	\$ 63,533
A.6.1	FS 161_LACF161						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 162_LACF162						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 163_LACF163						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 164_LACF164	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,724	\$ 8,765	\$ 6,926	-	\$ 62,986	\$ 6,299	\$ 56,687
A.6.1	FS 169_LACF169	\$ 6,510	\$ 13,819	\$ 16,242	\$ 13,101	\$ 8,765	\$ 6,926	-	\$ 65,363	\$ 6,536	\$ 58,827
A.6.1	FS 171_LACF171	\$ 6,510	\$ 13,819	\$ 16,242	\$ 13,183	\$ 8,765	\$ 6,926	-	\$ 65,445	\$ 6,545	\$ 58,900
A.6.1	FS 173_LACF173	\$ 6,510	\$ 13,819	\$ 16,242	\$ 12,934	\$ 8,765	\$ 6,926	-	\$ 65,196	\$ 6,520	\$ 58,676
A.6.1	FS 181_LACF181						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 183_LACF183						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 184_LACF184						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 187_LACF187						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 188_LACF188						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 192_LACF192	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,727	\$ 8,765	\$ 6,926	-	\$ 62,989	\$ 6,299	\$ 56,690
A.6.1	FS 194_LACF194	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,714	\$ 8,765	\$ 6,926	-	\$ 62,976	\$ 6,298	\$ 56,678
A.6.1	CP 2_LACFCP02	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	CP 9_LACFCP09	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	CP 14_LACFCP14	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	LAC/HARBOR+UCLA MEDICAL CENTER_LACHAR	\$ 2,184	\$ 18,034	\$ 19,133	\$ 10,708	\$ 8,765	\$ 6,926	-	\$ 65,750	\$ 6,575	\$ 59,175
A.6.1	LAC/OLIVEVIEW+UCLA_LACO LV	\$ 2,184	\$ 26,787	\$ 19,133	\$ 12,940	\$ 8,765	\$ 6,926	-	\$ 76,735	\$ 7,674	\$ 69,061
A.6.1	LAC/USC MEDICAL CENTER_LACUSC	\$ 2,184	\$ 18,034	\$ 19,133	\$ 10,724	\$ 8,765	\$ 6,926	-	\$ 65,766	\$ 6,577	\$ 59,189
A.6.1	FS 005_LAFD005	\$ 6,510	\$ 13,819	\$ 16,242	\$ 9,439	\$ 8,765	\$ 6,926	-	\$ 61,701	\$ 6,170	\$ 55,531
A.6.1	FS 012_LAFD012	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 015_LAFD015	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.6.1	FS 016_LAFD016	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 62,782	\$ 6,278	\$ 56,504
A.6.1	FS 019_LAFD019	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.6.1	FS 029_LAFD029	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 035_LAFD035	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 042_LAFD042	\$ 6,510	\$ 13,819	\$ 16,242	\$ 11,826	\$ 8,765	\$ 6,926	-	\$ 64,088	\$ 6,409	\$ 57,679
A.6.1	FS 044_LAFD044	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,724	\$ 8,765	\$ 6,926	-	\$ 62,986	\$ 6,299	\$ 56,687

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		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				
A.6.1	FS 047_LAFD047	\$ 6,510	\$ 14,118	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 37,293	\$ 3,729	\$ 33,564
A.6.1	FS 049_LAFD049	\$ 6,510	\$ 13,819	\$ 16,242	\$ 13,338	\$ 8,765	\$ 6,926	-	\$ 65,600	\$ 6,560	\$ 59,040
A.6.1	FS 055_LAFD055	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 62,782	\$ 6,278	\$ 56,504
A.6.1	FS 061_LAFD061	\$ 6,510	\$ 13,819	\$ 16,242	\$ 13,046	\$ 8,765	\$ 6,926	-	\$ 65,308	\$ 6,531	\$ 58,777
A.6.1	FS 066_LAFD066	\$ -	\$ 13,819	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 20,745	\$ 2,075	\$ 18,670
A.6.1	FS 074_LAFD074	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 076_LAFD076	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 077_LAFD077	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 079_LAFD079	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 080_LAFD080	\$ 6,510	\$ 14,118	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 37,293	\$ 3,729	\$ 33,564
A.6.1	FS 081_LAFD081	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,724	\$ 8,765	\$ 6,926	-	\$ 62,986	\$ 6,299	\$ 56,687
A.6.1	FS 082_LAFD082	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 084_LAFD084	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,825	\$ 8,765	\$ 6,926	-	\$ 71,487	\$ 7,149	\$ 64,338
A.6.1	FS 085_LAFD085	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,895	\$ 8,765	\$ 6,926	-	\$ 63,157	\$ 6,316	\$ 56,841
A.6.1	FS 088_LAFD088	\$ 6,510	\$ 22,219	\$ 16,242	\$ 12,940	\$ 8,765	\$ 6,926	-	\$ 73,602	\$ 7,360	\$ 66,242
A.6.1	FS 093_LAFD093	\$ 6,510	\$ 22,219	\$ 16,242	\$ 12,953	\$ 8,765	\$ 6,926	-	\$ 73,615	\$ 7,362	\$ 66,253
A.6.1	FS 094_LAFD094	\$ 6,510	\$ 13,819	\$ 16,242	\$ 11,923	\$ 8,765	\$ 6,926	-	\$ 64,185	\$ 6,419	\$ 57,766
A.6.1	FS 095_LAFD095	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 62,782	\$ 6,278	\$ 56,504
A.6.1	FS 096_LAFD096	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 097_LAFD097	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,714	\$ 8,765	\$ 6,926	-	\$ 71,376	\$ 7,138	\$ 64,238
A.6.1	FS 101_LAFD101	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 105_LAFD105	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 114_LAFD114	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Hermosa HQ_LALG100	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Zuma Lifeguard HQ_LALG300	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Lifeguard Division_LALG-HQ	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Lancaster_LAN	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,871	\$ 8,765	\$ 6,926	-	\$ 71,533	\$ 7,153	\$ 64,380
A.6.1	77TH Street Area Complex_LAPD077	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,501	\$ 8,765	\$ 6,926	-	\$ 62,763	\$ 6,276	\$ 56,487
A.6.1	Central Area Complex_LAPDCEN	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Devonshire Area station_LAPDDVN	\$ 6,510	\$ 22,219	\$ 16,242	\$ 13,613	\$ 8,765	\$ 6,926	-	\$ 74,275	\$ 7,428	\$ 66,847
A.6.1	Foothill Area station_LAPDFTH	\$ 6,510	\$ 22,219	\$ 16,242	\$ 15,371	\$ 8,765	\$ 6,926	-	\$ 76,033	\$ 7,603	\$ 68,430
A.6.1	Hollenbeck Area station_LAPDHLB	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,537	\$ 8,765	\$ 6,926	-	\$ 62,799	\$ 6,280	\$ 56,519
A.6.1	Hollywood Area station_LAPDHW	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,583	\$ 8,765	\$ 6,926	-	\$ 71,245	\$ 7,125	\$ 64,120
A.6.1	Mission Area station_LAPDMIS	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,825	\$ 8,765	\$ 6,926	-	\$ 71,487	\$ 7,149	\$ 64,338
A.6.1	Northeast Area station_LAPDNED	\$ 6,510	\$ 22,219	\$ 16,242	\$ 9,260	\$ 8,765	\$ 6,926	-	\$ 69,922	\$ 6,992	\$ 62,930
A.6.1	North Hollywood Area Station_LAPDNHD	\$ 6,510	\$ 22,219	\$ 16,242	\$ 11,972	\$ 8,765	\$ 6,926	-	\$ 72,634	\$ 7,263	\$ 65,371
A.6.1	Newton_LAPDNWT	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,911	\$ 8,765	\$ 6,926	-	\$ 63,173	\$ 6,317	\$ 56,856
A.6.1	Olympic Area station_LAPDOLY	\$ 6,510	\$ 13,819	\$ 16,242	\$ 14,900	\$ 8,765	\$ 6,926	-	\$ 67,162	\$ 6,716	\$ 60,446
A.6.1	Pacific Area station_LAPDPAC	\$ 6,510	\$ 13,819	\$ 16,242	\$ 13,390	\$ 8,765	\$ 6,926	-	\$ 65,652	\$ 6,565	\$ 59,087
A.6.1	Rampart Area station_LAPDRAM	\$ 6,510	\$ 13,819	\$ 16,242	\$ 9,447	\$ 8,765	\$ 6,926	-	\$ 61,709	\$ 6,171	\$ 55,538

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Installation and Commission Details						Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				
A.6.1	Topanga Area station_LAPDTP	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,521	\$ 8,765	\$ 6,926	-	\$ 62,783	\$ 6,278	\$ 56,505
A.6.1	Valley Dispatch Center_LAPDVDC	\$ 6,510	\$ 22,219	\$ 16,242	\$ 22,449	\$ 8,765	\$ 6,926	-	\$ 83,111	\$ 8,311	\$ 74,800
A.6.1	Van Nuys Area station_LAPDVNS	\$ 6,510	\$ 13,819	\$ 16,242	\$ 13,000	\$ 8,765	\$ 6,926	-	\$ 65,262	\$ 6,526	\$ 58,736
A.6.1	Wilshire Area station_LAPDWIL	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,825	\$ 8,765	\$ 6,926	-	\$ 63,087	\$ 6,309	\$ 56,778
A.6.1	West Los Angeles Area station_LAPDWLA	\$ 6,510	\$ 13,819	\$ 16,242	\$ 14,920	\$ 8,765	\$ 6,926	-	\$ 67,182	\$ 6,718	\$ 60,464
A.6.1	West Valley Area facility_LAPDWVD	\$ 6,510	\$ 13,819	\$ 16,242	\$ 15,005	\$ 8,765	\$ 6,926	-	\$ 67,267	\$ 6,727	\$ 60,540
A.6.1	Altadena_LASDALD	\$ 6,510	\$ 22,219	\$ 16,242	\$ 12,956	\$ 8,765	\$ 6,926	-	\$ 73,618	\$ 7,362	\$ 66,256
A.6.1	Carson_LASDCSN	\$ 6,510	\$ 13,819	\$ 16,242	\$ 17,426	\$ 8,765	\$ 6,926	-	\$ 69,688	\$ 6,969	\$ 62,719
A.6.1	Crescenta Valley_LASDCVS	\$ 6,510	\$ 22,219	\$ 16,242	\$ 13,052	\$ 8,765	\$ 6,926	-	\$ 73,714	\$ 7,371	\$ 66,343
A.6.1	Industry_LASDIDT	\$ 6,510	\$ 13,819	\$ 16,242	\$ 16,180	\$ 8,765	\$ 6,926	-	\$ 68,442	\$ 6,844	\$ 61,598
A.6.1	Lakewood_LASDLKD	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,945	\$ 8,765	\$ 6,926	-	\$ 63,207	\$ 6,321	\$ 56,886
A.6.1	Lennox (Closed)_LASDLNX	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,501	\$ 8,765	\$ 6,926	-	\$ 62,763	\$ 6,276	\$ 56,487
A.6.1	North County Correctional Facility_LASDNCC	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	Norwalk_LASDNWK	\$ 6,510	\$ 13,819	\$ 16,242	\$ 18,792	\$ 8,765	\$ 6,926	-	\$ 71,054	\$ 7,105	\$ 63,949
A.6.1	Pico Rivera_LASDPRV	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,825	\$ 8,765	\$ 6,926	-	\$ 63,087	\$ 6,309	\$ 56,778
A.6.1	Santa Clarita Valley_LASDSCV	\$ 6,510	\$ 22,219	\$ 16,242	\$ 12,746	\$ 8,765	\$ 6,926	-	\$ 73,408	\$ 7,341	\$ 66,067
A.6.1	San Dimas_LASDSDM	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	Temple_LASDTEM	\$ 6,510	\$ 22,219	\$ 16,242	\$ 15,250	\$ 8,765	\$ 6,926	-	\$ 75,912	\$ 7,591	\$ 68,321
A.6.1	FS 2_LBFD002						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 6_LBFD006						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 9_LBFD009						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 12_LBFD012	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.6.1	FS 13_LBFD013						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 21_LBFD021						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	HQ_LBFD026	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.6.1	HQ_LBPDHQ	\$ 2,184	\$ 18,034	\$ 19,133	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 65,562	\$ 6,556	\$ 59,006
A.6.1	Sylmar Converter Station--E-LDWP220	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	-	\$ -	\$ -	\$ -
A.6.1	Lost Hills/Malibu_LHS	\$ 6,510	\$ 20,724	\$ -	\$ 974	\$ 8,765	\$ 6,926	-	\$ 43,899	\$ 4,390	\$ 39,509
A.6.1	FS 2_LVFD002	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	La Verne PD_LVRNPD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 1_MBF001						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Mira Loma Detention Facility_MLM	\$ 6,510	\$ 22,219	\$ 16,242	\$ 13,291	\$ 8,765	\$ 6,926	-	\$ 73,953	\$ 7,395	\$ 66,558
A.6.1	Monrovia PD_MNRVDP						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Montebello PD_MNTBLPD						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Monterey Park PD_MNTPKPD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Mount Olivet Reservoir_MOR	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	-	\$ 71,182	\$ 7,118	\$ 64,064
A.6.1	FS 2_MRF002						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 3_MTF003						\$ 6,926	-	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Mount Washington_MTW	\$ 6,510	\$ 13,819	\$ 16,242	\$ 13,132	\$ 8,765	\$ 6,926	-	\$ 65,394	\$ 6,539	\$ 58,855
A.6.1	Goodrich_PASA001	\$ 6,510	\$ 22,219	\$ 16,242	\$ 12,981	\$ 8,765	\$ 6,926	-	\$ 73,643	\$ 7,364	\$ 66,279

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Installation and Commission Details						Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				
A.6.1	FS 33_PASFD33	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A.6.1	Puente Hills_PHN	\$ 6,510	\$ 22,219	\$ 16,242	\$ 23,823	\$ 8,765	\$ 6,926	\$ -	\$ 84,485	\$ 8,449	\$ 76,036
A.6.1	Palmdale_PLM	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,684	\$ 8,765	\$ 6,926	\$ -	\$ 71,346	\$ 7,135	\$ 64,211
A.6.1	LAC/RANCHO LOS AMIGOS NATIONAL REHAB CTR_RANCHO	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,612	\$ 8,765	\$ 6,926	\$ -	\$ 62,874	\$ 6,287	\$ 56,587
A.6.1	FS 2_RDBFD02						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Redondo Beach_PD_RDNBPD						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	Reservoir Hill_REH						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	San Pedro City Hall_SCH	\$ 2,184	\$ 18,034	\$ 19,133	\$ 13,045	\$ 8,765	\$ 6,926	\$ -	\$ 68,087	\$ 6,809	\$ 61,278
A.6.1	Southeast Area station_SEP	\$ 6,510	\$ 13,819	\$ 16,242	\$ 15,973	\$ 8,765	\$ 6,926	\$ -	\$ 68,235	\$ 6,824	\$ 61,411
A.6.1	FS 3_SFSFD03						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 4_SFSFD04						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	South L.A._SLA	\$ 6,510	\$ 13,819	\$ 16,242	\$ 16,256	\$ 8,765	\$ 6,926	\$ -	\$ 68,518	\$ 6,852	\$ 61,666
A.6.1	FS 2_SMFDD02						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	South Gate_PD_SOGTPD	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
A.6.1	San Vicente Peak_SVP	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,727	\$ 8,765	\$ 6,926	\$ -	\$ 71,389	\$ 7,139	\$ 64,250
A.6.1	Southwest Area station_SWP	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,911	\$ 8,765	\$ 6,926	\$ -	\$ 63,173	\$ 6,317	\$ 56,856
A.6.1	City Hall Radio Tower_TORC001						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 2_TORFD02						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 3_TORFD03						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 4_TORFD04						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 1_VEFDD01	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,773	\$ 8,765	\$ 6,926	\$ -	\$ 63,035	\$ 6,304	\$ 56,731
A.6.1	FS 3_VEFDD03	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,961	\$ 8,765	\$ 6,926	\$ -	\$ 63,223	\$ 6,322	\$ 56,901
A.6.1	Walnut/Diamond Bar_WAL	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,714	\$ 8,765	\$ 6,926	\$ -	\$ 71,376	\$ 7,138	\$ 64,238
A.6.1	FS 4_WCFDD04						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	FS 5_WCFDD05						\$ 6,926	\$ -	\$ 6,926	\$ 693	\$ 6,233
A.6.1	West Hollywood_WHD	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	\$ -	\$ 71,182	\$ 7,118	\$ 64,064
A.6.2	Spares Management	-	-	-	-	-	-	-	\$ 385,629	\$ 38,563	\$ 347,066
A.6.3	Acceptance Testing:	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
A.6.3.27	Functional Test	-	-	-	-	-	-	-	\$ 185,314	\$ 18,531	\$ 166,783
A.6.3.30	Wide Area Coverage Test	-	-	-	-	-	-	-	\$ 2,353,150	\$ 235,315	\$ 2,117,835
A.6.3.32	Waterway Coverage Test	-	-	-	-	-	-	-	\$ 241,018	\$ 24,102	\$ 216,916
A.6.3.33	Freeway Coverage Test	-	-	-	-	-	-	-	\$ 160,679	\$ 16,068	\$ 144,611
A.6.3.34	Special Operational Test	-	-	-	-	-	-	-	\$ 401,696	\$ 40,170	\$ 361,526
A.6.3.35	PSBN Burn-in Test	-	-	-	-	-	-	-	\$ 128,543	\$ 12,854	\$ 115,689
A.6.4	Training	-	-	-	-	-	-	-	\$ 733,339	\$ 73,334	\$ 660,005
A.6.5	Documentation	-	-	-	-	-	-	-	\$ 570,962	\$ 57,096	\$ 513,866
A.6.6	Implementation Phase Acceptance	-	-	-	-	-	-	-	\$ 321,357	\$ 32,136	\$ 289,221
A.6.7	Final PSBN Acceptance	-	-	-	-	-	-	-	\$ 321,357	\$ 32,136	\$ 289,221
Base 22.3.2	Performance Bond for Phase 4 - PSBN Implementation	-	-	-	-	-	-	-	\$ 88,000	\$ 8,800	\$ 79,200
Base 38.3	Total Lease Costs for Phase 4 - PSBN Implementation	-	-	-	-	-	-	-	Included	\$ -	\$ -
Subtotal		\$ 833,364	\$ 2,533,794	\$ 1,743,786	\$ 1,406,915	\$ 1,121,920	\$ 1,551,424	\$ -	\$ 16,229,528	\$ 1,622,997	\$ 14,606,531

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Installation and Commission Details						Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				
ADDITIONAL SITES (AMENDMENT NO. 8)											
A.6.1	Installation and Commission:										
	FS 101_LACF101 (replacing CLRMPD1)	6,510	22,219	16,242	12,746	8,765	6,926	-	\$ 73,408	\$ 7,341	\$ 66,067
	Oat Mountain_ONK	6,510	-	16,242	23,823	-	-	-	\$ 46,575	\$ 4,658	\$ 41,917
	Rolling Hills Transit_RHTF	-	-	-	-	-	-	-	\$ -	\$ -	\$ -
	San Dimas_SDW	6,510	-	16,242	23,823	-	-	-	\$ 46,575	\$ 4,658	\$ 41,917
	Verdugo Peak City_VPC	6,510	-	16,242	23,823	-	-	-	\$ 46,575	\$ 4,658	\$ 41,917
	FS 54_LACF054 (replacing SOGTPD)	6,510	13,819	16,242	16,112	8,765	6,926	-	\$ 68,374	\$ 6,837	\$ 61,537
Total for Additional Sites (Amendment No. 8)		\$ 32,550	\$ 36,038	\$ 81,210	\$ 100,327	\$ 17,530	\$ 13,852	\$ -	\$ 281,507	\$ 28,152	\$ 253,355
ADDITIONAL SITES (AMENDMENT NO. 9)											
A.6.1	Installation and Commission:										
	Baldwin Hills_BAH	6,510	-	16,242	23,823	-	-	-	\$ 46,575	\$ 4,658	\$ 41,917
	Compton Court Building_CCB	6,510	-	16,242	23,823	-	-	-	\$ 46,575	\$ 4,658	\$ 41,917
	FS 69_LAFD069 (Replacing LAFD019)	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	\$ -	\$ 71,182	\$ 7,118	\$ 64,064
	FS 12_LBFD012(N) (Replacing LBFD012(O))	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,727	\$ 8,765	\$ 6,926	\$ -	\$ 62,989	\$ 6,299	\$ 56,690
	City of Long Beach 911 Dispatch_LBECOC (Replacing LBFD026)	\$ 6,510	\$ 13,819	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	\$ -	\$ 62,782	\$ 6,278	\$ 56,504
	City of Los Angeles DWP_LDWP243 (Replacing LDWP220)	\$ 6,510	\$ 22,219	\$ 16,242	\$ 10,520	\$ 8,765	\$ 6,926	\$ -	\$ 71,182	\$ 7,118	\$ 64,064
Total for Additional Sites (Amendment No. 9)		\$ 39,060	\$ 72,076	\$ 97,452	\$ 89,933	\$ 35,060	\$ 27,704	\$ -	\$ 361,285	\$ 36,129	\$ 325,156
ADDITIONAL SITE (AMENDMENT NO. 11)											
A.6.1	Installation and Commission:										
	Parking Lot at Pasadena PD_PASDNPD	2,184	18,034	19,133	10,708	8,765	6,926	-	\$ 65,750	\$ 6,575	\$ 59,175
Total for Additional Site (Amendment No. 11)		\$ 2,184	\$ 18,034	\$ 19,133	\$ 10,708	\$ 8,765	\$ 6,926	\$ -	\$ 65,750	\$ 6,575	\$ 59,175
TOTAL FOR PHASE 4 - PSBN IMPLEMENTATION:		\$ 907,158	\$ 2,659,942	\$ 1,941,581	\$ 1,607,883	\$ 1,183,275	\$ 1,599,906	\$ -	\$ 16,938,070	\$ 1,693,853	\$ 15,244,217
<p>Note 1: Project Administration costs for removed sites will be handled via the Amendment process set forth in Section 2 (Changes to Agreement) of the Base Document.</p> <p>Note 2: Pursuant to Amendment No. 5, effective as of September 17, 2014, the Authority exercised the Unilateral Options for all Work pertaining to Phase 4. In connection therewith, the Unilateral Option Sum for Phase 4 of \$21,899,970 was converted into a Contract Sum.</p> <p>Note 3: Pursuant to Amendment No. 6, effective as of October 3, 2014, the Authority removed 3 PSBN Sites from the PSBN Design. Additionally, the Network Management System and Inventory Management Systems were credited \$1,000 (\$500 per System, the Functional Test was credited \$7,500 (\$2,500 per site), and the Documentation was credited \$7,480 (\$2,493 per site) all to account for the removal of 3 PSBN Sites. As such, credits were realized in the amount of \$211,362.</p> <p>Note 4: Pursuant to Amendment No. 8, effective February 17, 2015, Exhibit C.5 (Schedule of Prices - PSBN Implementation) was amended by Amendment No. 8 to reflect (a) the removal of thirty-six (36) sites, and (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites.</p> <p>Note 5: Pursuant to Amendment No. 9, effective March 23, 2015, Exhibit C.5 (Schedule of Prices - PSBN Implementation) was amended by Amendment No. 9 to reflect (a) the removal of twenty-four (24) sites, and (b) the conversion of Unilateral Option Sum to Contract Sum for the addition of six (6) PSBN System Sites.</p>											

Deliverable/ Task No./ Subtask No./ Section No. <small>(Exhibit A, B, or Base Document)</small>	Deliverable	Installation and Commission Details						Unilateral Option Sum <small>Note 2</small>	Contract Sum - Payable Amount <small>Note 2</small>	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
		Cabinet Installation	LTE Antenna Installation	Microwave Installation	Site Commissioning Microwave	Site Commissioning LTE	Project Administration Per Site <small>Note 1</small>				

Note 6: Pursuant to Amendment No. 12 Exhibit C.5 (Schedule of Prices - PSBN Implementation) was amended to reflect (a) the removal of forty-two (42) sites. These reductions to the Contract Sum are for the removal of 42 construction sites from the program. The reductions are from the Contract price for each site, adjusted by the agreed percentage completion for that site, as was jointly determined by the Authority and the Contractor. These reductions do not reflect any Contractor claims for additional above-scope work at any of these site. Review of those Contractor claims is still ongoing and will, if warranted, be reflected in future Contract amendments. In addition, the total Contract amounts for the Contractor's Project Management attributed to each site is presently being left in the Contract Sum, and will later be adjusted, as necessary, as part of the resolution of the Contractor's claims for Project Management expenses.

SCHEDULE OF PAYMENTS EXHIBIT C.13 - RESTORATION WORK																		
Restoration Work Scope of Work (Full Demo)	FULL DEMO OF COMPLETED OR SUBSTANTIALLY COMPLETED SITES																	
	LACF059 Total Cost	LACF003 Total Cost	LACF016 Total Cost	LACF023 Total Cost	LACF038 Total Cost	LACF048 Total Cost	LACF050 Total Cost	LACF065 Total Cost	LACF079 Total Cost	LACF085 Total Cost	LACF087 Total Cost	LACF092 Total Cost	LACF093 Total Cost	LACF095 Total Cost	LACF114 Total Cost	LACF117 Total Cost	LACF132 Total Cost	LAFD066 Total Cost
Project Management & Administration	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00	\$ 2,035.00
Remove full tower assembly, mounts, antennas, coax and cable tray; haul off and dispose coax and cable tray.	\$ 31,928.00	\$ 31,928.00	\$ 22,578.00	\$ 34,678.00	\$ 31,928.00	\$ 48,428.00	\$ 40,728.00	\$ 29,178.00	\$ 42,928.00	\$ 31,378.00	\$ 40,728.00	\$ 42,928.00	\$ 42,928.00	\$ 31,928.00	\$ 42,928.00	\$ 29,178.00	\$ 31,378.00	\$ 20,378.00
Transport full tower, mounts and associated hardware to location to be determined by Authority within 25 mile distance.	\$ 6,072.00	\$ 6,072.00	\$ 6,072.00	\$ 6,072.00	\$ 6,072.00	\$ 6,072.00	\$ 6,072.00	\$ 9,152.00	\$ 9,152.00	\$ 6,072.00	\$ 6,072.00	\$ 9,152.00	\$ 9,152.00	\$ 6,072.00	\$ 9,152.00	\$ 9,152.00	\$ 9,152.00	\$ 6,072.00
Grout tower base.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Uninstall equipment cabinets from site and transport to location determined by Authority within 25 mile distance.	\$ 1.00	\$ 1.00	\$ -	\$ -	\$ -	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ 1.00	\$ -	\$ 1.00	\$ 1.00	\$ 1.00	\$ -
Uninstall generator from site and transport to location determined by Authority within 25 mile distance.	\$ 3,443.00	\$ 3,443.00	\$ 1,845.00	\$ -	\$ -	\$ 3,443.00	\$ 3,443.00	\$ 4,093.00	\$ 4,093.00	\$ 3,443.00	\$ 3,443.00	\$ 4,093.00	\$ 4,093.00	\$ 3,443.00	\$ 4,093.00	\$ 4,093.00	\$ -	\$ 1,845.00
Demo tower foundation to below grade.	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ -	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ -	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00
Stick build a box over tower foundation.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,969.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,969.00	\$ -	\$ -	\$ -	\$ -
Demo equipment pad and leave generator pad.	\$ 4,642.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 4,642.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 6,402.00	\$ 4,642.00	\$ -
Slurry back fill equipment & generator pad locations.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,258.00
Slurry backfill trench between equipment & generator locations.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,137.00
Power coordination for disconnect of meter, and/or hot secondary lines feeding meter can if necessary.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 743.00	\$ -	\$ 743.00	\$ -	\$ -	\$ -
Disconnect and remove secondary conductors between power pedestal and disconnect on H frame. Remove and dispose of pedestal, demo concrete pad for pedestal, cut and cap conduit below grade and restore grade to pre-existing conditions (grass).	\$ -	\$ 2,613.00	\$ -	\$ -	\$ -	\$ -	\$ 2,613.00	\$ 2,613.00	\$ 3,713.00	\$ -	\$ 2,613.00	\$ 3,163.00	\$ 3,163.00	\$ -	\$ 3,163.00	\$ 3,713.00	\$ 2,613.00	\$ -
Uninstall PPC and transfer switch from H frame and transport to location determined by Authority within 25 mile radius. Demo, haul off and dispose remaining H frame material. Note: Leave meter can, disconnect and conduits between disconnect at northeast corner of fire station and H frame at west end of north CMU wall at rear of fire station.	\$ 2,591.00	\$ 2,591.00	\$ 2,591.00	\$ 2,591.00	\$ -	\$ 2,591.00	\$ 2,591.00	\$ 2,921.00	\$ 2,921.00	\$ 2,591.00	\$ 2,591.00	\$ 2,921.00	\$ 2,921.00	\$ 2,591.00	\$ 2,921.00	\$ 2,921.00	\$ 2,921.00	\$ -
Demo bollards around equipment pad location.	\$ 2,728.00	\$ 2,272.00	\$ 3,663.00	\$ -	\$ -	\$ 3,718.00	\$ -	\$ -	\$ 2,068.00	\$ -	\$ 1,738.00	\$ -	\$ 2,728.00	\$ 2,068.00	\$ 3,388.00	\$ 2,728.00	\$ 2,976.00	\$ -
Demo CMU wall enclosure at equipment & generator locations.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,762.00	\$ 5,016.00	\$ 3,762.00	\$ 8,778.00	\$ -	\$ -	\$ 7,524.00	\$ -	\$ -	\$ 5,016.00
Disposal of all CMU materials and debris.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,208.00	\$ 5,610.00	\$ 4,208.00	\$ 9,818.00	\$ -	\$ -	\$ 8,415.00	\$ -	\$ -	\$ 5,610.00
Cut or bend CMU wall rebar.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,111.00	\$ 1,111.00	\$ 1,111.00	\$ 2,222.00	\$ -	\$ -	\$ 1,667.00	\$ -	\$ -	\$ 1,111.00
Cut and cap all conduits below grade at equipment, generator and H frame locations.	\$ 3,443.00	\$ 3,443.00	\$ 3,443.00	\$ 2,123.00	\$ 3,443.00	\$ 2,123.00	\$ 3,443.00	\$ 2,123.00	\$ 3,443.00	\$ 2,123.00	\$ 3,443.00	\$ 3,443.00	\$ 2,123.00	\$ 3,443.00	\$ 2,123.00	\$ 3,443.00	\$ 3,443.00	\$ 2,123.00
Install hose rack assembly on tower.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Source and install 30A single pole power for hose rack hoisting motor from "house power" on site. Use sub-panel in utility room on south side of fire station. Use available space for 30A single pole breaker. Includes sawcut and removal of concrete, trenching and restoring concrete as necessary.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Field perform Valmont's outlined "fix" for hose drying rack assembly.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Restore concrete pavement at equipment, generator, H frame and monopole locations w/ rebar per existing conditions. (Monopole Hose Tower to remain).	\$ 6,864.00	\$ 5,721.00	\$ 10,297.00	\$ 6,798.00	\$ 8,009.00	\$ 3,433.00	\$ 8,009.00	\$ -	\$ 4,109.00	\$ 9,180.00	\$ 5,721.00	\$ -	\$ -	\$ 8,009.00	\$ -	\$ 7,750.00	\$ 4,576.00	\$ 10,297.00
Prep and restore concrete at monopole location w/ rebar per existing conditions (Monopole Hose Tower to remain). (If different location than equipment above).	\$ -	\$ -	\$ -	\$ -	\$ 5,721.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 3,433.00
Remove temporary fencing from site.	\$ -	\$ -	\$ 1,617.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,617.00	\$ -	\$ -	\$ -	\$ 1,617.00
Pavement stripe painting for parking spaces as needed.	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ -	\$ -	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00
Environmental specialist report as required by contracts.	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00
Any Permit related fees.	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 2,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 2,500.00	\$ 2,500.00	\$ 2,500.00
Supply and install new hose rack tower. (Estimate; assuming an ~32' tall lattice structure similar to what was originally removed from site, with ladder and no mechanized hoisting gear. This estimate should be adjusted upon confirmation of scope and design of structure; no specs provided). Labor cost includes foundation.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Landscape and irrigation replacement budget.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,600.00	\$ -	\$ 5,383.00	\$ 4,538.00	\$ -	\$ -	\$ -	\$ 4,521.00	\$ -	\$ -	\$ -	\$ -	\$ -
Final site cleanup.	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00
Other: Install flood lights @ 32' elevation on monopole to replace flood lights that were on original hose rack tower and connect to available power in sub panel in utility closet on south side of fire station.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 4,483.00	\$ -	\$ 12,155.00	\$ -	\$ -	\$ 2,233.00	\$ 2,640.00	\$ -	\$ -	\$ 2,871.00	\$ -	\$ -	\$ -
Pyramid CM Cost for Proposed Restoration SOW.	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00	\$ 8,500.00
Pyramid By Site Cost	\$ 87,579.00	\$ 90,353.00	\$ 84,375.00	\$ 84,531.00	\$ 87,442.00	\$ 112,161.00	\$ 93,692.00	\$ 97,128.00	\$ 117,316.00	\$ 98,794.00	\$ 108,933.00	\$ 118,084.00	\$ 101,298.00	\$ 85,963.00	\$ 120,258.00	\$ 95,248.00	\$ 87,569.00	\$ 94,764.00
MSI Mark-up	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
TOTAL COST PER SITE FOR RESTORATION WORK	\$ 91,957.00	\$ 94,871.00	\$ 88,594.00	\$ 88,758.00	\$ 91,814.00	\$ 117,769.00	\$ 98,377.00	\$ 101,984.00	\$ 123,182.00	\$ 103,734.00	\$ 114,380.00	\$ 123,988.00	\$ 106,363.00	\$ 90,261.00	\$ 126,271.00	\$ 100,010.00	\$ 91,947.00	\$ 99,502.00

SCHEDULE OF PAYMENTS EXHIBIT C.13 - RESTORATION WORK												
Restoration Work Scope of Work (Full Demo)	FULL DEMO OF PARTIALLY BUILT SITES (TYPE I)						FULL DEMO OF PARTIALLY BUILT SITES (TYPE II)				SITE RESTORATION	
	LACF031	LACF058	LACF061	LACF078	LACF140	LACF141	LACF044	LACF090	LACF108	LACF123	LACF021	LACF096
Task	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost	Total Cost
Project Management & Administration	\$ 1,535.00	\$ 2,035.00	\$ 1,535.00	\$ 2,035.00	\$ 1,535.00	\$ 1,535.00	\$ 935.00	\$ 935.00	\$ 935.00	\$ 935.00	\$ 935.00	\$ 935.00
Remove full tower assembly, mounts, antennas, coax and cable tray; haul off and dispose coax and cable tray.	\$ -	\$ 20,378.00	\$ -	\$ 31,928.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transport full tower, mounts and associated hardware to location to be determined by Authority within 25 mile distance.	\$ -	\$ 6,072.00	\$ -	\$ 9,152.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grout tower base.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Uninstall equipment cabinets from site and transport to location determined by Authority within 25 mile distance.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Uninstall generator from site and transport to location determined by Authority within 25 mile distance.	\$ -	\$ -	\$ -	\$ 2,673.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Demo tower foundation to below grade.	\$ 6,446.00	\$ 6,446.00	\$ 6,446.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,446.00	\$ -	\$ -	\$ -
Stick build a box over tower foundation.	\$ -	\$ -	\$ -	\$ 1,969.00	\$ 1,969.00	\$ 1,969.00	\$ 1,969.00	\$ 1,969.00	\$ -	\$ 1,969.00	\$ -	\$ -
Demo equipment pad and leave generator pad.	\$ 6,402.00	\$ -	\$ 6,402.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Slurry back fill equipment & generator pad locations.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,258.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Slurry backfill trench between equipment & generator locations.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,137.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Power coordination for disconnect of meter, and/or hot secondary lines feeding meter can if necessary.	\$ -	\$ -	\$ 743.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Disconnect and remove secondary conductors between power pedestal and disconnect on H frame. Remove and dispose of pedestal, demo concrete pad for pedestal, cut and cap conduit below grade and restore grade to pre-existing conditions (grass).	\$ -	\$ -	\$ 2,613.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Uninstall PPC and transfer switch from H frame and transport to location determined by Authority within 25 mile radius. Demo, haul off and dispose remaining H frame material. Note: Leave meter can, disconnect and conduits between disconnect at northeast corner of fire station and H frame at west end of north CMU wall at rear of fire station.	\$ 2,591.00	\$ -	\$ 2,591.00	\$ -	\$ 2,921.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Demo bollards around equipment pad location.	\$ -	\$ -	\$ 1,408.00	\$ -	\$ -	\$ 1,766.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Demo CMU wall enclosure at equipment & generator locations.	\$ -	\$ -	\$ -	\$ 10,032.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Disposal of all CMU materials and debris.	\$ -	\$ -	\$ -	\$ 11,220.00	\$ 7,040.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cut or bend CMU wall rebar.	\$ -	\$ -	\$ -	\$ 2,222.00	\$ 2,222.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Cut and cap all conduits below grade at equipment, generator and H frame locations.	\$ 2,123.00	\$ -	\$ 2,123.00	\$ 2,123.00	\$ 3,443.00	\$ 2,123.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Install hose rack assembly on tower.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Source and install 30A single pole power for hose rack hoisting motor from "house power" on site. Use sub-panel in utility room on south side of fire station. Use available space for 30A single pole breaker. Includes sawcut and removal of concrete, trenching and restoring concrete as necessary.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Field perform Valmont's outlined "fix" for hose drying rack assembly.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Restore concrete pavement at equipment, generator, H frame and monopole locations w/ rebar per existing conditions. (Monopole Hose Tower to remain).	\$ 6,864.00	\$ 4,576.00	\$ 6,864.00	\$ -	\$ -	\$ 12,546.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Prep and restore concrete at monopole location w/ rebar per existing conditions (Monopole Hose Tower to remain). (If different location than equipment above).	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Remove temporary fencing from site.	\$ -	\$ -	\$ -	\$ 1,617.00	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Pavement stripe painting for parking spaces as needed.	\$ 2,344.00	\$ 2,344.00	\$ 2,344.00	\$ -	\$ -	\$ 2,344.00	\$ -	\$ 2,344.00	\$ -	\$ -	\$ -	\$ -
Environmental specialist report as required by contracts.	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00	\$ 2,425.00
Any Permit related fees.	\$ 1,500.00	\$ 2,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00
Supply and install new hose rack tower. (Estimate; assuming an ~32' tall lattice structure similar to what was originally removed from site, with ladder and no mechanized hoisting gear. This estimate should be adjusted upon confirmation of scope and design of structure; no specs provided). Labor cost includes foundation.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Landscape and irrigation replacement budget.	\$ -	\$ -	\$ 4,455.00	\$ -	\$ 4,750.00	\$ -	\$ -	\$ -	\$ 4,477.00	\$ 4,978.00	\$ 2,173.00	\$ 4,477.00
Final site cleanup.	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00	\$ 1,617.00
Other: Install flood lights @ 32' elevation on monopole to replace flood lights that were on original hose rack tower and connect to available power in sub panel in utility closet on south side of fire station.	\$ -	\$ 6,402.00	\$ 16,638.00	\$ 5,528.00	\$ 4,191.00	\$ 2,778.00	\$ 4,527.00	\$ 1,155.00	\$ -	\$ -	\$ 4,175.00	\$ -
Pyramid CM Cost for Proposed Restoration SOW.	\$ 3,500.00	\$ 8,500.00	\$ 3,500.00	\$ 8,500.00	\$ 3,500.00	\$ 3,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00	\$ 1,500.00
Pyramid By Site Cost	\$ 37,347.00	\$ 63,295.00	\$ 63,204.00	\$ 94,541.00	\$ 37,113.00	\$ 45,498.00	\$ 14,473.00	\$ 13,445.00	\$ 18,900.00	\$ 14,924.00	\$ 14,325.00	\$ 12,454.00
MSI Mark-up	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
TOTAL COST PER SITE FOR RESTORATION WORK	\$ 39,214.00	\$ 66,460.00	\$ 66,364.00	\$ 99,268.00	\$ 38,969.00	\$ 47,773.00	\$ 15,197.00	\$ 14,117.00	\$ 19,845.00	\$ 15,670.00	\$ 15,041.00	\$ 13,077.00

Restoration Additional Work			
Task	Cost	10% Hold Back	PAYMENT LESS 10% HOLDBACK
Removal of Tower Foundations			
LACF050, LACF095, LACF078, LACF140, LACF141, LACF044, LACF090, LACF123	\$ 37,607.00		
Subtotal:	\$ 37,607.00		
Crescenta Valley Sheriff's Station (LASDCVS)			
Finish CMU site wall and backfill it	\$ 5,000.00		
Cut and cap all conduits to finish grade	\$ 3,000.00		
Fill, grade, and compact dirt area to install a 6" concrete slab, approximately 7 yards concrete	\$ 2,000.00		
Install a 10' x 10' pre-fabricated (store bought) shed, specs provided by Owner	\$ 3,000.00		
Backfill bore pit at transformer SCE pad	\$ 500.00		
Provide a new steel grate for clarifier pit, 24" by 27" rough dimensions of lid	\$ 200.00		
Site clean-up, haul-off and demobilization including removal of demobilization including removal of dismembered tree and removal of chain-link site fence and portable toilette upon completion of the site	\$ 2,000.00		
Monitors and miscellaneous expenses not captured above	\$ 2,300.00		
Project Management 10% mark-up	\$1,800		
Subtotal:	\$ 19,800.00	\$ -	\$ -
Grand Total:	\$ 57,407.00		

Total Price Summary	
	\$ 2,304,757.00
*Total LARICS Civil Works Price from MSI	
eNodeB Removal and	\$ 16,500.00
Removal of Tower Foundations	\$ 37,607.00
Crescenta Valley Sheriff's Station (LASDCVS)	\$ 19,800.00
Total Site Restoration Cost:	\$ 2,378,664.00

SCHEDULE OF PAYMENTS							
EXHIBIT C.15 - SITE CONSTRUCTION (CX) CHANGES							
Change Ref #	Site ID	Category	Sub-Category	Amendment	Contract Sum - Payable Amount	10% Holdback Amount	Payable Amount Less 10% Holdback Amount
LARICSLTE-009	LAPP001	Site Design Visit	2nd Site Design Visit	12	\$674	\$67	\$607
LARICSLTE-009	LAPP001	Site Design Visit	3rd Site Design Visit	12	\$674	\$67	\$607
LARICSLTE-048	LAPDFTH	Site Design Visit	2nd Site Design Visit	12	\$674	\$67	\$607
LARICSLTE-320	LAFD081	Site Design Visit	Site Design visit -tower location change	12	\$674	\$67	\$607
LARICSLTE-741	LAN	Site Design Visit	2nd Site Design Visit	12	\$674	\$67	\$607
LARICSLTE-874	FSS	Tower Retrofit Design	Tower Retrofit Design	12	\$1,967	\$197	\$1,770
LARICSLTE-092R01	LACF078	Power Company Payments	SCE Power Company Payments SCE	12	\$327	\$33	\$294
LARICSLTE-092R01	LACF140	Power Company Payments	SCE Power Company Payments SCE	12	\$327	\$33	\$294
LARICSLTE-092R01	GARD001	Power Company Payments	SCE Power Company Payments SCE	12	\$327	\$33	\$294
LARICSLTE-092R01	LACF024	Power Company Payments	SCE Power Company Payments SCE	12	\$412	\$41	\$371
LARICSLTE-092R01	LACF081	Power Company Payments	SCE Power Company Payments SCE	12	\$560	\$56	\$504
LARICSLTE-092R01	LACF098	Power Company Payments	SCE Power Company Payments SCE	12	\$899	\$90	\$809
LARICSLTE-092R01	LACF090	Power Company Payments	SCE Power Company Payments SCE	12	\$997	\$100	\$897
LARICSLTE-092R01	LACF086	Power Company Payments	SCE Power Company Payments SCE	12	\$1,022	\$102	\$920
LARICSLTE-092R01	LACF087	Power Company Payments	SCE Power Company Payments SCE	12	\$1,434	\$143	\$1,291
LARICSLTE-092R01	LASDCSN	Power Company Payments	SCE Power Company Payments SCE	12	\$1,681	\$168	\$1,513
LARICSLTE-092R01	LACF146	Power Company Payments	SCE Power Company Payments SCE	12	\$1,778	\$178	\$1,600
LARICSLTE-092R01	LACF016	Power Company Payments	SCE Power Company Payments SCE	12	\$1,896	\$190	\$1,706
LARICSLTE-092R01	LACF058	Power Company Payments	SCE Power Company Payments SCE	12	\$2,056	\$206	\$1,850
LARICSLTE-092R01	LACF095	Power Company Payments	SCE Power Company Payments SCE	12	\$2,222	\$222	\$2,000
LARICSLTE-092R01	LBFD012N	Power Company Payments	SCE Power Company Payments SCE	12	\$2,320	\$232	\$2,088
LARICSLTE-092R01	LACF132	Power Company Payments	SCE Power Company Payments SCE	12	\$2,560	\$256	\$2,304
LARICSLTE-092R01	LACF059	Power Company Payments	SCE Power Company Payments SCE	12	\$2,972	\$297	\$2,675
LARICSLTE-092R01	LAFD042	Power Company Payments	DWP Power Company Payments	12	\$3,486	\$349	\$3,137
LARICSLTE-092R01	LACF092	Power Company Payments	SCE Power Company Payments SCE	12	\$4,420	\$442	\$3,978
LARICSLTE-092R01	LAPDFTH	Power Company Payments	DWP Power Company Payments LA	12	\$4,950	\$495	\$4,455
LARICSLTE-092R01	LAPDNED	Power Company Payments	DWP Power Company Payments LA	12	\$4,950	\$495	\$4,455
LARICSLTE-092R01	LAPDNHD	Power Company Payments	DWP Power Company Payments LA	12	\$4,950	\$495	\$4,455
LARICSLTE-092R01	LAPDNWT	Power Company Payments	DWP Power Company Payments LA	12	\$4,950	\$495	\$4,455
LARICSLTE-092R01	LAFD047	Power Company Payments	DWP Power Company Payments	12	\$4,950	\$495	\$4,455
LARICSLTE-092R01	LAFD084	Power Company Payments	DWP Power Company Payments	12	\$4,950	\$495	\$4,455
LARICSLTE-092R01	LAFD094	Power Company Payments	DWP Power Company Payments	12	\$4,950	\$495	\$4,455
LARICSLTE-092R01	SWP	Power Company Payments	DWP Power Company Payments	12	\$5,500	\$550	\$4,950
LARICSLTE-092R01	LAFD076	Power Company Payments	DWP Power Company Payments	12	\$5,591	\$559	\$5,032
LARICSLTE-092R01	LAFD081	Power Company Payments	DWP Power Company Payments	12	\$5,752	\$575	\$5,177
LARICSLTE-092R01	LAPDWIL	Power Company Payments	DWP Power Company Payments LA	12	\$5,798	\$580	\$5,218
LARICSLTE-092R01	LAPDHLB	Power Company Payments	DWP Power Company Payments LA	12	\$5,824	\$582	\$5,242
LARICSLTE-092R01	LAFD101	Power Company Payments	DWP Power Company Payments	12	\$5,968	\$597	\$5,371
LARICSLTE-092R01	LAFD066	Power Company Payments	DWP Power Company Payments LA	12	\$6,303	\$630	\$5,673
LARICSLTE-092R01	LAPDTOP	Power Company Payments	DWP Power Company Payments	12	\$6,655	\$666	\$5,989
LARICSLTE-092R01	LAPDWVD	Power Company Payments	DWP Power Company Payments	12	\$6,655	\$666	\$5,989
LARICSLTE-092R01	LAFD080	Power Company Payments	DWP Power Company Payments	12	\$6,655	\$666	\$5,989
LARICSLTE-092R01	AZPD001	Power Company Payments	Azusa Power Company Payments	12	\$6,150	\$615	\$5,535
LARICSLTE-092R01	LAFD074	Power Company Payments	DWP Power Company Payments	12	\$8,272	\$827	\$7,445
LARICSLTE-869	LAPP001	Site Survey	2nd Topo Survey and 1A Letter	12	\$3,934	\$393	\$3,541
Site Construction Change Orders					\$150,740	\$15,074	\$135,666



LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS SYSTEM AUTHORITY

2525 Corporate Place, Suite 100
Monterey Park, California 91754
Telephone: (323) 881-8291
<http://www.la-rics.org>

PATRICK J. MALLON
EXECUTIVE DIRECTOR

August 6, 2015

Board of Directors
Los Angeles Regional Interoperable Communications System Authority (the "Authority")

Dear Directors:

MEMORANDUM OF AGREEMENT WITH THE CITY OF LOS ANGELES FOR USE OF THE CITY OF LOS ANGELES' MICROWAVE SYSTEM

SUBJECT

Board approval is requested to authorize the Executive Director to execute an Agreement between the City of Los Angeles (City) and the Authority for use and sharing of the City's microwave network and/or system and related equipment (Microwave System), at no cost to the Authority. The Authority will use the City's Microwave System to enhance the connectivity of its Public Safety Broadband Network (PSBN). The Agreement will be substantially similar in form to the enclosed Memorandum of Agreement between the Los Angeles Regional Interoperable Communications System Authority and the City for Use of the Microwave System (Agreement).

RECOMMENDED ACTION

It is recommended that your board:

1. Find that the approval and execution of the Agreement for use of the City's Microwave System is exempt from review under the California Environmental Quality Act (CEQA), because it is not a project as defined in Sections 15378(b)(2) and (b)(5) of the State CEQA Guidelines; and that it is also categorically exempt from the provisions of CEQA under State CEQA Guidelines Section 15061(b)(3).
2. Delegate authority to the Executive Director to execute an Agreement, substantially similar in form to the enclosed, between the City and the Authority to allow the Authority to use the City's Microwave System at no cost to the

AGENDA ITEM B

Authority, to enhance the connectivity of the PSBN, which shall commence upon execution for a term of fifteen (15) years unless otherwise terminated pursuant to the terms of the Agreement.

PURPOSE/JUSTIFICATION OF RECOMMENDED ACTION

On March 6, 2014, your Board delegated Authority to the Executive Director to execute an Agreement with Motorola Solutions, Inc. (Motorola) to design and implement the PSBN. As part of this contract, and at the direction of City staff working on the LA-RICS project, the Authority has incorporated into the PSBN design, use of the Microwave System owned and operated by the City. Authority staff will complete negotiations with City staff for an Agreement for Use of Microwave System, which is substantially similar to the enclosed.

The City's Microwave System

The Microwave System consists of routers, terminating equipment, antennas, batteries, and other related equipment and infrastructure located at various City facilities owned by the City, as specified in Appendix A of the Agreement. The City sites identified in Appendix A of the Agreement are currently in service and operational.

The Authority will share capacity on the existing City's Microwave System at the sites indicated in Appendix A of the Agreement. The Microwave System contemplates one (1) link between the Verdugo Peak (VPC) and Foothill Area Station (LAPDFTH), which would connect VPC to the PSBN. The City shall be responsible for maintaining the Microwave System during the term of the Agreement.

Approval to execute the Agreement, in a substantially similar form, will provide the Authority access to the City's Microwave System.

ENVIRONMENTAL DOCUMENTATION

Execution of the Agreement is exempt from review under CEQA, because it is not a project as defined in Sections 15378(b) (2) and (b)(5) of the State CEQA Guidelines. Approval of the Agreement and the work covered by the Agreement is an administrative activity of government to allow for maintenance and continual use of the Microwave System, which will not result in direct or indirect physical changes to the environment. The Authority is simply installing communications equipment with no new ground disturbance or building modifications resulting in any physical changes to the environment. Similarly, the Agreement is exempt under CEQA under State CEQA Guideline 15061(b)(3), given permitting use of the existing equipment related to the Microwave System will have no effect on the environment. Installation for the equipment related to the Microwave System will not occur in sensitive environments, and as to all exemptions cited, there are no cumulative impacts, unusual circumstances

or other limiting factors that would make the exemptions inapplicable. A notice of exemption will be filed following the Board's action.

FISCAL IMPACT/FINANCING

There will be no costs associated with the installation and/or implementation of the microwave equipment. In addition, there will be no maintenance costs as the maintenance of the Microwave System will be performed by City employees.

The equipment located in the sites listed in Appendix A of the Agreement consists of existing City equipment; therefore, there are no costs to purchase equipment necessary to install or upgrade the City's Microwave System for successful use by the PSBN. Any applicable operating costs will be paid out of the LA-RICS Operating Budget, via grants and/or Member Funded JPA Operations.

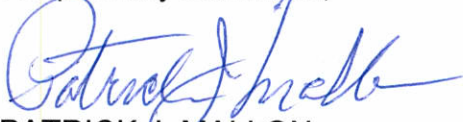
FACTS AND PROVISIONS/LEGAL REQUIREMENT

The Authority's counsel has reviewed the recommended action.

CONCLUSION

Upon the Board's approval of the recommended actions, the Executive Director, or his designee, will have delegated authority to proceed in the manner described in the recommended action.

Respectfully submitted,



PATRICK J. MALLON
EXECUTIVE DIRECTOR

PJM:MS:pl

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Enclosure

c: Counsel to the Authority

**AGREEMENT
FOR THE USE OF
MICROWAVE SYSTEM**

**BETWEEN
CITY OF LOS ANGELES
AND
LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATIONS
SYSTEM AUTHORITY**

RECITALS

WHEREAS, the City of Los Angeles, a municipal corporation ("City") and the Los Angeles Regional Interoperable Communications System Authority, a California Joint Powers Authority ("Authority") (collectively the "Parties" or singularly a "Party"), desire to enter into this agreement ("Agreement") to allow for the use and sharing of the City microwave network for the benefit of Public Safety responders in Los Angeles County. The City microwave network and related microwave radio equipment, including Router/Switch connected to these radio equipment shall be used to carry traffic between one LA-RICS network node and the LA-RICS core network.

WHEREAS, the Los Angeles Police Department ("LAPD"), Los Angeles Fire Department ("LAFD"), and the Authority rely on a regional emergency communications network of which the City, and Authority facilities, as it may be updated from time to time by the Parties as provided herein, are an important part.

WHEREAS, the Parties have determined it to be in their mutual interests, and in the general interest of Southern California area law enforcement and fire agencies, and other public safety responders, to ensure continuous operation of the Parties' facilities, their communication's systems, and the Authority's Los Angeles Regional Interoperable Communications System ("LA-RICS System"), during day to day operations, and in the event of a power outage or other emergency situation.

WHEREAS the purpose of the Authority is to engage in regional and cooperative planning and coordination of governmental services to establish the LA-RICS System, which is comprised of a Long Term Evolution System (known as "LTE System" or Public Safety Broadband Network (PSBN)).

WHEREAS, the Parties agree it is in their mutual best interests, and that of the Southern California region, that LA-RICS is allowed to share capacity on the City the facilities identified in Appendix A (Site List).

NOW THEREFORE, and in consideration of the above recitals which are incorporated herein and of the covenants contained herein, the Parties hereby agree to grant LA-RICS, a revocable right to share facilities identified in Appendix A in accordance with the terms and conditions set forth herein. By signing this Agreement, the Parties and their employees, contractors, and agents, agree to adhere to the guidelines and requirements set forth in this Agreement, as well as any other applicable laws, rules, statutes or ordinances.

I. REPRESENTATIVES OF THE PARTIES OF THIS AGREEMENT:

As identified below, the representatives of the respective Parties ("Authorized Representative(s)") are authorized to administer this Agreement as provided herein, and have authority to request and approve work for the property/facilities identified in Appendix A (Site List) and use of the Microwave Equipment in Appendix C.1 (Microwave Equipment). The Authorized Representatives will also receive formal notices, demands, requests and communications. The Authorized Representatives are as follows:

CITY OF LOS ANGELES:

Los Angeles Information Technology Agency (ITA):
ITA Representative: Ted Ross, General Manager
City Address: 200 North Main St., Room 1400, Los Angeles, CA 90012
ITA Representative Contact Information:

LOS ANGELES REGIONAL INTEROPERABLE COMMUNICATION SYSTEMS AUTHORITY:

Los Angeles Regional Interoperable Communication Systems Authority:
LARICS Representative: Patrick Mallon, Executive Director
LARICS Address: 2525 Corporate Drive, Suite 100, Monterey Park, CA
LARICS Representative Contact Information:

II. SERVICES TO BE PERFORMED

- A. Sharing of Capacity on the City Microwave System: The City agrees to allow LARICS to use available capacity on the City Microwave System for links associated with the sites shown in Appendix A or other such City Microwave sites mutually agreed to by LA-RICS and the City using the form in Appendix B to enable LARICS to transmit traffic from the LARICS system to the LARICS core network. Router parameters for the establishment of shared links shall be coordinated between LARICS and the City technical staff.
- B. Procurement of Microwave System and Related Equipment: No procurement is anticipated under the terms of this Agreement. Further specifications concerning any future equipment to be procured by LARICS would be set forth in a specific request using the Microwave Shared Use Request Form in Appendix B.
- C. Specific Requirements for the Use of the City Microwave System and Related Equipment: The Microwave system and related equipment, including routers is identified in Appendix A. Such equipment shall further comply with the specifications and requirements set forth in attachments B, C.1 and C.2 for each respective site. Attachments B, C.1 and C.2 include some, but not all, of the property information, equipment specifications, or other information relating to the Microwave facilities new installation or upgrades. City and LARICS acknowledge

it is possible that the needs and requirements of the City facilities and their operations may change over time.

- D. Maintenance of Microwave System and Related Equipment: During the effective period of this Agreement the City agrees to be responsible for maintaining the City-owned equipment in place at the sites listed in Appendix A. The City further agrees to interface to the extent required with its employees, agents, contractors, and/or the products manufacturers as required to ensure the continued operability of the Microwave system at the sites listed in Appendix A during the term of this agreement.
- E. Calls for Service: LARICS shall notify the City microwave maintenance provider telephonically in accordance with Appendix C.2 (Operations, Maintenance and Warranty Procedures), and in a timely manner, for any microwave related service needs it has. Response times for service-affecting outages shall be on a best effort basis.
- F. Equipment List: All equipment required for the sharing of the microwave links to be installed will be identified in Appendix C.1 or the form in Appendix B.

III. INDEMNIFICATION AND INSURANCE

A. Indemnification:

1. The City shall indemnify, defend, and hold harmless the Authority, and any of its Board, Officers, its Special Districts, elected and appointed officers, employees, and agents from and against any and all liability, including but not limited to demands, claims, actions, fees, costs, and expenses (including reasonable attorney and expert witness fees), arising from or connected with the City's acts and/or omissions arising from and/or relating to this Agreement. Attorneys fees covered include both in house and outside counsel.
2. The Authority shall indemnify, defend, and hold harmless the City, and any of its Board, Officers, its Special Districts, elected and appointed officers, employees, and agents from and against any and all liability, including but not limited to demands, claims, actions, fees, costs, and expenses (including reasonable attorney and expert witness fees), arising from or connected with the Authority's acts and/or omissions arising from and/or relating to this Agreement. Attorneys fees covered include both in house and outside counsel.
4. In the event of third-party loss caused by the negligence, wrongful act or omission of more than one Party, each Party hereto shall bear financial responsibility in proportion to its percentage of fault as may be mutually agreed between them or judicially determined. The provisions of California

Civil Code Section 2778 regarding interpretation of indemnity agreements are hereby incorporated into this Agreement.

- B. Insurance: LARICS shall provide evidence of General Liability Insurance having dollar limits not less than \$2,000,000.00 per occurrence and \$5,000,000.00 general annual aggregate, Professional Liability Insurance having dollar limits not less than \$1,000,000.00 per claim. In addition, the Parties and/or their contractors shall have Workers' Compensation Insurance in the amount required by statute with a waiver of subrogation in favor of the other Parties, and U.S. Government, and Employer's Liability Insurance of not less than \$1,000,000.00 each accident, each employee for disease, and policy limit for disease. Such insurance shall conform to each Parties' requirements established by Charter, ordinance or policy, and shall otherwise be in a form or self-insurance program satisfactory to the applicable risk management department. Any Party may, at its option, purchase commercial insurance or be self-insured so long as such self-insurance meets or exceeds the insurance requirements contained in this Agreement and so long as such Party provides written confirmation of such self-insurance to the other Parties.

IV. GENERAL PROVISIONS:

- A. Term and Withdrawal: This Agreement will commence on the date that it is adopted by all Parties ("Effective Date"). This Agreement shall remain in effect for fifteen (15) years from the Effective Date and shall terminate only earlier upon written notice of termination by any Party pursuant to Section IV.B. (Default), or upon such earlier time as one of the parties withdraws from this Agreement.
- B. Default: Except as otherwise provided in this Agreement, in the event of a default hereunder by any Party, the affected Party shall provide written notice thereof to the defaulting Party. The defaulting Party shall have sixty (60) days from the date of said notice in which to cure the default, unless the Parties have agreed otherwise. In the event the defaulting Party fails to cure a default within sixty (60) days or as otherwise provided in this section, the affected Party may: (a) cure the default and invoice the defaulting Party for all costs reasonably incurred in effecting such cure, or (b) terminate this Agreement upon written notice to the defaulting Party and remove all of the defaulting Party's equipment and improvements located thereon.
- C. Supplemental Policies: The Parties may add individual guidelines for the installation, maintenance or use of the Microwave Equipment, provided they do not conflict with the provisions of this Agreement.
- D. Public Record Requests, Subpoenas and Court Orders: Public records requests, subpoenas, or court orders received by any Party relating to the performance of this Agreement that affects or involves matters of any other Party, shall be immediately copied and sent to the other Parties' Authorized Representatives upon receipt of such request. Each Party will respond to such legal requests to the extent required by law, and depending on whether such request affects or involves matters within their jurisdiction.

Entire Agreement: This Agreement including all attached Appendices, exhibits and drawings, and the documents and provisions incorporated by reference herein is the complete and exclusive statement of understanding between the parties and supersedes any previous agreement, written and oral, and all communications between the parties relating to the subject matter of this Agreement. This Agreement shall not be changed or modified in any manner except by written amendment fully executed between the Parties.

- E. Section Headings: The section headings appearing herein are for the convenience of the Parties and shall not be deemed to govern, limit, modify, or in any manner affect the scope, meaning or intent of the provisions of this Agreement. This Agreement shall be construed according to its fair meaning, and not strictly for or against any Party.
- F. Two Constructions: It is the intention of the parties hereto that if any provision of this Agreement is capable of two constructions, one of which would render the provision void and the other of which would render the provision valid, then the provision shall have the meaning that renders it valid.
- G. Laws of California: This Agreement shall be construed and enforced in accordance with the laws of the State of California.
- H. Time: Time shall be of the essence in complying with the terms, conditions, and provisions of this Agreement.
- I. Void Provisions: If any provision of this Agreement is determined to be void by any court of competent jurisdiction, then such determination shall not affect any other provision of this Agreement, and all such other provisions shall remain in full force and effect.
- J. Waivers: The waiver by either party of any breach of any term, covenant, or condition herein contained shall not be deemed to be a waiver of any other term, covenant or condition, or of any subsequent breach of the same term, covenant, or condition.
- K. Assignment: This Agreement may not be sold, assigned or transferred by any Party without the approval or consent of the other Parties, which consent may not be unreasonably withheld or conditioned.

V. NON-APPROPRIATION OF FUNDS

Notwithstanding any other provision of this Agreement, in order for any of the Parties to comply with its governing legal requirements, no Party shall have an obligation to make payments or perform under this Agreement unless the Party has first made an appropriation of funding, or have otherwise secured adequate alternative funding, equal to or in excess of its obligation to make any payment under this Agreement.

VII. EXECUTION OF AGREEMENT

This Agreement may be executed in one or more counterparts, each of which will be deemed an original, but all of which together will constitute one and the same instrument. For all other purposes, facsimile or PDF signatures are acceptable as originals.

IN WITNESS WHEREOF, the Parties have caused this Agreement to be executed on the day, month and year written below.

FOR THE CITY OF LOS ANGELES

By: _____
TED ROSS, General Manager
Information Technology Agency

Date: _____

APPROVED AS TO FORM:

MICHAEL N. FEUER
City Attorney

By: _____
GRETCHEN SMITH
Deputy City Attorney

Date: _____

FOR THE LOS ANGELES REGIONAL
INTEROPERABLE COMMUNICATIONS
SYSTEM AUTHORITY

By: _____
Name and Title

Date: _____

APPROVED AS TO FORM:

MARY WICKHAM,
County Counsel

By: _____
TRUC L. MOORE
Senior Deputy County Counsel

Date: _____

Appendix A Site List

The following sites are property of the City with existing microwave equipment. Each site also has a telco / common equipment room, batteries, interconnection equipment and other property associated with point-to-point microwave facilities including FCC licensed spectrum. Any of these sites or other City Microwave sites that are mutually agreed to by the parties might be candidates for the shared use covered by this agreement. The sites are:

Site ID	Facility Name	Organization	Address Line	City	Zip Code	Jurisdiction	Parcel Owner
VPC	Verdugo Peak	City of Los Angeles	Verdugo Mountain Way	Glendale	91208	City of Glendale	LA County
LAPDFTH	Foothill Area station	City of Los Angeles Police Dept	12760 Osborne Street	Pacoima	91331	City of Los Angeles	City of Los Angeles

Appendix B

MICROWAVE ACCESS AND USE REQUEST FORM

Microwave Shared Use Work Request

LA-RICS Information

Requester's Name: _____

Contact Information
(email and phone): _____

Date of Request: _____

Requested Date of
Start of Shared Use: _____

Site Names and Link
Description (From
Appendix A): _____

Do all LA_RICS personnel have background check applications on file applicable for the site?:

Yes No, explain: _____

Shared Use Specification

Please use space provided for a description of the Shared Use requested.

Detailed Work Specification

Describe in detail any shared use requirements as found in Appendix C.1. Attach a Drawing of Shared Use requested including the equipment such as routers and terminating equipment involved in the microwave link requested:

Approvals

You must submit requests for Microwave Use and Access a minimum of two business days prior to the first day you require access.

Approvals Required (Check all that apply):

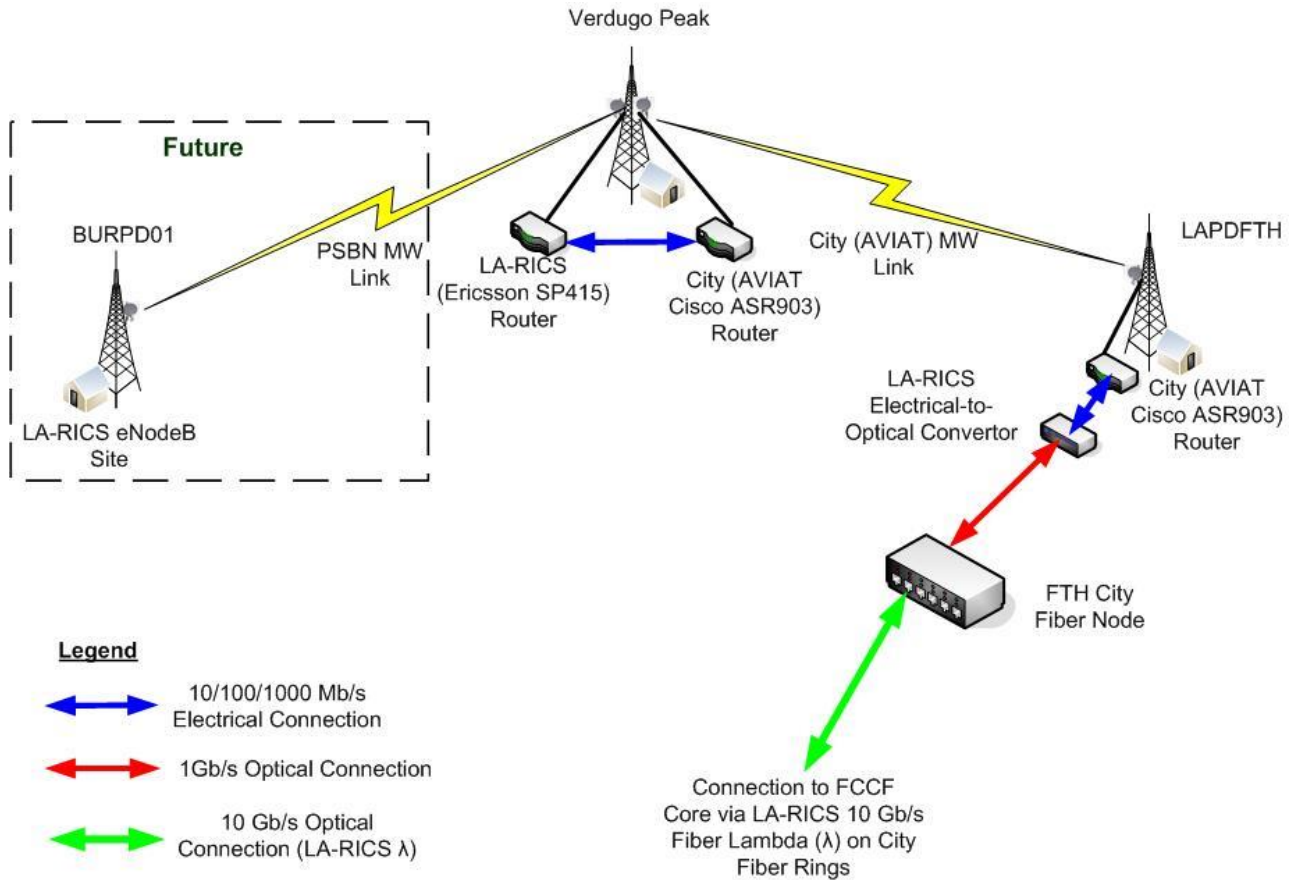
LA City LAFD LAPD
 ITA Other _____

Authorized Signature and Organization Date

Authorized Signature and Organization Date

Appendix C.1 (Scope of Work) Installation Drawings and Procedures

The following drawing describes the shared use link currently anticipated. Drawings for future links will be submitted using the Microwave Shared Use Request (see Appendix B).



Appendix C.2 (Scope of Work) Operations, Maintenance and Warranty Procedures

System Availability: The microwave link must be available for operation 24 hours a day, 7 days a week, and meet or exceed an site availability SLA of 99.999% and a link availability SLA of 99.999% or greater and with planned downtime limited to those hours required for any necessary maintenance, support or repair activities.

LA-RICS shall contact the City microwave maintenance provider telephonically at the following location, and in a timely manner, for any microwave related service needs:

Mt. Lee Monitor
(213) 485-3110