# NEW KENT COUNTY BOARD OF SUPERVISORS

September 29, 2025, 9:00 AM

Boardroom, County Administration Building, 12007 Courthouse Circle, New Kent, VA 23124 - WORK SESSION

**AGENDA**

CALL TO ORDER AND ROLL CALL

*Times are approximate*

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| 9:00 a.m. | ITEM | 1 | **Proposed Option and Lease Agreement with The Towers, LLC**<br>*County Administrator Rodney Hathaway* |
| 9:15 a.m. | ITEM | 2 | **Request for Supplemental Appropriation - Sludge Disposal**<br>*Public Utilities Director Mike Lang* |
| 9:30 a.m. | ITEM | 3 | **Sheriff's Office Staffing Plan Presentation**<br>*Sheriff Lee Bailey* |
| 9:50 a.m. | ITEM | 4 | **P25 Radio System Upgrade from SR10A.2 to SR11 and Terminal Radio Upgrades**<br>*County Administrator Rodney Hathaway & Communications Team* |
| 10:00 a.m. | ITEM | 5 | **Other Business** |
| 10:10 a.m. | ITEM | 6 | **Adjournment** |

MEETING SCHEDULE: The next regularly scheduled meeting of the Board of Supervisors will be held at 6:00 p.m. on Tuesday, October 14, 2025, and the next work session will be held at 9:00 a.m. on Tuesday, October 28, 2025 both in the Boardroom of the County Administration Building.

*If a meeting cannot be held because of the closing of State and/or County offices, the meeting will be held on the next business day that the County offices are open.*

New Kent County Board of Supervisors
P O Box 150, 12007 Courthouse Circle
New Kent, VA 23124

# AGENDA ITEM REQUEST

(TO BE SUBMITTED NO LATER THAN 12 DAYS PRIOR TO THE MEETING)

Meeting Date: 9/29/2025

Agenda Item

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| Motion: "Mr. Chairman, I move to (not required for Consent Agenda items) | authorize the County Administrator to execute the proposed option and lease agreement with The Towers, LLC for 10,000 square feet of County owned property located at 12400 Old Telegraph Road, to be used for the construction of a communications tower. |
| Subject | **Proposed Option and Lease Agreement with The Towers, LLC** |
| Issue | The proposed option and lease agreement with The Towers, LLC for 10,000 square feet of County owned property located at 12400 Old Telegraph Road, to be used for the construction of a communications tower. |
| Recommendation | Staff recommends adoption of the proposed motion. |
| Fiscal Implications | The option agreement requires a payment to the County in the amount of $2,500.00 within 30 days of the effective date of the agreement. The lease agreement requires an annual rent payment of $12,000 to begin within 30 days after the rent commencement date. This amount reflects an increase from the original amount of $6,500 which was presented at the September 8th public hearing. The rent will increase by 3% annually on each anniversary of the rent commencement date. Starting with the second broadband carrier on the tower, the rent will increase by $75.00 per month for each additional carrier. |
| Policy Implications | Section 15.2-1800 of the code of Virginia requires the County to conduct a public hearing prior to the execution of a lease to a non-public body. |
| Legislative History | A public hearing was conducted on September 8, 2025 on the proposed lease agreement. The current proposed lease reflects an increase in the annual lease payment, which went from $6,500 to $12,000. |
| Discussion | The property is located at 12400 Old Telegraph Road and is the location of the County's Old Telegraph Road Refuse Site. The Towers, LLC will be required to apply for a Conditional Use Permit for the construction of the tower. This will be accomplished during the option period in the draft agreement. Please see the attached draft agreement and map of the property. |

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| Time Needed: | 9:00 a.m. | Person Appearing: | County Administrator Rodney Hathaway |

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|---|---|---|---|
| Request prepared by: | Rodney Hathaway, County Administrator | Telephone: | (804) 966-9683 |
| Copy provided to: | | | |

**ATTACHMENTS:**

| Description | Type |
|---|---|
| Proposed Option and Lease Agreement - Revised (PDF) | Cover Memo |

**REVIEWERS:**

| Department | Reviewer | Action | Date |
|---|---|---|---|
| Administration | Hathaway, Rodney | Approved | 9/17/2025 - 3:03 PM |
| Administration | Hathaway, Rodney | Approved | 9/17/2025 - 3:04 PM |
| Attorney | Hefty, Brendan | Approved | 9/19/2025 - 11:31 AM |

**Landlord:**
The County of New Kent
P.O. Box 150
New Kent, Virginia 23124

**Tenant:**
The Towers, LLC
750 Park of Commerce Drive, Suite 200
Boca Raton, Florida 33487

**Site #: US-VA-5217**
**Site Name: Old Telegraph**

**OPTION AND LEASE AGREEMENT**

**THIS OPTION AND LEASE AGREEMENT** (this "**Agreement**") is made this_____ day of _ _____, 20_____ (the "**Effective Date**") by and between **The County of New Kent, Virginia**, a political subdivision of the Commonwealth of Virginia , ("**Landlord**"), whose address is P.O. Box 150, New Kent, Virginia 23124, and **The Towers, LLC**, a Delaware limited liability company known in the Commonwealth of Virginia as The Towers of Virginia, LLC, a Delaware limited liability company ("**Tenant**"), whose address is 750 Park of Commerce Drive, Suite 200, Boca Raton, Florida 33487.

**WHEREAS**, Landlord owns certain real property located in the County of New Kent, in the Commonwealth of Virginia, that is more particularly described and/or depicted in **Exhibit 1** attached hereto (the "**Property**"); and

**WHEREAS**, Tenant desires to lease from Landlord a certain portion of the Property measuring approximately 10,000 square feet and to obtain easements for landscape buffer, utilities, and access (collectively, the "**Premises**"), which Premises is more particularly described and/or depicted in **Exhibit 2** attached hereto, for the placement of Communications Facilities (defined below).

**NOW THEREFORE**, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereto agree:

**1. OPTION TO LEASE.**

(a) As of the Effective Date, Landlord grants to Tenant the exclusive option to lease the Premises (the "**Option**") during the Option Period (defined below). At any time during the Option Period and Term (defined below), Tenant and its agents, engineers, surveyors, and other representatives will have the right to enter upon the Property to inspect, examine, conduct soil borings, drainage testing, material sampling, and other geological or engineering tests or studies of the Property (collectively, the "**Tests**"), to apply for and obtain licenses, permits, approvals, or other relief required of or deemed necessary or appropriate at Tenant's sole discretion for its use of the Premises including, without limitation, applications for zoning variances, zoning ordinances, amendments, special use permits, construction permits, and any other permits and approvals deemed necessary by Tenant (collectively, the "**Government Approvals**"), initiate the ordering and/or scheduling of necessary utilities, obtain a title report with respect to the Property, and otherwise to do those things on or off the Property that, in the opinion of Tenant, are necessary in Tenant's sole discretion to determine the physical condition of the Property, the environmental history of

the Property, and the feasibility or suitability of the Property for Tenant's permitted use under this Agreement, all at Tenant's expense. Tenant will be authorized to apply for the Government Approvals on behalf of Landlord and Landlord agrees to reasonably cooperate with such applications. Tenant will not be liable to Landlord or any third party on account of any pre-existing defect or condition on or with respect to the Property, whether or not such defect or condition is disclosed by Tenant's Tests. Tenant will restore the Property to its condition as it existed prior to conducting any Tests, reasonable wear and tear and casualty not caused by Tenant excepted. In addition, Tenant will indemnify, defend, and hold Landlord harmless from and against any and all injury, loss, damage or claims arising directly out of Tenant's Tests.

(b) In consideration of Landlord granting Tenant the Option, Tenant agrees to pay Landlord the sum of Two Thousand Five Hundred Dollars $2,500.00 within thirty (30) days of the Effective Date. The Option Period will be for a term of one (1) year from the Effective Date (the "**Option Period**").

(c) Tenant may exercise the Option at any time during the Option Period by delivery of written notice to Landlord (the "**Notice of Exercise of Option**"). The Notice of Exercise of Option will set forth the commencement date (the "**Commencement Date**") of the Initial Term (defined below). If Tenant does not provide a Notice of Exercise of Option during the Option Period, this Agreement will terminate and the parties will have no further liability to each other.

**2. TERM**.

(a) Effective as of the Commencement Date, Landlord leases the Premises to Tenant subject to the terms and conditions of this Agreement for an initial term of five (5) years (the "**Initial Term**").

(b) Tenant will have the option to extend the Initial Term for seven (7) successive terms of five (5) years each (each a "**Renewal Term**"). Each Renewal Term will commence automatically, unless Tenant delivers notice to Landlord, not less than 30 days prior to the end of the then-current Term, of Tenant's intent not to renew. For purposes of this Agreement, "**Term**" means the Initial Term and any applicable Renewal Term(s).

**3. RENT**

(a) Beginning on the Rent Commencement Date, Tenant must pay to Landlord an annual rent payment of Twelve Thousand Dollars $12,000.00 ("**Rent**"), at the address set forth above, and must pay such annual Rent thereafter on each anniversary of the Rent Commencement Date. Rent will be prorated for any partial year. The initial payment of Rent will be forwarded by Tenant to Landlord within 30 days after the Rent Commencement Date.

(b) The Rent will increase by 3.00% annually on each anniversary of the Rent Commencement Date.

(c) Starting with the second Broadband Carrier, and each additional Broadband Carrier thereafter, Tenant's monthly Rent due hereunder will increase by $75.00 per month for each such additional Broadband Carrier (each a "**Revenue Share Fee**"), subject to the following terms and conditions. The applicable Revenue Share Fee will commence on the first day of the month following the date that the second Broadband Carrier (and each additional Broadband Carrier thereafter) commences rental payments to Tenant under its respective sublease. The Revenue Share Fee will only be due and payable in the event there are two or more Broadband Carriers. If at any time subsequent to the addition of a second Broadband Carrier the number of Broadband Carriers is reduced to one Broadband Carrier, then no Revenue Share Fee will be due and payable. Notwithstanding anything to the contrary contained herein, the Revenue Share Fee

will only be due and payable by Tenant to Landlord hereunder during the term of such Broadband Carrier's sublease agreement and for so long as such Broadband Carrier is actually paying to Tenant the requisite rental set forth therein. For purposes herein, the term "**Broadband Carrier**" means Verizon, AT&T, Dish, and T-Mobile and such similar national broadband carriers.

**4. TAXES**. Tenant must pay any real and personal property taxes assessed on, or any portion of such taxes attributable to, the Communications Facilities located on the Premises. To the extent Landlord is not exempt pursuant to applicable law or code in Virginia, Landlord shall pay when due all real property taxes and all other fees and assessments attributable to the Property and the Premises . Tenant shall pay as additional rent any increase in real property taxes levied against the Premises, which are directly attributable to Tenant's use of the Premises (but not, however, taxes attributable to periods prior to the Commencement Date such as roll-back or greenbelt assessments) if Landlord furnishes proof of such increase to Tenant (such increase, the "Landlord Tax Reimbursement"). In the event that Landlord fails to pay when due any taxes affecting the Premises or any easement relating to the Premises, Tenant shall have the right, but not the obligation, to pay such taxes and any applicable interest, penalties or similar charges, and deduct the full amount of the taxes and such charges paid by Tenant on Landlord's behalf from future installments of Rent. Notwithstanding the foregoing, Tenant shall not have the obligation to pay any tax, assessment, or charge that Tenant is disputing in good faith in appropriate proceedings prior to a final determination that such tax is properly assessed, provided that no lien attaches to the Property. In addition, Tenant shall not have the obligation to pay or reimburse Landlord for the Landlord Tax Reimbursement if Landlord has not provided proof of such amount and demand therefor within one (1) year of the date such amount is due and payable by Landlord.

**5. USE**.

(a) The Premises are being leased for the purpose of erecting, installing, operating, maintaining, repairing and replacing radio or communications towers, transmitting and receiving equipment, antennas, dishes, satellite dishes, mounting structures, equipment shelters and buildings, solar energy conversion and electrical power generation system, fencing and other supporting structures and related equipment (collectively, the "**Communications Facilities**"), and to alter, supplement and/or modify same. Landlord's prior written consent is required for the initial design of the Communications Facilities or any material modification to the height or overall structure, consent not to be unreasonably withheld, conditioned or delayed. Tenant may, subject to the foregoing, make any improvements, alterations, or modifications to the Premises as are deemed appropriate by Tenant for the permitted use herein. Tenant will have the right to clear the Premises of any trees, vegetation, or undergrowth which interferes with the use of the Premises for the intended purposes by Tenant and/or its subtenants and licensees, as applicable. Tenant will have the exclusive right to install and operate the Communications Facilities upon the Premises.

(b) Reservation of Space on Tower for Landlord .

(i) At no rent due from Landlord to Tenant nor any reduction in the Rent, Landlord will be allowed, at Landlord's sole expense, to attach its communication antennas to Tenant's telecommunications tower provided Landlord first obtains Tenant's written consent, with such consent not to be unreasonably withheld. Pursuant to the foregoing, Tenant hereby agrees to reserve on behalf of Landlord a ten foot (10') vertical envelope at a height of eighty feet (80') to ninety feet (90') with a centerline of eighty-five feet (85') on Tenant's tower at the Premises in the event Tenant builds a tower on the Premises ("Landlord's Tower Space"). Any equipment installed on Landlord's Tower Space will not exceed seven thousand and five hundred (7,500) square inches of wind loading capacity. Tenant's approval for said attachments will be contingent upon determining whether Tenant's tower is properly engineered to accommodate Landlord's antenna system and such transmission will not result in any impairment or diminution in the quality of Tenant's service. Further, said approval will be given only after Tenant has reviewed and approved Landlord's engineering plans for said antenna attachments. Approval will not be

unreasonably withheld. Upon written approval by Tenant, said attachments will be installed, at Landlord sole expense, by qualified licensed contractors and in accordance with Tenant's directives for the method of installment. In addition to Landlord being responsible for its own installation, Landlord will also be responsible for its own utilities and operations and agrees that any ground space required for Landlord's Tower Space will be outside the Premises. Landlord acknowledges and agrees that Tenant reserves the right to relocate Landlord's antennas at any time(s) to accommodate modifications required for Tenant's future system requirements, provided such relocation will provide equivalent quality of service after such relocation.

(ii) Any reservation of right granted to Landlord pursuant to this Section is solely limited to Landlord's use only of the ten foot (10') vertical envelope described above and Landlord acknowledges and agrees that Landlord does not have the right to lease, license, sublease, sublicense, etc. such space on the tower on the Premises to any other party including, without limitation, any wireless communication entity.

**6. ACCESS AND UTILITIES**. During the Term, Tenant and its guests, agents, employees, customers, invitees, subtenants, licensees and assigns will have the unrestricted, exclusive right to use, and will have free and unfettered access to, the Premises seven (7) days a week, twenty-four24 hours a day. Landlord for itself, its successors and assigns, hereby grants and conveys unto Tenant, its customers, employees, agents, invitees, subtenants, licensees, successors and assigns a non-exclusive easement throughout the Term to a public right of way (a) for ingress and egress, and (b) for the construction, installation, operation, maintenance, repair and replacement of overhead and underground electric and other utility facilities (including fiber, backhaul, wires, poles, guys, cables, conduits and appurtenant equipment), with the right to reconstruct, improve, add to, enlarge, change and remove such facilities, over, across and through any easement for the benefit of and access to the Premises, subject to the terms and conditions herein set forth. Landlord agrees to coordinate, cooperate and assist Tenant with obtaining the required access and utility easements to the Premises from a public right of way up to and including negotiating and obtaining such access and utility rights from any applicable neighbor parcel. If there are utilities already existing on the Premises which serve the Premises, Tenant may utilize such utilities and services. The rights granted to Tenant herein will also include the right to partially assign its rights hereunder to any public or private utility company or authority to facilitate the uses contemplated herein, and all other rights and privileges reasonably necessary for Tenant's safe and efficient use and enjoyment of the easements for the purposes described above. Upon Tenant's request, Landlord will execute and deliver to Tenant requisite recordable documents evidencing the easements contemplated hereunder within 15 days of Tenant's request, and Landlord will obtain the consent and joinder of Landlord's mortgagee to any such grant, if applicable.

**7. EQUIPMENT, FIXTURES AND REMOVAL**. The Communications Facilities will at all times be the personal property of Tenant and/or its subtenants and licensees, as applicable. Tenant or its customers, subtenants, or licensees will have the right to erect, install, maintain, repair, replace and operate on the Premises such equipment, structures, fixtures, signs, and personal property as Tenant, its customers, subtenants, or licensees may deem necessary or appropriate , and such property, including the equipment, structures, fixtures, signs, and personal property currently on the Premises, will not be deemed to be part of the Premises, but will remain the property of Tenant or its customers, subtenants or licensees. Within ninety 90 days after the expiration or earlier termination of this Agreement (the "**Removal Period**"), Tenant must remove its improvements and personal property and restore the Premises to grade and perform all obligations under this Agreement during the Removal Period, including, without limitation, the payment of Rent at the rate in effect upon the expiration or termination of this Agreement.

**8. ASSIGNMENT AND SUBLEASE**. Tenant may transfer or assign this Agreement to Tenant's Lender (defined below), principal, affiliates, subsidiaries, subsidiaries of its principal or to any entity which

acquires all of or substantially all of Tenant's assets or ownership interests by reasons of merger, acquisition or other business reorganization without Landlord's consent (a "**Permitted Assignment**"). As to transfers or assignments which do not constitute a Permitted Assignment, Tenant is required to obtain Landlord's written consent prior to effecting such transfer or assignment, which consent may not be unreasonably withheld, conditioned, or delayed. Upon such assignment, including a Permitted Assignment, Tenant will be relieved and released of all obligations and liabilities hereunder. Tenant has the exclusive right to sublease or grant licenses without Landlord's consent to use all or a part of the Premises and/or the Communications Facilities upon notice and for the permitted use contained herein, but no such sublease or license will relieve Tenant from its obligations under this Agreement. Landlord may assign this Agreement only in its entirety and only to any person or entity who or which acquires fee title to the Property, subject to Section 15. Landlord may subdivide the Property without Tenant's prior written consent provided the resulting parcels from such subdivision are required to afford Tenant the protections set forth in Section 14 hereof.

**9. COVENANTS, WARRANTIES AND REPRESENTATIONS**.

(a) Landlord warrants and represents that it is the owner in fee simple of the Property, free and clear of all liens and encumbrances except as to those which may have been disclosed to Tenant in writing prior to the execution hereof, and that it alone has full right to lease the Premises for the Term.

(b) Landlord will pay promptly, when due, any other amounts or sums due and owing with respect to its ownership and operation of the Property, including, without limitation, judgments, liens, mortgage payments and other similar encumbrances. If Landlord fails to make any payments required under this Agreement, or breaches any other obligation or covenant under this Agreement, Tenant may (without obligation), after providing10 days written notice to Landlord, make such payment or perform such obligation on behalf of Landlord and offset such payment (including any reasonable attorneys' fees incurred in connection with Tenant performing such obligation) against payments of Rent.

(c) Landlord will not do or knowingly permit anything that will interfere with or negate any special use permit or approval pertaining to the Premises or cause Tenant's use of the Premises to be in nonconformance with applicable local, state, or federal laws. Landlord will cooperate with Tenant in any effort by Tenant to obtain certificates, permits, licenses and other approvals that may be required by any governmental authorities. Landlord agrees to execute any necessary applications, consents or other documents as may be reasonably necessary for Tenant to apply for and obtain the Government Approvals required to use and maintain the Premises and the Communications Facilities.

(d) To the best of Landlord's knowledge, Landlord has complied and will comply with all laws with respect to the Property. No asbestos-containing thermal insulation or products containing PCB, formaldehyde, chlordane, or heptachlor or other hazardous materials have been placed on or in the Property by Landlord or, to the knowledge of Landlord, by any prior owner or user of the Property. There has been no release of or contamination by hazardous materials on the Property by Landlord, or to the knowledge of Landlord, any prior owner or user of the Property.

(e) Tenant will have access to all utilities required for the operation of Tenant's improvements on the Premises that are existing on the Property.

(f) Landlord warrants and represents that there currently exist no licenses, sublicenses, or other agreements, written or oral, granting to any party or parties the right of use or occupancy of any portion of the Property; there are no outstanding options or rights of first refusal to purchase the Property or any portion thereof or interest therein, or any equity or interest in Landlord if Landlord is an entity; and there

are no parties (other than Landlord) in possession of the Property except as to those that may have been disclosed to Tenant in writing prior to the execution hereof.

**10. HOLD OVER TENANCY**. Should Tenant or any assignee, sublessee, or licensee of Tenant hold over the Premises or any part thereof after the expiration of this Agreement, such holdover will constitute and be construed as a tenancy from month-to-month only, but otherwise upon the same terms and conditions.

**11. INDEMNITIES**. Tenant agrees to indemnify, defend and hold harmless Landlord, its parent company or other affiliates, successors, assigns, officers, directors, shareholders, managers, members, agents and employees from and against all claims, actions, judgments, damages, liabilities, losses, expenses and costs (including, without limitation, reasonable attorneys' fees and court costs) (collectively, "**Losses**") caused by or arising out of (a) Teannt's breach of any of its obligations, covenants, representations or warranties contained herein, or (b) Tenant's acts or omissions with regard to this Agreement; provided, however, in no event shall Tenant indemnify Landlord for any such Losses to the extent arising from the gross negligence or willful misconduct Landlord. Tenant will indemnify Landlord from and against any mechanic's liens or liens of contractors and subcontractors engaged by or through Tenant.

**12. WAIVERS**.

(a) Landlord hereby waives any and all lien rights it may have, statutory or otherwise, in and to the Communications Facilities or any portion thereof, regardless of whether or not such is deemed real or personal property under applicable laws.

(b) EACH PARTY HERETO WAIVES ANY AND ALL CLAIMS AGAINST THE OTHER FOR ANY LOSS, COST, DAMAGE, EXPENSE, INJURY OR OTHER LIABILITY WHICH IS IN THE NATURE OF INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES WHICH ARE SUFFERED OR INCURRED AS THE RESULT OF, ARISE OUT OF, OR ARE IN ANY WAY CONNECTED TO THE PERFORMANCE OF THE OBLIGATIONS UNDER THIS AGREEMENT.

**13. INSURANCE**. Tenant must insure against property damage and bodily injury arising by reason of occurrences on or about the Premises in the amount of not less than $1,000,000. The insurance coverage provided for herein may be maintained pursuant to master policies of insurance covering other communication facilities of Tenant and its corporate affiliates. All insurance policies required to be maintained by Tenant hereunder must be with responsible insurance companies, authorized to do business in the State or Commonwealth where the Premises are located if required by law, and must provide for cancellation only upon 10 days' prior written notice to Landlord. Tenant must provide evidence of such insurance coverage by delivering to Landlord, if requested, a copy of a certificate of insurance of such policies issued by the insurance companies underwriting such risks.

**14. INTERFERENCE**. During the Option Period and the Term, Landlord, its successors and assigns, will not grant any ground lease, license, or easement with respect to the Property (outside of the Premises) and any property adjacent or contiguous to the Property or in the immediate vicinity of the Property that is fee owned by Landlord: (a) for any of the uses contemplated in Section 5 herein; or (b) if such lease, license, or easement would detrimentally impact the Communications Facilities or Tenant's economic opportunities at the Premises, or the use thereof. Landlord will not cause or permit the construction of communications or broadcast towers or structures, fiber optic backhaul facilities, or satellite facilities on the Property or on any other property of Landlord adjacent or contiguous to or in the immediate vicinity of

the Property, except for the Communications Facilities constructed by Tenant. Landlord and Tenant intend by this Agreement for Tenant (and persons deriving rights by, through, or under Tenant) to be the sole parties to market, use, or sublease any portion of the Property for Communications Facilities during the Option Period and the Term. Landlord agrees that this restriction on the use of the Property is commercially reasonable, not an undue burden on Landlord, not injurious to the public interest, and will be specifically enforceable by Tenant (and persons deriving rights by, through or under Tenant) in a court of competent jurisdiction. The foregoing restriction will run with the land and be binding on the successors and assigns of Landlord.

**15. SALE, ASSIGNMENT OR OTHER TRANSFER**. Landlord will not sell, assign or otherwise transfer Landlord's interest in this Agreement nor Landlord's revenue stream from this Agreement to a Third Party Competitor without the prior written consent of Tenant. For purposes herein, a "**Third Party Competitor**" is any person or entity directly or indirectly engaged in the business of owning, acquiring, operating, managing, investing in or leasing communications infrastructure or any person or entity directly or indirectly engaged in the business of owning, acquiring, or investing in real property leases underlying communications infrastructure.

**16. SECURITY**. The parties recognize and agree that Tenant will have the right to safeguard and protect its improvements located upon or within the Premises. Consequently, Tenant may elect, at its expense, to construct such enclosures and/or fences as Tenant reasonably determines to be necessary to secure the Communications Facilities. Tenant may also undertake any other appropriate means to restrict access to the Communications Facilities including, without limitation, if applicable, installing security systems, locks and posting signs for security purposes and as may otherwise be required by law.

**17. FORCE MAJEURE**. The time for performance by Landlord or Tenant of any term, provision, or covenant of this Agreement will be deemed extended by time lost due to delays resulting from acts of God, strikes, civil riots, floods, pandemics, material or labor restrictions by governmental authority, government shutdowns, quarantines, and/or other disease control measures and any other cause not within the control of Landlord or Tenant, as the case may be.

**18. CONDEMNATION; CASUALTY**.

(a) In the event a condemnation proceeding, or other proceedings in the nature of eminent domain related to the Premises which impairs Tenant's use, Tenant may, upon written notice to Landlord, elect to terminate this Agreement, whereupon neither party will have any further liability or obligation hereunder. Tenant may on its own behalf make a claim in any condemnation proceeding involving the Premises for losses related to Tenant's Communications Facilities, relocation costs, and any other damages Tenant may incur as a result of any such condemnation.

(b) In case of damage to the Premises or the Communications Facilities by fire or other casualty, Landlord will, at its expense, cause any damage to the Property (excluding the Communications Facilities) to be repaired to a condition as nearly as practicable to that existing prior to the damage, with reasonable speed and diligence, subject to delays which may arise by reason of adjustment of loss under insurance policies, governmental regulations, and for delays beyond the control of Landlord, including a force majeure. Landlord will coordinate with Tenant as to the completion of Landlord's work to restore the Property so as not to adversely impact Tenant's use of the Premises and the Communications Facilities. Landlord will not be liable for any inconvenience or annoyance to Tenant, or injury to Tenant's business or for any consequential damages resulting in any way from such damage or the repair thereof, except to the

extent and for the time that the Communications Facilities or the Premises are thereby rendered unusable for Tenant's intended purpose the Rent will proportionately abate. In the event the damage is so extensive that Tenant decides, in its sole discretion, not to repair or rebuild the Communications Facilities, or if the casualty is not of a type insured against under standard fire policies with extended type coverage, or if the holder of any mortgage, deed of trust or similar security interest covering the Communications Facilities does not permit the application of adequate insurance proceeds for repair or restoration, this Agreement will, at the sole option of Tenant, exercisable by written notice to Landlord, be terminated as of the date of such casualty, and the obligation to pay Rent (taking into account any abatement as aforesaid) will cease as of the termination date and Tenant will thereupon promptly vacate the Premises.

**19. DEFAULT**. The failure of Tenant or Landlord to perform any of the covenants of this Agreement will constitute a default. The non-defaulting party must give the other written notice of such default, and the defaulting party must cure such default within 30 days after receipt of such notice. In the event any such default cannot reasonably be cured within such 30 day period, if the defaulting party proceeds promptly after the receipt of such notice to cure such default, and pursues curing such default with due diligence, the time for curing will be extended for such period of time as may be necessary to complete such curing, however, in no event will this extension of time be in excess of 60 days, unless agreed upon by the non-defaulting party.

**20. REMEDIES**. Should the defaulting party fail to cure a default under this Agreement, the other party will have all remedies available either at law or in equity, and the right to terminate this Agreement. In the event Landlord elects to terminate this Agreement due to a default by Tenant (which remains uncured by Lender), Landlord will continue to honor all sublease and license commitments made by Tenant through the expiration of the term of any such commitment and will be entitled to collect and retain the rents or license fees associated with such subleases or license commitments, it being intended hereby that each such commitment will survive the early termination of this Agreement.

**21.** INTENTIONALLY DELETED.

**22. ADDITIONAL TERMINATION RIGHT**. If at any time after the Initial Term, Tenant determines, in Tenant's sole and absolute discretion, with or without cause, that the Premises is no longer suitable or desirable for Tenant's intended use and/or purposes and there are no active subtenants occupying space on the Communications Facilities, Tenant will have the right to terminate this Agreement upon 120 days prior written notice to Landlord.

**23. PRIOR AGREEMENTS**. The parties hereby covenant, recognize and agree that the terms and provisions of this Agreement will constitute the sole embodiment of the arrangement between the parties with regard to the Premises, and that all other written or unwritten agreements, contracts, or leases by and between the parties with regard to the Premises are hereby terminated, superseded and replaced by the terms hereof.

**24. SUBORDINATION, NON-DISTURBANCE AND ATTORNMENT.** In the event the Property is encumbered by a mortgage or deed of trust or other security instrument of any kind (a "**Landlord Mortgage**"), Landlord, within15 days following Tenant's request or immediately prior to the creation of any encumbrance created after the date this Agreement is fully executed, will obtain from the holder of each such Landlord Mortgage a fully-executed subordination, non-disturbance and attornment agreement (an "**SNDA**") in recordable form, which will be prepared or approved by Tenant. The holder of every such Landlord Mortgage will, in the SNDA, agree that in the event of a foreclosure, or conveyance in lieu of foreclosure of Landlord's interest in the Premises, such Landlord Mortgage holder will recognize and confirm the validity and existence of this Agreement, not disturb the tenancy of Tenant (and its customers,

subtenants, and licensees) and Tenant (and its customers, subtenants, and licensees) will have the right to continue its use and occupancy of the Premises in accordance with the provisions of this Agreement, provided Tenant is not in default of this Agreement beyond applicable notice and cure periods.

**25. LENDER'S RIGHTS**.

(a) Landlord agrees to recognize the subleases and licenses of all subtenants and licensees and will permit each of them to remain in occupancy of its premises notwithstanding any default hereunder by Tenant so long as each such respective subtenant or licensee is not in default under the lease/license covering its premises. Landlord agrees to execute such documents as any such subtenant and/or licensee might reasonably require, including customary subordination, non-disturbance and attornment agreements and/or Landlord recognition agreements, to further memorialize the foregoing, and further agrees to use Landlord's best efforts to also cause its lenders to similarly acknowledge, in writing, subtenant's and licensee's right to continue to occupy its premises as provided above.

(b) Tenant will have the right from time to time to mortgage or otherwise encumber Tenant's interest in this Agreement, the Communications Facilities and/or leasehold estate in the Premises (a "**Tenant Mortgage**") and Landlord consents to the granting by Tenant of a lien and security interest in Tenant's interest in this Agreement and/or leasehold estate of the Premises and all of Tenant's personal property and fixtures attached to the real property described herein, and furthermore consents to the exercise by any such lender of Tenant ("**Lender**") of its rights of foreclosure with respect to its lien and security interest. Landlord agrees to recognize Lender as Tenant hereunder upon any such exercise by Lender of its rights of foreclosure. The term "**Lender**" as used in this Agreement means the lender identified in Section 25 hereof and its successors, assigns, designees or nominees.

(c) Landlord hereby agrees to use best efforts to provide Lender written notice of any breach or default of Tenant of the terms of this Agreement within a reasonable amount of time after the occurrence thereof at the address set forth in Section 25. Landlord further agrees Lender will have the right, to the same extent, for the same period and with the same effect, as Tenant, plus an additional thirty (30) days after any applicable grace period to cure or correct any such default.

(d) Landlord acknowledges that nothing contained herein will be deemed or construed to obligate Lender to take any action hereunder, or to perform or discharge any obligation, duty or liability of Tenant under this Agreement. Lender will not become liable under the provisions of this Agreement or any lease executed pursuant to Section 26 hereof unless and until such time as it becomes, and then only for as long as it remains, the owner of the leasehold estate created hereby or thereby.

(e) This Agreement will not be amended or modified without the consent of Lender. In the event that Lender becomes the owner of such leasehold estate, Lender will not be bound by any modification or amendment of this Agreement made subsequent to the date of a Tenant Mortgage unless Lender will have consented to such modification or amendment at the time it was made.

**26. RIGHT TO NEW LEASE**.

(a) In the case of termination of this Agreement for any reason, or in the event this Agreement is rejected or disaffirmed pursuant to any bankruptcy, insolvency or other law affecting creditor's rights, Landlord will give prompt notice thereof to Lender at the address set forth in Section 25 or as may be provided to Landlord in writing by Tenant following the Commencement Date. Thereafter, Landlord, upon written request of Lender, and within 30 days after the receipt of such request, will promptly execute and deliver a new lease of the Premises and assignment of all subleases and licenses to Lender or its designee or nominee, for the remainder of the Term upon all the covenants, conditions, limitations and agreements

contained herein (including, without limitation, options to extend the Term) except for such provisions which must be modified to reflect such termination, rejection or disaffirmance and the passage of time, provided that Lender (i) must pay to Landlord, simultaneously with the delivery of such new lease, all unpaid rent due under this Agreement up to and including the date of the commencement of the term of such new lease and all reasonable expenses, including, without limitation, reasonable attorneys' fees and disbursements and court costs, incurred by Landlord in connection with the default by Tenant, the termination of this Agreement and the preparation of the new lease, and (ii) must cure all defaults existing under this Agreement which are susceptible to being cured by Lender promptly and with due diligence after the delivery of such new lease. Notwithstanding anything to the contrary contained herein, provided Lender has otherwise complied with the provisions of this Section, Lender will have no obligation to cure any defaults which Lender may not possibly cure (for example, the bankruptcy of Tenant).

(b) For so long as Lender has the right to enter into a new lease with Landlord pursuant to this Section, Landlord will not enter into a new lease of the Premises with any person or entity other than Lender, without the prior written consent of Lender.

**27. ADDITIONAL PROVISIONS**.

(a) The parties hereto agree that (i) Tenant is in possession of the Premises notwithstanding the fact that Tenant has subleased or licensed, or may in the future sublease or license, certain of the improvements thereon or portions of the Premises to third parties, and (ii) the requirements of Section 365(h) of Title 11 of the United States Code (the Bankruptcy Code) with respect to Tenant's possession of the leasehold under this Agreement are satisfied. Accordingly, the right of Tenant to remain in possession of the leasehold under this Agreement will continue notwithstanding any rejection of this Agreement in any bankruptcy proceeding involving Landlord, or any other actions by any party in such a proceeding. This provision, while included in this Agreement, has been separately negotiated and constitutes a separate contract between the parties as well as a part of this Agreement. The provisions of this Section are for the benefit of Tenant and its assigns, including, without limitation, Lender. The parties hereto also agree that Lender is a party in interest and will have the right to appear as a party in any proceeding brought under any bankruptcy law or under any other law which may affect this Agreement.

(b) The provisions of Section 21 and Section 22 hereof will survive the termination, rejection or disaffirmance of this Agreement and continue in full force and effect thereafter to the same extent as if such Sections were a separate and independent contract made by Landlord, Tenant, and Lender and, from the effective date of such termination, rejection or disaffirmance of this Agreement to the date of execution and delivery of such new lease, Lender may use and enjoy the leasehold estate created by this Agreement without hindrance by Landlord. The aforesaid agreement of Landlord to enter into a new lease with Lender will be deemed a separate agreement between Landlord and Lender, separate and apart from this Agreement as well as a part of this Agreement, and will be unaffected by the rejection of this Agreement in any bankruptcy proceeding by any party.

(c) Landlord will have no right, and expressly waives any right arising under applicable law, in and to the rentals or other fees payable to Tenant, if any, under any sublease or license of the Premises by Tenant, which rentals or fees have been assigned by Tenant to Lender.

(d) If a Tenant Mortgage is in effect, this Agreement may not be modified or amended by the parties hereto, or terminated or surrendered by Tenant, nor will Landlord accept any such termination or surrender of this Agreement by Tenant, without the prior written consent of Lender.

(e) The provisions of Section 21 and Section 22 hereof are for the benefit of Lender and may be relied upon and will be enforceable by Lender as if Lender were a party to this Agreement.

(f) Landlord will, within 10 days of the request of Tenant or any Lender or prospective Lender, provide an estoppel certificate as to any matters reasonably requested by Tenant or Lender in writing.

(g) Under no circumstances will the fee estate of Landlord and the leasehold estate created hereby merge, even though owned by the same party, without the written consent of the holder of a Tenant Mortgage.

**28. QUIET ENJOYMENT**. So long as Tenant is not in default under this Agreement beyond the applicable notice and cure period, Landlord covenants and agrees that Tenant will peaceably and quietly hold and enjoy the Premises throughout the Term, without any hindrance, molestation or ejection by Landlord, its successors or assigns or by those claiming by, through or under them.

**29. NOTICES**. All notices, requests, claims, demands, and other communications hereunder must be in writing and may be hand delivered (provided the deliverer provides proof of delivery) or sent by nationally established overnight courier that provides proof of delivery, or certified or registered mail (postage prepaid, return receipt requested). Notice will be deemed received on the date of delivery as demonstrated by the receipt of delivery. Notices must be delivered to a party at the party's respective address below, or to such other address that a party below may provide from time to time:

| **If to Landlord:** | **If to Tenant:** | **If to Lender:** |
|---|---|---|
| County Administrator<br>The County of New Kent<br>P.O. Box 150<br>New Kent, Virginia 23124 | The Towers, LLC<br>750 Park of Commerce Drive,<br>Suite 200<br>Boca Raton, Florida 33487<br>Ref: US-VA-5217<br>Attn: VP Asset Management | Toronto Dominion (Texas)<br>LLC<br>31 West 52nd Street<br>New York, NY 10019<br>Attn: Admin Agent<br>Fax No. 416-982-5535 |
| With a copy to: County Attorney<br>P.O. Box 150<br>New Kent, Virginia 23124 | With a copy to: General Counsel | |

**30. MISCELLANEOUS**.

(a) Each party hereto warrants and represents that it has the necessary power and authority to enter into and perform its respective obligations under this Agreement.

(b) If any term of this Agreement is found to be void or invalid, such invalidity will not affect the remaining terms of this Agreement, which will continue in full force and effect.

(c) All attached exhibits are hereby incorporated by this reference as if fully set forth herein.

(d) Failure of a party to insist on strict performance of any of the conditions or provisions of this Agreement, or failure to exercise any of a party's rights hereunder, will not waive such rights.

(e) This Agreement will be governed by and construed in accordance with the laws of the Commonwealth of Virginia. All disputes regarding this Agreement must be adjudicated in the Circuit Court of the County of New Kent, Virginia.

(f) This Agreement constitutes the entire agreement and understanding of the parties and supersedes all offers, negotiations, other leases and/or agreements with regard to the Premises. There are no representations or understandings of any kind not set forth herein. Any amendment to this Agreement must be in writing and executed by both parties.

(g) This Agreement is binding upon and inures to the benefit of the parties hereto and their respective heirs, legal representatives, successors and assigns.

(h) A short-form Memorandum of Option to Lease (and a short-form Memorandum of Lease in the event Tenant exercises its option to lease the Premises) may be recorded at Landlord's or Tenant's option in the form as depicted in **Exhibit 3** and **Exhibit 4** respectively, attached hereto. In addition, Tenant's subtenants and licensees will have the right to record a memorandum of its sublease or license with Tenant.

**SIGNATURES BEGIN ON NEXT PAGE**

IN WITNESS WHEREOF, the parties hereto have executed this Agreement as of the Effective Date (date last signed by a party hereto).

| **WITNESSES:** | **LANDLORD:** |
|---|---|
| | The County of New Kent, Virginia,<br>A political subdivision of the Commonwealth of Virginia |
| _____ | By:_____ |
| Name: _____ | Name: Rodney A. Hathaway |
| | Title: County Administrator |
| _____ | Date:_____ |
| Name: _____ | Approved as to Form: |
| | _____<br>County Attorney |

COMMONWEALTH OF VIRGINIA

COUNTY OF NEW KENT

The foregoing instrument was acknowledged before me this _____day of_____, 20____ _____ by Rodney A. Hathaway, County Administrator of The County of New Kent, Virginia , on behalf of the County.

_____
Notary Public

Print Name:_____

My Commission Expires:_____

(Tenant signature page to Option and Lease Agreement)

| **WITNESSES:** | **TENANT:** |
| --- | --- |
| _____<br>Name: _____<br><br>_____<br>Name: _____ | **The Towers, LLC**<br>a Delaware limited liability company<br><br>By:_____<br>Name:_____<br>Title:_____<br>Date:_____ |

STATE OF FLORIDA

COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this _____, 20___ _____ by _____ (name of signatory), _____ (title of signatory) of The Towers, LLC, a Delaware limited liability company, on behalf of the company.

_____
Notary Public

Print Name:_____

My Commission Expires:_____

**EXHIBIT 1**

Legal Description of the Property (Parent Parcel)
(may be updated by Tenant upon receipt of final legal description from title)

All that certain tract, piece or parcel of land, lying and being in Cumberland District, New Kent County, Virginia, as shown on plat of survey dated May 8, 1996, prepared by Koontz-Bryant, P.C., Engineers & Surveyors, entitled "Plat Showing 3.452 Acres of Land Lying at the Northwest Inter-Section of U.S. Route 60 and State Route 647, Cumberland District, New Kent County, Virginia", to which plat reference is hereby made for a more particular description of the property hereby conveyed.

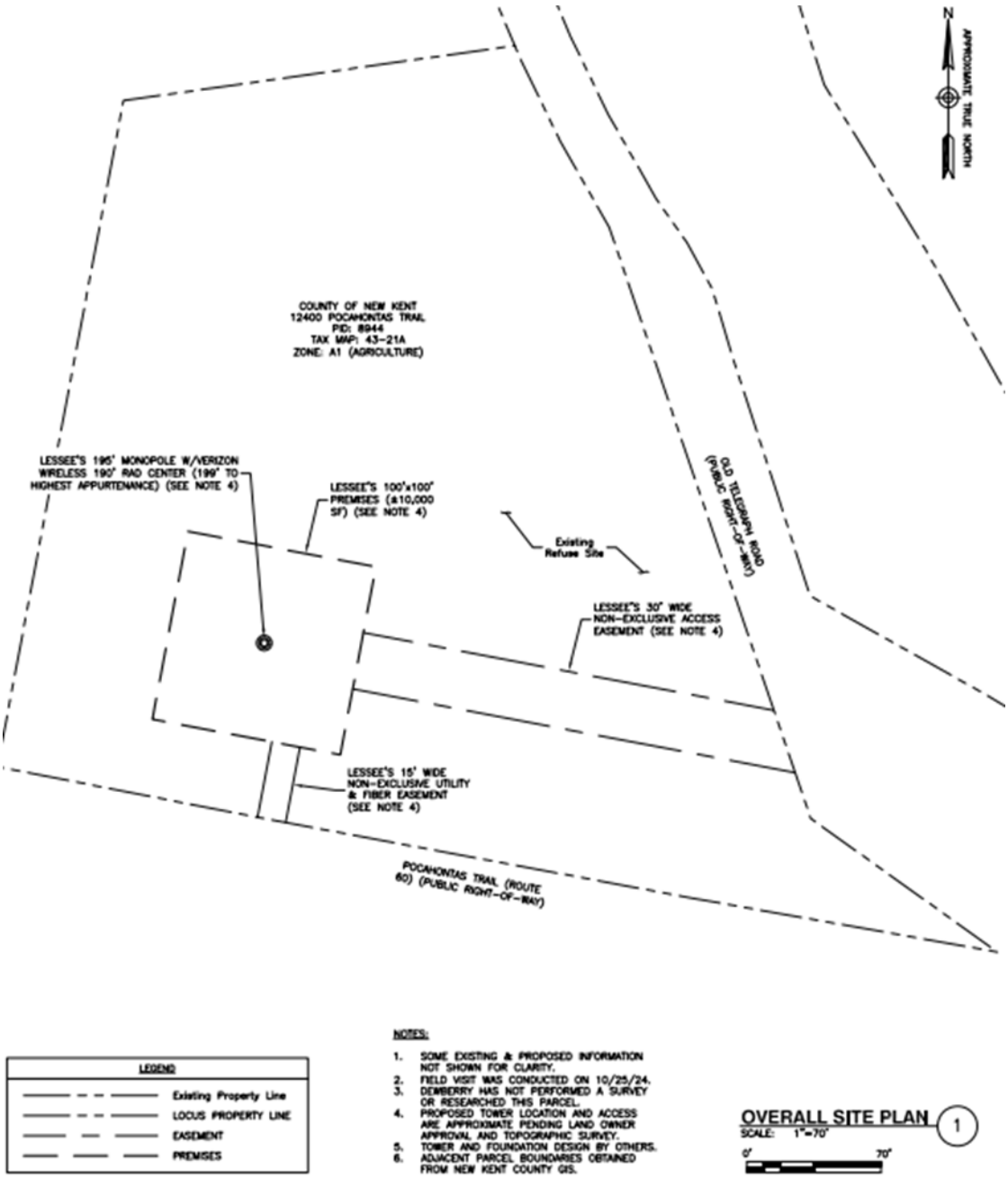
Parcel ID #43 21A (PID; 8944 / GPIN: D21-0526-3723)

This being the same property in which a 1/2 interest was conveyed to The Board of Supervisors of New Kent County, from Ahston Travis Harwood, Charles Douglas Harwood, and Elizabeth Omohundro Harwood, Trustees of the A.T. Harwood Living Trust, and A.T. Harwood as beneficiary, in a Deed dated September 4, 1996 and recorded September 9, 1996 in Book 234 Page 466.

This further being the same property in which a 1/2 interest was conveyed to The Board of Supervisors of New Kent County, from O.P. Harwood, Ashton Travis Harwood, Charles Douglas Harwood, and Elizabeth Omohundro Harwood, Trustees of the O.P. Harwood Living Trust, and O.P. Harwood, as beneficiary, in a Deed dated September 4, 1996 and recorded September 19, 1996 in Book 234 Page 472.

**EXHIBIT 2**

Premises
(below may be replaced with a final survey and legal description of the Premises)




| LEGEND | |
|---|---|
| | Existing Property Line |
| | LOCUS PROPERTY LINE |
| | EASEMENT |
| | PREMISES |

NOTES:

1. SOME EXISTING & PROPOSED INFORMATION NOT SHOWN FOR CLARITY.
2. FIELD VISIT WAS CONDUCTED ON 10/25/24.
3. DEWBERRY HAS NOT PERFORMED A SURVEY OR RESEARCHED THIS PARCEL.
4. PROPOSED TOWER LOCATION AND ACCESS ARE APPROXIMATE PENDING LAND OWNER APPROVAL AND TOPOGRAPHIC SURVEY.
5. TOWER AND FOUNDATION DESIGN BY OTHERS.
6. ADJACENT PARCEL BOUNDARIES OBTAINED FROM NEW KENT COUNTY GIS.

OVERALL SITE PLAN (1)
SCALE: 1"=70'
0' 70'

**EXHIBIT 3**

Memorandum of Option to Lease

(Attached)

**(Above 3" Space for Recorder's Use Only)**

**Upon Recording Return to:**

The Towers, LLC
750 Park of Commerce Drive, Suite 200
Boca Raton, Florida 33487
Attn: General Counsel

**Site Name: Old Telegraph**
**Site Number: US-VA-5217**
**Commitment #:** VTB-202321

**MEMORANDUM OF OPTION TO LEASE**

This Memorandum of Option to Lease (this "**Memorandum**") evidences an Option and Lease Agreement (the "**Agreement**") between **The County of New Kent, Virginia**, a political subdivision of the Commonwealth of Virginia ("**Landlord**"), whose address is P.O. Box 150, New Kent, Virginia 23124, and **The Towers, LLC**, a Delaware limited liability company, known in Virginia as The Towers of Virginia, LLC, a Delaware limited liability company ("**Tenant**"), whose address is 750 Park of Commerce Drive, Suite 200, Boca Raton, Florida 33487, dated _____, 20_____ (the "**Effective Date**"), for a portion (the "**Premises**") of the real property (the "**Property**") described in **Exhibit A** attached hereto.

Pursuant to the Agreement, Landlord has granted Tenant an exclusive option to lease the Premises (the "Option"). The Option commenced as of the Effective Date and will continue in effect for a period of one(1) year from the Effective Date.

Landlord ratifies, restates and confirms the Agreement and, upon exercise of the Option, will lease to Tenant the Premises, subject to the terms and conditions of the Agreement. The Agreement provides for the lease by Landlord to Tenant of the Premises for an initial term of five (5) years with seven(7) renewal option(s) of an additional five(5) years each, and further provides:

1. Landlord may assign the Agreement only in its entirety and only to a purchaser of the fee interest of the Property;

2. Subject to the terms of the Agreement, Landlord is prohibited from selling, assigning or otherwise transferring Landlord's interest in the Agreement nor Landlord's revenue stream from the Agreement to a Third Party Competitor, as defined in the Agreement.

3. Under certain circumstances, Tenant has a right of first refusal to acquire the Premises or the Property from Landlord;

4. Under certain circumstances, Landlord may subdivide the Property without Tenant's prior written consent; and

5. The Agreement restricts Landlord's ability to utilize, or allow the utilization of the Property or real property owned by Landlord which is adjacent or contiguous to the Property for the construction, operation and/or maintenance of the Communications Facilities (as defined in the Agreement).

This Memorandum is not intended to amend or modify, and must not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Agreement. In the event of a conflict between the provisions of this Memorandum and the provisions of the Agreement, the provisions of the Agreement control. The Agreement is binding upon and inure to the benefit of Landlord and Tenant and inures to the benefit of their respective heirs, successors, and assigns, subject to the provisions of the Agreement.

THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK, SIGNATURES BEGIN ON NEXT PAGE

IN WITNESS WHEREOF, the parties hereto have executed this MEMORANDUM OF OPTION TO LEASE effective as of the date last signed by a party hereto.

| **WITNESSES:** | **LANDLORD:** |
|---|---|
| | The County of New Kent, Virginia,<br>A political subdivision of the Commonwealth of Virginia |
| _____ | By:_____ |
| Name: _____ | Name: Rodney A. Hathaway |
| | Title: County Administrator |
| _____ | Date:_____ |
| Name: _____ | Approved as to Form: |
| | _____<br>County Attorney |

COMMONWEALTH OF VIRGINIA

COUNTY OF NEW KENT

The foregoing instrument was acknowledged before me this _____day of _____, 20____ _____ by Rodney A. Hathaway, County Administrator of The County of New Kent, Virginia, on behalf of the County.

_____
Notary Public

Print Name:_____

My Commission Expires:_____

(**Tenant's Signature Page to Memorandum of Option to Lease**)

| **WITNESSES:** | **TENANT:** |
|---|---|
| | **The Towers, LLC**<br>a Delaware limited liability company |
| _____ | By:_____ |
| Name: _____ | Name:_____ |
| | Title:_____ |
| _____ | Date:_____ |
| Name: _____ | |

STATE OF FLORIDA

COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this _____day of _____ _____, 20_____ by _____ (name of signatory), _____ _____ (title of signatory) of The Towers, LLC, a Delaware limited liability company, on behalf of the company.

_____
Notary Public

Print Name:_____

My Commission Expires:_____

**EXHIBIT A**
(TO MEMORANDUM OF OPTION TO LEASE)

The Property
(may be updated by Tenant upon receipt of final legal description from title)

All that certain tract, piece or parcel of land, lying and being in Cumberland District, New Kent County, Virginia, as shown on plat of survey dated May 8, 1996, prepared by Koontz-Bryant, P.C., Engineers & Surveyors, entitled "Plat Showing 3.452 Acres of Land Lying at the Northwest Inter-Section of U.S. Route 60 and State Route 647, Cumberland District, New Kent County, Virginia", to which plat reference is hereby made for a more particular description of the property hereby conveyed.

Parcel ID #43 21A (PID; 8944 / GPIN: D21-0526-3723)

This being the same property in which a 1/2 interest was conveyed to The Board of Supervisors of New Kent County, from Ahston Travis Harwood, Charles Douglas Harwood, and Elizabeth Omohundro Harwood, Trustees of the A.T. Harwood Living Trust, and A.T. Harwood as beneficiary, in a Deed dated September 4, 1996 and recorded September 9, 1996 in Book 234 Page 466.

This further being the same property in which a 1/2 interest was conveyed to The Board of Supervisors of New Kent County, from O.P. Harwood, Ashton Travis Harwood, Charles Douglas Harwood, and Elizabeth Omohundro Harwood, Trustees of the O.P. Harwood Living Trust, and O.P. Harwood, as beneficiary, in a Deed dated September 4, 1996 and recorded September 19, 1996 in Book 234 Page 472.

Access and utilities serving the Premises (as defined in the Agreement) includes all easements of record as well as that portion of the Property designated by Landlord and Tenant for Tenant (and Tenant's guests, agents, customers, subtenants, licensees and assigns) ingress, egress, and utility purposes to and from a public right-of-way.

**EXHIBIT 4**

Memorandum of Lease

(Attached)

_____

**(Above 3" Space for Recorder's Use Only)**

**Upon Recording Return to:**

The Towers, LLC
750 Park of Commerce Drive, Suite 200
Boca Raton, Florida 33487
Attn: General Counsel

**Site Name: Old Telegraph**
**Site Number: US-VA-5217**
**Commitment #:** VTB-202321-C

**MEMORANDUM OF LEASE**

This Memorandum of Lease (this "**Memorandum**") evidences a Lease Agreement (the "**Lease**") between **The County of New Kent, Virginia**, a political subdivision of the Commonwealth of Virginia ("**Landlord**"), whose address is P.O. Box 150, New Kent, Virginia 23124, and **The Towers, LLC**, a Delaware limited liability company, known in Virginia as The Towers of Virginia, LLC, a Delaware limited liability company ("**Tenant**"), whose address is 750 Park of Commerce Drive, Suite 200, Boca Raton, Florida 33487, dated the _____ day of _____, 20_____ (the "**Effective Date**"), for a portion (the "**Premises**") of the real property (the "**Property**") described in Exhibit A attached hereto.

Landlord hereby ratifies, restates and confirms the Lease and leases to Tenant the Premises, subject to the terms and conditions of the Lease. The Commencement Date of the Lease is _____. The Lease provides for the lease by Landlord to Tenant of the Premises for an initial term of five(5) years with seven(7) renewal option(s) of an additional five(5) years each, and further provides:

1. Landlord will attorn to any mortgagee of Tenant, subordinate any Landlord's lien to the Lease and to liens of Tenant's mortgagees, and not disturb the tenancy of Tenant;

2. The Lease restricts Landlord's ability to utilize, or allow the utilization of the Property or real property owned by Landlord which is adjacent or contiguous to the Property for the construction, operation and/or maintenance of Communications Facilities (as defined in the Lease);

3. Tenant (and persons deriving rights by, through, or under Tenant) are the sole parties to market, use, or sublease any portion of the Property for Communications Facilities during the term of the Lease (such restriction will run with the land and be binding on the successors and assigns of Landlord);

4. The Premises may be used exclusively by Tenant for all legal purposes, including, without limitation, erecting, installing, operating and maintaining Communications Facilities;

5. Tenant is entitled to sublease and/or license the Premises, including any Communications Facilities located thereon;

6. Under certain circumstances, Tenant has a right of first refusal to acquire the Premises from Landlord;

7. Landlord may assign the Lease only in its entirety and only to a purchaser of the fee interest of the Property; and

8. Under certain circumstances, Landlord may subdivide the Property without Tenant's prior written consent.

This Memorandum is not intended to amend or modify, and will not be deemed or construed as amending or modifying, any of the terms, conditions or provisions of the Lease. In the event of a conflict between the provisions of this Memorandum and the provisions of the Lease, the provisions of the Lease will control. The Lease will be binding upon and inure to the benefit of Landlord and Tenant and will inure to the benefit of their respective heirs, successors, and assigns, subject to the provisions of the Lease.

THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK, SIGNATURES BEGIN ON NEXT PAGE

IN WITNESS WHEREOF, the parties hereto have executed this MEMORANDUM OF LEASE as of the date last signed by a party hereto.

| **WITNESSES:** | **LANDLORD:** |
|---|---|
| | The County of New Kent, Virginia,<br>A political subdivision of the Commonwealth of Virginia |
| _____ | By:_____ |
| Name: _____ | Name: Rodney A. Hathaway |
| | Title: County Administrator |
| _____ | Date:_____ |
| Name: _____ | Approved as to Form: |
| | _____<br>County Attorney |

COMMONWEALTH OF VIRGINIA

COUNTY OF NEW KENT

The foregoing instrument was acknowledged before me this _____day of _____, 20____ _____ by Rodney A. Hathaway, County Administrator of The County of New Kent, Virginia, on behalf of the County.

_____
Notary Public

Print Name:_____

My Commission Expires:_____

**(Tenant's Signature Page to Memorandum of Lease)**

| **WITNESSES:** | **TENANT:** |
|---|---|
| _____<br>Name: _____<br><br>_____<br>Name: _____ | **The Towers, LLC**<br>a Delaware limited liability company<br><br>By:_____<br>Name:_____<br>Title:_____<br>Date:_____ |

STATE OF FLORIDA

COUNTY OF PALM BEACH

The foregoing instrument was acknowledged before me this _____day of _____ _____, 20_____ by _____ (name of signatory), _____ _____ (title of signatory) of The Towers, LLC, a Delaware limited liability company, on behalf of the company.

_____
Notary Public

Print Name:_____

My Commission Expires:_____

**EXHIBIT A**
(TO MEMORANDUM OF LEASE)

The Property
(may be updated by Tenant upon receipt of final legal description from title)

All that certain tract, piece or parcel of land, lying and being in Cumberland District, New Kent County, Virginia, as shown on plat of survey dated May 8, 1996, prepared by Koontz-Bryant, P.C., Engineers & Surveyors, entitled "Plat Showing 3.452 Acres of Land Lying at the Northwest Inter-Section of U.S. Route 60 and State Route 647, Cumberland District, New Kent County, Virginia", to which plat reference is hereby made for a more particular description of the property hereby conveyed.

Parcel ID #43 21A (PID; 8944 / GPIN: D21-0526-3723)

This being the same property in which a 1/2 interest was conveyed to The Board of Supervisors of New Kent County, from Ahston Travis Harwood, Charles Douglas Harwood, and Elizabeth Omohundro Harwood, Trustees of the A.T. Harwood Living Trust, and A.T. Harwood as beneficiary, in a Deed dated September 4, 1996 and recorded September 9, 1996 in Book 234 Page 466.

This further being the same property in which a 1/2 interest was conveyed to The Board of Supervisors of New Kent County, from O.P. Harwood, Ashton Travis Harwood, Charles Douglas Harwood, and Elizabeth Omohundro Harwood, Trustees of the O.P. Harwood Living Trust, and O.P. Harwood, as beneficiary, in a Deed dated September 4, 1996 and recorded September 19, 1996 in Book 234 Page 472.

Access and utilities serving the Premises (as defined in the Lease) includes all easements of record as well as that portion of the Property designated by Landlord and Tenant for Tenant (and Tenant's guests, agents, customers, subtenants, licensees and assigns) ingress, egress, and utility purposes to and from a public right-of-way.

Said interest being over land more particularly described by the following description:

Insert metes and bounds description of area

New Kent County Board of Supervisors
P O Box 150, 12007 Courthouse Circle
New Kent, VA 23124

# AGENDA ITEM REQUEST

(TO BE SUBMITTED NO LATER THAN 12 DAYS PRIOR TO THE MEETING)

Meeting Date: 9/29/2025

Agenda Item

| | |
|---|---|
| Motion: "Mr. Chairman, I move to (not required for Consent Agenda items) | appropriate $225,000 from the Public Utilities General Fund for additional sludge handling. |
| Subject | **Request for Supplemental Appropriation - Sludge Disposal** |
| Issue | Henrico County is requiring additional sludge handling procedures for liquid sludge generated at the Parham Landing WWTP.<br><br>Up to 5 loads per week of liquid sludge is currently hauled from the Parham Landing WWTP to Henrico WRF for disposal under a Hauled Liquid Waste Permit. Henrico County is now requiring filtration or diversion of the sludge to HRSD due "fine & fibrous material" that is present, claiming it interferes with their digestion process. The source of this material has been identified as Henrico Regional Jail East. Photo from the bar screen that serves the jail exclusively is attached.<br><br>When we approached the jail staff for a meeting to discuss the matter, they referred us back to Henrico DPU. |
| Recommendation | Appropriate additional funding for the required additional sludge handling. Enter an agreement with Henrico County to reimburse 100% the additional costs. |
| Fiscal Implications | The additional handling of the sludge, either filtration prior to shipment, or diversion to HRSD, represents a cost that has not been budgeted in FY26. It also represents a cost that is outside the Utility Service Agreement for the Jail. Since Henrico DPU is requiring the additional costs, and Henrico Jail is the source of the material, Henrico County should cover the costs 100%.<br>The cost of each load to Henrico WRF is approximately $1050, while the cost of the same load to HRSD is approximately $2000. The total estimated additional cost is approximately $206,000 for the period of September 2025 to June 2026. Additional funding will be needed in FY27 as well. The current request is $225,000 to account for contingencies. Separate expense & revenue line items should be established to track these additional costs independently. |
| Policy Implications | Additional funding will be required until the solids handling equipment at Parham WWTP is operational. Since Henrico is the generator of the material, and the same material upsets Henrico's treatment process, whatever costs are incurred should be billed 100% to Henrico County, under a written agreement. |

| | |
|---|---|
| Legislative History | none |
| Discussion | Technically, since the material from the jail interferes with our ability to dispose of our liquid sludge, the jail is in violation of the County's Sewer Use Ordinance (O-17-04). However, it is worth noting, neither New Kent DPU nor HRSD has trouble digesting the liquid sludge at their respective plants.<br><br>Alternate solutions are being sought, such as filtration of the sludge on-site, however, their effectiveness and costs are still not entirely known. At this time, diversion of all sludge to HRSD, or as much as they will take, is the most practical and readily available solution. |

| | | | |
|---|---|---|---|
| Time Needed: | 9:15 a.m. | Person Appearing: | Public Utilities Director Mike Lang |
| Request prepared by: | Mike Lang | Telephone: | 804 966 9625 |
| Copy provided to: | | | |

**ATTACHMENTS:**

| Description | Type |
|---|---|
| photo of fine & fibrous material from the Henrico Jail | Cover Memo |
| email string - requirement to filter | Cover Memo |

**REVIEWERS:**

| Department | Reviewer | Action | Date |
|---|---|---|---|
| Public Utilities | Lang, Mike | Approved | 9/18/2025 - 10:55 AM |
| Administration | Hathaway, Rodney | Approved | 9/18/2025 - 11:13 AM |
| Attorney | Hefty, Brendan | Approved | 9/19/2025 - 11:32 AM |

**From:** Mike Lang
**To:** "Meade, Thomas"; Harold R. Jones
**Cc:** Grandstaff, James; Smeltz, Ryan; Milligan, Josh; Carlton, Dylan
**Subject:** RE: 25 0819 - Requirement to Strain New Kent Parham Landing Sludge Prior to Hauling to Henrico WRF
**Date:** Wednesday, August 20, 2025 7:59:06 AM
**Attachments:** IMG-2689 Parham #1 bar screen.pdf
image006.png
image007.png
IMG-2688 Parham #1 dumpster.pdf
image001.png

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Thomas, Harold is copied. We'll need to get together and discuss further. Let us know when you all may be available.

We have identified the source as being the jail. Please see the attached photos from Parham SPS#1 which exclusively serves the Henrico jail facility. It definitely appears the fine material is being collected on the bar screen, but it's not apparent that it's making it to the dumpster.

Unfortunately the filtering was not sustainable with the staff and equipment we have at the WWTP.

A permanent solution is pending, NTP for solids handling equipment at the Parham WWTP, which would replace sludge hauling by the end of 2026, is dated for September 1.

We obtained a quote from Rain for Rent for a filter vessel, the monthly cost appears to be about $7500 for the filter rental and the filter bags, assuming a pump and/or storage tank aren't needed. Another alternative is to haul to HRSD exclusively, essentially doubling the hauling & disposal costs. Those costs are well outside our operating budget, we'd have to bill them back to the jail at a greater percentage than the current cost share agreement.

Finally, is it as simple as requesting a paper product change at the jail? I'm sure they use tons of it. I did a little internet research on it, I wouldn't say anything conclusive, but it appears cheaper, single-ply "industrial" toilet paper may contain more recycled fibers which do not dissolve as quickly, or perhaps not at all.

Regardless, these costs need to be 100% allocated to the jail, and that requires a contractual amendment between the two counties.

**Mike Lang**
**New Kent DPU**

---

**From:** Meade, Thomas <mea19@henrico.gov>
**Sent:** Tuesday, August 19, 2025 2:40 PM
**To:** Harold R. Jones (hrjones@co.newkent.state.va.us) <hrjones@co.newkent.state.va.us>; Mike Lang <cmlang@newkent-va.us>
**Cc:** Grandstaff, James <gra@henrico.gov>; Smeltz, Ryan <SME001@henrico.gov>; Milligan, Josh <MIL121@henrico.gov>; Carlton, Dylan <CAR139@henrico.gov>
**Subject:** 25 0819 - Requirement to Strain New Kent Parham Landing Sludge Prior to Hauling to Henrico WRF
**Importance:** High

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good afternoon, Harold.

Per the email sent to James Grandstaff on April 22, 2025, at the request of Henrico Co. DPU, New Kent Co. Parham Landing WWTP implemented a procedure to strain their aerobic digestor sludge as it is loaded/pumped into the truck(s) that haul the sludge to Henrico WRF for disposal. Henrico WRF staff have recently been told by your contracted delivery driver(s) that this process is no longer being performed prior to hauling.

In order to prevent impacts from fibrous materials at the Henrico WRF (i.e. ragging, blockages of transfer lines, etc.), **the requirement to strain your sludge prior to hauling to WRF should be considered a condition of your Liquid Hauled Waste Generator Permit #008057**

- **Part I C., Condition of Disposal and Treatment: "*The permittee shall take all steps necessary and appropriate to prevent adverse effects to wastewater treatment plant processes.***

We value the relationship between Henrico and New Kent County; however, we cannot risk additional impacts to our anaerobic digesters caused by fibrous materials. Failure to meet this condition may result in revocation of the discharge permit.

I appreciate your understanding and immediate action to ensure that this is resolved.

Thank you.

**THOMAS MEADE**

*Assistant Division Director – Water Reclamation Facility*
HENRICO WATER, Department of Public Utilities
**Phone** 804.501.7629 **Email** thomas.meade@henrico.gov
9101 WRVA Road, Henrico, Virginia 23231

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**From:** Grandstaff, James
**Sent:** Wednesday, April 23, 2025 4:30 PM
**To:** Mike Lang < >
**Cc:** Harold R. Jones <hrjones@newkent-va.us>
**Subject:** 25 0423 - THANK YOU New Kent - Parham Landing For Your Response to Henrico WRF RE Addressing Fibrous Materials Truck Haul Waste

Mike,

Thank you so much for your prompt reply and responding so quickly to start straining the aerobic digester truck haul waste and for discussing need for some assistance with hauler.

Also, great to hear about the Talleysville SPS project as well as the update on the larger solids handling system.

If at any point you would like to discuss if Henrico can assist with anything related to Henrico Jail / Parham SPS #1please let me know as I should be able to champion that cause.

We wish you all best of luck. As always, please let me know however we may be of assistance.

Thanks again,

**JAMES GRANDSTAFF**
*Division Director, WRF*
HENRICO WATER, Department of Public Utilities
**Phone** 804.501.7689 **Email** gra@henrico.gov
9101 WRVA Road, Henrico, Virginia 23231

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**From:** Mike Lang <cmlang@newkent-va.us>
**Sent:** Tuesday, April 22, 2025 2:41 PM
**To:** Grandstaff, James <gra@henrico.gov>
**Cc:** Harold R. Jones <hrjones@newkent-va.us>
**Subject:** FW: 25 0417 - New Kent Parham Landing Sludge Fibrous Material
**Importance:** High

James, thank you for sharing your concerns. An open dialogue is critical to compliance and efficient operation of both of our facilities. Harold asked me to reply on behalf of our department.

In response to your inquiries below:

1. I have always assumed HC Jail East is the primary source of trash and fibrous materials discharged to Parham Landing. Is that assumption correct in your experience?
   - This is our assumption as well based on the type of unusual debris (bedsheets, orange jumpsuits, etc) that have been collected from Parham SPS#1 over the years
2. If that assumption is accurate, in your professional opinion – IF a fine screen were to be installed at the PS / systems serving HC Jail East – do you think that is a good idea? If so, please let us know, as HC may be able to assist.
   - Trash and debris is a continuing problem from the jail facility. A bar screen is currently in operation at Parham SPS #1. A fine screen may be helpful, but I would suggest some sort of sampling or pilot study to confirm our assumptions first
3. As discussed today, is it possible for Parham Landing to run the aerobic digested sludge destined for HC WRF through a strainer as it is loaded into the truck? IF that is not possible (not enough head/whatever), again - looking for your input – please let us know, as HC may be able to assist.
   - We have implemented this procedure already upon your request, apparently with good success
4. Are there any other actions Parham Landing could take to reduce/eliminate the fibrous material we are seeing in Parham Landing truck haul waste to HC WRF? If so, please provide plan and schedule.
   - A grinder & spiral lift removal system is currently being installed at our Talleysville SPS, which receives approximately half the daily flow of the WWTP. While this will not specifically remove fine & fibrous material it should be helpful in the effort, and remove some debris before it is macerated into smaller bits downstream

- Bids have been received for the Parham Landing WWTP solids handling system, which will eliminate the need for sludge hauling to the Henrico WRF almost entirely. We anticipate a notice of award shortly after the BOS meeting May 6

If you have any further concerns or questions please don't hesitate to reach out to Harold and me.

**C. Michael Lang, PG**
*Director of Public Utilities*
**New Kent County, VA**
PO Box 130, New Kent VA 23124
Phone: 804-966-9678
cmlang@newkent-va.us
This email may contain protected information and is for the sole use of the intended recipient. Any other use is prohibited.

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**From:** Harold R. Jones <hrjones@newkent-va.us>
**Sent:** Thursday, April 17, 2025 5:03 PM
**To:** Rick Callis <RCallis@newkent-va.us>; Mike Lang <cmlang@newkent-va.us>
**Subject:** FW: 25 0417 - New Kent Parham Landing Sludge Fibrous Material
**Importance:** High

I have already spoken to WindRiver hauling about this, and they agrees to put some time of strainer when pumping from the digester. Even though the jail may be responsible for a certain percentage of this, the idea of getting a fine screen by HC may be good.

***Harold R. Jones***
Assistant Director
New Kent County
Department of Public Utilities
7051 Poindexter Road
New Kent, VA 23124
804-966-9678

---

**From:** Grandstaff, James <gra@henrico.gov>
**Sent:** Thursday, April 17, 2025 4:53 PM
**To:** Harold R. Jones <hrjones@newkent-va.us>
**Cc:** Smeltz, Ryan <SME001@henrico.gov>; Meade, Thomas <mea19@henrico.gov>; Milligan, Josh <MIL121@henrico.gov>; Carlton, Dylan <CAR139@henrico.gov>; Quach, Tin <QUA020@henrico.gov>; Hogan, Frank <HOG017@henrico.gov>; Jones, Victor <JON258@henrico.gov>; Pully, Thomas <pul04@henrico.gov>; Noakes, Charles <NOA002@henrico.gov>; Lumpkin, Bryant <lum26@henrico.gov>; Grandstaff, James <gra@henrico.gov>
**Subject:** 25 0417 - New Kent Parham Landing Sludge Fibrous Material
**Importance:** High

CAUTION: This email originated from outside your organization. Exercise caution when opening attachments or clicking links, especially from unknown senders.

Good afternoon, Harold:

Thanks for taking my call this morning – it was nice to touch base.

As we discussed, Henrico WRF experienced issues in January and February 2025 with the anaerobic digester transfer piping / lines clogging with fibrous material (synthetic fibers, hair, etc.). Unfortunately, the clogging events repeated several times (we would clear the line only to have it clog again next day). By design, when these transfer lines clog, the material is diverted to the liquid side of the plant. The associated ammonia loads required the WRF to operate the secondary treatment system in a " nitrify-only mode" to ensure compliance with our ammonia limitations. As a result, we were not able to denitrify, and the annual average for TN YTD after the month of February 2025 was 7.53 mg/L (our annual average limit is 5.0 mg/L). Fortunately, in early March, the repeated clogging of the transfer lines stopped, and we were able to return to nitrify/denitrify mode of operation in the secondary process. I wanted to share all this, so you had some context and understand why we are reaching out to you. Our root-cause analysis for our poor TN performance was anaerobic digester transfer lines repeatedly getting clogged with fibrous material. Obviously, our corrective actions are to identify, eliminate, and/or reduce sources of fibrous materials to and within the WRF. We realize the discharge from Parham Landing is relatively small – we recognize Parham Landing sludge is

NOT the primary source of fibrous materials (and we are not making any claims Parham Landing is responsible).

As part of our efforts to address the impact fibrous materials are having across our systems, on April 3, 2025, WRF staff installed an in-line basket strainer on the line that connects the truck to the WRF Blend Tank. On every transfer event to date with the strainer in service, the strainer fouled before the off load could be completed. Sometimes, only a quarter of the load could be off loaded before the strainer fouled and stopped the transfer from proceeding. Attached photo "25-0404" shows the (typical) fouled strainer condition. The other photos attempt to illustrate the "pieces" of material. Please note, they are relatively small – likely indicating these fibrous materials are well macerated. HC WRF experience is these smaller pieces are "re-weaving" themselves into larger "clumps" in our Anaerobic Digesters.

We appreciate Henrico DPU/WRF and New Kent / Parham Landing have a special relationship. With that said, I would be remiss to not remind New Kent - Parham Landing: **Under Part I C., Condition of Disposal and Treatment, of your Liquid Hauled Waste Permit: "The permittee shall take all steps necessary and appropriate to prevent adverse effects to wastewater treatment plant processes to include, but not limited to, the following conditions: 1. The discharge of industrial wastewater must be in conformance with the Liquide Hauled Waste Policy (Part III of this permit)."**

**Please review the below questions and requests and reply all to this email by April 25, 2025:**

1. I have always assumed HC Jail East is the primary source of trash and fibrous materials discharged to Parham Landing. Is that assumption correct in your experience?

2. If that assumption is accurate, in your professional opinion – IF a fine screen were to be installed at the PS / systems serving HC Jail East – do you think that is a good idea? If so, please let us know, as HC may be able to assist.

3. As discussed today, is it possible for Parham Landing to run the aerobic digested sludge destined for HC WRF through a strainer as it is loaded into the truck? IF that is not possible (not enough head/whatever), again - looking for your input – please let us know, as HC may be able to assist.

4. Are there any other actions Parham Landing could take to reduce/eliminate the fibrous material we are seeing in Parham Landing truck haul waste to HC WRF? If so, please provide plan and schedule.

In closing, this note would normally come from Ryan Smeltz; however, given our relationship, I wanted to reach out to you by phone and send this initial note to you. Moving forward, Ryan Smeltz and his team will be running point on this / reaching out, following up with you.

As always, feel free to reach out to me directly if I can assist with anything.

Thank you,

**JAMES GRANDSTAFF**
*Division Director, WRF*
HENRICO WATER, Department of Public Utilities
**Phone** 804.501.7689 **Email** gra@henrico.gov
9101 WRVA Road, Henrico, Virginia 23231

New Kent County Board of Supervisors
P O Box 150, 12007 Courthouse Circle
New Kent, VA 23124

# AGENDA ITEM REQUEST

(TO BE SUBMITTED NO LATER THAN 12 DAYS PRIOR TO THE MEETING)

Meeting Date: 9/29/2025

Agenda Item

| | |
|---|---|
| Motion: "Mr. Chairman, I move to (not required for Consent Agenda items) | NA |
| Subject | **Sheriff's Office Staffing Plan Presentation** |
| Issue | Sheriff Lee Bailey will present a plan for additional staffing to address growing call volumes and service requests. |
| Recommendation | NA |
| Fiscal Implications | A plan for financially supporting the cost of additional staffing will be presented by Sheriff Bailey. |
| Policy Implications | |
| Legislative History | |
| Discussion | Sheriff Lee Bailey will present a plan for additional staff to address growing call volumes and service requests. |

| | | | |
|---|---|---|---|
| Time Needed: | 9:30 a.m. | Person Appearing: | Sheriff Lee Bailey |
| Request prepared by: | Rodney Hathaway, County Administrator | Telephone: | (804) 966-9683 |
| Copy provided to: | Sheriff Lee Bailey | | |

**REVIEWERS:**

| Department | Reviewer | Action | Date |
|---|---|---|---|
| Administration | Hathaway, Rodney | Approved | 9/17/2025 - 4:01 PM |
| Administration | Hathaway, Rodney | Approved | 9/17/2025 - 4:01 PM |
| Attorney | Hefty, Brendan | Approved | 9/19/2025 - 11:31 AM |

New Kent County Board of Supervisors
P O Box 150, 12007 Courthouse Circle
New Kent, VA 23124

# AGENDA ITEM REQUEST

(TO BE SUBMITTED NO LATER THAN 12 DAYS PRIOR TO THE MEETING)

Meeting Date: 9/29/2025

Agenda Item

| | |
|---|---|
| Motion: "Mr. Chairman, I move to (not required for Consent Agenda items) | I move to authorize the County Administrator to execute the proposed agreement between L3Harris and New Kent County, in a form approved by the County Attorney, to upgrade the County's P25 Radio system from SR10A.2 to SR11, totaling Two Million, One Hundred Forty-Seven Thousand, One Hundred Twenty-Two Dollars and Eighteen Cents ($2,147,122.18). |
| Subject | **P25 Radio System Upgrade from SR10A.2 to SR11 and Terminal Radio Upgrades** |
| Issue | The L3Harris radio system, which supports critical public safety communications for both New Kent and Charles City Counties, is currently operating on System Revision (SR) 10A.2. This version is approaching the end of its optimal support lifecycle. The recommended upgrade to SR11 provides critical cybersecurity protections, improves system stability and performance, enhances interoperability, and ensures continued vendor support. The proposal also includes replacement of mobile radios that have reached end of support. |
| Recommendation | To move forward with the Radio System upgrade contract from L3Harris |
| Fiscal Implications | |
| Policy Implications | L3Harris has provided a proposal to upgrade the current system from SR10A.2 to SR11 at a cost of $2,147,122.18. A breakdown of the total project cost is shown in the full proposal.<br>Funding has been previously allocated through the county's Capital Improvement Program for this project. |
| Legislative History | |
| Discussion | The New Kent County P25 radio system has been in service for nearly ten years and is critical to public safety communications in both New Kent and Charles City Counties. It also supports essential government operations, including schools and general services. The system's core infrastructure is outdated and cannot be reliably supported or repaired in the event of a failure.<br>Upgrading to SR11 will modernize the system and provide: critical cybersecurity updates, improved system stability and performance, continued vendor support and access to future updates, compliance with regional and state communications standards.<br>This upgrade is expected to extend the service life of the existing system by 5–10 years, barring major advancements in |

public safety communication technology. L3Harris, as the current vendor, is the sole provider of this upgrade. Failure to perform the upgrade would leave replacement of the radio system as the only viable alternative, at an estimated cost of $20–40 million in today's market.

| | | | |
|---|---|---|---|
| Time Needed: | 9:50 a.m. | Person Appearing: | County Administrator Rodney Hathaway & Communications Team |
| Request prepared by: | Chief Rick Opett | Telephone: | 9679 |
| Copy provided to: | | | |

**ATTACHMENTS:**

| Description | Type |
|---|---|
| L3Harris Agreement (PDF) | Cover Memo |

**REVIEWERS:**

| Department | Reviewer | Action | Date |
|---|---|---|---|
| Fire-Rescue | Opett, Rick | Approved | 9/18/2025 - 3:45 PM |
| Administration | Hathaway, Rodney | Approved | 9/19/2025 - 11:26 AM |
| Attorney | Hefty, Brendan | Approved | 9/19/2025 - 11:32 AM |

**SYSTEM UPGRADE / PURCHASE AGREEMENT**

**BETWEEN**

**NEW KENT COUNTY, VIRGINIA**
**(Buyer)**

**and**

**L3HARRIS TECHNOLOGIES, INC.**
**COMMUNICATION SYSTEMS SEGMENT**
**(Seller)**

**DATE: _____, 2025**

**SYSTEM UPGRADE / PURCHASE AGREEMENT**

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## EXHIBITS

A. STATEMENT OF WORK
B. SOFTWARE LICENSE AGREEMENT

**SYSTEM UPGRADE / PURCHASE AGREEMENT**

**THIS SYSTEM UPGRADE / PURCHASE AGREEMENT** ("Agreement") is made and entered into this day of_____, 2025 ("Effective Date"), by and between New Kent County, Virginia , (hereinafter referred to as "Buyer") and L3Harris Technologies, Inc., a Delaware corporation, acting through its Communication Systems Segment (hereinafter referred to as "Seller") together the ("Parties").

**WITNESSETH:**

**WHEREAS** Seller, whose address is 221 Jefferson Ridge Parkway, Lynchburg, VA 24501, delivered a Sole Source proposal (collectively, the "Seller's Proposal") to provide the radio communication System and services.

**WHEREAS** Buyer has selected Seller's Proposal and now desires to contract with Seller to provide Buyer with the radio communications System and services set forth in the Statement of Work attached to this Agreement as an exhibit.

**WHEREAS** Buyer and Seller desire to enter into this Agreement to set forth in writing their respective rights, duties and obligations hereunder.

**NOW, THEREFORE,** for and in consideration of the mutual promises contained herein and other good and valuable consideration, the sufficiency and receipt of which are hereby acknowledged, it is mutually agreed between the Buyer and Seller as follows:

**SECTION 1. DEFINITIONS:**

As used herein, the terms set forth below shall have meanings set forth below.

**A.** "Acceptance" shall mean Acceptance of the System as set forth in the Testing and Acceptance section of this Agreement.

**B.** "Acceptance Date" shall mean the date the System is accepted or deemed accepted as set forth in the Testing and Acceptance section of this Agreement.

**C.** "Acceptance Tests" shall mean the testing procedures attached to the Statement of Work and mutually agreed upon by Buyer and Seller to be performed to determine whether the System has met the Acceptance criteria either set forth in the Statement of Work attached to this Agreement as an exhibit or as mutually agreed upon in writing by Buyer and Seller.

**D.** "Certificate of Insurance" shall mean the certificate to be provided by Seller evidencing the insurance coverage of Seller.

**E.** "Change Order" shall mean a written modification to the Total Agreement Price, Project Schedule or other Agreement terms which is signed by both Parties.

**F.** "Detailed Design Documents" shall mean those documents deliverable by Seller to Buyer at the conclusion of the Detailed Design Review described in the subsection Detailed Design Review under the Project Management Planning section of this agreement.

**G.** "Detailed Design Review" or "DDR" shall have the meaning given in the subsection Detailed Design Review under the Project Management Planning section of this agreement.

**H.** "Documentation Deliverables" shall mean the standard commercial quality manuals to be furnished by the Seller to the Buyer pursuant to the terms set forth in the Statement of Work attached to this Agreement as an exhibit and this Agreement.

**I.** "Effective Date of the Agreement" shall be the date on which the Agreement is signed by the last of the parties to sign the Agreement. The "Effective Date" shall be the date inserted on the first page of the Agreement.

**J.** "Expiration Date" shall mean the date on which the Term of this Agreement shall end which shall be the end of the Warranty Period (as defined in the Warranty Section) except that some other sections of this Agreement may have a later end date for that section of the Agreement as specifically provided in those sections of this Agreement.

**K.** "Hardware" shall mean, collectively, the Terminal Hardware and Infrastructure Hardware, as defined below.

**L.** "Infrastructure Hardware" shall mean the equipment, goods, and materials to be supplied by Seller for the System infrastructure, as further described in the Statement of Work attached to this Agreement as an exhibit.

**M.** "Project Kick-Off Meeting" shall have the meeting given in the Project Management and Planning section of this Agreement.

**N.** "Project Manager" shall mean each respective Party's duly authorized representative designated to manage each Party's obligations.

**O.** "Project Schedule" shall mean the schedule attached to the Statement of Work or otherwise mutually agreed upon by Seller and Buyer in writing for the delivery of the Hardware and Software and the performance of the Services described in the Statement of Work attached to this Agreement as an exhibit.

**P.** "Project Sites" shall mean those sites where any construction work is performed or any Infrastructure Hardware is installed under the terms of this Agreement. The term "Project Sites" will include all of the Tower Sites (as defined below).

**Q.** "Responsibility Matrix" shall mean the table included in the Statement of Work attached to this Agreement as an exhibit, which depicts the roles and responsibilities of Seller and Buyer set forth this Agreement.

**R.** "Services" or "Work" shall mean the services and work to be provided by Seller to Buyer included in the Statement of Work attached to this Agreement as an exhibit.

**S.** "Software" shall mean the proprietary computer software of Seller as owned exclusively by Seller or Seller's suppliers, as appropriate, and as further defined in and licensed to Buyer pursuant to the terms of the Software License Agreement.

**T.** "Software License Agreement" shall mean the System Software License Agreement set forth in an exhibit attached to this Agreement.

**U.** "Statement of Work" shall mean the description of the work to be performed by Seller to deliver the Hardware, install the System and provide the Services, all as described in an exhibit attached to this Agreement.

**V.** "System" shall mean the radio communications System comprised of the Hardware and Software to be furnished by Seller to Buyer pursuant to the terms set forth in the Statement of Work attached to this Agreement as an exhibit.

**W.** "Terminal Hardware" shall mean mobile units, portable units, control stations and related accessories to be provided by Seller as listed in the Statement of Work attached to this Agreement as an exhibit.

**X.** "Total Agreement Price" shall mean the price of the Hardware, the Software license and the Services to be furnished by Seller to Buyer pursuant to the terms set forth in the Statement of Work attached to this Agreement as an exhibit and this Agreement.

**Y.** "Tower Sites" shall mean those sites where Infrastructure Hardware will be installed on existing or new towers as included in the Contractor's Statement of Work and to be finalized in the Detailed Design Documents or subsequent Change Orders.

**SECTION 2. SCOPE OF WORK:**

**A.** Seller shall furnish, deliver and install the Hardware and Software for the System and provide the Documentation Deliverables and Services in accordance with the terms of the Statement of Work, attached to this Agreement as an exhibit, the Project Schedule and this Agreement.

**B.** The Detailed Design Documents, as described in the Project Management and Planning section of this Agreement and as amended from time to time in writing by the Parties, shall be incorporated into this Agreement after the Detailed Design Documents are approved by the Buyer and thereafter shall supersede any contrary provisions in the Statement of Work attached to this Agreement as an exhibit.

**C.** Seller shall commence, carry on and complete its obligations under this Agreement with all deliberate speed in accordance with the dates set forth in the Project Schedule and in a sound, economical and efficient manner, in accordance with this Agreement and all applicable laws. In providing services under this Agreement, Seller agrees to cooperate with the various departments, agencies, employees and officers of Buyer.

**D.** Seller agrees to secure at Seller's own expense all personnel necessary to carry out Seller's obligations under this Agreement. Such personnel shall not be deemed to be employees of Buyer nor shall they or any of them have or be deemed to have any direct contractual relationship with Buyer. Seller expressly understands and agrees that the Seller is and shall in all respects be considered an independent contractor.

**SECTION 3. PROJECT MANAGEMENT AND PLANNING:**

**A.** **Project Managers.** Seller shall designate a Project Manager who will lead the Seller' team for the System installation project and other Services and Work described in this Agreement (the "Project") and will serve as the Buyer's primary point-of-contact for Seller's project team and the official liaison between Seller's project team and Buyer. Buyer shall designate a Project Manager to function as the single point-of-contact and official liaison between Seller's Project Manager and the Buyer.

**B.** **Project Completion Dates.** The Project completion dates are described in the schedule included in the Statement of Work, entitled "Project Schedule." The Project Schedule may only be modified by mutual written approval of the Parties or as otherwise provided in this Agreement.

**C.** **Project Kick-off Meeting.** Promptly after the Effective Date of the Agreement, the Seller's Project Manager shall schedule a Project Kick-Off Meeting, the timing and location of which will be mutually agreed upon by Seller and Buyer. The objectives of this meeting include introduction of all project participants, review of the roles of the project participants, review of the overall project scope and objectives, review of the resource and scheduling requirements and review of current site status.

**D.** **Site Visits.** Where applicable, all existing towers, shelters and associated equipment provided by or mandated by Buyer shall be satisfactory in all manners to accommodate the System proposed by the Seller. Following the Effective Date of the Agreement, the Buyer shall provide Seller with access to all Project Sites upon reasonable notice to allow Seller to thoroughly examine each Site and to perform the Detailed Design Review, to prepare a schedule of preparatory work required for each site and a timeline for completion of the preparatory work at each site.

**E.** **Construction Management Services, Site Preparatory Work.** Where applicable, seller shall perform the civil construction services set forth in the Statement of Work and the Responsibility Matrix including, but not limited to, the site improvement civil construction to be performed at the identified sites. Buyer shall identify and disclose to Seller any and all problems or conditions at all Project Sites of which Buyer is aware that may affect the Work to be performed by Seller under this Agreement.

**F.** **Detailed Design Review.** The Detailed Design Review ("DDR") phase will commence after the Effective Date of the Agreement, and conclude at a mutually acceptable time to maintain adherence to the Project Schedule. During the DDR, Seller's Project Manager will meet with Buyer's project team on one or multiple occasions to review the System design, technical data, and site specific information to confirm and to refine the System and Tower Sites. At the conclusion of the DDR, Seller will provide Buyer with the following documents where applicable, (the "Detailed Design Documents") for review and approval by Buyer:

- Final Siting Plans
- Project Schedule
- Engineered Site plans (sufficient for the Buyer to obtain required zoning approvals) and construction drawings for each site.
- Shelter Floor Plan Drawings
- Rack Elevation Drawings
- System Block and Level Diagrams
- Power and HVAC Loads
- Antenna Network Diagrams
- Site Frequency Plans (including spectrum analysis and intermodulation studies of existing and proposed frequencies at each site).
- TX Combiner Plan by Site
- Network Backhaul Plans
- Any other documents as mutually agreed upon by the parties

Buyer shall have fourteen (14) days to conduct its review of the above documents. Approval of Detailed Design Documents by the Buyer shall not be unreasonably withheld, conditioned or delayed.

**G.** **Project Schedule.** The Project Schedule for the Work is included in the Statement of Work, as an attachment entitled "Project Schedule." Updates to the start dates and durations will be made as the information evolves and will be mutually agreed upon by both parties or updated as otherwise provided herein.

**H.** **System Implementation Communications.** Seller and Buyer shall jointly establish a plan that defines regular meetings, reporting structure, and other communications activities, including working sessions that may be needed throughout the term of this Agreement to plan sub-tasks, including at a minimum: (a) one or more DDR meetings to communicate the final engineering design; (b) formal monthly reports to Buyer's Project Manager concerning work in progress and accomplishments; (c) periodic status meetings at which the parties' Project Managers and other project participants will provide updates; (d) conference calls with Seller's and Buyer's project teams to discuss tasks, assign responsibility, and establish schedules; and (e) workshops or working sessions that may be needed throughout the Project to plan subtasks.

**I.** **Buyer Approvals**. Buyer will review and respond with reasonable promptness to all submittals or other items requiring its approval under this Agreement. For all such submittals or other items Buyer will provide the Seller with either; (i) written notification of Buyer's approval, or (ii) a written notification of conditional approval subject to Seller providing prompt correction of any noted deficiency, or (iii) in the case of a submittal that does not meet the requirements of the Agreement, a written notification of Buyer's disapproval. Buyer's disapproval notification will be provided with reasonable detail to sufficiently advise Seller of the basis on which the submittal was determined to be unacceptable. Buyer agrees that, except as otherwise provided, failure to provide approval, conditional approval or non-approval of a submittal for which its approval is required within fifteen (15) days of receipt of the submittal from the Seller shall constitute approval of the submittal. The parties agree that this section, Project Management and Planning, does not relate to the Testing and Acceptance procedures in the Testing and Acceptance section of this Agreement.

## SECTION 4. OBLIGATIONS FOR SYSTEM IMPLEMENTATION:

The following subsections apply to the Work to be performed under the Agreement.

**A.** **Project Management and Implementation Plan.** Buyer and Seller each agree to perform their respective tasks and obligations pertaining to permits and licenses, Project Site surveys, general Project Site-related responsibilities, general Hardware-related responsibilities, and Project Site-specific responsibilities as set forth in the Statement of Work. The Buyer's obligations set forth in the Statement of Work shall be performed by Buyer in a timely and proper fashion in accordance with the Project Schedule, or as otherwise agreed upon by Buyer and Seller, to allow Seller to timely perform its obligations under the Agreement.

**B.** **Access.** Buyer shall provide access, at no cost to Seller, to all owned, leased, or licensed Project Sites at reasonable times, and with an escort (if required) at no charge, upon reasonable prior notification from Seller. Buyer shall ensure sufficient room, within reason, for construction vehicles used by Seller. Buyer shall issue temporary identification cards to Seller's personnel and its authorized subcontractors, if required, for access to any of the Project Sites.

**C.** **Changes in Sites.** Any sites where Seller will operate and perform System installation under the terms of this Contract must be approved by Buyer, which approval shall not be unreasonably withheld, delayed or conditioned. Should Buyer direct an addition to, removal from, or modification of the list of sites as detailed in this Agreement that affects Seller's cost or schedule or System performance, including, but not limited to coverage, the parties agree that such change shall entitle Seller to a Change Order and each Party shall attempt, in good faith to fully negotiate and execute such Change Order prior to commencement of the Work at the changed site.

**D.** **Preparatory Work on Sites.** Notwithstanding anything to the contrary contained in this Agreement, the parties agree that some Project Sites may require tower replacement or modifications, as well as related permitting and licensing for Work and/or obtaining physical real estate space. As stated in the Responsibility Matrix, Buyer shall be responsible for securing all necessary site zoning, site access, or other permits (including but not limited to easements, impact studies, planning commission approval, variances, etc.) necessary for the Work, whether required by federal, state, or local authorities, with Seller assisting by providing information and any required civil engineering drawings. Buyer shall also have the responsibility to secure by lease, purchase, easement or otherwise all rights and access to selected sites or additional real estate as may be required. Buyer also shall be responsible for paying all utility charges to the appropriate utility for providing utility services to the System installation areas. The Parties agree to mitigate the need for tower replacement or modification to the extent practical. If any unanticipated tower replacements or modifications become necessary, Seller is entitled to an extension of time for any impacted activities and/or an equitable adjustment to the Contract Price to maintain the Project Schedule.

**E.** **Frequency Federal Communications Commission (FCC) Licensing.** The Buyer will be responsible for obtaining all FCC frequency licenses for the System, with Seller providing technical assistance and information as set forth in the Statement of Work. Seller has no responsibility or obligation to secure licensed frequencies. In the event Buyer fails to obtain FCC licenses, and such failure has a material impact on the cost of Work performed by Seller under the Agreement and/or the Project Schedule, the parties agree that Seller shall be entitled to an equitable adjustment to the Project Schedule, the Total Agreement Price, or both and that a Change Order shall be agreed to by the parties.

**F.** **Federal Aviation Administration (FAA) Approvals.** Buyer will be responsible for obtaining all FAA approvals for newly-constructed or modified towers.

**G.** **Contractor Licenses**. Seller will be responsible for obtaining all contractor licenses required for the performance of its duties and obligations.

**SECTION 5. DELIVERY, TITLE AND RISK OF LOSS:**

**A.** **Infrastructure Hardware**. Seller shall ship the Infrastructure Hardware to Buyer at Buyer's expense on or before the dates set forth in the Project Schedule. Partial deliveries shall be permitted. Upon delivery to the first carrier, title to each portion of the Hardware and all risk of loss or damage shall pass to Buyer. Infrastructure Hardware may be shipped directly to Buyer or to a mutually agreed upon staging or storage location. Buyer shall keep the Hardware fully insured for the total amount of all monies then due, or yet to become due, to Seller with respect to this Agreement.

**B.** **Terminal Hardware**. Seller shall ship the Terminal Hardware to Buyer at Buyer's expense on or before the dates set forth in the Project Schedule. Partial deliveries shall be permitted. Upon delivery

to the first carrier, title to each portion of the Hardware and all risk of loss or damage shall pass to Buyer.

**C.** If Buyer fails to take delivery of any of the Hardware, Seller may place such Hardware in storage at the place of manufacture or elsewhere. In such event: (1) Seller shall notify Buyer of the placement of any Hardware in storage; (2) Seller's delivery obligations shall be deemed fulfilled and title and all risk of loss or damage shall thereupon pass to Buyer; (3) any amounts otherwise payable to Seller upon delivery shall be payable upon presentation of Seller's invoices therefore; and (4) promptly upon submission of Seller's invoices therefore Buyer shall reimburse Seller for all expenses incurred by Seller such as preparation for and placement into storage, handling, storage, demurrage, inspection, preservation and insurance.

**SECTION 6. PRICE:**

The Total Agreement Price to be paid by Buyer to Seller is ~~**Two Million, One Hundred Twenty Two Thousand, Seven Hundred Eighty Seven Dollars** United States Dollars (**$2,122,787.00**)~~**Two Million, One Hundred Forty Seven Thousand, One Hundred Twenty Two United States Dollars and Eighteen Cents ($2,147,122.18)**. This includes the quoted options for the VIDA Virtual Site at Charles City County, backup control stations for dispatch centers, and Symphony upgrades from SDP 2 to SDP 3.0, as quoted on the pricing pages~~.~~ The individual prices for the units of Hardware, the Software license and the Services to be performed are as set forth in the Price Schedule as an attachment to the Statement of Work.

**SECTION 7. TAXES:**

In addition to any price specified herein, Buyer shall pay the gross amount of any present or future sales, use, excise, value-added, or other similar tax applicable to the price, sale or any Hardware or Services furnished hereunder or to their use by Seller or Buyer, or Buyer shall otherwise furnish Seller with tax exemption certificates acceptable to all applicable taxing authorities.

**SECTION 8. CHANGES AND ADDITIONS:**

**A.** **Hardware Changes**. In the event of any change in the Hardware as a result of the imposition after the Effective Date of this Agreement of any requirements by any federal, state, or local government, Seller shall be entitled to an equitable adjustment, by Change Order, in the Total Agreement Price, the Project Schedule, or both. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

**B.** **Buyer Requested Changes.** Buyer may request changes in or additions to the Work or in the time or place of performance of the Work under this Agreement. If any such change causes an increase or decrease in the cost of, or the time required for, performance of any part of the Work under this Agreement, Seller shall be entitled to an equitable adjustment, by Change Order, in the Total Agreement Price, the Project Schedule, or both. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

**C.** **Buyer Delays In Performance.** To the extent that Buyer fails to timely perform its obligations under the Responsibility Matrix or otherwise under this Agreement, and such failure has a material impact on the cost of Work performed by Seller under the Agreement and/or the Project Schedule, the Parties agree that Seller shall be entitled to an equitable adjustment to the Project Schedule, the Total

Agreement Price, or both. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

**D.** **Concealed Conditions.** If, following Buyer's Acceptance of the Detailed Design Documents, Seller encounters a concealed condition, of which it had no reason to be aware, at one or more Project Sites, then the Parties agree to work together to determine the best course of action and agree to negotiate in good faith a Change Order and an equitable adjustment to the Project Schedule and/or Total Agreement Price. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto.

**E.** **Product Discontinuance**. Subject to its obligation to fulfill its obligations set forth in the Agreement, Seller reserves the right to change or to discontinue any product covered by the Agreement provided that Seller agrees to make available to the Buyer a functionally equivalent replacement product equal to or better than the product discontinued.

**F.** **Frequency Support and Frequency Changes.** Where applicable, Seller shall reasonably support Buyer in submitting the Buyer's frequency licensing applications to the regional authorities and the FCC for this project. In the event that, after all commercially reasonable efforts and due diligence have been expended, the Buyer cannot obtain all of the necessary United States and Canada government approvals for the frequency plan as described in this Statement of Work and this Agreement, it shall be treated as an excusable delay event pursuant to the Excusable Delays section of this agreement for which an extension to the Project Schedule shall be granted, and Seller will diligently and expeditiously prepare and provide to Buyer a System re-design for its review and approval including all price and Project Schedule changes. Notwithstanding anything to the contrary contained in the Agreement, the Parties agree if a System re-design has a material impact on the cost of Work performed by Seller under the Agreement and/or the schedule, the Parties agree that that Seller may be entitled to an equitable adjustment to the Total Agreement Price and/or the Project Schedule for Seller's services on any such System re-design. Any such adjustment in the Total Agreement Price or Project Schedule shall be mutually satisfactory to Buyer and Seller. Price increases and/or extensions of time shall not be binding upon either Party unless and until evidenced by a Change Order signed by the parties hereto. In the event that Buyer and Seller cannot mutually agree on the System re-design, either party may then terminate the Agreement on thirty (30) days written notice to the other Party.

## SECTION 9. PAYMENTS:

**A.** The Total Agreement Price for the Hardware, the Software license and the Services shall be paid by the Buyer to Seller as follows:

**A.1. Infrastructure Hardware:**

1. Twenty percent (20%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of the signing of the Agreement by the Buyer and Seller.
2. Thirty percent (30%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of the first System detailed design review meeting.
3. Thirty percent (30%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of Procurement of the Infrastructure Hardware.

4. Three percent (3%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due at the time of factory staging as described in the project schedule.

5. Three percent (3%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due upon Infrastructure Hardware shipment and delivery to Buyer. Partial payments of the total Infrastructure Hardware amount due under this subparagraph shall be allowed and shall be calculated using the value of the Infrastructure Hardware shipped and delivered as a percentage of the total value of the Infrastructure Hardware to be shipped and delivered under the terms of this Agreement. The Buyer shall have the right to inspect and confirm that the Infrastructure Hardware included in Seller's invoice has been delivered to Buyer.
6. Fourteen percent (14%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due upon substantial completion of the Hardware installation (exclusive of the mutually agreed upon value of any punchlist items).
7. Ten percent (10%) of the Total Agreement Price (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) plus any remaining unpaid portion of the Total Agreement Price for all Hardware, Software and Services to be provided under the terms of this Agreement (excluding the aggregate price of the Terminal Hardware included in the Total Agreement Price) shall be due upon final Acceptance of the System.

**A.2. Terminal Hardware:**

1. One Hundred Percent (100%) of the purchase price of Terminal Hardware shall be invoiced upon shipment of unit on a per unit basis.

**B. <u>Invoices and Electronic Funds Transfer</u>**

Unless otherwise agreed by the parties, Seller shall electronically submit invoices using Seller's standard invoice template. Buyer shall pay all invoices via Electronic Funds Transfer ("EFT") directly to Seller's banking institution using Seller's banking information and EFT instructions below.

L3Harris Technologies, Inc.
Bank of America, New York, NY 10038
Account No.: 4451124230
Routing/ABA (ACH ONLY): 111000012
Routing/ABA (Wire ONLY): 026009593

**C. <u>Payment Dates</u>**

The Payment(s) associated with the event(s) above shall be due thirty (30) days following the date of Seller's invoice.

**D. <u>Other Amounts</u>**

Any other amounts due Seller hereunder shall be due upon Buyer's receipt of Seller's invoice.

**E.** **Late Payments**

All amounts past due over thirty (30) days shall accrue interest from their due date at the rate of one and one-half percent (1-1/2%) per month (or such lesser rate as may be the maximum permissible rate under applicable law).

**SECTION 10. SUBCONTRACTING:**

Seller may subcontract any portion of Work to be performed by Seller hereunder provided that Seller shall be responsible for the performance and Work of any such subcontractors.

**SECTION 11. EXCUSABLE DELAYS:**

**A.** Seller shall not be liable for delays in Project delivery, Project cost increases, or failure to perform due directly or indirectly to Acts of God, acts (including failure to act) of any governmental authority (de jure or de facto), wars (declared or undeclared), riots, revolutions, strikes or other labor disputes, fires, floods, sabotage, nuclear incidents, earthquakes, storms, epidemics; Seller's inability to timely obtain necessary materials, items, components or services at quoted prices from suppliers who are affected by the foregoing circumstances; other causes beyond Seller's reasonable control; or Buyer delays in performance of its obligations hereunder in a timely manner (individually "Excusable Delay"). The foregoing shall apply even though any of such causes exists at the time of signature of the Agreement or occurs after delays in Seller's performance of its obligations due to other causes.

**B.** In the event of any Excusable Delay, Seller shall as soon as practical notify Buyer and diligently after such notice, specify the revised delivery, pricing, and performance dates. In the event of such delay, the time of delivery, pricing, or performance dates shall be extended for a reasonable time period to compensate for the impact to Seller by reason of the delay.

**SECTION 12. SELLER'S INSURANCE:**

**A.** In order to protect itself and Buyer, its officers, boards, commissions, agencies, employees and representatives under the indemnity and other provisions of this Agreement, Seller shall obtain and at all times during the term of this Agreement keep in full force and effect comprehensive general liability and auto liability insurance policies issued by a company or companies authorized to do business in the State of and licensed by the Insurance Department, with liability coverage provided for therein in the amounts of at least $1,000,000.00 CSL (Combined Single Limits). Coverage afforded shall apply as primary. Within ten (10) days after execution of this Agreement, Seller shall furnish Buyer with a Certificate of Insurance listing Buyer as an additional insured. Seller shall maintain coverage for the duration of this Agreement and for two years following the completion of this Agreement. Seller shall furnish Buyer, annually on the policy renewal date, a Certificate of Insurance as evidence of coverage. It is further agreed that Seller shall furnish the Buyer with a 30-day notice of cancellation or renewal. Seller shall furnish evidence of adequate Worker's Compensation Insurance.

**B.** In case of any sublet of Work under this Agreement, Seller shall furnish evidence that each and every subcontractor has in force and effect insurance policies providing coverage substantially equal to that required of Seller.

**C.** The parties do hereby expressly agree that Buyer, acting at its sole option and through its Risk Manager, may waive any and all requirements contained in this section Seller's Insurance, such waiver to be in writing only. Such waiver may include or be limited to a reduction in the amount of coverage

required above. The extent of waiver shall be determined solely by Buyer's Risk Manager taking into account the nature of the Work and other factors relevant to Buyer's exposure, if any, under this Agreement.

**SECTION 13. TESTING AND ACCEPTANCE:**

**A.** Seller shall notify Buyer that the System is ready for Acceptance Tests at least ten (10) days before commencement of the Acceptance Tests. Buyer and Seller shall jointly commence the Acceptance Tests on the date specified in Seller's notice (or other mutually agreeable date) and a representative of Seller and a representative of Buyer shall sign off on the form provided as part of the test procedure whether each item of the test was passed or failed. If the System does not fulfill the requirements of the Acceptance Tests, Seller shall correct the defects at no additional cost to Buyer as soon as practicable. Upon correction of the defects the Acceptance Tests for the applicable part of the System shall be repeated in accordance with the procedures set forth in this Section. Successful completion of the Acceptance Test is the sole criterion for technical System Acceptance and the initiation of the Warranty Period. Final System Acceptance shall occur when the Hardware and Software for the System, Documentation Deliverables and Services have been furnished, delivered, installed and the Acceptance Tests have been passed.

**B.** Notwithstanding the Acceptance testing of the System set forth in subsection A above, if Buyer commences use of any portion of the System for its intended purpose, other than for the express purpose of training or testing as mutually agreed upon by Seller and Buyer in writing, prior to System Acceptance, the applicable portion of the System shall be deemed accepted by Buyer. The final payment for the applicable portion of the System shall be due and payable upon such Acceptance. The Warranty Period for the applicable portion of the System put into use together with the associated installation Services shall be deemed to have commenced concurrently with the use of the applicable portion of the System for its intended purpose. The use of the applicable portion of the System for its intended purpose shall be deemed to have occurred when Buyer commences to use and rely primarily on the applicable portion of the System for its communications.

**C.** As used in the Agreement, the term "Acceptance Date" shall mean and "Acceptance" of the System shall be deemed to occur upon the earlier of: (1) the date on which the System is deemed accepted pursuant to subsection (A) above, or (2) the date on which the System is deemed accepted pursuant to subsection (B) above.

**D.** Buyer and Seller agree that in the process of completing the Acceptance Tests, most if not all of the Acceptance Tests can be successfully completed with only a minor number of punchlist items remaining to be completed. In such event, Buyer and Seller shall mutually (and reasonably) agree upon the punchlist items to be completed, the value of those items and that "Conditional Acceptance" of the System has occurred. For the purpose of initiating the Warranty Period, satisfying the Project Schedule requirements and the release of any retained funds (other than the value of the punchlist items) conditional Acceptance shall constitute "Acceptance" of the specific portion or phase of the System. Conditional Acceptance shall not, however, release Seller from its obligations to complete the remaining punchlist items by the dates set forth on the punchlist schedule.

**E.** Terminal Hardware shall be deemed accepted upon Buyer's receipt of delivery at a Buyer-controlled facility, together with a bill of sale or other reasonably requested evidence of title.

**SECTION 14. SOFTWARE LICENSE.**

Subject to the terms and conditions of the Software License Agreement attached hereto as an exhibit to this Agreement, Buyer is granted a license to use the Software only in conjunction with the System purchased

under this Agreement. "Software" means the "Licensed Programs" as defined in the Software License Agreement.

**SECTION 15. COVERAGE:**

Seller's representations concerning the distance at which usable radio signals will be transmitted and received by Hardware supplied hereunder are set forth in the Statement of Work. Coverage for the System shall be measured as provided in the Testing and Acceptance section of this Agreement.

**SECTION 16. WARRANTIES:**

**A. Hardware and Services**

Seller warrants for the following periods of time from the Acceptance Date (hereinafter referred to as the "Warranty Period"), that the Hardware and installation Services furnished by Seller under this Agreement shall be free from defects in material and workmanship and shall conform to the Agreement specifications. Any Services provided during the Warranty Period are set forth in the Statement of Work. Any and all claims for breach of this warranty are conclusively deemed waived unless made within the Warranty Period.

1. for mobile and portable radios, twenty-four (24) months.
2. for Unity® model mobile and portable radios, thirty-six (36) months.
3. for all other Hardware, one (1) year.

**B.** For purposes of this Warranty the batteries supplied by Seller shall be deemed defective if: (1) the battery capacity is less than 80% of rated capacity, or (2) the battery develops leakage. Replacement batteries shall be warranted only for the remaining unexpired portion of the Warranty Period. This warranty becomes void if: (1) the battery has been subjected to any kind of misuse, detrimental exposure, or has been involved in an accident, or (2) the battery is used in equipment or service other than the Hardware for which it is specified.

**C.** During the Warranty Period if any component of the Hardware or portion of the installation Services fails to meet the foregoing warranties, Seller's sole obligation and Buyer's exclusive remedy under this warranty shall be the correction by Seller of the failure. Seller shall, at Seller's sole option, (1) repair any defective component of the Hardware, or (2) furnish necessary repaired, refurbished, or replacement parts, or (3) correct the faulty installation. Seller will be responsible for all shipping charges incurred in returning defective parts to Seller's facility and the shipping charges to return repaired, refurbished, or replacement parts to Buyer. Any such repair or replacement of the defective component or the redoing of any installation shall not extend the Warranty Period. All warranty work must be at the Seller's place of business, for mobile or portable equipment, or at the Buyer's location for fixed location equipment. Where such failure cannot be corrected by Seller's commercially reasonable efforts, Seller will refund to Buyer the fees paid for the parts or Hardware less depreciation.

**D.** Any additional purchases of equipment, including radios, and installation services which may be purchased by Buyer and delivered or performed by Seller after System Acceptance, shall be warranted on the same terms, limitations, and exclusions as are set forth herein, except that the warranty on the equipment and installation services shall be for a period of two (2) years for additional Terminal Hardware items from the date of delivery of that item of equipment, one (1) year for additional Infrastructure Hardware items from the date of delivery of that item of equipment, and one (1) year from the date of completion of that installation service.

**E.** Seller's obligations shall not apply to: (1) Hardware or components thereof which are normally consumed in operation, or, or (2) defects which are the result of improper storage, use, or installation performed by other than Seller, maintenance performed by other than Seller, or repair performed by other than Seller, or (3) Hardware which has been subjected to any other kind of misuse or detrimental exposure or has been involved in an accident, or (4) Hardware or installations altered or repaired by any party other than Seller without Seller's prior written consent.

**F.** **Coverage Warranty.** Notwithstanding the other provisions of this Section Warranties, Seller's only Warranty as to radio coverage is that the System, prior to Acceptance, shall have successfully passed the coverage tests in the Acceptance Test Plan.

**G.** **Software**

The warranty for the Software is set forth in the Software License Agreement.

**H.** THE WARRANTIES AND REMEDIES SET FORTH IN THIS SECTION AND IN THE SOFTWARE LICENSE AGREEMENT CONSTITUTE THE ONLY WARRANTIES WITH RESPECT TO THE HARDWARE, SOFTWARE AND SERVICES AND THE BUYER'S EXCLUSIVE REMEDIES IN THE EVENT SUCH WARRANTIES ARE BREACHED. THEY ARE IN LIEU OF ALL OTHER WARRANTIES WHETHER WRITTEN, ORAL, EXPRESS, IMPLIED, OR STATUTORY INCLUDING, WITHOUT LIMITATION, THE WARRANTY OF MERCHANTABILITY AND THE WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SELLER BE LIABLE FOR SPECIAL, CONSEQUENTIAL OR INDIRECT DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUES.

## SECTION 17. INTERFERENCE:

Radio System coverage and performance are subject to degradation or disruption due to anomalous propagation and interference by natural phenomena or other radio Systems ("Outside Interference"). Seller cannot be responsible for Outside Interference over which the Seller has no reasonable control. In the event of a case of degradation or disruption due to Outside Interference by natural phenomena or an outside party, Seller will provide engineering support to Buyer at Buyer's expense to support Buyer's efforts in investigating and resolving the Outside Interference.

## SECTION 18. INDEMNIFICATION:

**A.** Seller shall be responsible for and agrees to indemnify, hold harmless and defend the Buyer and its boards, commissions, agencies, officers and employees from and against all liability, losses, damages, costs or expenses which the Buyer and its boards, commissions, agencies and employees may sustain, incur or be required to pay by reason of third party claims, demands and causes of action for damages resulting from personal injuries, loss of life or damage to tangible property to the extent resulting from the willful misconduct or negligent acts or omissions of Seller, Seller's officers, agents, employees, or subcontractors. Buyer agrees to notify Seller in writing as soon as practical of any third party claim, demand or cause of action for which Buyer will request indemnification from Seller. Buyer will provide Seller with the necessary information and assistance to defend or settle such claim, demand or cause of action. The obligations of Seller under this paragraph shall survive the expiration or termination of this Agreement.

**SECTION 19. PATENTS:**

**A.** Seller warrants that the System furnished hereunder shall be delivered free of any rightful claim of any third party for infringement of any United States patent or copyright. If Buyer notifies Seller promptly of the receipt of any claim that the System infringes a United States patent or copyright and gives Seller information, assistance and exclusive authority to settle and defend such claim, Seller at its own expense shall defend, or may settle, any suit or proceeding against Buyer so far as based on a claimed infringement which breaches this warranty. If, in any such suit arising from such claim, the continued use of the System for the purpose intended is enjoined by any court of competent jurisdiction, Seller shall, at its expense and option, either: (1) procure for Buyer the right to continue using the System, or (2) modify the System so that it becomes non-infringing, or (3) replace the System or portions thereof so that it becomes non-infringing, or (4) remove the System and refund the purchase price (less reasonable depreciation for use). The foregoing states the entire liability of Seller for patent or copyright infringement by the System and is subject to any limitation of total liability set forth in this Agreement.

**B.** The preceding subsection (A) shall not apply to: (1) any portion of the System which is manufactured to Buyer's design, or (2) the use of the System in conjunction with any other apparatus or material not supplied by Seller to the extent that such conjoined use causes the alleged infringement. As to any portion of the System or use described in the preceding sentence, Seller assumes no liability whatsoever for patent infringement.

**C.** THE PATENT AND COPYRIGHT WARRANTY AND INDEMNITY OBLIGATIONS RECITED ABOVE ARE IN LIEU OF ALL OTHER PATENT AND COPYRIGHT WARRANTIES AND INDEMNITIES WHATSOEVER, WHETHER ORAL, WRITTEN, EXPRESS, IMPLIED OR STATUTORY.

**SECTION 20. LIMITATION OF LIABILITY:**

**A.** Except for Seller's liability to third parties for its willful misconduct or negligent acts or omissions as more particularly described in the Indemnification Section of this Agreement, the total liability of Seller, including its subcontractors or suppliers, for all claims of any kind for any loss or damage, whether in contract, warranty, tort (including negligence or infringement), strict liability or otherwise, arising out of, connected with, or resulting from the performance or non-performance of this Agreement or from the manufacture, sale, delivery, installation, technical direction of installation, resale, repair, replacement, licensing or use of any Hardware, Software or the furnishing of any Service, shall not exceed the amount paid by Buyer allocable to the particular item of Hardware, Software or Service which gives rise to the claim. Except as to title, any such liability shall terminate upon the expiration of the Warranty Period.

**B.** IN NO EVENT, WHETHER AS A RESULT OF BREACH OF AGREEMENT, WARRANTY, TORT (INCLUDING NEGLIGENCE OR INFRINGEMENT), STRICT LIABILITY OR OTHERWISE, SHALL SELLER, OR ITS SUBCONTRACTORS OR SUPPLIERS, BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL, INCIDENTAL, INDIRECT OR EXEMPLARY DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUES, LOSS OF USE OF THE HARDWARE OR ANY OTHER EQUIPMENT, COST OF CAPITAL, COST OF SUBSTITUTE GOODS, FACILITIES, SERVICES OR DOWNTIME COSTS.

**C.** Any action for any claim of any kind for any loss or damages arising out of, connected with, or resulting from the performance, non-performance or breach of the Agreement, or from the manufacture, sale, delivery, installation, technical direction of installation, resale, repair, replacement, licensing or use of any Hardware, Software or the furnishing of any Services, shall be commenced within one (1) year after the cause of action accrued or it shall be deemed waived or barred.

**D.** The provisions of this Section, LIMITATION OF LIABILITY, shall apply notwithstanding any other provisions of this Agreement or any other agreement.

**E.** The provisions of this Section, LIMITATION OF LIABILITY, shall survive the expiration or termination of this Agreement.

**SECTION 21. REMEDIES:**

**A.** In the event of a material breach of this Agreement by Seller which shall continue for one hundred twenty (120) or more days after written notice of such breach (including a reasonably detailed statement of the nature of such breach) shall have been given to Seller by Buyer, Buyer shall be entitled to avail itself cumulatively of any and all remedies available at law or in equity and either: (1) suspend performance of its payment obligations under the Agreement for as long as the breach continues uncorrected; or (2) terminate this Agreement by written notice to Seller if the breach remains uncorrected. The following shall constitute material breaches of this Agreement:

1. violation by Seller of any State, Federal or local law, or failure by Seller to comply with any applicable States and Federal service standards, as expressed by applicable statutes, rules and regulations.
2. failure by Seller to carry applicable licenses or certifications as required by law.
3. failure of Seller to comply with reporting requirements contained herein.
4. inability of Seller to perform the Work provided for herein.

**B.** In the event of: (1) any failure by Buyer for thirty (30) or more days to make any payment when due, or (2) any other material breach of this Agreement by Buyer which shall continue for one hundred twenty (120) or more days after written notice of such breach (including a reasonably detailed statement of the nature of such breach) shall have been given to Buyer by Seller, Seller shall be entitled to avail itself cumulatively of any and all remedies available at law or in equity and either: 1) suspend performance of its obligations under this Agreement for as long as the breach remains uncorrected; or (2) terminate this Agreement by written notice to Buyer if the breach remains uncorrected.

**C.** In the event of a termination under this Agreement as provided herein, all Services performed and finished and unfinished Hardware and Documentation Deliverables produced or made by Seller for Buyer, up to and including the date of termination, shall become the property of Buyer and Seller shall be entitled to receive full price accrued up to the point of termination, for any such Services performed and finished and unfinished Hardware and Documentation Deliverables. Notwithstanding the above, Seller shall not be relieved of liability to Buyer for damages sustained by Buyer by virtue of any breach of this Agreement by Seller described in subsection A above and, after providing Seller with written notice of breach as set forth in subsection A, Buyer may withhold any payments to Seller for the purpose of set-off of any damages, as agreed upon or finally adjudicated, against such payment.

**SECTION 22. CONFIDENTIALITY:**

**A.** During the term of this Agreement, it is anticipated that one party (hereafter the "Disclosing Party") may disclose to the other party (hereafter the "Receiving Party") information which the Disclosing Party considers proprietary and confidential. Accordingly, with respect to any specification, drawings,

sketches, models, samples, tools, technical information, confidential business information or data, in written or other tangible form which: (1) has been designated in writing by the Disclosing Party as confidential or proprietary, or (2) is of the type that the Receiving Party customarily treats as confidential or proprietary, and which is furnished by the Disclosing Party to the Receiving party in contemplation of or under this Agreement (hereinafter "Information"), the Receiving Party shall treat such Information, for a period of five (5) years after the Effective Date of this Agreement, as confidential information with the same degree of care as the Receiving Party affords to confidential information of its own of a similar nature and shall not reproduce any such Information, in whole or in part, except as specifically authorized in writing by the Disclosing Party.

**B.** The provisions of the preceding subsection shall not apply to any Information which:

1. is or shall become publicly available without breach of this Section Confidentiality, on the part of the Receiving Party;
2. is already known by the Receiving Party prior to receipt from the Disclosing Party;
3. is independently developed by the Receiving Party;
4. is rightfully obtained by the Receiving Party from third parties without restriction; ~~or~~
5. is required to be disclosed by appropriate governmental or judicial order provided that Receiving Party gives Disclosing Party prior written notice of such order and assists Disclosing Party in taking reasonable actions to restrict such order~~.~~; or

~~5.~~6. is required to be disclosed by law, including, but not limited to, Virginia Freedom of Information Act

**C.** The provisions of this Section, Confidentiality, shall survive the expiration or termination of this Agreement.

**D.** The confidentiality obligations of this Section, Confidentiality, shall not apply to Software, the confidentiality and other rights and obligations with respect to which are set forth in the Software License Agreement.

**E.** Except as required to fulfill its obligations under this Agreement, Seller will have no obligation to provide Buyer with access to its Confidential Information and/or proprietary information. Under no circumstances will Seller be required to provide any data related to cost and pricing.

## SECTION 23. COMPLIANCE:

Seller agrees to comply with all federal, state and local laws, ordinances, codes, rules and regulations in effect as of the Effective Date of this Agreement that may in any way affect the Work by Seller hereunder. Any Hardware or Software furnished by Seller under this Agreement shall comply in all material respects with federal, state and local laws and regulations applicable to the manufacture, packing, sale and shipment of such Hardware or Software as of the Effective Date of this Agreement and shall comply with any amendments thereto which may have come into effect prior to the time such Hardware or Software are delivered provided that the price and, if necessary, delivery of such Hardware or Software shall be equitably adjusted to compensate Seller for the effect of compliance with any such amendments.

## SECTION 24. NOTICES:

Notices and other communications between the parties shall be transmitted in writing by certified mail or nationally recognized overnight courier service to the parties at the addresses set forth below and shall be deemed effective upon receipt by the receiving party. Either party may change its address by giving notice in writing thereof to the other party.

IF TO BUYER:
New Kent County, Virginia
P.O. Box 150
New Kent, Virginia 23124
Attn: New Kent County Administrator

WITH A COPY TO:
New Kent County, Virginia
P.O. Box 150
New Kent, Virginia 23124
Attn: New Kent County Attorney

BUYER INVOICE CONTACT:
_____
_____
_____
Attn: _____

IF TO SELLER:
L3Harris Technologies, Inc.
221 Jefferson Ridge Parkway
Lynchburg, Virginia 24501
Attn: [Randy Jackson]

WITH A COPY TO:
L3Harris Technologies, Inc.
221 Jefferson Ridge Parkway
Lynchburg, Virginia 24501
Attn: [Tom Clair]

SELLER INVOICE CONTACT:
L3Harris Technologies, Inc.
221 Jefferson Ridge Parkway
Lynchburg, Virginia 24501
Attn: April Gallagher
434-455-9272 /
april.gallagher@l3harris.com

**SECTION 25. ORDER OF PRECEDENCE:**

The Statement of Work and the following Exhibits are expressly incorporated herein by reference and, together with this Agreement, constitute the Agreement Documents. In the event of a conflict among or between the Agreement Documents, the documents shall control in the order of precedence set forth below:

1. Amendments to this Agreement
2. This Agreement (not including the Exhibits and documents listed below)
3. Detailed Design Documents
4. **Exhibit A** - Statement of Work, with Attachments
5. **Exhibit B** - Software License Agreement

**SECTION 26. TERM:**

The term of this Agreement shall commence upon the Effective Date of this Agreement and shall run through the Expiration Date. The term of the Software license is set forth in the Software License Agreement.

**SECTION 27. ENTIRE AGREEMENT:**

The entire agreement of the parties is contained herein and this Agreement supersedes any and all oral agreements and negotiations between the parties relating to the subject matter hereof.

**SECTION 28. AMENDMENT:**

The parties expressly agree that this Agreement shall not be amended in any fashion except in a writing(s) executed by authorized representatives of both parties.

**SECTION 29. SEVERABILITY:**

The invalidity, in whole or in part, of any Section or part of any Section of this Agreement shall not affect the validity of the remainder of such Section or the Agreement.

**SECTION 30. WAIVER:**

No term of this Agreement may be waived except in a writing signed by the party waiving enforcement. No term of this Agreement shall be deemed to be waived by reason of any failure to previously enforce such term. In no event shall the making of any payment required by this Agreement constitute or be construed as a waiver by Buyer of any breach of the covenants of this Agreement or a waiver of any default of Seller and the making of any such payment by Buyer while any such default or breach shall exist shall in no way impair or prejudice the right of Buyer with respect to recovery of damages or other remedy as a result of such breach or default.

**SECTION 31. HEADINGS:**

Section headings are inserted for convenience only and shall not be used in any way to construe the meaning of terms used in this Agreement.

**SECTION 32. GOVERNING LAW:**

It is expressly understood and agreed to by the parties hereto that in the event of any disagreement or controversy between the parties, ~~law~~ the laws of the Commonwealth of Virginia shall be controlling. Venue for any legal proceedings shall be in any state or federal court in the ~~Commonwealth of Virginia~~New Kent County, Virginia.

**SECTION 33. ASSIGNMENT; SUCCESSORS AND ASSIGNS:**

This Agreement shall not be assigned nor any interest or obligation in this Agreement transferred by either Party without the written consent of the other Party, which shall not be unreasonably withheld or delayed. Notwithstanding the above, Seller may assign this Agreement, without consent, (a) in whole or in part, to an affiliate, subsidiary, or authorized reseller or (b) in the event of a change of controlling ownership interest (either directly or indirectly) in Seller or in the event of merger, recapitalization, consolidation, other business combination or sale of all or substantially all of the assets of Seller. In addition, Seller may also assign or transfer, without consent, claims for money due or to become due Seller from Buyer under this Agreement to a bank, trust company or other financial institution if and only if the instrument of assignment contains a provision substantially to the effect that it is agreed that the right of the assignee in and to any moneys due or to become due to Seller shall be subject to prior claims of all persons, firms and corporations for services rendered or materials supplied for the performance of the Work called for in this Agreement. Seller shall promptly provide to Buyer notice of any such permitted assignment or transfer without consent.

[*Signature Page Follows*]

**IN WITNESS WHEREOF**, Buyer and Seller have executed this Agreement.

**BUYER**
**NEW KENT COUNTY**

By: _____

Name: _____

Title: _____

Date: _____

**Witness**:

By: _____

Name: _____

Title: _____

Date: _____

**SELLER**
**L3HARRIS TECHNOLOGIES, INC.**
**ACTING THROUGH ITS**
**COMMUNICATION SYSTEMS SEGMENT**

By: _____

Name: _____

Title: _____

Date: _____

**Witness**:

By: _____

Name: _____

Title: _____

Date: _____

## LIST OF EXHIBITS

Exhibit A - STATEMENT OF WORK (with Attachments)
Exhibit B - SOFTWARE LICENSE AGREEMENT

**EXHIBIT A**

**STATEMENT OF WORK**
**SELLER'S UPGRADE PROPOSAL – JULY 2025**

# 1. OFFERING OVERVIEW

## 1.1. Introduction

L3Harris excels in the multifaceted implementation of mission critical radio systems to fulfill the specific needs of our customers and support their vital public safety operations.

L3Harris uses off-the-shelf computers, routers and switches in the network. While this keeps the cost down of the network, the rate of change of technology can be fast. Since the original ROM in January 2022, some new changes are being proposed to keep the New Kent County network up to date and protected. The following upgrades we recommend are as follows:

This proposal is a complete upgrade solution to the VIDA SR11 platform from the existing VIDA SR10A.2.

The proposed offering will include the following:

- Replacement of the NSC (Network Switching Center cores)
- Replacement of five Symphony console PC stations (From SDP 1.0 to SDP 3.0) at New Kent Dispatch Center
- MASTR-V software upgrades
- Replacement of existing Network Sentries with VVS at each LMR site
- Pathway + interoperability Gateway Replacement of 3 UAC/Conventional gateways (Courthouse, Providence Forge)
- Upgrade MPLS 7705s TiMOS to latest software release
- Upgrades of Site Routers and Switches
- QTY 200 Mobile XL-200M Single Head Radios
- QTY 1 Mobile XL-200M Dual Head Radio
- Replace sites and dispatch networking equipment
- Optional Replacement of two Symphony console PC stations ( from SDP2.0 to SDP 3.0) at New Kent Dispatch Center
- Optional Replacement of two Symphony console PC stations ( from SDP2.0 to SDP 3.0) at Charles City Dispatch Center
- Optional nine Back Up Control Station radios for Dispatch Consoles (antenna system not included)
- Optional VVS upgrades of CCC microwave Site

### NSC UPGRADE

L3Harris will replace existing NSCs with new SR11 primary and secondary NSCs, respectively. These are VIDA Premier NSCs with location High Availability (HA). The NSC will be comprised of multiple Virtual Servers running in a VM-Ware environment on a single VAS Server. The new SR11 NSCs will include the routers and firewalls to provide network interface to the system backhaul.

## SYMPHONY CONSOLES

Five (out of Seven) consoles at New Kent County dispatch center currently with SDP 1.0 (Symphony Dispatch Platform) will be upgraded to SDP 3.0.

There is also the optional proposal to upgrade:

- Two consoles at New Kent Dispatch Center with SDP 2.0 to SDP 3.0
- Two Consoles at Charles City Dispatch Center with SDP 2.0 to SDP 3.0

This upgrade only impacts the Symphony console PC: all current peripherals such as the monitor, microphone, etc. will remain in service.

## OPTIONAL VVS UPGRADE AT CCC MW SITE IN CURRENT PROPOSAL

The original installation of the Charles City County microwave-only site did not include a Network Sentry (NWS) to send the alarms to the Regional Network Manager (RNM). While a work-around solution was created, L3Harris suggests including a VIDA Virtual Site (VVS), so that all sites will run the same interface to the RNM.

# 2. SYSTEM UPGRADE DESCRIPTION

## 2.1. Overview of System Features

### 2.1.1. VIDA NETWORK SWITCHING CENTER (NSC)

The VIDA SR11 Network Switching Center (NSC) is the heart of L3Harris' packet-switched network and performs all the mission critical services required for New Kent's public safety LMR communication environment. New Kent County is configured for Location High Availability (HA) VIDA Premier NSC with geographically separated primary and secondary network switching servers. Location HA provides a secondary NSC that can be geographically separated from the primary NSC.

The VIDA NSC is configured based on the following concept:

- Critical services perform automatic failover to standby VMs
- Non-critical services require manual failover

#### 2.1.1.1. NSC SERVICES & FEATURES

Included Administration and Management Services:

- Network Switching Server (NSS)
- Unified Administration Server (UAS)
- Region Network Manager (RNM)
- Active Directory (AD)
- Security Update Management Service (SUMS)
- Transcoder (XCDA)
- Trellix ePolicy Orchestrator (ePO)
- BeOn Service
- Enterprise Network Manager, Base (ENM)
- Key Management Facility (KMF)
- Encompass Gateway (CGW)
- Over The Air Rekeying (OTAR)
- Two-Factor Authentication
- Voice Network Controller (VNIC)

# 2.1.1.2. VIDA Applications Server (VAS)

The real-time voice, data, and management services reside on the VIDA Application Server (VAS) as virtual machines (VM's). Virtualization allows a single server to simultaneously run multiple operating systems (OS), each in an independent environment called a virtual machine (VM). The VAS automatically allocates the appropriate RAM (memory), storage, and networking resources for each VM.

Hypervisor software allows virtual machines residing on the VAS to operate with a degree of independence from the underlying physical hardware. Since virtual machines are decoupled from a specific set of physical hardware, virtualization allows for consolidation of physical computing resources (such as CPUs, memory, storage, and networking) into pools of resources that can be dynamically allocated to the VMs it supports.

The VAS provides the single point of access for the call switching, as well as management and administrative tasks for a VIDA Network. It hosts a voice controller application performing routing functions for digital trunked voice messages through an IP backbone. By tracking the radio site location of subscriber unit radios and their voice group affiliation, the VAS ensures delivery of voice messages only to those radio sites essential to reach the destined radios. In addition to call routing based on user radio (to site) registration, it is possible to set up the system to force certain talk group calls to those locations required for scanning.

# 2.1.1.3. Virtual Machine (VM) Technology

VM technology allows many applications running under separate operating systems to co-exist on a single server. The VM software allocates processor power, Random Access Memory (RAM), and Network Interface resources to each application. It isolates each application and assures that no application impacts the operation of the others. VM technology also allows the addition of software capabilities on the server.

# 2.1.1.4. Premier NSC with Geographically Split-High Availability Redundancy:

The VIDA solution provides full service high availability failover. For critical services on the primary core, the secondary core takes over in failover. VIDA provides robust performance without compromise; therefore, failover does not mean failure. VIDA networks employ the means to meet mission critical reliability, availability, and maintainability requirements, utilizing centralized services that can include geographically split redundant servers. When operating at distinctly separate geographic and judiciously separated locations (yet fully network interconnected), the system will provide automatic failover capability if a network switch becomes dysfunctional because a server, network, or physical location no longer functions. The High-Availability service on the VIDA core ensures expeditious failover of call routing, ensuring that communications continue with minimal impact to users.

### 2.1.2. CYBERSECURITY FEATURES

The New Kent County system is secured using a defense-in-depth strategy, mitigating the risk of compromising any single defense. The current SR10A.2 system includes basic cybersecurity controls. With the SR11 upgrade, we are enhancing these controls and offering additional complementary components that comprise an enhanced layered defense strategy. These ensure New Kent County radio system users will have the confidence and trust the system maintains the confidentiality of their information, the integrity of their data, and the availability of their communications.

The cybersecurity chapter below provides a more detailed description of the features proposed for the system upgrade.

## 2.2. Summary of System Upgrade Offering

The VIDA SR11.1 upgrade includes equipment and services required to upgrade the following:

- Replace the existing NSC Cores with VIDA Premier Location High Availability (LOC-HA)
- RF site base station firmware upgrade and personality refresh
- Network Sentry (NWS) upgrade to VIDA Virtual Site
- Symphony Console PC replacement
- System Management Terminals (SMT) Replacement
- UAC Interoperability Replacement

Estimated System Implementation Services:

- Project Management
- Systems Engineering
- Installation
- Acceptance Testing
- As-Built Documentation

# 2.3. Equipment Upgrades By Location

The proposed upgrade includes the following sites, licenses, software and equipment.

## 2.3.1. COURTHOUSE: PRIMARY NSC-1 AND RF SITE

This site consists of the primary NSC, primary DCP, and RF site. We propose the following LMR equipment for this site:

- Primary VIDA SR11.1 NSC including:
  - Premier Location High Availability (LOC-HA)
  - VIDA Application Server (VAS), which hosts the following software applications in a virtual machine (VM) environment:
    - Network Switching Server (NSS)
    - Unified Administration Server (UAS)
    - Active Directory (AD)
    - Security Update Management Service (SUMS)
    - Transcoder (XCDA)
    - Trellix ePolicy Orchestrator (ePO)
    - Enterprise Network Manager, Base (ENM)
    - Key Management Facility (KMF)
    - Encompass Gateway (CGW)
  - One Network Timing Protocol (NTP) timing reference
  - System Management Terminal (SMT)
  - Networking equipment replacement including:
    - One Cisco wide area router (WAR)
    - One Cisco regional access router (RAR)
    - One Internet Firewall (IFW)
- MASTR-V Base Station:
  - Six 700 MHz MASTR-V base station firmware and personality refreshes
  - Replace Network Sentry with Vida Virtual Site (VVS)
- UAC Replacement for Pathway+
- Upgrade MPLS 7705s TiMOS to latest software release

## 2.3.2. QUINTON: SECONDARY NSC-2 AND RF SITE

This site consists of the secondary NSC and an RF site. We propose the following LMR equipment for this site:

- Secondary VIDA SR11.1 NSC including:
  - Premier Location High Availability (LOC-HA)
  - VIDA Application Server (VAS), which hosts the following software applications in a virtual machine (VM) environment:
    - Network Switching Server (NSS)
    - Unified Administration Server (UAS)
    - Active Directory (AD)
    - Security Update Management Service (SUMS)
    - Transcoder (XCDA)
    - Trellix ePolicy Orchestrator (ePO)
  - One Network Timing Protocol (NTP) timing reference
  - System Management Terminal (SMT)
  - Networking equipment replacement including:
    - One Cisco wide area router (WAR)
    - One Cisco regional access router (RAR)
    - One Internet Firewall (IFW)
- MASTR-V Base Station:
  - Six 700 MHz MASTR-V base station firmware and personality refreshes
  - Replace Network Sentry with VIDA Virtual Site (VVS)
- Upgrade MPLS 7705s TiMOS to latest software release

## 2.3.3. PROVIDENCE FORGE: RF SITE

This site consists of an RF site. We propose the following LMR equipment upgrades for this site:

- MASTR-V Base Station:
  - Six 700 MHz MASTR-V base station firmware and personality refreshes
  - Replace Network Sentry with VIDA Virtual Site (VVS)
- UAC Replacement for Pathway+
- Upgrade MPLS 7705s TiMOS to latest software release

## 2.3.4. WEST POINT: RF SITE

This site consists of an RF site. We propose the following LMR equipment upgrades for this site:

- MASTR-V Base Station:
  - Six 700 MHz MASTR-V base station firmware and personality refreshes
  - Replace Network Sentry with VIDA Virtual Site (VVS)
- Upgrade MPLS 7705s TiMOS to latest software release

## 2.3.5. MUNFORD: RF SITE

This site consists of an RF site. We propose the following LMR equipment upgrades for this site:

- MASTR-V Base Station:
  - Six 700 MHz MASTR-V base station firmware and personality refreshes
  - Replace Network Sentry with VIDA Virtual Site (VVS)
- Upgrade MPLS 7705s TiMOS to latest software release

## 2.3.6. NEW KENT: DISPATCH

This site consists of Seven Symphony Consoles. We propose the following LMR equipment upgrades for this site:

- Symphony Console
  - Replace Five Symphony console PC with Symphony Dispatch Platform 3.0 (SDP)
    - Other peripherals will not be changed: monitors, keyboard, headset etc.
- UAC Replacement for Pathway+

# 3. SCOPE OF WORK

L3Harris will build and configure the new VIDA Premier cores with standard L3Harris SR11.1 configuration. After successful staging and testing, L3Harris will ship the equipment to the customer site for installation into the designated RF shelters.

The L3Harris team will power up the new equipment and perform a system health audit to verify proper installation and function of the new equipment.

L3Harris will provide New Kent County with the scope of services detailed below.

- System Engineering
- Project Management
- Installation Services
- Staging & Shipping

Upon order, L3Harris will build and configure the new NSC to standard L3Harris configuration. After successful staging and testing, L3Harris will ship the equipment to the customer site for installation into the designated equipment rooms.

The L3Harris team will power up the new equipment and perform a system health audit to verify proper installation and function of the new equipment. The L3Harris Team will then configure the new VIDA NSCs and prepare the system for cutover and acceptance testing.

## 3.1. Network Isolation

The VIDA network must be routed through the customers IP network and firewalls to enable traffic separation and shaping of the network and allow network implementation and optimization to proceed in a highly managed and controlled manner. This ensures that a security breach in the support network equipment does not impact the dedicated capacity for call processing and to ensure that traffic is appropriately monitored.

## 3.2. Network Bandwidth

The installation of SR11.1 equipment and software will not change the load on the backhaul.

## 3.3. Site Power Requirements

The installation of SR11.1 equipment and software will not change the power requirements.

## 3.4. Alarm Management Plan

The LMR alarm plan will remain in place.

# 3.5. Services Overview

## 3.5.1. SYSTEM DESIGN, CONFIGURATION AND INSTALLATION

L3Harris service quote includes engineering services in L3Harris Factory for NSC Staging, Configuration, and Functional Test.

L3Harris personnel will provide physical installation of the new core equipment cabinets and L3Harris engineering will power up and test.

Site preparation of power and grounding for the new cabinets is outside the scope of this proposal. L3Harris can expect that there is sufficient power, grounding, ventilation, and floor space for the new NSC equipment cabinets.

## 3.5.2. ACCEPTANCE TESTING

L3Harris will perform system acceptance testing per the attached functional acceptance test plan (ATP). The L3Harris Upgrade Team notifies New Kent when installation and upgrade are complete, and the system is ready for acceptance testing.

## 3.5.3. SYSTEM DOCUMENTATION

L3Harris will provide typical as-built documentation for all site upgrades which include:

- Rack configuration drawings
- Configuration Files
- Technical Manuals and Users Guides for the new components
- New As-Built Documentation

## 3.5.4. PREPARATION AND PLANNING OVERVIEW

### 3.5.4.1. Upgrade To SR11 – Methodology

The procedure for system upgrade usually consists of four main phases:

- Upgrade Preparation and Planning
  - Complete system inventory audit and health check
- Core Infrastructure Replacement
  - Replace NSC Hardware, including SMTs
- RF Sites, Dispatch, and Interoperability Upgrades
  - RF site S/W & personalities

- Replace NWS to VIDA Virtual Site (VVS)
- Symphony Console PC replacements
- UAC Interoperability Gateway replacements

Each phase is completed, and the system evaluate for stability before proceeding to the next phase. A summary of tasks required to provide trouble free migration is as follows.

# 3.5.4.2. Upgrade Preparation and Planning

A complete audit of the existing system was conducted to verify all known devices and the specific software revisions. This audit was used to identify components within the New Kent system that could be reused, replaced, or upgraded. Prior to touching the system, L3Harris will validate that the results remain accurate.

L3Harris will review RNM alarm logs, any outstanding TAC tickets, and discuss any outstanding punch list items and document all open issues that will be resolved with the system release update, including tests plans. In addition, L3Harris will back up all current system settings, and network configurations.

# 3.5.4.3. Core Upgrade by Replacement

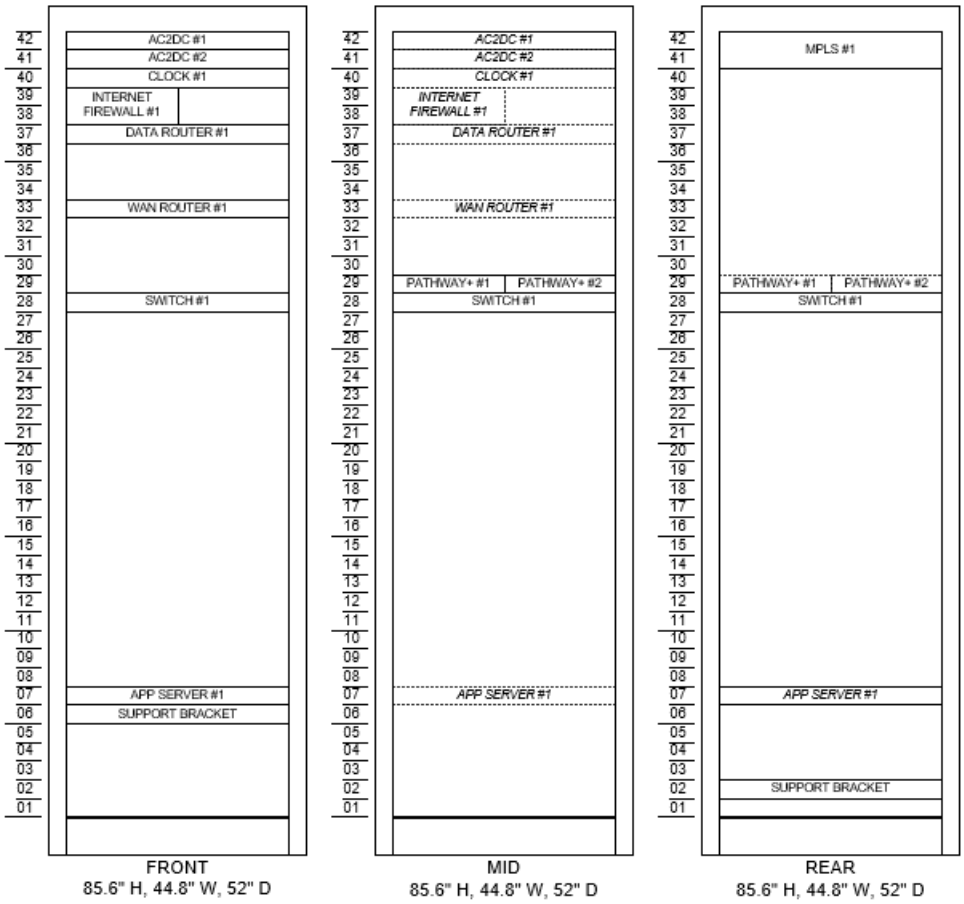
A core replacement will provide the quickest and most seamless upgrade. This method will allow off-site staging & testing to be performed and will ensure the core works as expected before delivery to site. Then, installing the new equipment rack near the existing rack allows for straight forward network cable moves to put the new system into service.

This step of the upgrade process will transition the VIDA NSC from SR10A.2 to SR11.1. All the server hardware and network gear will be replaced. Any equipment that'll be reused will be removed from the SR10A.2 AD domain before being added to the SR11 AD domain.

The core replacement method of upgrade typically consists of the following basic steps:

1. Ensure current system HA capability is functioning properly
2. Remove Windows Devices from the Active Directory (AD) Domain
3. Migrate existing databases
4. Split cores (NSC2 is Active)
5. Cutover NSC1
6. Failover to new NSC1
7. Preliminary Functional Testing
8. Burn-in period to prove stability
9. Cutover NSC2
10. Preliminary Functional Testing
11. Heath Check
12. Test and Burn-In new configuration to prove stability
13. Perform Functional Plan
14. Add Windows Devices Back to the AD Domain

**Figure 1. Primary NSC Core Rack up Diagram (Typical, Front & Rear View)**




# 3.5.5. BACKHAUL UPGRADE

The infrastructure of the New Kent County microwave network is up to date, though L3Harris will upgrade the MPLS router software to TiMOS 22.10.R2, from TiMOS-B-6.2.R2, at the following sites: Courthouse, Providence Forge, Quinton and West Point, CCC and Relay Site.

# 3.5.6. NETWORK UPGRADES

Review current network configuration, capacity, and hardware.

At each step of the system upgrade process, the network upgrade aspect follows the basic steps below:

1. L3Harris will conduct an audit of the existing NSC network configurations, WAN configurations, IP Plan and existing NSC drawings.
2. L3Harris will document the recommended changes from SR10A.2 to SR11.1 based on results from the network audit.
3. L3Harris will develop factory network equipment configurations for the new NSC and validate these configurations during staging including implementing the existing WAN side of the WARs.

4. L3Harris will provide standard VIDA NSC network equipment and configure new NSC WAR Routers to provide backward compatibility with existing site network equipment.
5. End of Life or near end of support Network Equipment will be replaced at the RF sites and dispatch locations. Required Cisco Smartnet 1-year licenses agreement will be included in the base price.
6. All NSC routers, switches and Internet routers are being replaced. In addition, the following site routers and switches are being changed:

| Location | Site Name | Model Number | Type | Router QTY | Switch QTY |
|---|---|---|---|---|---|
| Quinton RF Site | DCP Site 12 | 4321 | Router | 1 | |
| Quinton RF Site | DCP Site 13 | 2960 | Switch | | 2 |
| CCC Dispatch | Site 99 | 1111 | Router | N/A | |
| CCC Dispatch | Site 99 | 1000 | Switch | | N/A |
| CCC MW | | C1111 | Router | 1 | |
| Charles City RF Site | Site 17 | 4321 | Router | 1 | |
| Charles City RF Site | Site 17 | 2960 | Switch | | 1 |
| Providence Forge | Site 16 | 4321 | Router | 1 | |
| Provicence Forge | Site 16 | 2960 | Switch | | 1 |
| West Point | Site 15 | 4321 | Router | 1 | |
| West Point | Site 15 | 2960-8P | Switch | | 1 |
| West Point | Site 15 | 2960-24P | Switch | | 1 |
| Courthouse Inter | Site 92 | 1921 | Router | 1 | |
| Courthouse Disptach | Site 91 | 2960 | Switch | | 2 |
| Courthouse Disptach | Site 91 | 2921 | Router | 2 | |
| Courthouse RF Site | DCP Site 11 | C1000 | Switch | | 1 |
| Courthouse RF Site | DCP Site 11 | 2960-24P | Switch | | 1 |
| Courthouse RF Site | DCP Site 11 | 4321 | Router | 1 | |
| | | | | 9 | 10 |

# 3.5.7. RF SITE UPGRADES

L3Harris will:

1. Replace network equipment at the RF sites
2. Replace the Network Sentry at the RF sites with VVS
3. Replace existing UAC with Pathway+
4. Upgrade Site Code & Configure Personality at all 5 LMR sites

# 3.5.8. SYMPHONY CONSOLE UPGRADE

The New Kent system has Seven dispatch consoles in operation plus two at Charles City County. Five proposed for upgrade while four are optional.

L3Harris will schedule the dispatch center upgrade around New Kent's schedule, identifying the outage times that have the least impact on operations. The Symphony console PC stations will be replaced with SDP Platform 3.0 units running Windows 10 environment and SR11 Symphony application software.

Existing console peripherals will be reused. The console will be reconnected to the network, the previous configuration will be loaded and tested prior to being approved for dispatcher operation again.

### 3.5.9. EXACOM LOGGING RECORDER

The existing logging recorder will be upgraded to Windows Server 2022 to support SR11.1.

## 3.6. Subscriber Equipment Description

### 3.6.1. SUBSCRIBER RADIO EQUIPMENT

With a proven track record of Land Mobile Radios and battle-tested military tactical radios, L3Harris offers a wide variety of P25 subscriber products to meet every user's needs. All models share attributes common to L3Harris radios: ruggedness, reliable communications, and ease of use. All radios are software-defined and configurable to match the mission, needs, and budget of each user agency. In addition, every L3Harris P25 radio has successfully passed the Compliance Assessment Program (CAP) established by the Department of Homeland Security to ensure radio compatibility among vendors.

L3Harris takes careful consideration in designing the physical attributes of the radios to ensure ruggedness, simplify operations, and protect Pittsylvania County's investment.

- **Rugged Chassis** – To meet the demanding requirements of our customers' environments, every radio has been designed to meet and exceed MIL-STD standards for environmental conditions such as wind driven rain, temperature extremes, salt fog, blowing dust, humidity, low pressure, shock, transit drop, and others.
- **Field Programmable, User Definable Software** – Because all radios are software-driven, there are many benefits associated with this capability. First, every radio is field programmable without opening the case. This non-intrusive process saves time and eliminates possibility of damage. The radios' personality PROMs can be programmed with a PC and programming kit. Secondly, the flexibility of the radio software allows users to purchase the exact features required.
- **Multi-Mode Operation** – All units are capable of both digital conventional and trunked, and analog conventional operation. Some models are capable of supporting multiple over-the-air protocols.
- **Configuration Choices** – L3Harris offers mobiles with a variety of mounting configurations and control head choices. Similarly, portables are available with a variety of keypad options.
- **Options and Accessories** – Pittsylvania County is provided with a wide variety of options and accessories to tailor the mobiles and portables to meet specific agency needs. A variety of microphones are available for mobiles and portables. In addition, Pittsylvania County may choose from a variety of covert operation accessories, carrying cases, batteries, and chargers for the portables. Many mobile and portable accessories are interchangeable across product lines, simplifying maintenance and training.

# 3.6.1.1. Mobile Radios

## XL-SERIES MOBILE FEATURE LIST

The following table shows the features available for the various XL-Series radios.

**Figure 2. XL-Series Feature List**

| SERIES | EXTREME |
|---|---|
| **SPECIFICATION** | **XL-200P** |
| VHF (136-174 MHz) | ✓ |
| UHF (378-522 MHz) | ✓ |
| 700/800 MHz | ✓ |
| 900 MHz | |
| P25/Analog | ✓ |
| P25 Trunking | ✓ |
| Single Key AES/DES | ✓ |
| Multikey AES/DES Encryption | ✓ |
| Over-the-Air Programming | ✓ |
| Over-the-Air Rekeying | ✓ |
| Multiband Capable | ✓ |
| GPS | ✓ |
| Bluetooth | ✓ |
| LTE Ready | ✓ |
| Wi-Fi | ✓ |
| Top Display | ✓ |
| Advanced Noise Cancellation | ✓ |
| Voice Annunciation | ✓ |
| Drop Shock (1.5m onto concrete) | ✓ |
| Extreme Drop (3.0m onto concrete) | |
| 1700 Degree Direct Flame @ 10 sec | |
| 500 Degree Temperature @ 5 min | |
| 350 Degree Temperature @ 15 min | |

## 3.6.1.1.1. XL-200M MOBILES

The XL-200M/XL-185M is a P25 converged, multiband Land Mobile Radio with an option to include LTE capability. Designed for anyone who needs to communicate with multiple agencies or across multiple bands, the XL-200M delivers mission critical connectivity.

**Figure 3. XL-200M Mobile Radio**

All XL-Series of mobile radios are capable of the following radio features:

- Ruggedized to meet MIL-STD-810G certification
- **Multiband Operation –** XL-200M Supports any combination of VHF, UHF, and 700/800 MHz frequencies. Also allows different bands to be enabled for selected users
- **Single-key DES/AES Encryption –** Provides basic secure communications without having to buy the complete encryption option
- **Noise Cancellation –** A tough, ergonomic digital microphone that delivers crystal clear audio and advanced noise cancellation
- **Built-in GPS receiver–** For location reporting and rapid response for emergencies (requires software feature for in-band GPS)
- **Integrated Bluetooth® –** For wireless interface to selected accessories
- **Wi-Fi Connectivity –** Permits simple and easy radio software and personality updates
- **Fully Programmable Keypad –** Each key can be programmed to a variety of functions

Please note XL-185M Mobile radios is a single band while XL-200M is multiband.

## 3.6.1.1.2. THIRD PARTY CAP COMPLIANT RADIOS

L3Harris complies with the P25 Compliance Assessment Program (CAP). Any P25 CAP compliant radios, independent of the manufacturer, will operate on the proposed L3Harris P25 system.

Please refer to https://www.dhs.gov/science-and-technology/approved-gran1t-eligible-equipment#

It is important to note that the P25 CAP only certifies P25 mandatory standard features and does not test P25 optional standard features or non-standard features for compatibility.

# 3.7. L3Harris Recommendation for Future Upgrades

L3Harris recommends the following LMR system components to be upgraded at the customer earliest opportunity:

- Install a VVS at the CCC MW cabinet for alarm monitoring purpose

# 3.8. Cybersecurity

As a world leader in cybersecurity, we have proven expertise in designing, implementing, and maintaining large state-of-the-art secure networks that meet the exacting demands of our government, transportation and utility customers.

In response to ever-increasing cybersecurity threats, we will upgrade the New Kent County system to maintain the confidentiality, integrity and availability New Kent County users have come to expect from their communication system.

We will continue to secure the New Kent County system using a defense-in-depth strategy. This strategy provides resilient radio system operations while minimizing failures and intrusions. It mitigates the risk of any single defense being compromised or circumvented. There are a number of complementary components that comprise a complete layered defense strategy.

## 3.8.1. UPDATED VIDA SECURITY FEATURES

The following security components of the VIDA architecture will be updated during the upgrade:

- Access Control
- Centralized User Management
- Malware Protection
- Host Intrusion Detection
- Boundary Defense
- Network Intrusion Detection
- Centralized Time Reference
- Encrypted Data at Rest

# 3.9. BASELINE VIDA SECURITY FEATURES

The following features will continue to contribute to the security of the New Kent County system:

- Automated Patch Management
- Disaster Recovery
- Network Isolation

L3Harris cybersecurity products consist of hardware, software and/or service elements. Some of the products require ongoing maintenance services in order to provide their full benefit.

# 3.10. Updated VIDA Security Features

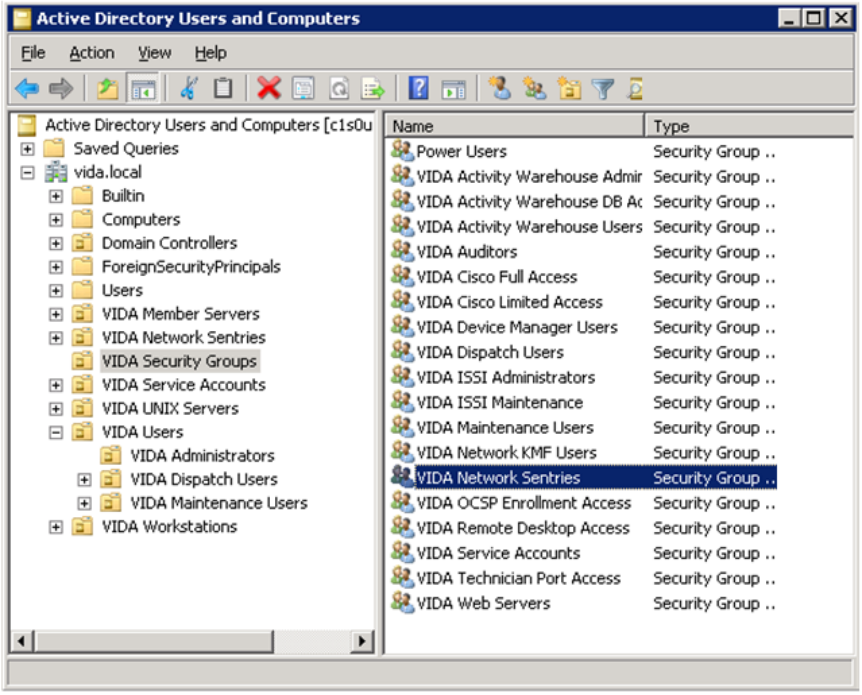
## 3.10.1. ACCESS CONTROL AND CENTRALIZED USER MANAGEMENT

Windows Active Directory (AD) controls access to the New Kent County radio network. This centralized service performs user and device authentication and authorization across the network, eliminating the need to manage individual user accounts on every device on the system. AD authentication is extended to Linux servers with the integration of One Identity Authentication Services agents, and to networking devices (i.e. Cisco) through the remote authentication dial-in user service (RADIUS). AD is hosted on redundant virtual servers on the Hyper-V Application Server (HAS) in the VIDA NSC to ensure service availability.

The HAS server hardware, on which the virtual AD server resides, incorporates Trusted Platform Module (TPM) technology. TPM technology provides enhanced hardware platform integrity, secure device authentication, and cryptographic key management. These provide further protection to guest operating systems, including enhanced security for the AD server.

Active Directory security groups allow administrators to create role-based accounts to enforce the concept of “least privilege”. This provides users only the access necessary to complete their assigned tasks. Figure 4 shows examples of security groups and roles pre-configured in the New Kent County System Active Directory.

**Figure 4. Active Directory Security Groups and Roles**




### ACTIVE DIRECTORY GROUP POLICY OBJECTS

Active Directory Group Policy Objects (GPOs) implement security policies, allowing centralized management of baseline security controls in accordance with generally accepted industry standards.

### CERTIFICATE AUTHORITY

The Windows Certificate Authority (CA) provides mutual authentication for web services, and Kerberos authentication for users and systems. The CA is integrated with the AD server to leverage capability, reduce costs, and reduce maintenance of hardware and software.

## 3.10.2. ANTIVIRUS AND HOST INTRUSION DETECTION

We will replace the legacy VirusScan Enterprise host security solution with next-generation host security from Trellix, Trellix Endpoint Security. Trellix Endpoint Security is an integrated security platform, adding host intrusion detection system (HIDS) services at no additional cost. It will continue to be centrally managed using Trellix's ePolicy Orchestrator® (ePO).

## 3.10.3. FIREWALLS AND NETWORK INTRUSION DETECTION

We will upgrade the Cisco Adaptive Security Appliances previously providing firewall services to Cisco Firepower firewalls running Firepower Threat Defense. Protecting the internal enclave boundaries encompassing the Primary and Secondary VIDA NSCs, they will continue to restrict unauthorized

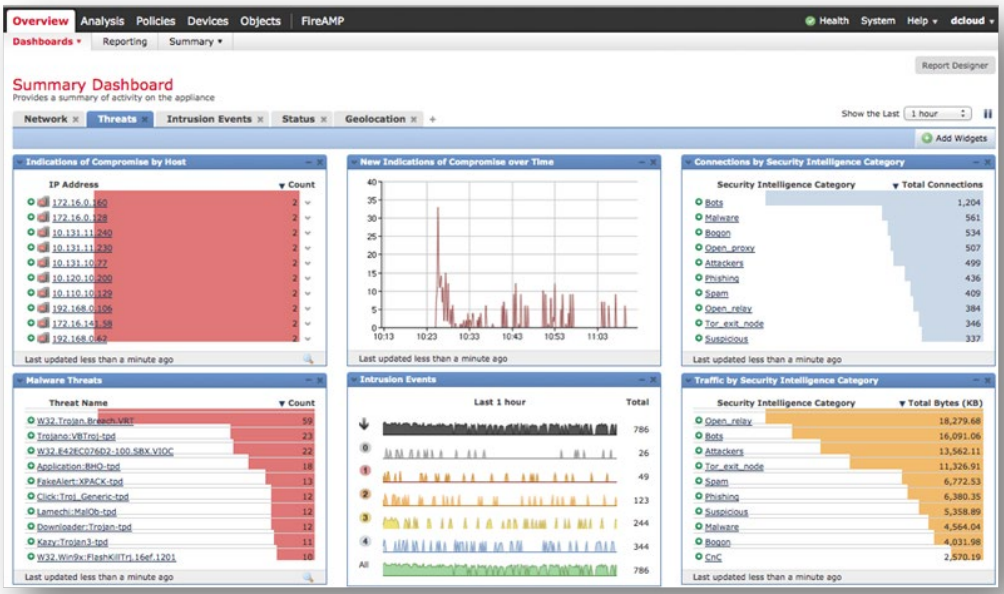
network access, detect, prevent, and respond to network attacks, enforce policies, and integrate high-performance security features such as state awareness and application filtering. The Secure Firewall Management Center (FMC), a virtual machine running in the primary NSC, provides unified management of firewalls, application control, intrusion prevention, URL filtering, and malware defense.

The firewalls and firewall policies are configured in accordance with the general industry practices. For example:

- All communications, with the exception of specifically enabled communications between devices on the unprotected LAN and protected networks, is blocked. Blocking is based on source and destination IP address pairs, services, and ports. Blocking occur on both inbound and outbound packets, which is helpful in limiting high-risk communications.
- Information flow for traffic monitoring, analysis, and intrusion detection is logged.
- Logs are forwarded to a centralized logging server.
- The base rule set is deny all, permit none.

The new Cisco Firepower firewalls will also provide network intrusion detection system (NIDS) services at no additional cost. They will inspect general network traffic and monitor all network traffic in the VIDA NSCs, including local network traffic not being routed outside of the NSC. When the Firepower Threat Defense software detects a pattern of communications associated with a network intrusion, it generates an intrusion event. The event is sent to the Firewall Management Center, which logs it in a database, displays an alert on the FMC dashboard and issues an alert to New Kent County personnel. New Kent County incident response personnel can review intrusion events to determine whether they threaten the network, and either address or mark the event as reviewed.

**Figure 5. Firewall Management Center Dashboard**



### 3.10.4. CENTRALIZED TIME REFERENCE

The legacy netclocks will be upgraded to GPS-based Spectracom 1200 SecureSync® stratum-1 time reference systems in each NSC. The time reference in the active HA NSC serves as the time reference for the entire system. The NSC Wide Area Router (WAR) synchronizes directly from the SecureSync as its primary clock source. Windows Active Directory servers and Linux servers also obtain time directly from the SecureSync. All other Windows based devices obtain time from Active Directory. The Site Aggregation Routers (SAR) at the RF and dispatch sites synchronize time with the WAR. The Spectracom SecureSync in the inactive NSC is a secondary clock source, ensuring accurate time is available, even if one is completely lost.

### 3.10.5. ENCRYPTED DATA AT REST

To maintain the confidentiality and integrity of information at rest, the Hyper-V Application Server host drives are encrypted with BitLocker. BitLocker's advanced AES 256-bit encryption integrates with the HAS Trusted Platform Module (TPM), which stores the BitLocker decryption keys and ensures system integrity during the boot process.

## 3.11. New Kent County Baseline VIDA Security Features

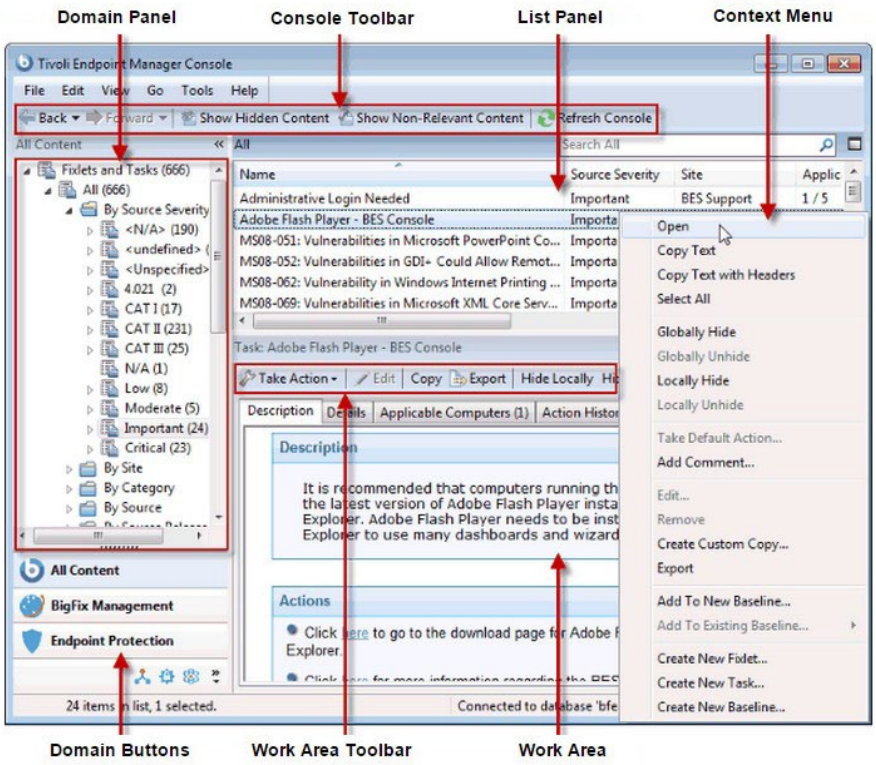
### 3.11.1. AUTOMATED PATCH MANAGEMENT

Ongoing protection of the system is necessary, as new and different threats may emerge. Since many malware attacks and exploits target known software defects, it is essential to deploy security patch updates to the network in a timely fashion. The SUMS Automation Server in the New Kent County Network Switching Center (NSC) will continue to automate update distribution.

Security patch updates are pre-validated and regularly provided through an optional subscription service from L3Harris called the Security Update Management Service (SUMS). For more details on this optional service, see the next section, "Security Update Management Service (SUMS)". Note: a one-year subscription to SUMS is included in this proposal.

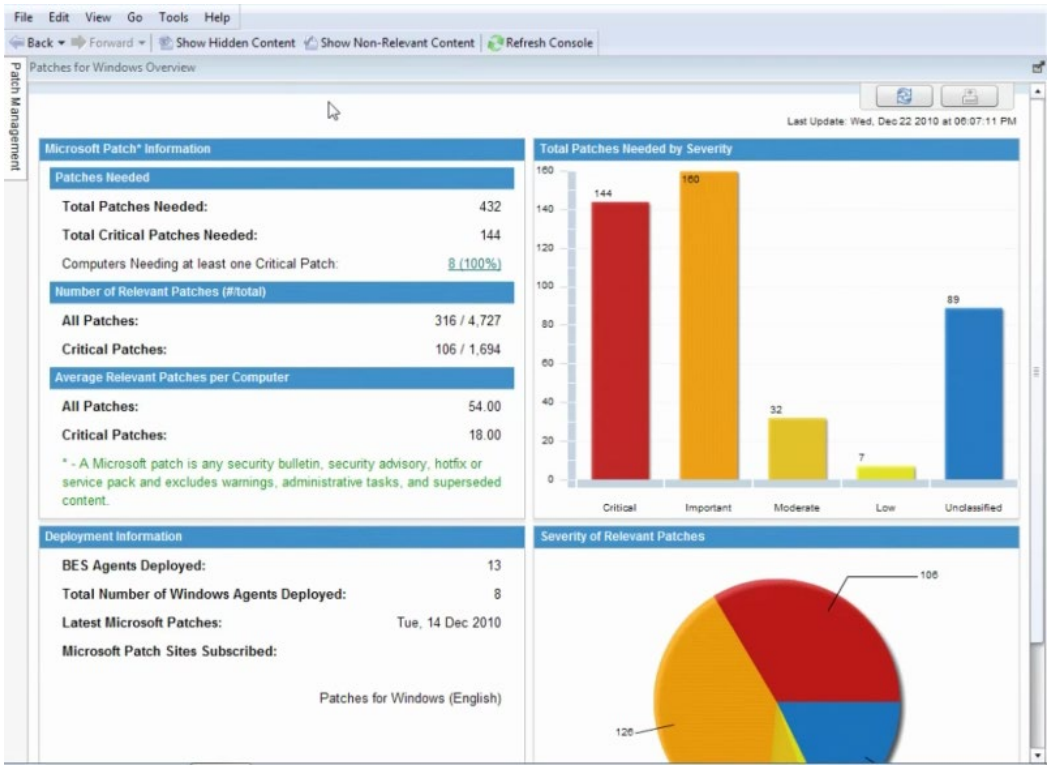
New Kent County radio system administrators start the automated distribution by loading the SUMS release media in the SUMS Automation Server using the SUMS Endpoint Manager Console. SUMS Agents loaded on each supported endpoint then pull the patches from the SUMS Automation Server. The administrator can pause, stop or reverse the automated process as required.

**Figure 6. SUMS Endpoint Manager Console.** ***The SUMS Endpoint Manager Console allows centralized management of New Kent County system patch distribution.***




When the Agents report patching is complete, the system administrator can schedule endpoint reboots from the SUMS Endpoint Manager Console at times convenient to the users, minimizing impact to the radio system. System administrators can monitor and control the patch distribution process via the secure web-based SUMS Dashboard. The SUMS Dashboard is accessible by any authenticated administrator from any System Management Terminal on the New Kent County radio system network.

**Figure 7. SUMS Dashboard.** ***The SUMS Dashboard provides New Kent County system administrators patch reporting.***



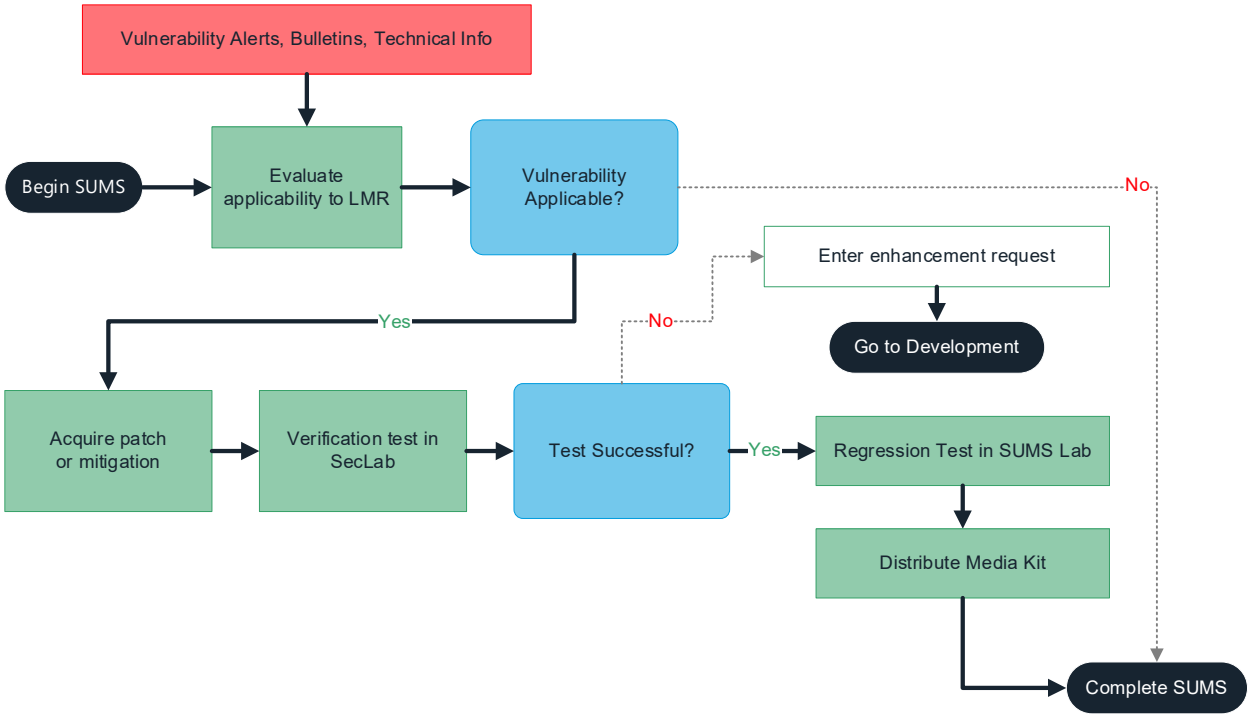

# 3.11.2. SECURITY UPDATE MANAGEMENT SERVICE (SUMS)

The Security Update Management Service (SUMS) is an L3Harris subscription service that provides regularly scheduled, pre-validated security patch updates to server and workstation operating systems (Windows, Red Hat Enterprise Linux). New Kent County is currently a subscriber to SUMS.

SUMS solves the problem of testing patches and deploying reliable updates. L3Harris monitors security alerts, bulletins, advisories and directives from credible external organizations. These include information assurance vulnerability alerts (IAVAs), operating system patches and anti-virus updates from Original Equipment Manufacturers, industry, and US Government sources.

Once obtained, L3Harris verifies the patches to confirm they are unaltered, and thoroughly evaluates the patches in our dedicated SUMS laboratory for quality assurance and to confirm they do not adversely affect radio system usability.

**Figure 8. Security Update Management Service Process.** ***L3Harris' SUMS process tests patches before deployment to critical communications systems.***




We distribute applicable and usable in a release every 60 days throughout the lifecycle of the system, as long as a SUMS subscription is maintained. New Kent County radio system administrators will have access to the releases via network download and mailed media. Releases include the distribution media, the release notes documenting the contents of the release, and the detailed installation instructions.

Should any evaluation between regular updates reveal high priority vulnerability (such as a significant virus or denial of service attack), supplemental updates will be released between regular cycles. Just like standard releases, emergency releases are available via network download and mailed media. Additionally, emergency releases are integrated into the next available standard release.

# 3.11.3. NETWORK ISOLATION

The radio system network incorporates Virtual Local Area Networks (VLANs), which enable traffic separation and shaping of the network. In addition, they allow network implementation and optimization to proceed in a highly managed and controlled manner. Access Control Lists (ACLs) between VLANs isolate and partition trunked system traffic transport from other support network traffic. This ensures that a security breach in the support network equipment does not impact the dedicated capacity for call processing.

VLANs include:

- Traffic VLAN, which handles all voice, data, and call signaling
- Management VLAN, which supports administration and management servers

- Backbone management VLAN, which supports management of routers and switches and does not appear on any switch ports
- Security VLAN for firewall, Network Intrusion Detection & Prevention (IDS/IPS), management traffic, and centralized logging
- Remote management communications VLAN
- Loghost local VLAN, which provides communication between two Network Switching Servers (NSSs) in a high availability configuration
- Technician VLAN, which enables maintenance of the network
- Peripheral VLAN used to support customer-supplied equipment
- Bit bucket VLAN, which is the destination for nonradio system packets that enter the radio network

All switch ports are configured with 802.1X authentication or MAC address filtering, through the implementation of Cisco Port Security with dynamically learned sticky MAC addresses.

## 3.11.4. DISASTER RECOVERY (BASELINE)

Security best-practice recommends backing critical data using the “backup-in-depth” approach, with layers of backups (e.g., local, facility, disaster) time-sequenced so that rapid recent local backups are available for immediate use and secure backups are available to recover from a massive security incident. A mixture of backup/restore approaches and storage methods ensure backups are rigorously produced, securely stored, and appropriately accessible for restoration.

There are a number of backup strategies incorporated in the New Kent radio system design that protect system data from partial or catastrophic malfunction at any of the system sites or node.

## 3.11.5. DEVICE DATA

The Voice, Interoperability, Data, and Access (VIDA) Device Manager is a Windows®-based application that facilitates the loading of code updates and personalities to many devices throughout the VIDA network. It maintains information in databases, facilitating the gathering of historical activities, validation checking, and the secure storage of data. As personalities are saved, the Repository automatically creates historical versions so that they can be easily tracked and compared.

The Repository maintains a history of activities performed upon devices, personalities, and code instances. History viewers facilitate browsing activities per device, personality, code instance, or all events within a specific time period.

VIDA Device Manager and its associated database repository resides on a virtual system running on the VIDA Applications Server, where it is archived by the enterprise backup solution.

### 3.11.6. VIRTUAL SYSTEM STATE

The VIDA Application Server uses snapshot imaging to capture state, data, and hardware configurations of a running virtual machines. Snapshots, taken manually, provide a fast and easy way to revert the virtual machine to a previous state. Having an easy way to revert a virtual machine can be very useful the system administrators need to recreate a specific state or condition to troubleshoot a problem. This is particularly useful when upgrading software or diagnosing a problem.

### 3.11.7. REPLICATION

vSphere Replication provides a storage- and workload-agnostic solution that efficiently, periodically, and asynchronously replicates data over the IP-based network to a Location HA site for disaster recovery.

## 3.12. Optional Security Features

### 3.12.1. CENTRALIZED ENTERPRISE BACKUP:

The solution to provide centralized backup of enterprise data is the Unitrends Recovery-Series Disk-to-Disk Backup Appliance. Installed in each VIDA NSC, Unitrends Backup Appliances back up system data, and copies data to drives suitable for secure off-site storage. Each appliance supports up to 6 TB raw backup data. We leverage features available in your new system to make backing up your data faster, easier and more efficient.

**Figure 9. Unitrends Disk Backup Appliances**

*Unitrends is an affordable, easy-to-use data protection solution.*

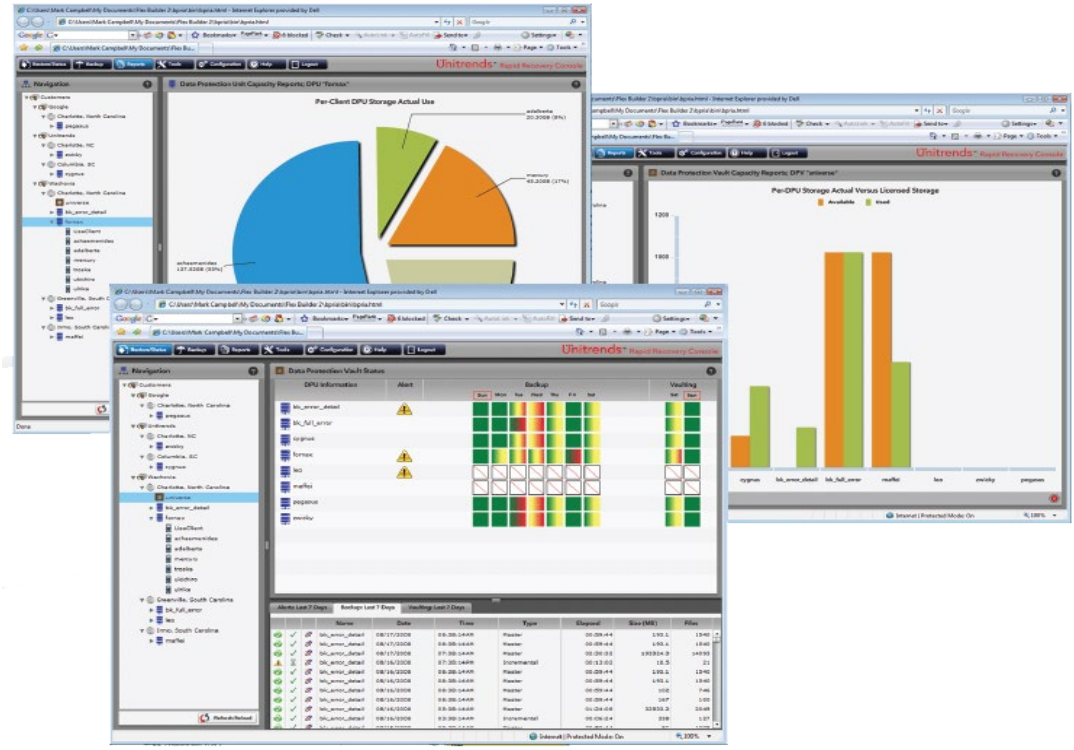
The data backed up on the HAS includes the Unified Administration Server database, Active Directory backups, system configuration parameters from Device Manager, radio system utilization history from the Regional Network Manager and Regional Site Manager, the KMF database, Cisco and Microsoft's Hyper-V hypervisor configurations.

Unitrends "de-duplicates" the data for storage efficiency (ensures that only one copy of duplicate data is stored). Unitrends automatically performs standards-based AES 256-bit encryption, protecting data from unauthorized access and theft, and stores the data on a redundant array of independent disks. This method provides availability, reliability, and speedy access. Once stored on the Unitrends appliance the data is available for rapid system restoration. Data can also be copied from the local Unitrends to removable disk drives, which can be stored securely off-network, where the backups will be inaccessible to crypto locking forms of malware.

System administrators centrally monitor and manage Unitrends backup and recovery using the secure, web-based Rapid Recovery Console. In the event of loss of equipment data, administrators use the Rapid Recovery Console to restore the data and configuration to get the network device operating again. The Rapid Recovery Console is accessible by any authenticated administrator from any System Management Terminal on the New Kent County radio network.

**Figure 10. Unitrends Rapid Recovery Console**

*The Unitrends Rapid Recovery Console is the single interface to manage backups throughout the New Kent County radio network*



# 4. IMPLEMENTATION

## 4.1. A proven methodology

L3Harris excels in the multifaceted implementation of mission critical radio communications systems to fulfill the specific needs of our customers and support their vital public safety operations as shown in the successful implementation of more than 150 P25 systems to date.

L3Harris uses a life cycle approach to implement projects with excellence. The life cycle methodology standardizes a control point where each phase of the project is reviewed, then approved ~~b~~efore continuing with the next phase. With this methodology, L3Harris ensures that the project is reaching the expected performance, it controls cost, improves schedule, and promotes projects being executed in the most efficient way.

Upon contract signing, the L3Harris proposal and implementation teams will go through a 'contract hand-off' process. The proposal team coordinates with the assigned L3Harris implementation project manager and systems engineer to review the contractual obligations, key milestones, and other important issues. The process concludes with a hand-off of all necessary documentation to the L3Harris implementation team.

This document details the scope of work required for the project, through the following implementation phases:

- Design
- Production
- Installation/Optimization
- Acceptance Testing
- Cutover
- Final Acceptance

| 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|
| DESIGN | PRODUCTION | INSTALLATION/ OPTIMIZATION | ACCEPTANCE TESTING | CUTOVER | FINAL ACCEPTANCE |

# 4.2. Design

## 4.2.1. KICK-OFF MEETING AND PRELIMINARY DESIGN REVIEW

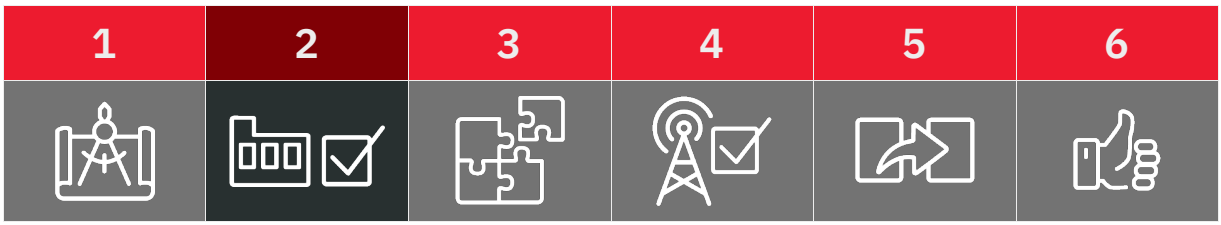
The project manager initiates project implementation with a project kick-off meeting, followed by a preliminary design review. The L3Harris Team, and New Kent County, will mutually agree on the timing of these meetings. The objectives of the meeting include:

- Introduction of all project participants
- Review the roles of the project participants
- Review the overall project scope, objectives, and deliverables
- Review the current site status
- Review customer owned site documentation
- Review the current frequency plan
- Review the preliminary project schedule
- Schedule site surveys with New Kent County, and/or site owner designated representatives

## 4.2.2. DETAILED DESIGN REVIEW (DDR)

The L3Harris Team uses the information obtained during the kick-off meeting, preliminary design review, and site surveys, along with regulatory and engineering documentation, to deliver the final system design at the DDR. The design drawings and documentation are presented during the DDR with New Kent County.

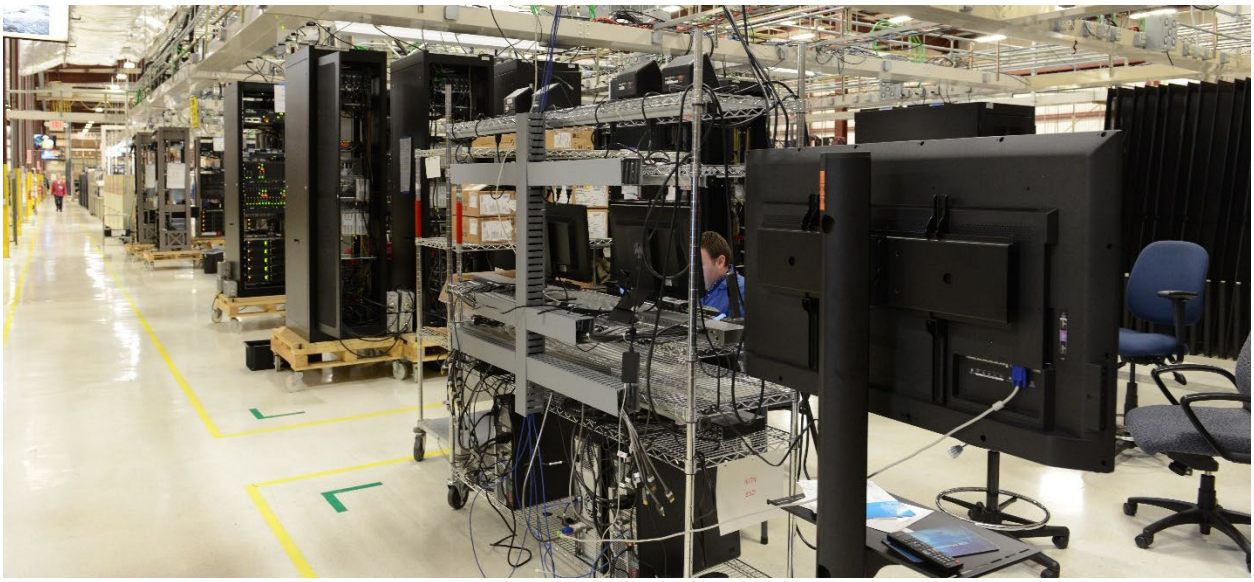
L3Harris and the customer will mutually agree to initiate a change order at the conclusion of the DDR to capture any changes in price, system design, and schedule, if necessary.




# 4.3. Production

## 4.3.1. SYSTEM INTEGRATION AND TEST – *FACTORY STAGING*

Immediately following approval of the DDR, the L3Harris Team procures material and schedules system integration and test using its' material requirements planning (MRP) system. Our Customer Integration Center assembles the RF equipment, integrates it with the key supplier components, and then tests each rack of equipment.



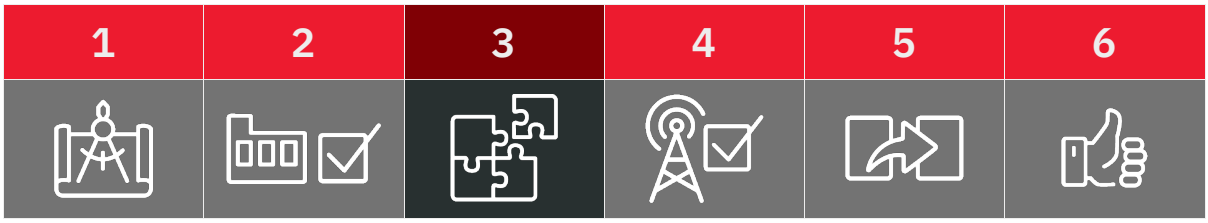
After assembly and test, each RF site rack will be configured. This entails loading customer-specific parameters and personalities into each piece of equipment, as applicable. Also, the VIDA core will be imaged and validated. The staging technicians make all network connections for each site's equipment including RF, VIDA core, dispatch, interoperability gateways, and other subsystems. Ethernet and/or fiber cable connections are made to simulate backhaul networks and ensure the equipment connects to the network switches. The staging team programs radios to operate on a test user database. Next, system levels are verified and tested to confirm that the system is ready for the factory acceptance test (FAT).

Running the FAT demonstrates the radio system functionality. The FAT uses the functional acceptance test plan (ATP) tests appropriate in a factory staging environment. The FATP defines each test, with instructions on how to set up and run the test, and compares the actual results to the expected results. The test team, consisting of the L3Harris systems engineer and the New Kent County representatives, scores and initials each test.

## 4.3.2. SHIPPING, WAREHOUSING, AND INVENTORY

After a successful factory acceptance test (FAT), all system equipment is packaged using established procedures depending on the mode of transportation. The L3Harris Team engages appropriate freight carrier services to deliver the system to the address designated in the sales order. The system equipment will be warehoused and inventoried at customer's designated location.

Subscriber equipment may ship with the system or separately as determined by the L3Harris Team.




# 4.4. Installation/Optimization

## 4.4.1. SITE DEVELOPMENT

After DDR approval, the L3Harris Team places orders for site development materials and services. We coordinate shipments with the suppliers based on the project schedule to ensure parts and materials are available as needed at each site. Typically, the site development work occurs in parallel to radio system equipment manufacturing and staging. We then perform site development in accordance with L3Harris' best practices and industry standards.

### 4.4.1.1. Existing Shelters

Sites that have existing shelters have been physically inspected and floor space calculations performed to verify that there is adequate space to install new equipment racks. We will also review the existing electrical power, HVAC, and standby power systems, and will discuss necessary upgrades at the DDR.

In the event that the shelter does not provide; adequate space, weather resistance, cannot carry the weight load of the equipment therein, HVAC, existing primary power, building electrical power, backup power or standby power the customer will need to remediate the shelter. L3Harris will be available on a contract basis to help resolve the issue(s) through the change order process.

## 4.4.2. INFRASTRUCTURE EQUIPMENT

After equipment arrival and inventory, installation crews install the base-stations, and associated equipment. The MASTR V P25 trunked base stations and associated equipment typically mounts in 86-inch standard aluminum EIA 19-inch open-frame racks or EIA 19-inch enclosed cabinets. The RF connections extend to the coaxial cables using appropriately sized jumper cables.

L3Harris assumes that New Kent County-provided shelters will accommodate the height of these racks and allow them to position the desired 36 inches of free aisle space (in front and in the rear). Racks and cabinets are anchored to the floor using at least four anchor points.

Once the infrastructure racks are secured, we ground and connect them to power, and technicians verify proper levels and settings, preparing the site for the acceptance test.

L3Harris will work with New Kent County personnel and/or their representatives to prepare for their participation in acceptance testing. After the test is complete, the installation team records the alignment and test data and provides copies to New Kent County. Copies of the individual site alignment and test data will be available at the sites.

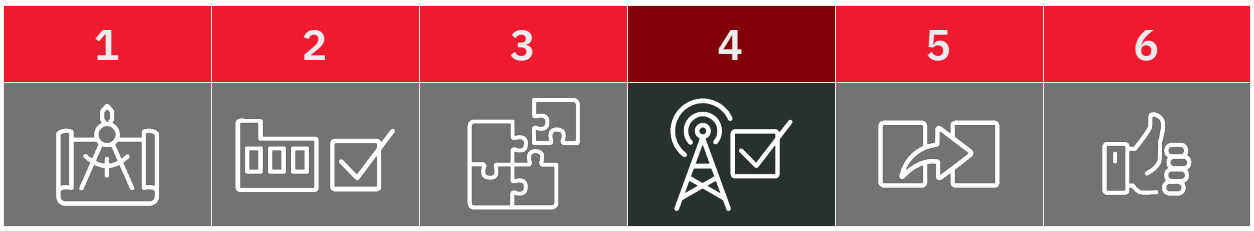
Installation crews also install and commission the network switches, dispatch consoles, and other infrastructure equipment, per the detailed implementation plan.

# 4.4.3. OPTIMIZATION

Upon installation of infrastructure equipment, the system engineer(s) works with the on-site technicians to optimize the equipment in preparation for acceptance testing.

**Simulcast** – Per Simulcast cell, includes verify launch timing, verify timing drive test, making iterative adjustments, repeat timing drive test, if needed, and verify configuration, test voter, test network latency, verify network switches, and dispatch console operation.

L3Harris will conduct a preliminary acceptance test to determine that the systems are fully optimized and ready for the acceptance test with New Kent County.

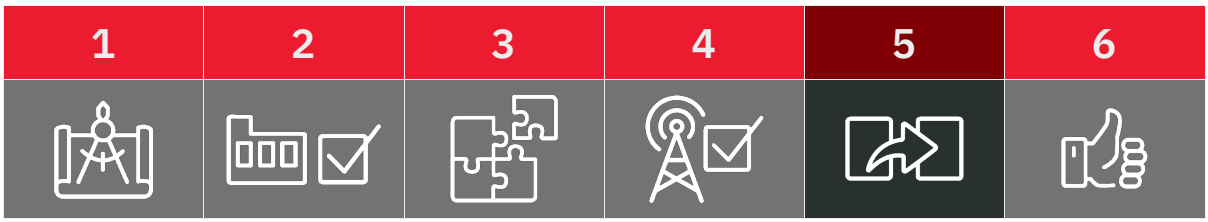



# 4.5. Acceptance Testing

We will perform systems acceptance testing per the agreed upon acceptance test plan (ATP), attached to this response. The L3Harris Team notifies New Kent County when installation and optimization are complete, and the system is ready for acceptance testing.

The system engineer provides documentation defining each of the test areas. The ATP procedures contain a short description, test methodology, and a record form for logging results and acceptance signatures for each test. A punch list is used to document any issues found, so the team can quickly resolve them. Follow-up documents will show the correction of open items. Upon satisfactory completion of each testing phase, the project manager will present the system acceptance documentation to New Kent County's project manager(s). With New Kent County's approval, the L3Harris team will proceed with a cutover.

L3Harris will submit initial system acceptance documentation for New Kent County to sign, marking the successful conclusion of acceptance testing, and readiness for system cutover.




# 4.6. Cutover Approach

L3Harris and New Kent County will work together to prepare the cutover plan prior to user integration.

L3Harris is certain that New Kent County and L3Harris share the same overarching goals in the process – that there are no missed calls, and that each agency maintains adequate departmental communications during the cutover process.

Other than the bullet items below, the cutover plan may also include topics such as the timing of the cutover, systematic fleet-by-fleet or agency-by-agency users' cutover, initial trial window or live system test window for the first batch of migrated users, milestones during cutover process, and finally, a fallback plan in case of any uncertainty. The entire cutover plan will be broken into multiple phases to ensure the smooth transition to the new system.

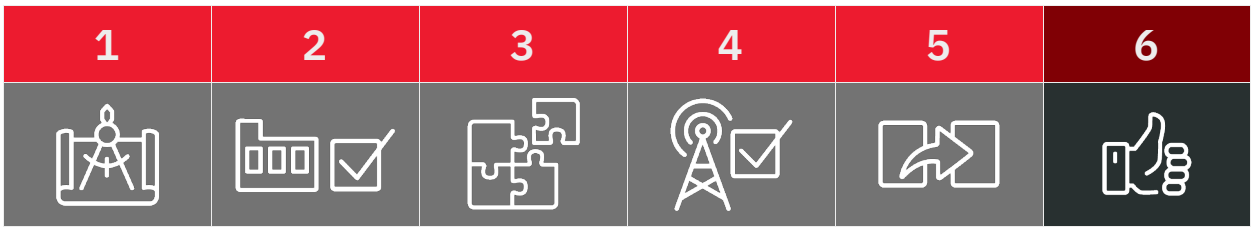
The cutover plan will address:

- System User Migration – A transition plan will be jointly developed to schedule the public safety users and migrating the frequencies from the legacy system to the new system.
- Dispatch Support During Cutover – Since there may be a period when dispatchers may need to coordinate users on both systems, an interim solution will be created where the new dispatcher positions can talk to field units on both the existing system and the new system during the transition phase.
- Dispatch Center Cutover – Operation of the new consoles will be verified before cutover is to begin. L3Harris will work closely with the New Kent County's project manager to coordinate the dispatch center cutover with the New Kent County cutover.

The cutover plan will establish the methodology on how to share the channels with the old system and the new system as the users are migrated onto it. Careful coordination of frequency use for the old and new system must be followed. Plans and schedules for turning off channels on the existing system will be established so that the channels can be rotated into service and made operational on the new system for some period to permit setup, optimization, and testing.

Because the new system would have already undergone extensive testing, and the probability that the new system would need to be taken down for repairs during the cutover will be very low. However, provisions and plans for reverting to the old legacy system will be established in the event it becomes necessary. These plans will be worked out with New Kent County and put into action only with the proper consent of the New Kent County's project director.

Reaching a final cutover plan is typically the result of several customer reviews that include the New Kent County's representatives and department heads.




After completion of cutover planning, the L3Harris Team and New Kent County agree on a day and time for cutover to begin. The L3Harris Team will be present with New Kent County to provide any last-minute answers to users as they go live on the new system.

# 4.7. Final Acceptance

L3Harris will submit the initial system acceptance documentation for New Kent County to sign, marking the successful conclusion of cutover, and the start of the Final Acceptance period.

## 4.7.1. DECOMMISSIONING

L3Harris has created a detailed migration plan for New Kent County to facilitate a smooth transition to the new P25 radio system. L3Harris will be responsible for the decommissioning, removal, and disposal of legacy equipment from existing City sites that are not used in the proposed radio system.

Decommissioning will occur after system functional testing and cutover are complete. Some equipment (i.e., backup UPS equipment and/or legacy networking equipment) may need to be removed sooner if there is insufficient rack or shelter space.

## 4.7.2. FINAL ACCEPTANCE

Upon the successful completion of acceptance tests, cutover, and submission of the final drawing package, the project manager submits the final system acceptance letter for New Kent County to sign. With the final acceptance, the project manager arranges a meeting with the field service team to review maintenance support during the warranty period. The L3Harris Team provides the contact information and procedures used to obtain service during the warranty period.

# 4.8. Responsibility Matrices

The following responsibility matrices provides the project activities for which the L3Harris Team is responsible, and those activities that are New Kent County's responsibility.

**Figure 11. Customer Design Review Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Provide location in appropriate conference room or training facility | | X | Contract Signing |
| Assemble project team and complete handoff from proposal team | X | | |
| Assemble customer team for kick-off meeting | | X | Contract Signing |
| Provide a team and propose a schedule for site surveys | X | | |
| Arrange access to sites and confirm site survey schedule | | X | Contract Signing |
| Provide site-knowledgeable personnel (customer and site owner reps, as appropriate) to accompany the project team on site surveys | | X | Contract Signing |
| Conduct site survey(s) and provide recommendations, as required | X | | |
| Provide site plans and applicable electrical and layout plans | | X | Contract Signing |
| System block diagrams | X | | |
| List of deliverable equipment for each site | X | | |
| Network connection plan and backhaul requirements | X | | |
| Shelter floor plan drawings | X | | |
| Rack elevation drawings | X | | |
| AC power and BTU requirements | X | | |
| Preliminary cutover plan | X | | |
| ATP | X | | |
| Project schedule | X | | |
| Present design | X | | |
| Approve the design following DDR meeting (within 5 business days) | | X | DDR Meeting |

**Figure 12. System Integration and Test - Staging Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Insert equipment delivery dates into the material planning system | X | | |
| Place orders with the L3Harris Customer Integration Center and key suppliers | X | | |
| Manufacture all infrastructure equipment | X | | |
| Assemble equipment in factory staging area on a per site basis | X | | |
| Complete dry run of FAT | X | | |
| Run FAT | X | | |

**Figure 13. Shipping & Inventory Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Provide temporary storage near New Kent County's location | | X | Contract Signing |
| Package equipment and ship to storage area | X | | |
| Validate L3Harris equipment inventory | | X | Equipment Ships |
| Securely store equipment and materials until the time of installation | | X | |
| Collect equipment for delivery to the installation site, ready for the installation team | X | | |

**Figure 14. General Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Coordinate with federal, state, and local government agencies, as required | | X | Contract Signing |
| Provide access to all buildings and sites, including temporary ID badges for L3Harris project team, as necessary | | X | Contract Signing |
| Provide parking permits for L3Harris project team for any restricted parking areas | | X | Contract Signing |
| Provide adequate road access for delivery vehicles | | X | Contract Signing |
| Arrange for temporary parking to off-load equipment at all buildings and sites | | X | Contract Signing |
| Clean up site and remove all installation debris | X | | |
| Remove any hazardous material found on site | | X | Contract Signing |

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Ensure that no utility transformers additions or upgrades will be required to provide the adequate AC power needed for each site | | X | Contract Signing |
| **Comply with FCC OET65 Signage requirements (https://www.fcc.gov/general/oet-bulletins-line)** | | X | Contract Signing |
| Develop sites and install materials in accordance with industry and L3Harris standards | X | | |
| Provide final backhaul requirements to the New Kent County | X | | |
| Provide backhaul which meets the final backhaul requirements provided by L3Harris | | X | Equipment Ships |

**Figure 15. Existing Customer-Owned Sites Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Provide working antenna System at CCC and NK Dispatch Centers. L3Harris will provide (Optional) a Back Up Control Station (BUCS) Radio to each dispatch console with no antenna system | | X | Contract Signing |
| Obtain any necessary zoning approval for site changes | | X | Contract Signing |
| Conduct site survey(s) and provide recommendations, as required | X | | |
| Provide floor space in existing RF shelter for new equipment racks used in the new design | | X | Contract Signing |
| Provide adequate shelter/equipment room utility AC electrical power, single-point ground system HVAC, and backup generator power | | X | Equipment Ships |
| Provide floor space at the dispatch center and network center for new system equipment | | X | Equipment Ships |
| Provide backup power (UPS) for LMR Racks, as required | | X | Equipment Ships |
| Provide backup power (UPS) for consoles, as required | | X | Equipment Ships |

**Figure 16. System Infrastructure Installation Responsibility Matrix**

| TASKS | L3H | CUST |
|---|---|---|
| Deliver equipment to each site | X | |
| Install equipment, connect to existing ground system, and apply power | X | |
| Connect all RF cables | X | |
| Interface to network, verify network connectivity | X | |
| Set all P25 system levels and parameters | X | |
| Connect all P25 system alarms | X | |

**Figure 17. System Optimization Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Prepare all installed sites for site inspections | X | | |
| Verify microwave/backhaul system is functional and meets reliability specifications | X | | |
| Obtain any foreign system's connection parameters and information for ISSI implementation and testing, as required | | X | |
| Verify system database is installed and operating correctly | X | | |
| Verify proper dispatch operation | X | | |
| Verify proper P25 system functional operation | X | | |
| Verify proper network switching operation | X | | |
| Verify proper interoperability from gateways | X | | |

**Figure 18. Acceptance Testing Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Provide appropriate team members to participate in acceptance tests | X | X | Contract Signing |
| Inspect each site (RF, dispatch, VIDA core), noting discrepancies on a punch list | X | | |
| Submit site inspection results | X | | |
| Approve site inspection results | | X | Inspection Checklist Completion |
| Perform functional ATP on radio system, dispatch consoles, network monitoring, and user radios | X | | |
| Perform functional ATP on mobile data system per system contract | X | | |
| Submit functional ATP results | X | | |
| Sign approval of functional ATP results (within 5 business days) | | X | ATP Completion |
| Submit letter of system acceptance | X | | |
| Sign letter of system acceptance | | X | CATP Signing |
| Approve cutover plan | | X | CATP Signing |
| Notify users of system cutover date | | X | Approval of Cutover Plan |
| Proceed with system cutover according to cutover plan | X | | |

**Figure 19. Cutover Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Develop and enter system database, as required | X | | DDR Meeting |
| Create interoperability for cutover, using proposed gateways | X | | |

**Figure 20. Final Acceptance Responsibility Matrix**

| TASKS | L3H | CUST | AFTER |
|---|---|---|---|
| Removal of decommissioned legacy network, console, or site infrastructure equipment | X | | Per Contract Requirement |
| Submit final drawing package | X | | |
| Submit letter of final system acceptance | X | | |
| Provide warranty and contact information | X | | |
| Meet with L3Harris to review warranty contact procedures | | X | Doc Package is received |
| Meet with L3Harris to outline system support and services requirements | | X | ATP |
| Accept final drawing package (within 5 business days) | | X | |
| Sign letter of final system acceptance (within 5 business days) | | X | |

# 4.9. Preliminary Project Schedule

Our preliminary project schedule is included with this response.

# 5. STANDARD WARRANTY

## 5.1. Warranty Support

L3Harris offers a standard one-year warranty on all proposed infrastructure equipment.

### 5.1.1. EQUIPMENT

Warranty provides that the hardware and installation services furnished by L3Harris shall be free from defects in material and workmanship.

During the Warranty if any Hardware component or portion of the installation Services fails to meet the warranty, L3Harris will remedy by: (1) repairing any defective component of the Hardware, or (2) by furnishing any necessary repaired, refurbished, or replacement parts, or (3) by correcting the faulty installation.

L3Harris will perform, at its discretion, all warranty labor at a L3Harris location. Where L3Harris has determined it is not feasible to ship fixed equipment for repair, L3Harris will repair on premise. Standard warranty response times are standard business days, 8:00 a.m. to 5:00 p.m. Eastern, unless an existing service agreement is in place. For additional levels of support, premium services are available.

### 5.1.2. SOFTWARE

During the Warranty, if the L3Harris licensed software does not successfully operate, the error or defect will be corrected free of charge or make available a substitute program.

Warranty provides corrections to software defects and known errors reported to L3Harris' Technical Assistance Center (TAC) during the warranty period at no additional cost to the Customer. Installation of corrections to software defects reported to TAC during the warranty period is not included in the Warranty.

### 5.1.3. THIRD-PARTY WARRANTIES

L3Harris will ensure that warranty on any third-party Original Equipment Manufacturer (OEM) equipment and services sold by L3Harris meets the same warranty requirements and we will act on behalf of the Customer to coordinate and settle all warranty issues with any integrated third-party equipment or software companies throughout the warranty period.

L3Harris will transfer third-party warranties provided directly from equipment manufacturers to the Customer as part of the final acceptance.

### 5.1.4. DEPOT LEVEL REPAIR AND RETURN

The Depot Repair and Return service covers the cost to fix covered equipment at L3Harris or other third-party manufacturer's factories. This service is part of our standard warranty and is a premium service during the maintenance periods. The L3Harris Depot Repair and Return facility is ISO 9001:2015, UL, and Factory Mutual certified. Master technicians using state-of-the-art test equipment verify that all repairs meet or exceed prescribed specifications.

The Depot Repair and Return Facility utilize a stockroom of common repair parts to reduce repair time. Our technicians can repair over 95% of radio and infrastructure equipment on-site, decreasing turn-around time. Customers are encouraged to call in advance regarding equipment returns to verify inventory and serviceability.

## 5.1.5. DEMAND SERVICES

Demand services are available when an unexpected event or situation occurs outside the scope of work and requires repairs from L3Harris, its agents, or partners. For demand services, New Kent County will receive an invoice on a time and materials basis. Examples may include the following:

- Repair of equipment damaged by vandalism, abuse, neglect, or noncompliance to L3Harris recommended practices, to the extent such equipment damage is not caused by L3Harris or any of its agents.
- Damages due to acts of God or other uncontrollable events
- Any other repair or service not outlined in the Scope of Work

# 6. MAINTENANCE

## 6.1. Service Agreement

Once the new equipment comes out of warranty, an amendment to the current service agreement allowing for the addition of upgraded hardware as well as removal of old/non-existent hardware, will be necessary to continue service and maintenance of the system as a whole.

# Equipment List

| Part # | Description | Qty |
|---|---|---|
| **VIDA Premier Core New Kent County** | | |
| NS-PN2A | SERVER,CISCO,UCS C220 M7,10A.7,PREMIER | 1 |
| NS-SN5K | SERVICE,SYBASE LICENSE | 1 |
| NS-CA5G | CABINET,NSS,42 RU,120V | 1 |
| NS-ZM2A | POWER KIT,SR10A.4,LOC HA/UNITE/ESSEN,110 | 1 |
| NS-CP9T | TIME SERVER, PROTEMPIS, NTP TS200 | 1 |
| MANS-AN3S | Kit,GPS Antenna,Outdoor,For Netclock | 1 |
| MANS-CK1A | Cable,GPS Ant Outdoor,100ft/Netclock | 1 |
| NS-DW1T | DRAWINGS,PREM/UNITE/CON ON PREM | 1 |
| SC-MD9G | CONNECTOR KIT, GPS | 1 |
| NS-PKGBN | PACKAGE, BEON TRIAL, 10 USERS | 1 |
| NMNM01 | NM PROD GRP,DUMMY MODEL NUMBER | 1 |
| NM-VM2E | SOFTWARE,ISSI GATEWAY,VM | 1 |
| NM-VM2B | SOFTWARE,PREMIER CORE,VM | 1 |
| NM-VM2A | SOFTWARE, KMF VM | 1 |
| VSVS02 | VIDA Security, NSC | 1 |
| CM-027501-100102 | License,Quest Authentication,Server | 1 |
| CM-027501-100103 | LICENSE,QUEST AUTHENTICATION,USER,QTY 6 | 1 |
| VS-CR1Z | ROUTER,ISR,C1111-4P,APP | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| VS-CU5K | CISCO MODULE,LX/H SINGLE/MULTI-MODE,FIBR | 1 |
| VS-CR3E | VM, FMC 2 DEVICE | 1 |
| VS-DF2U | LICENSE,QUEST DEF,TWO FACTOR E-TOKEN,1YR | 1 |
| VS-DF3D | SW,QUEST DEFENDER,TWO FACTOR | 1 |
| VS-CR3D | FIREWALL,FPR1010, WITH ANYCONNECT | 1 |
| VS-CU9B | SWITCH,SMARTNET,C9200L-24T-4X-A | 1 |
| VS-CR3C | ROUTER,APP,C921-4P | 1 |
| VS-CR1Y | ROUTER,ISR,C1111-4P,SEC | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| VSEPOVM | Software, Epolicy Orch VM | 1 |
| VSSD03 | LICENSE,SUMS,ENDPOINT | 1 |
| VSSD06 | LICENSE, SUMS, BIGFIX | 1 |
| VS-SG3T | LICENSE,HOST SECURITY,AV,EPO,QTY 26-50 | 1 |
| VS-SH6J | LICENSE, ENM P-RTU, + 3 YR SUPP, BASE | 1 |
| VS-SH6R | LICENSE,ENM P-RTU,+3YR SUPP,GEO-HA | 1 |
| NS-SG2E | LICENSE,HA,LOCATION,NSC | 1 |
| NS-SG2M | LICENSE,P25 APPLICATION | 1 |
| MANM-NSG9C | License,Quad Mode Vocoder | 1 |
| NM-NG2M | LICENSE, SQL SERVER 2022 STD, BASE 4CORE | 1 |
| NS-SG2B | LICENSE,CONSOLE | 1 |
| NS-SG2C | LICENSE,CONSOLE TALKPATH | 1 |

| Part # | Description | Qty |
|---|---|---|
| NS-SG2N | LICENSE,P25 SITE | 1 |
| NS-SG2P | LICENSE,P25 SITE TALKPATH | 1 |
| NS-SG7R | LICENSE,NSS,IP LOGGING RECORDER | 1 |
| NS-SG7S | LICENSE,NSS,IP LOGGING RECORDER TALKPATH | 1 |
| NM-SG9E | LICENSE,ISSI GATEWAY TALKPATH | 1 |
| NM-SG9F | LICENSE,ISSI EXTERNAL SYS CONN,PREMIER | 1 |
| NS-PN2A | SERVER,CISCO,UCS C220 M7,10A.7,PREMIER | 1 |
| NS-SN5K | SERVICE,SYBASE LICENSE | 1 |
| NS-CA5G | CABINET,NSS,42 RU,120V | 1 |
| NS-ZM2A | POWER KIT,SR10A.4,LOC HA/UNITE/ESSEN,110 | 1 |
| NS-CP9T | TIME SERVER, PROTEMPIS, NTP TS200 | 1 |
| MANS-AN3S | Kit,GPS Antenna,Outdoor,For Netclock | 1 |
| MANS-CK1A | Cable,GPS Ant Outdoor,100ft/Netclock | 1 |
| SC-MD9G | CONNECTOR KIT, GPS | 1 |
| NM-VM2B | SOFTWARE,PREMIER CORE,VM | 1 |
| VSVS02 | VIDA Security, NSC | 1 |
| VS-CR1Z | ROUTER,ISR,C1111-4P,APP | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| VS-CU5K | CISCO MODULE,LX/H SINGLE/MULTI-MODE,FIBR | 1 |
| VS-CR3D | FIREWALL,FPR1010, WITH ANYCONNECT | 1 |
| VS-CU9B | SWITCH,SMARTNET,C9200L-24T-4X-A | 1 |
| VS-CR3C | ROUTER,APP,C921-4P | 1 |
| VS-CR1Y | ROUTER,ISR,C1111-4P,SEC | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| MANM-NSG9C | License,Quad Mode Vocoder | 1 |
| NM-NG2M | LICENSE, SQL SERVER 2022 STD, BASE 4CORE | 1 |
| NS-DF3H | PC,SYSTEM MANAGEMENT TERMINAL | 1 |
| A30-1890-002 | MONITOR, 21.5 INCH LED, 16:9 ASPECT | 1 |
| BN-SV3J | BEON / XL VIRTUAL SERVER LICENSE | 1 |
| BM-FW2V | PKG, 1 BEON / XLV ANDROID/IOS LICENSE | 1 |
| BM-PK1E | FEATURE,NO AES ENCRYPTION | 1 |
| NG-SW1F | SOFTWARE, ENCOMPASS GW FOR DFSI | 1 |
| NG-SH2Y | LICENSE,DFSI TALKPATH | 1 |
| VS-CU8N | ALCATEL,SX,MULTIMODE,LC,SFP,FIBR,550M | 1 |
| **IAR Routers** | | |
| VS-CR1Y | ROUTER,ISR,C1111-4P,SEC | 2 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |

| Part # | Description | Qty |
|---|---|---|
| **IOGW Conversion to Pathway+ at Courthouse** | | |
| VSVS01 | VS PROD GRP, CONFIGURED MODEL NUMBER | 1 |
| VS-CU9J | KIT, PATHWAY ANALOG GATEWAY | 4 |
| VS-CU9L | KIT, RACK MOUNT, PATHWAY DUAL UNIT | 2 |
| VS-PS3W | POWER SUPPLY,AC, PATHWAY | 4 |
| NS-SJ4C | LICENSE,PATHWAY TALKPATH | 8 |
| NS-SJ4D | LICENSE,PATHWAY APPLICATION | 1 |
| NS-SJ4F | LICENSE,PATHWAY SITE, 8 TALKPATHS | 1 |
| VS-CR2B | ROUTER,ISR,C1111-8P | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| **IOGW Upgrade to Pathway+ at Quinton** | | |
| VS-CU9J | KIT, PATHWAY ANALOG GATEWAY | 4 |
| VS-CU9L | KIT, RACK MOUNT, PATHWAY DUAL UNIT | 2 |
| VS-PS3W | POWER SUPPLY,AC, PATHWAY | 4 |
| NS-SJ4C | LICENSE,PATHWAY TALKPATH | 8 |
| NS-SJ4D | LICENSE,PATHWAY APPLICATION | 1 |
| NS-SJ4F | LICENSE,PATHWAY SITE, 8 TALKPATHS | 1 |
| VS-CU9J | KIT, PATHWAY ANALOG GATEWAY | 4 |
| VS-CU9L | KIT, RACK MOUNT, PATHWAY DUAL UNIT | 2 |
| VS-PS3W | POWER SUPPLY,AC, PATHWAY | 4 |
| NS-SJ4C | LICENSE,PATHWAY TALKPATH | 8 |
| NS-SJ4D | LICENSE,PATHWAY APPLICATION | 1 |
| NS-SJ4F | LICENSE,PATHWAY SITE, 8 TALKPATHS | 1 |
| **Conversion to Pathway+ at  Providence Forge** | | |
| VS-CU9J | KIT, PATHWAY ANALOG GATEWAY | 4 |
| VS-CU9L | KIT, RACK MOUNT, PATHWAY DUAL UNIT | 2 |
| VS-PS3W | POWER SUPPLY,AC, PATHWAY | 4 |
| NS-SJ4C | LICENSE,PATHWAY TALKPATH | 8 |
| NS-SJ4D | LICENSE,PATHWAY APPLICATION | 1 |
| NS-SJ4F | LICENSE,PATHWAY SITE, 8 TALKPATHS | 1 |
| **Courthouse NWS to VVS Conversion** | | |
| SAMD8E | SITE MANAGER, VIDA EDGE | 1 |
| SAMD8F | POWER SUPPLY, AC, VIDA EDGE | 1 |
| SAMD8G | CONTROLLER, DIGITAL I/O | 1 |
| SAMD8K | MODULE, DIGITAL IN (8) & OUT SOURCE (8) | 2 |
| SAMD9B | MODULE, DIGITAL INPUT (16) ACTIVE LOW | 4 |
| 19D438890G7 | Panel,Punch Block (Single) (Rear Access) | 1 |
| SAMD8N | SITE MOBILE DATA, VIDA EDGE | 1 |

| Part # | Description | Qty |
|---|---|---|
| **Providence Forge NWS to VVS Conversion** | | |
| SAMD8E | SITE MANAGER, VIDA EDGE | 1 |
| SAMD8F | POWER SUPPLY, AC, VIDA EDGE | 1 |
| SAMD8G | CONTROLLER, DIGITAL I/O | 1 |
| SAMD8K | MODULE, DIGITAL IN (8) & OUT SOURCE (8) | 2 |
| SAMD9B | MODULE, DIGITAL INPUT (16) ACTIVE LOW | 4 |
| 19D438890G7 | Panel,Punch Block (Single) (Rear Access) | 1 |
| SAMD8N | SITE MOBILE DATA, VIDA EDGE | 1 |
| **Quinton NWS to VVS Conversion** | | |
| SAMD8E | SITE MANAGER, VIDA EDGE | 1 |
| SAMD8F | POWER SUPPLY, AC, VIDA EDGE | 1 |
| SAMD8G | CONTROLLER, DIGITAL I/O | 1 |
| SAMD8K | MODULE, DIGITAL IN (8) & OUT SOURCE (8) | 2 |
| SAMD9B | MODULE, DIGITAL INPUT (16) ACTIVE LOW | 4 |
| 19D438890G7 | Panel,Punch Block (Single) (Rear Access) | 1 |
| SAMD8N | SITE MOBILE DATA, VIDA EDGE | 1 |
| **West Point NWS to VVS Conversion** | | |
| SAMD8E | SITE MANAGER, VIDA EDGE | 1 |
| SAMD8F | POWER SUPPLY, AC, VIDA EDGE | 1 |
| SAMD8G | CONTROLLER, DIGITAL I/O | 1 |
| SAMD8K | MODULE, DIGITAL IN (8) & OUT SOURCE (8) | 2 |
| SAMD9B | MODULE, DIGITAL INPUT (16) ACTIVE LOW | 4 |
| 19D438890G7 | Panel,Punch Block (Single) (Rear Access) | 1 |
| **Munford Road NWS to VVS Conversion** | | |
| SAMD8E | SITE MANAGER, VIDA EDGE | 1 |
| SAMD8F | POWER SUPPLY, AC, VIDA EDGE | 1 |
| SAMD8G | CONTROLLER, DIGITAL I/O | 1 |
| SAMD8K | MODULE, DIGITAL IN (8) & OUT SOURCE (8) | 2 |
| SAMD9B | MODULE, DIGITAL INPUT (16) ACTIVE LOW | 4 |
| 19D438890G7 | Panel,Punch Block (Single) (Rear Access) | 1 |
| SAMD8N | SITE MOBILE DATA, VIDA EDGE | 1 |
| **Symphony SDP 3.0 Upgrade at NK Dispatch** | | |
| UD-ZM3A | KIT,PROMO,SDP 3.0 FOR EXISTING CUSTOMERS | 5 |
| UD-SW1N | SW,SYMPHONY PC APP | 5 |
| UD-SG1F | SOFTWARE,REMOTE BATON | 5 |
| SS-SJ4G | LICENSE, ADVANCED BACKUP RADIO | 5 |
| 14050-6300-01 | CABLE,ETHERNET,OVERMOLD,XL,45CM | 5 |
| A30-1116-001 | USB 3.0 TO GIGABIT ETHERNET ADAPTER BLAC | 5 |

| Part # | Description | Qty |
|---|---|---|
| **Site Router/Switch Upgrade at Providence Forge** | | |
| VS-CR1V | ROUTER,ISR,C1111-4P | 1 |
| VS-CR1V | ROUTER,ISR,C1111-4P | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 2 |
| 14032-0019-01 | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 2 |
| 14032-0002-29 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 1 |
| **Site Router/Switch Upgrade at Courthouse** | | |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| 14032-0019-01 | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 1 |
| 14032-0002-29 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 1 |
| **Site Router/Switch Upgrades at Quinton** | | |
| VS-CR1V | ROUTER,ISR,C1111-4P | 1 |
| 14032-0002-29 | KIT, C1111 ROUTER SITE MTG | 2 |
| 14032-0019-01 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 2 |
| VS-MN3X | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 1 |
| **Site Router/Switch Upgrade at West Point** | | |
| VS-CR1V | ROUTER,ISR,C1111-4P | 1 |
| 14032-0002-29 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 2 |
| 14032-0019-01 | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 2 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| **Site Router/Switch Upgrade at Munford Road/CCC** | | |
| VS-CR1V | ROUTER,ISR,C1111-4P | 1 |
| 14032-0002-29 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 1 |
| 14032-0019-01 | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| **Site Router/Switch Upgrades at NK Dispatch** | | |
| VS-CR1V | ROUTER,ISR,C1111-4P | 2 |
| 14032-0002-29 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 2 |
| 14032-0019-01 | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 2 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 2 |
| **Site Router/Switch Charles City RF Site** | | |
| VS-CR1V | ROUTER,ISR,C1111-4P | 1 |
| 14032-0002-29 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 1 |
| 14032-0019-01 | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |
| **Spare Site Router/Switch** | | |
| 14032-0002-29 | SWITCH, C1300-24T-4G, W/3YR-SMARTNET | 1 |
| 14032-0019-01 | ASSEMBLY, C1300 CISCO SWITCH MOUNTING | 1 |
| VS-CR1V | ROUTER,ISR,C1111-4P | 1 |
| VS-MN3X | KIT, C1111 ROUTER SITE MTG | 1 |

| Part # | Description | Qty |
|---|---|---|
| **Mobile Radio Single Head** | | |
| XZ-MPM1M | MOBILE, XL-200M, MULTIBAND | 200 |
| XZ-PL4J | FEATURE, VHF BAND | 200 |
| XZ-PL4K | FEATURE, UHF BAND | 200 |
| XZ-PL4L | FEATURE, 700/800 MHZ BAND | 200 |
| XZ-PL8Y | FEATURE, ENCRYPTION LITE | 200 |
| XZ-PL4F | FEATURE, PHASE 2 TDMA | 200 |
| XZ-PL5K | FEATURE P25 OTAP PROFILE | 200 |
| XZ-PL5L | FEATURE, OTAR | 200 |
| XZ-PL8N | FEATURE, IN-BAND GPS | 200 |
| XZ-LLA | FEATURE, LINK LAYER AUTHENTICATION | 200 |
| XZ-PKG8F | FEATURE, 256-AES, 64-DES ENCRYPTION | 200 |
| XZ-PKGPT | FEATURE PACKAGE, P25 TRUNKING | 200 |
| XZ-MA4A | KIT, MOUNTING XL-MOBILE UNIVERSAL | 200 |
| XZ-MC6A | MICROPHONE, XL, STANDARD MOBILE | 200 |
| XZ-AN8A | ANTENNA, ELEMENT, FLEXIBLE, V/U/700/800 | 200 |
| XZ-AN6U | ANTENNA, BASE, STD ROOF MOUNT LOW LOSS | 200 |
| XZ-AN5F | ANTENNA, GPS, ROOF MOUNT | 200 |
| XZ-LS6A | SPEAKER, EXTERNAL, MOBILE | 200 |
| XZ-CA6F | CABLE, XL-MOBILE, SPEAKER ACCY | 200 |
| XZ-CP6A | CONTROL UNIT, XL-CH | 200 |
| **Symphony SDP 3.0 Upgrade for 2 consoles at CCC Disptach Center** | | |
| UD-ZM3A | KIT,PROMO,SDP 3.0 FOR EXISTING CUSTOMERS | 2 |
| UD-SW1N | SW,SYMPHONY PC APP | 2 |
| UD-SG1F | SOFTWARE,REMOTE BATON | 2 |
| SS-SJ4G | LICENSE, ADVANCED BACKUP RADIO | 2 |
| 14050-6300-01 | CABLE,ETHERNET,OVERMOLD,XL,45CM | 2 |
| A30-1116-001 | USB 3.0 TO GIGABIT ETHERNET ADAPTER BLAC | 2 |
| **Symphony SDP 3.0 Upgrade for 2 Consoles at NK Disptach Center** | | |
| UD-ZM3A | KIT,PROMO,SDP 3.0 FOR EXISTING CUSTOMERS | 2 |
| UD-SW1N | SW,SYMPHONY PC APP | 2 |
| UD-SG1F | SOFTWARE,REMOTE BATON | 2 |
| SS-SJ4G | LICENSE, ADVANCED BACKUP RADIO | 2 |
| 14050-6300-01 | CABLE,ETHERNET,OVERMOLD,XL,45CM | 2 |
| A30-1116-001 | USB 3.0 TO GIGABIT ETHERNET ADAPTER BLAC | 2 |

# PRICING SUMMARY

L3Harris is pleased to provide New Kent County with the following firm fixed price proposal. Pricing is valid for 90 days from original submittal date of July 18, 2025. Upon expiration of the pricing validity, L3Harris reserves the right to provide an updated pricing proposal.

| New Kent System Upgrade | Price (USD $) |
|---|---|
| **SR11.1 System Upgrade** | |
| New VIDA Premier Location HA Core, with L3Harris Licenses/Application Transfer (SR11.1) | $487,011.65 |
| IAR Routers for ISSI Capability | $5,749.62 |
| Interoperability Gateway Upgrade to Pathway+ | $67,797.36 |
| VIDA Virtual Site (VVS) to replace Network Sentrys at all 5 Sites | $137,417.91 |
| Symphony Dispatch Upgrade from SDP1 to SDP 3.0 with ABR | $85,434.96 |
| Site Aggregation Routers (SAR) Upgrades | $100,647.04 |
| Installation and Test | $83,215.63 |
| System Implementation Services including: Project Management, Systems Engineering, Factory Staging, Installation, and As-Built Documentation | $238,925.00 |
| **SR11.1 System Upgrade Subtotal** | **$1,206,199.17** |
| **Radios** | |
| Qty 110 - XL-200M Single Head Mobile Radios | $630,151.50 |
| Qty 20 - XL-200M Dual Head Mobile Radios | $134,255.00 |
| Qty 5 - XL-200M Remote Hand Held Control Head | $15,392.45 |
| **Radio Subtotal** | **$779,798.95** |
| **PROJECT TOTAL** | **$1,985,998.12** |

| OPTIONS (not included in the above pricing) | PRICE (USD $) |
|---|---|
| Optional Add VIDA Virtual Site (VVS) to the CCC Microwave Site | $47,394.02 |
| Qty 9 - Optional Back-up Control Stations for Dispatch Centers | $52,674.48 |
| Qty 4 - Optional Symphony Dispatch Upgrade from SDP2 to SDP 3.0 with ABR | $61,055.56 |
| Qty 1 - XL-200M Dual Head Mobile Radio | $6,712.75 |
| Qty 1- XL-45P | $1,559.29 |
| Qty 1 - XL-95P | $3,027.85 |
| Qty 1- XL-200M RHHC | $5,426.92 |
| Qty 1 - XL-200P with LTE Storm Mic | $5,357.71 |
| Qty 1 - XL-200P with LTE XTRM Mic | $5,598.25 |
| Qty 1 - XL-200P with Storm Mic | $4,788.01 |
| Qty 1 - XL-200P with XTRM Mic | $5,028.55 |
| Qty 1 - XL-185P with LTE Storm Mic | $4,062.17 |
| Qty 1 - XL-185P with LTE XTRM Mic | $4,302.71 |
| Qty 1 - XL-185P with Storm Mic | $3,492.47 |
| Qty 1 - XL-185P with XTRM Mic | $3,733.01 |
| Qty 1 - SPKR MIC, XL XTRM, XL200P, BLK | $536.25 |
| Qty 1 - SPEAKER MICROPHONE | $129.35 |
| Qty 1 - BATTERY,LI-ION,3100 MAH | $113.75 |
| Qty 1 - BATTERY,LI-ION,HI-CAPACITY,4800MAH | $139.75 |

*State and Local taxes not included*

*Radio discounts at 57.8% discount is off of the then current list price is valid for two years after system acceptance*

| Milestone Payments | % |
|---|---|
| Contract Execution | 10% |
| System Design Review | 30% |
| Equipment Procurement @ L3Harris Factory | 30% |
| Equipment Staging @ Factory | 3% |
| Infrastructure Equipment Shipment | 3% |
| Installation | 14% |
| Final System Acceptance | 10% |
| **Infrastructure & Services** | **100%** |
| L3Harris Radios (Final Shipment) | 100% |
| **Total Milestone Payments** | **100%** |

# XL-200M Single Control Head

| Part No. | Radio/Description | List Price |
|---|---|---|
| XZ-MPM1M | MOBILE, XL-200M, MULTIBAND | $4,275.00 |
| XZ-PL4J | FEATURE, VHF BAND | $600.00 |
| XZ-PL4K | FEATURE, UHF BAND | $600.00 |
| XZ-PL4L | FEATURE, 700/800 MHZ BAND | $600.00 |
| XZ-PL4F | FEATURE, PHASE 2 TDMA | $275.00 |
| XZ-PL5K | FEATURE P25 OTAP PROFILE | $395.00 |
| XZ-PL5L | FEATURE, OTAR | $700.00 |
| XZ-PL8N | FEATURE, IN-BAND GPS | $330.00 |
| XZ-LLA | FEATURE, LINK LAYER AUTHENTICATION | $140.00 |
| XZ-PKG8F | FEATURE, 256-AES, 64-DES ENCRYPTION | $785.00 |
| XZ-PKGPT | FEATURE PACKAGE, P25 TRUNKING | $1,800.00 |
| XZ-MA4A | KIT, MOUNTING XL-MOBILE UNIVERSAL | $495.00 |
| XZ-MC6A | MICROPHONE, XL, STANDARD MOBILE | $105.00 |
| XZ-AN8A | ANTENNA, ELEMENT, FLEXIBLE, V/U/700/800 | $210.00 |
| XZ-AN6U | ANTENNA, BASE, STD ROOF MOUNT LOW LOSS | $80.00 |
| XZ-AN5F | ANTENNA, GPS, ROOF MOUNT | $155.00 |
| XZ-LS6A | SPEAKER, EXTERNAL, MOBILE | $60.00 |
| XZ-CA6F | CABLE, XL-MOBILE, SPEAKER ACCY | $120.00 |
| XZ-CP6A | CONTROL UNIT, XL-CH | $1,850.00 |
| | **XL-200M Single Control Head List Price Total** | **$13,575.00** |

*Radio discounts at 57.8% discount is off of the then current list price is valid for two years after system acceptance*

| Part No | Description |
|---|---|
| **Mobile Radio Dual Head** | |
| XZ-MPM1M | MOBILE, XL-200M, MULTIBAND |
| XZ-PL4J | FEATURE, VHF BAND |
| XZ-PL4K | FEATURE, UHF BAND |
| XZ-PL4L | FEATURE, 700/800 MHZ BAND |
| XZ-PL8Y | FEATURE, ENCRYPTION LITE |
| XZ-PL4F | FEATURE, PHASE 2 TDMA |
| XZ-PL5K | FEATURE P25 OTAP PROFILE |
| XZ-PL5L | FEATURE, OTAR |
| XZ-PL8N | FEATURE, IN-BAND GPS |
| XZ-LLA | FEATURE, LINK LAYER AUTHENTICATION |
| XZ-PKG8F | FEATURE, 256-AES, 64-DES ENCRYPTION |
| XZ-PKGPT | FEATURE PACKAGE, P25 TRUNKING |
| XZ-MA4A | KIT, MOUNTING XL-MOBILE UNIVERSAL |
| XZ-MC6A | MICROPHONE, XL, STANDARD MOBILE |
| XZ-AN8A | ANTENNA, ELEMENT, FLEXIBLE, V/U/700/800 |
| XZ-AN6U | ANTENNA, BASE, STD ROOF MOUNT LOW LOSS |
| XZ-AN5F | ANTENNA, GPS, ROOF MOUNT |
| XZ-LS6A | SPEAKER, EXTERNAL, MOBILE |
| XZ-CA6F | CABLE, XL-MOBILE, SPEAKER ACCY |
| XZ-CP6A | CONTROL UNIT, XL-CH |
| XZ-CP6A | CONTROL UNIT, XL-CH |
| XZ-MA4C | BRACKET, MOUNTING, XL CONTROL HEAD |
| XZ-CA6B | CABLE, XL-MOBILE, ETHERNET, 9M |
| XZ-CA6D | CABLE, POWER, XL-CH |
| XZ-LS6A | SPEAKER, EXTERNAL, MOBILE |
| XZ-CA6F | CABLE, XL-MOBILE, SPEAKER ACCY |
| **XL-200M RHHC** | |
| XZ-MPM1M | MOBILE, XL-200M, MULTIBAND |
| XZ-PL4J | FEATURE, VHF BAND |
| XZ-PL4K | FEATURE, UHF BAND |
| XZ-PL4L | FEATURE, 700/800 MHZ BAND |
| XZ-PL8Y | FEATURE, ENCRYPTION LITE |
| XZ-PL4F | FEATURE, PHASE 2 TDMA |
| XZ-PL5K | FEATURE P25 OTAP PROFILE |
| XZ-PL5L | FEATURE, OTAR |
| XZ-PL8N | FEATURE, IN-BAND GPS |
| XZ-LLA | FEATURE, LINK LAYER AUTHENTICATION |
| XZ-PKG8F | FEATURE, 256-AES, 64-DES ENCRYPTION |
| XZ-PKGPT | FEATURE PACKAGE, P25 TRUNKING |
| XZ-AN8A | ANTENNA, ELEMENT, FLEXIBLE, V/U/700/800 |
| XZ-AN6Z | ANTENNA, BASE, STD ROOF MNT LOW LOSS GPS |
| XZ-CP6B | CONTROL UNIT, XL-MOBILE, RHHC |
| XZ-ZM6B | KIT, INSTALLATION, XL-MOBILE RHHC |
| **XL-45P** | |
| XK-PF78B | PORTABLE, XL-45P, 7/800 MHZ, PH1, GRAY |
| XK-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XK-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XK-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XK-PL8Y | FEATURE, ENCRYPTION LITE |
| XK-PL9E | FEATURE,SINGLE-KEY AES ENCRYPTION |
| XK-PL4U | FEATURE,SINGLE-KEY DES ENCRYPTION |
| XK-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XK-PA3R | BATTERY,LI-ION,3100MAH |
| XK-NC8D | ANTENNA,WHIP,1/2 WAVE,762-870MHZ |
| XK-AE9D | SPEAKER MIC |
| XK-CH5X | CHARGER,1-BAY,TRI-CHEMISTRY |

| Part No | Description |
|---|---|
| **XL-95P** | |
| XN-PF78M | PORTABLE,XL-95P,7/800MHZ,BLK |
| XN-PL8N | FEATURE, IN-BAND GPS |
| XN-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XN-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XN-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XN-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XN-PL8Y | FEATURE, ENCRYPTION LITE |
| XN-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XN-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XN-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XN-PA3R | BATTERY, LI-ION, 3100 MAH |
| XN-NC8D | ANTENNA,WHIP,1/2 WAVE,762-870MHZ |
| XN-AE9D | SPEAKER MIC |
| XN-CH5X | CHARGER,1-BAY,TRI-CHEMISTRY |
| **XL-200P LTE Storm** | |
| XL-PFM1M-NA | PORTABLE,XL-200P,FKP,BLK,US,NA |
| XL-PL8T | FEATURE, LTE |
| XL-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XL-PL8N | FEATURE, IN-BAND GPS |
| XL-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XL-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XL-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XL-PL8Y | FEATURE, ENCRYPTION LITE |
| XL-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XL-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XL-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XL-PKGF1 | FEATURE PACKAGE,ALL BANDS,V+U+7/800 |
| XL-PA3V | BATTERY,LI-ION,3100 MAH |
| XL-NC5Z | ANTENNA,FLEX,HELICAL,136-870 MHZ |
| XL-AE4B | SPEAKER MICROPHONE,EMER BUTTON |
| XL-ZN7V | COVER,SIDE CONNECTOR,XL-200P |
| XL-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |
| **XL-200P LTE XTRM** | |
| XL-PFM1M-NA | PORTABLE,XL-200P,FKP,BLK,US,NA |
| XL-PL8T | FEATURE, LTE |
| XL-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XL-PL8N | FEATURE, IN-BAND GPS |
| XL-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XL-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XL-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XL-PL8Y | FEATURE, ENCRYPTION LITE |
| XL-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XL-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XL-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XL-PKGF1 | FEATURE PACKAGE,ALL BANDS,V+U+7/800 |
| XL-PA3V | BATTERY,LI-ION,3100 MAH |
| XL-NC5Z | ANTENNA,FLEX,HELICAL,136-870 MHZ |
| XL-AE3J | SPKR MIC, XL XTRM, XL200P, BLK |
| XL-ZN7V | COVER,SIDE CONNECTOR,XL-200P |
| XL-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |

| Part No | Description |
|---|---|
| **XL-200P Storm** | |
| XL-PFM1M-NA | PORTABLE,XL-200P,FKP,BLK,US,NA |
| XL-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XL-PL8N | FEATURE, IN-BAND GPS |
| XL-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XL-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XL-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XL-PL8Y | FEATURE, ENCRYPTION LITE |
| XL-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XL-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XL-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XL-PKGF1 | FEATURE PACKAGE,ALL BANDS,V+U+7/800 |
| XL-PA3V | BATTERY,LI-ION,3100 MAH |
| XL-NC5Z | ANTENNA,FLEX,HELICAL,136-870 MHZ |
| XL-AE4B | SPEAKER MICROPHONE,EMER BUTTON |
| XL-ZN7V | COVER,SIDE CONNECTOR,XL-200P |
| XL-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |
| **XL-200P XTRM** | |
| XL-PFM1M-NA | PORTABLE,XL-200P,FKP,BLK,US,NA |
| XL-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XL-PL8N | FEATURE, IN-BAND GPS |
| XL-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XL-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XL-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XL-PL8Y | FEATURE, ENCRYPTION LITE |
| XL-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XL-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XL-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XL-PKGF1 | FEATURE PACKAGE,ALL BANDS,V+U+7/800 |
| XL-PA3V | BATTERY,LI-ION,3100 MAH |
| XL-NC5Z | ANTENNA,FLEX,HELICAL,136-870 MHZ |
| XL-AE3J | SPKR MIC, XL XTRM, XL200P, BLK |
| XL-ZN7V | COVER,SIDE CONNECTOR,XL-200P |
| XL-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |
| **XL-185P LTE STORM** | |
| XS-PFS1M-NA | PORTABLE,XL-185P,7/8,FKP,BLK,US,NA |
| XS-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XS-PL8T | FEATURE, LTE |
| XS-PL8N | FEATURE, IN-BAND GPS |
| XS-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XS-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XS-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XS-PL8Y | FEATURE, ENCRYPTION LITE |
| XS-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XS-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XS-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XS-PL4L | FEATURE, SINGLE BAND 7/800 |
| XS-PA3V | BATTERY,LI-ION,3100 MAH |
| XS-NC8D | ANTENNA,WHIP,1/2 WAVE 762-870MHZ |
| XS-ZN7V | COVER,SIDE CONNECTOR,XL-185P |
| XS-AE4B | SPEAKER MICROPHONE,EMER BUTTON |
| XS-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |

| Part No | Description |
|---|---|
| **XL-185P LTE XTRM** | |
| XS-PFS1M-NA | PORTABLE,XL-185P,7/8,FKP,BLK,US,NA |
| XS-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XS-PL8T | FEATURE, LTE |
| XS-PL8N | FEATURE, IN-BAND GPS |
| XS-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XS-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XS-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XS-PL8Y | FEATURE, ENCRYPTION LITE |
| XS-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XS-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XS-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XS-PL4L | FEATURE, SINGLE BAND 7/800 |
| XS-PA3V | BATTERY,LI-ION,3100 MAH |
| XS-NC8D | ANTENNA,WHIP,1/2 WAVE 762-870MHZ |
| XS-ZN7V | COVER,SIDE CONNECTOR,XL-185P |
| XS-AE3J | SPKR MIC, XL XTRM, XL185P, BLK |
| XS-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |
| **XL-185P XTRM** | |
| XS-PFS1M-NA | PORTABLE,XL-185P,7/8,FKP,BLK,US,NA |
| XS-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XS-PL8N | FEATURE, IN-BAND GPS |
| XS-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XS-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XS-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XS-PL8Y | FEATURE, ENCRYPTION LITE |
| XS-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XS-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XS-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XS-PL4L | FEATURE, SINGLE BAND 7/800 |
| XS-PA3V | BATTERY,LI-ION,3100 MAH |
| XS-NC8D | ANTENNA,WHIP,1/2 WAVE 762-870MHZ |
| XS-ZN7V | COVER,SIDE CONNECTOR,XL-185P |
| XS-AE3J | SPKR MIC, XL XTRM, XL185P, BLK |
| XS-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |
| **XL-185P STORM** | |
| XS-PFS1M-NA | PORTABLE,XL-185P,7/8,FKP,BLK,US,NA |
| XS-PL5K | FEATURE,PROFILE OTAP OVER-THE-AIR PRGM |
| XS-PL8N | FEATURE, IN-BAND GPS |
| XS-FW2X | OPERATION,LOAD NIFOG PERSONALITY |
| XS-PL5L | FEATURE,P25 OTAR(OVER-THE-AIR-REKEYING) |
| XS-PL4F | FEATURE,P25 PHASE 2 TDMA |
| XS-PL8Y | FEATURE, ENCRYPTION LITE |
| XS-PKG8F | FEATURE,256-AES,64-DES ENCRYPTION |
| XS-LLA | FEATURE,LINK LAYER AUTHENTICATION |
| XS-PKGPT | FEATURE PACKAGE,P25 TRUNKING |
| XS-PL4L | FEATURE, SINGLE BAND 7/800 |
| XS-PA3V | BATTERY,LI-ION,3100 MAH |
| XS-NC8D | ANTENNA,WHIP,1/2 WAVE 762-870MHZ |
| XS-ZN7V | COVER,SIDE CONNECTOR,XL-185P |
| XS-AE4B | SPEAKER MICROPHONE,EMER BUTTON |
| XS-CH6F | CHARGER, SINGLE BAY + |
| BM-PKGCL-XL | PKG,1 BEON / XL VIRTUAL XL RADIO LICENSE |

*Radio discounts at 57.8% discount is off of the then current list price is valid for two years after system acceptance*

# TEST PLAN FOR SYSTEM ACCEPTANCE

Customer:
New Kent County, VA

Prepared by:
K. Silverman

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# TEST PLAN

# INTRODUCTION

L3Harris designed this System Test Plan to validate the installation and functionality of our P25 Phase 2 Trunking system at the SR11.1 release. It defines the plan for conducting tests and analyzing test results, to confirm that the system satisfies design objectives.

The Test Team shall perform these tests in the order they appear in the plan and test procedures, or as required by the L3Harris systems engineer. The team will record test results in the appropriate test procedure referenced by this document. The prescribed test procedures have been developed and rigorously vetted by L3Harris engineering to provide extensive functional verification of the system features under test.

## ROLES AND RESPONSIBILITIES

A Test Team consisting of at least one L3Harris system engineer and one New Kent representative to act as a witness to the testing is required to execute the test plan. It may be necessary for a secondary team, consisting of an additional L3Harris employee and a NEW KENT witness, to be present at another location to test certain features, such as multisite calls or for the secondary team to initiate site alarms so that the primary team can observe them from a system management terminal (SMT).

An L3Harris employee will execute the test steps outlined in the test procedure using the required equipment and with optional assistance from the County representatives. Additional personnel may attend as desired, or as required, to provide access or escort others to certain locations, such as RF shelters or other restricted access areas. NEW KENT shall provide access for the entire team to its facilities, including the Network Switching Center (NSC) locations, RF site shelters, and dispatch locations. For secure facilities, appropriate access permissions must be granted prior to the testing events.

## ACCEPTANCE TESTING CLARIFICATION

Final acceptance testing can occur in two separate phases. The first phase of testing begins with functional testing performed in the L3Harris staging facility immediately after initial factory configuration is complete. During this first phase, the County representatives may be on-site to witness the testing. The second phase occurs after final installation at customer facilities.

Staging tests, as detailed in the identified test procedures, verify equipment functionality that we can reasonably perform in a factory environment. We will perform all identified functional testing in the field after final install and commissioning of the system.

Factory staging tests will be virtually conducted via a remote video conferencing session. The virtual testing allows for a greater number of participants than typically allowed for during an on-site visit.

Once acceptance testing begins, we will lock system configurations, hardware platforms, and software versions, except to correct software defects affecting system performance. Prior to conducting the factory tests, we perform a system audit to verify installation of the appropriate software system release version on each platform.

# ELECTRICAL SPECIFICATIONS

If requested, L3Harris will provide raw test data and site alignment measurements from the factory Automated Manufacturing Test Station (AMTS) for the L3Harris provided transceiver equipment.

# BASELINE CONFIGURATION

L3Harris systems include a baseline configuration with a predefined test agency and group structure to support the defined test procedures. L3Harris system engineering will determine the hardware and software revisions during program planning and check the system conforms to that baseline prior to the start of testing.

A complete set of as-built system schematics will be available during testing and includes:

- System block diagrams
- Network schematics
- Connection diagrams
- Wiring and cabling schematics
- Rack up drawings
- Alarm punch down drawings
- Grounding and power schematics

# TESTING PREREQUISITES

Following installation and commissioning of the applicable hardware and software, L3Harris will verify the system readiness for test. If the testing includes RF sites, L3Harris will complete site alignment and optimization by setting site configurations, aligning stations, and optimizing system timing parameters. As part of the standard installation practices, we measure equipment settings and record levels. L3Harris will provide these site measurements as part of the final documentation package. These parameters include:

- Transmit frequency and deviation
- Output and reflected power
- Receiver sensitivity
- Receiver multicoupler gain (if applicable)
- Receiver preamplifier gain (if applicable)
- Time domain reflectometry of transmission line
- Combiner loss (if applicable)
- Audio line out
- Audio line in

Prior to conducting installation testing, L3Harris performs a system audit to verify installation of the appropriate system release version of software on each platform.

Finally, prior to conducting the testing procedures detailed in this document, L3Harris and NEW KENT representatives will agree upon the dates and times of the test.

# SYSTEMS AND SITES TO BE TESTED

L3Harris will test the P25 Phase 2 Trunking system installed at each of NEW KENT's locations. Functional testing is expected to take up to two to three days per site but may be completed sooner.

Final system acceptance testing will take place at each of the RF site locations. A site will be chosen to initiate the testing, and all test procedures appropriate to the site will be executed and recorded. Once a site has completed the test cycle, the team will move on to the next site. This approach will be repeated until all sites have been tested.

Equipment is located at various locations across the facilities and is identified as the following:

| SYSTEM/SITE LOCATION | ADDRESS OR BUILDING NUMBER | SYSTEM/EQUIPMENT DESCRIPTION |
|---|---|---|
| <<Site>> | <<Address>> | <<Description>> |

# PASS/FAIL CRITERIA

Criteria for Pass / Fail is determined by execution of the test procedures in the Acceptance Test Plan. If a feature test is successfully executed, that feature is deemed to be compliant and results in a PASS. If a failure occurs, the failed test may be repeated to address missed steps or configuration requirements overlooked during execution.

If a certain piece of equipment is deemed to be malfunctioning and duplicate spare equipment is available to replace it, the test may be executed using the spare equipment. If the feature test is successfully executed on the spare equipment, the feature will be deemed compliant and result in a PASS. At such time as the original piece of equipment is repaired or replaced and is able to function as designed, the original equipment will be returned to service and tested to ensure functionality.

If a feature is found to be non-compliant, L3Harris will address the non-compliance and retest. Until a successful retest, the feature is deemed to be non-compliant and results in a FAIL.

If it is necessary to defer a test for any reason, it may be marked as Not Yet Evaluated (NYE). The test may be executed, with appropriate witnessing, at any time afterward to change the result to a PASS.

# TROUBLE REPORTING

Any issues found during testing will first be recorded on the comment page at the end of the feature set, and then they will be reported directly to the L3Harris program manager to be logged in the project issues log for corrective action.

Failures must be appropriately addressed. For hardware failures occurring during test events, failed hardware will be removed from the system being tested and turned over to L3Harris' quality organization for repair or replacement.

# Test Procedures

## FEATURES TO BE TESTED

The following list of acceptance procedures will be used to validate system performance:

- Network Switching Center
- Symphony Dispatch Consoles

## TOOLS / TEST EQUIPMENT

Unless otherwise specified, L3Harris will supply all special tools necessary to test the product.

Equipment list TBD during program planning.

| EQUIPMENT MODEL NUMBER | DESCRIPTION | SERIAL NUMBER |
|---|---|---|
| TBD | TBD | TBD |

| RADIO MODEL NUMBER | DESCRIPTION | SERIAL NUMBER |
|---|---|---|
| TBD | TBD | TBD |

# Safety

L3Harris will take reasonable safety precautions to ensure personnel against harm while operating within and traversing the installations.

General safety guidelines for portable radios:

- Do not hold onto the antenna when the radio is powered on.
- To ensure you do not exceed FCC RF exposure compliance requirements, always keep the antenna at least 0.43 inches (1.1 cm) away from the body and 0.98 inches (2.5 cm) from the face when transmitting.
- Do not use the portable radio with a damaged or missing antenna. A minor burn may result if skin comes into contact with a damaged antenna. Replace a damaged antenna immediately. Operating a portable radio with the antenna missing could cause personal injury, damage the radio, and may violate FCC regulations.
- Use only manufacturer-approved antennas. Use of unauthorized antennas, modifications, or attachments could cause damage to the radio unit and may violate FCC regulations.
- RF energy from portable radios may affect some electronic equipment. Most modern electronic equipment in cars, hospitals, homes, etc., is shielded from RF energy. However, in areas in which you are instructed to turn off two-way radio equipment, always observe the rules. If in doubt, turn it off!

L3Harris engineering will identify environmental detriments prior to testing, if deemed applicable. L3Harris will make adjustments to the extent required to address any such deficiencies deemed to present a danger to either system performance or personnel safety; examples include excessive temperature variations, contaminants, hazardous materials, or obstructions to LMR equipment.

# TEST PROCEDURES

# SYSTEM FEATURE SET

## P25 TDMA Phase 2 Functionality (Single-site / Simulcast Single Site)

**Purpose:** Demonstrate P25 TDMA Phase 2 implementation provides the additional traffic channel capacity and features of P25 TDMA Phase 2 while allowing backwards compatibility with FDMA Phase 1 radios and talkgroups.

**Expected Results:** Verify that a P25 FDMA call will work on a TDMA system.

**Setup:** In the following tests, Radios 1 and 2 will be set up as FDMA only. Radios 3 and 4 will be set up as TDMA and FDMA capable, depending upon TG.

FDMA refers to Phase 1 and TDMA refers to Phase 2.

Log into RNM, Realtime Tab, start RSM Site Activity or VNIC site calls to monitor system channel assignment and call type during active calls.

| DESCRIPTION | RADIO LID | TG DESCRIPTION | TG ID | SYSTEM |
|---|---|---|---|---|
| Radio 1 | 9980001 | TG 64051 P25 | 64051 | Phase 1 |
| Radio 2 | 9980002 | TG 64051 P25 | 64051 | Phase 1 |
| Radio 3 | 9980003 | TG 64051 P25 | 64051 | Phase 2 |
| Radio 4 | 9980004 | TG 64051 P25 | 64051 | Phase 2 |

# MIXED MODE SITE TO MIXED MODE SITE CALL — FDMA TO FDMA

**Purpose**: Demonstrates that an FDMA call will work on a FDMA system.

**Expected Results**: Verify that a P25 FDMA call will work on the system.

**Setup:** Turn off Radios 3 and 4.

**Execution:**

1. PTT Radio 1 and talk. The transmit (TX) indicators should turn on at Radio 1.
   - Verify that the call is assigned as an FDMA by viewing the real time viewer site activity on the RNM.
   - Verify Radio 2 can hear Radio 1.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# MIXED MODE SITE TO MIXED MODE SITE CALL — FDMA AND TDMA

**Purpose**: Demonstrates that a mixed mode call can function on a TDMA system.

**Expected Results**: Verify that a TDMA radio will hear a call from a FDMA radio.

**Setup:** Turn on Radios 1, 2, 3, and 4.

**Execution:**

1. PTT Radio 1 and talk. The transmit (TX) indicators should turn on at Radio 1.
   - Verify that the call is assigned as an FDMA by viewing the real time viewer site activity on the RNM.
   - Verify Radios 2, 3, and 4 can hear Radio 1.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# MIXED MODE SITE TO MIXED MODE SITE CALL — FDMA

**Purpose**: Demonstrates that a mixed mode call can function on a TDMA system.

**Expected Results**: Verify that an FDMA radio will hear a call from a TDMA radio.

**Setup:** Turn on Radios 1, 2, 3, and 4.

**Execution:**

1. PTT Radio 3 and talk. The transmit (TX) indicators should turn on at Radio 3.
   - Verify that the call is assigned as an FDMA by viewing the real time viewer site activity on the RNM.
   - Verify Radios 1, 2, and 4 can hear Radio 3.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# TDMA SITE CALL

**Purpose**: Demonstrates that a TDMA call will work on a TDMA system.

**Expected Results**: Verify that a P25 TDMA call will work on a TDMA system.

**Setup:** Turn off Radios 1 and 2.

**Execution:**

1. PTT Radio 3 and talk. The transmit (TX) indicators should turn on at Radio 3.
   - Verify that the call is assigned as an TDMA by viewing the real time viewer site activity on the RNM.
   - Verify Radio 4 can hear Radio 3.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# TRANSMISSION TRUNKING

**Purpose:** Test will demonstrate that the system is working as a transmission trunking system.

**Expected Results:** Verify the control channel will assign a working channel to the radio and that the radio and site will work as a trunking set by dropping radio transmission upon PTT release.

**Setup:** Radios 1, 2, and 3 should be the only radios on the system.

Use RNM real time viewers to monitor system channel assignment.

| DESCRIPTION | RADIO LID | TG DESCRIPTION | TG ID | SITE |
|---|---|---|---|---|
| Radio 1 | 9980001 | TG 64001 P25 | 64001 | 1 |
| Radio 2 | 9980002 | TG 64001 P25 | 64001 | 1 |
| Radio 3 | 9980003 | TG 64001 P25 | 64001 | 1 |

**Execution:**

1. Log into RNM, Realtime Tab, start RSM Site Activity, to monitor system channel assignment. Observe all channels on Site 1.
2. PTT Radio 1 and talk.
   - The transmit (TX) indicators should turn on at Radio 1.
   - Verify the number of the channel assigned.
   - Un-PTT Radio 1.
3. PTT Radio 2 and talk.
   - The transmit (TX) indicators should turn on at Radio 2.
   - Verify the next channel is assigned.
   - Un-PTT Radio 2.
4. PTT Radio 3 and talk.
   - The transmit (TX) indicators should turn on at Radio 3.
   - Verify the next channel is assigned.
   - Un-PTT Radio 3.
   - Verify the channel immediately drops, or as configured by station hang timers.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# P25 Trunked Calls and Site Features

## MULTISITE GROUP CALL (PHASE 1 AND PHASE 2)

**Purpose:** This test will demonstrate that the system will allow a group call to function in a multisite environment.

**Expected Results:** The test will demonstrate that all radios assigned to a common group will hear a call regardless of the site they are affiliated with.

**Setup:** Radios must be affiliated with sites with VNIC connectivity (wide area communications).

| DESCRIPTION | RADIO LID | SITE AFF | TG DESCRIPTION | TG ID |
|---|---|---|---|---|
| Radio 1 | 9980001 | Site 21 | TG 64001 P25 | 64001 |
| Radio 2 | 9980002 | Site 21 | TG 64001 P25 | 64001 |
| Radio 3 | 9980003 | Site 25 | TG 64001 P25 | 64001 |

**Execution:**

1. PTT Radio 1 and talk.
2. The transmit (TX) indicators should turn on at Radio 1.
3. Radios 2 and 3 should hear the call.
4. Switch all radios to TG 64051 to test phase 2 multisite.
5. Repeat Steps 1 and 2.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# MULTISITE EMERGENCY GROUP CALL

**Purpose:** Demonstrate the capability of the system to process an emergency group call.

**Expected Results:** This test will verify that when a radio initiates an emergency group call, all other radios in the group indicate an emergency and the emergency can be cleared by a supervisor radio or console.

**Setup:** Program three radios with the same emergency home group. Set the supervisor (Radio 1) & Radio 2 to the home group. Set Radio 3 to a different group (not home group). A console will be used to clear the emergency.

| DESCRIPTION | RADIO LID | TG DESCRIPTION | TG ID | SITE |
|---|---|---|---|---|
| Radio 1 | 9980001 | TG 64001 P25 | 64001 | 1 |
| Radio 2 | 9980002 | TG 64001 P25 | 64001 | 2 |
| Radio 3 | 9980003 | TG 64003 P25 | 64003 | 1 |

**Execution:**

1. Press the Emergency call button on Radio 1 and talk within the pre-defined Emergency Auto-key time, and/or PTT Radio 1 during or just after that time.
   > Verify that Radio 1 indicates the “TX EMER” declaration and that it reverts to the home group.
   > Verify Radio 2 (on Site 2) indicates a “RX EMER” and hear audio on the emergency home group.
   > Verify Radio 3 does not display the emergency.
2. Clear the emergency with a supervisor radio or console.
   > Verify the emergency clears in the radios.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# CONFIRMED CALL (NON SINGLE-CELL / MULTISITE ONLY)

**Purpose:** Demonstrate that the system allows confirmed calls.

**Expected Results:** The radio will be briefly queued before being allowed to talk while the system attempts to wait until there are available channels, or the confirmed call timer expires.

**Setup:** In the system, enable "Confirm Call" on TG64001. Ensure that the group is set up for multisite operation. For this test, set the "Confirmed Call Timeout" to a default of 1 second in the site via device manager.

Site 1 should only have one working channel, disable all other working channels at Site 1.

| DESCRIPTION | RADIO LID | TG DESCRIPTION | TG ID | SITE |
|---|---|---|---|---|
| Radio 1 | 9980001 | TG 64001 P25 | 64001 | 1 |
| Radio 2 | 9980002 | TG 64002 P25 | 64002 | 1 |
| Radio 3 | 9980003 | TG 64001 P25 | 64001 | 2 |
| Radio 4 | 9980004 | TG 64001 P25 | 64001 | 2 |

**Execution:**

1. Key up "Radio 2 on Site 1, TG64002, and hold the call up.
2. Key up Radio 3 on TG64001, on Site 2, and hold the call up.
   - > Verify the confirmed call is not allowed to proceed, until the "Confirmed Call Timeout" period has expired.
   - > When the timer expires, the call will proceed, but only to Site 2.
   - > Verify Radio 4 late enters in the call from Radio 3.
   - > Verify Radio 1 does not get the call from Radio 3, since Site 1 does not have any available channels.
3. Radio 2 is still keyed. Now, unkey Radio 2, to free up the channel on Site 1.
   - > Verify the call from Radio 3 gets routed to Site 1 and Radio 1 late-enters into the call.
4. Repeat test. Key up Radio 2 on Site 1, TG64002 and hold the call up.
5. Key up Radio 3 on TG64001, on Site 2, and hold the call up.
   - > Verify Radio 4 hears the call.
6. Unkey Radio 2, before the "Confirmed Call Timeout" period expires.
   - > Verify the call from Radio 3, Site 2 is heard on Radio 1, Site 1, and late-enters on Radio 1.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# ROAMING / PROROAM

## Field Only Test

**Purpose:** This test will demonstrate the ability of radios to scan and find adjacent site control channels as a user travels (or roams) between LMR sites or simulcast cells.

**Expected Results:** As the signal quality degrades the radio will scan the adjacent control channels and log on to adjacent available control channel.

**Setup:** The two radios used for this test must be capable (feature encrypted) and programmed for ProRoam.

The radios must be valid on the two sites (Site 1 and Site 2) being used to conduct the tests. Site 1 and Site 2 should have overlapping coverage to verify priority system scan (if tested). Log Radio 1 and Radio 2 onto Site 1. Ensure the radios are communicating.

Verify that the tone suppress option is not selected in the personality so that an audible tone can be heard once the radios switch systems. Program both radios for dynamic scan mode.

To test Priority System Scan (a.k.a., Preferred Site), ensure only Radio 1 has one of the sites (Site 1) used for the test as its priority system. Have Radio 2's Priority System Scan site set to a site not near the sites used in this test (i.e., not Site 1 or Site 2).

Note that the display and indications of each model of radio differ. This test describes the general procedure for ProRoam roaming. Refer to the specific radio operator's manual or the ProRoam Release Notes for details.

**Execution:**

1. Start with both radios at Site 1.
2. Begin traveling toward an area where the coverage from Site 2 is stronger than the coverage from Site 1.
3. As you travel away from Site 1 and towards Site 2, the signal quality will deteriorate. Once the signal level of Site 2 exceeds the programmed ProRoam parameters in the personality.
   - Radio 1 and Radio 2 will switch to the Site 2.
   - The radios will generate audible tones and will visually indicate that they have switched to Site 2 cell.
   - After the radios have both switched to the Site 2 cell, verify communications continue.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# PRIORITY SYSTEM SCAN / PREFERRED SITE (NON SINGLE-CELL SIMULCAST / MULTISITE ONLY)

## Field Only Test

**Purpose:** This test will demonstrate the radio's ability to prefer one site over another site.

**Expected Results:** As the signal degrades the radio will switch to the preferred site although the signal strength of the preferred site is lower than the non-preferred site.

**Setup:** The two radios used for this test must be capable (feature encrypted) and programmed for ProRoam. The radios must be valid on the two sites (Site 1 and Site 2) being used to conduct the tests. Site 1 and Site 2 should have overlapping coverage to verify Priority System Scan (if tested).

Verify that the tone suppress option is not selected in the personality so that an audible tone can be heard once the radios switch systems. Program both radios for Dynamic Scan mode. To test Priority System Scan (a.k.a., Preferred Site), ensure only Radio 1 has one of the sites (Site 1) used for the test as its Priority System. Have Radio 2's Priority System Scan site set to a site not near the sites used in this test (i.e., not Site 1 or Site 2). Note that the display and indications of each model of radio differ.

This test describes the general procedure for ProRoam roaming. Refer to the specific radio operator's manual or the ProRoam Release Notes for details. Log Radio 1 and Radio 2 onto the Site 1 used for this test. Ensure the radios are communicating on this system.

**Execution:**

1. Continued from roaming test.
2. Begin slowly travelling from Site 2 back to the coverage of Site 1.
3. As you travel from Site 2 back to Site 1, Radio 1 will log back onto Site 1 (its Priority System) as soon as an acceptable signal is available, even if Site 2 has a stronger signal.
4. Radio 2 will roam onto Site 1 only when its signal is stronger than the signal of Site 2. Verify that Radio 1 scans back to Site 1 sooner than Radio 2 does.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# Emergency

## LOCAL FDMA EMERGENCY, MULTISITE (NON SINGLE-CELL SIMULCAST / MULTISITE ONLY)

**Purpose:** This test is set up to demonstrate the multisite FDMA emergency.

**Expected Results:** This test will verify that the system will not drop a channel to assign a channel an emergency in FDMA mode.

**Setup:** This test requires six radios and two working talk paths on the site. Disable channels (if necessary) until there are only two working talk paths on the site.

| Description | Radio LID | TG Description | TG ID | Site |
|---|---|---|---|---|
| Radio 1 | 9980001 | TG 64101 P25 | 64101 | 1 |
| Radio 2 | 9980002 | TG 64102 P25 | 64102 | 1 |
| Radio 3 | 9980003 | TG 64103 P25 | 64103 | 1 |
| Radio 4 | 9980004 | TG 64101 P25 | 64101 | 2 |
| Radio 5 | 9980005 | TG 64102 P25 | 64102 | 2 |
| Radio 6 | 9980006 | TG 64103 P25 | 64103 | 2 |

**Execution:**

1. Disable channels at Site 1 and Site 2 so the sites only have two working FDMA talk paths.
2. PTT Radio 1 and 2 to busy up the sites.
3. Declare an emergency on Radio 3.
   > Radio 3 Should enter the queue.
4. Un-key Radio 2.
   > Verify Radio 3 is assigned the call.
5. Un-key all radios and clear the emergency with the Radio 1.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# LOCAL TDMA EMERGENCY, MULTISITE

**Purpose:** This test is set up to demonstrate the multisite TDMA local emergency.

**Expected Results:** This test will verify that the system will drop a local channel to assign a channel an emergency in TDMA mode.

**Setup:** This test requires six radios and two working talk paths on the site. Disable channels (if necessary) until there are only two working talk paths on the site.

| DESCRIPTION | RADIO LID | TG DESCRIPTION | TG ID | SITE |
|---|---|---|---|---|
| Radio 1 | 9980001 | TG 64151 P25 | 64151 | 1 |
| Radio 2 | 9980002 | TG 64152 P25 | 64152 | 1 |
| Radio 3 | 9980003 | TG 64153 P25 | 64153 | 1 |
| Radio 4 | 9980004 | TG 64151 P25 | 64151 | 2 |
| Radio 5 | 9980005 | TG 64152 P25 | 64152 | 2 |
| Radio 6 | 9980006 | TG 64153 P25 | 64153 | 2 |

**Execution:**

1. Disable channels at Site 1 and Site 2 so that the sites only have two working TDMA talk paths.
2. PTT Radio 1 and 2 to busy up the sites.
> Verify Radio 4 and 5 are listening.
3. Declare an emergency on Radio 3.
> Verify call is dropped to Radio 1 and tone is heard.
> Verify Radio 3 is assigned a channel / one TDMA Slot.
> Verify a console hears calls from Radio 2 and 3.
> Verify Radio 6 hears Radio 3.
4. Un-key all radios and clear the emergency with the Radio 1.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# REMOTE TDMA EMERGENCY, MULTISITE

**Purpose:** This test is set up to demonstrate the multisite TDMA remote emergency response.

**Expected Results:** This test will verify that the system will not drop a remote channel to assign a channel an emergency in TDMA mode.

**Setup:** This test requires five radios and two working talk paths on the site. Disable channels (if necessary) until there is only two working talk paths on the site.

**Site Personality Setup:** Configure Section 17: Emergency Declarations;

Handling When All Chans Busy – Drop Calls of Lower Priority

| DESCRIPTION | RADIO LID | TG DESCRIPTION | TG ID | SITE |
|---|---|---|---|---|
| Radio 1 | 9980001 | TG 64151 P25 | 64151 | 1 |
| Radio 2 | 9980002 | TG 64152 P25 | 64152 | 1 |
| Radio 3 | 9980003 | TG 64153 P25 | 64153 | 1 |
| Radio 4 | 9980004 | TG 64151 P25 | 64151 | 2 |
| Radio 5 | 9980005 | TG 64152 P25 | 64152 | 2 |

**Execution:**

1. Disable channels at Site 1 and Site 2 so that the sites only have two working TDMA talk paths.
2. PTT Radio 4 and 5 to busy up the sites.
3. Declare an emergency on Radio 3.
   - Verify audio is dropped to Radio 1.
   - Verify calls from Radios 4 and 5 continue.
   - Verify Radio 3 is assigned a channel.
   - Verify a console hears calls from Radio 3, 4, and 5.
4. Un-key all radios and clear the emergency with the Radio 1.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# Control Point Movement

## DCP FORCED CONTROL POINT MOVEMENT

**Purpose:** This test will demonstrate the DCP system can move the control point in response to user command.

**Expected Results:** This test will verify that the Control Point can be moved from the active site to an alternate Control Point Site. After the control point is switched to the alternate Control Point the system should operate normally.

**Setup:** The DCP system is operating with an active control point and at least two sites are enabled to be the control point.

**Execution:**

1. Log into the RNM.
2. In Network view identify the site which is the active control point.
3. Right click on the control point site icon and select “Change Control Point to Best Site Available”.
4. Verify system is still functioning (i.e. voice calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be ‘pinged’).
5. Verify that the RNM indicates a different site as control point and the previous control point is now a TX site. (Note – a CP only site displays “zzzz” when it is not the active control point.)
6. On the RNM right click on the previous control point site and select “Change to be the Control Point”.
7. Verify system is still functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be ‘pinged’).
8. Verify that the RNM indicates the control point has moved to the site selected in Step 6 and the previous control point is now a TX site. (Note – a CP only site displays “zzzz” when it is not the active control point.)

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# DCP CONTROL POINT MOVEMENT IN RESPONSE TO FAULTS AT THE ACTIVE CONTROL POINT

**Purpose:** This test will demonstrate that the Control Point will move in response to failures at the active Control Point.

**Expected Results:** This test will verify that the DCP system will move the active Control Point to an alternate control point site when the active control point experiences failures. After the Control Point moves the old control point should drop into bypass and the rest of the system should operate normally as a Simulcast cluster.

**Setup:** The DCP system is operating with an active control point and is properly configured with at least two sites enabled to be the control point.

**Execution:**

1. Verify system is functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be 'pinged').
2. At the control point site disconnect the 1pps cable from GPS B.
3. Verify the system is still functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be 'pinged') and control point has not moved. The traffic controllers at the control point display 'CC xx' and 'TC xx' when idle; at a satellite site the traffic controllers display "TR xx' where xx is the channel number.
4. At the control point site disconnect the 1pps cable from GPS A.
5. Verify that the control point moved to next ranked site and the old control point is now in bypass. The traffic controllers at the control point display 'CC xx' and 'TC xx' when idle: Any channels that are configured to be active at the old control point site when it is in bypass will have all their status LED red. In bypass all the traffic controllers display 'CC xx' and 'TC xx' when idle and the status LED will be red.
6. Verify the RNM indicates the new control point and shows the old control point site is now in bypass.
7. Verify the simulcast system is still functioning (i.e. calls can be made – between radios and a radio and console and optionally data calls can be made (e.g. radios can be 'pinged').
8. If the old control point has channels active in bypass, verify radios switched to this bypass site acquire the control channel and can communicate.
9. Restore the connections to the GPS receivers at the site in bypass (the old control point site).
10. Verify that the site exits bypass and joins the simulcast cluster.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# System Test Notes / Issues

| |
|---|
| |

# System Functional Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

| NEW KENT Representative | L3Harris Technologies Representative |
| --- | --- |
| Signature | Signature |
| Printed Name and Title | Printed Name and Title |
| Date | Date |

# NETWORK SWITCHING CENTER FEATURE SET

## VIDA Unified Administration System (UAS)

## ACTIVE DIRECTORY CONTROL OF UAS USER ACCOUNTS (SR10A.4 OR LATER)

**Purpose:** Transition from managing UAS-user accounts in the UAS application to AD instead. New systems will be shipped w/ AD control instead of UAS application user control. Existing systems may choose to switch to AD control or continue to use the existing accounts in UAS.

**Expected Results:** Demonstrate for SR10A.4 or later UAS Login; the UAS uses Active Directory-configured user login with AD username and password.

**Setup:** All users configured in Active Directory prior to UAS Login. UAS Users are added to AD 'Active Directory Users and Computers' > within vida.local area > VIDA Users > VIDA Administrators > "each User defined here". For "User X", within "Properties" > "Member of" Tab; User X needs appropriate "VIDA UAS access group".

**Execution:**

1. Login into UAS with AD user login. Use AD username and password.
   With SR10A.4 or later, UAS web login interface will pass username and password to Active Directory for authentication.
   > Verify user has logged into the UAS.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# CREATE A RESTRICTED USER ACCOUNT IN THE UAS

**Purpose:** Show that a user can be created in the UAS that has restricted access.

**Expected Results:** New user will only have access to the agencies tab and 998 agency.

**Setup:** User will need system level access to a UAS to define a new administration class that has limited access privileges and create a new user with that class.

**Execution:**

1. Log into AD and create a new test user with UAS login rights.
2. Attempt to login with new account. (should receive message that user has now scope)
3. Login to the UAS with an AD account that has admin rights.
4. Grant the new test user rights to only agency 998
5. Log out and log back in as the test user.
   Verify the new user only has access to the 'Agencies' tab and agency 998.
6. Return to AD and delete test user to remove from system.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# PROVISION AGENCY WITH TALKGROUPS AND SUBSCRIBER UNITS IN THE UAS

**Purpose:** Demonstrate the capability to add talkgroups and users to the agency accounts in the UAS.

**Expected Results:** Test will show that a user can add a new TG and users to the system.

**Setup:** System/region/agency level access to the UAS or a UAS client.

**Execution:**

1. Log into the UAS with one of the default accounts.
2. Select Agency 998, select 'R/W Talkgroup', to create a talkgroup.
3. Click 'Add' and then on the 'Talkgroup Detail' screen input the talkgroup ID from the table below. For any setting not listed, use the auto setting. Click OK and download.
   > Verify the talkgroup has been added to the list of talkgroups.

| TG ID | NAME | DESCRIPTION | SPNI | PROPERTY ID | PRIORITY ID | COVERAGE | VALID COVERAGE |
|---|---|---|---|---|---|---|---|
| 64454 | 64454ANA | Half Rate Low Priority | 1 | 3 | 5 | P25Sites_PSAPs | P25Sites_PSAPs |

4. Using telnet, log into a traffic controller at a control point for simulcast or site for multisite and issue the command 'show gdb'.
   > Verify that Group 64454 exists in the traffic controller user data base.
5. Once the group has been verified, delete it from the UAS.
6. In the UAS, select Voice End (VEU) User tab and add a VEU.
7. Select the Subscriber Unit tab, and add a Subscriber Unit for the Voice End User.
8. Using Telnet, log into a traffic controller at a control point for simulcast or site for multisite and issue the command 'show udb'.
   > Verify the added user exists in the traffic controller user data base.
9. Once the user has been verified, delete it from the UAS.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# DYNAMIC REGROUP FROM THE UAS

**Purpose:** Demonstrate ability to dynamically regroup subscriber units from the UAS.

**Expected Results:** Test will combine selected talkgroups into a single interop group.

**Setup:** Radios must have "Allow P25T Unsolicited Dynamic Regroup" checked in the radio personality under general options. Ensure radio IDs and talkgroup IDs are uploaded to the site.

| DESCRIPTION | TG DESCRIPTION | TG ID | SITE |
|---|---|---|---|
| Radio A | TG 64001 P25 | 64001 | 1 |
| Radio B | TG 64002 P25 | 64002 | 1 |
| Radio C | TG 64003 P25 | 64003 | 1 |

**Execution:**

1. At the UAS, select 'Regroup' tab and 'Regroup Profile'.
2. Click 'Add' to add profile detail; name Group 'Regroup1', and Description 'Regroup1 Test'.
   - Define regroup profile; select Agency 998 and 'TG64003'.
   - Select 'OK' and save changes to the UAS.
3. Click 'End User Group' and click 'Add'. Name Group 'Regroup1' and Description 'Regroup1 test'.
   - Select Agency 998 from 'Select a Scope' drop down box.
   - Add 'Radio A' and 'Radio B' to the 'Selected' windows.
   - Select 'OK' to close 'End User Group Detail'.
   - Click 'Save' button to download the new regroup.
4. Click 'Define Regroup' and click 'Add' to name the regroup 'Regroup1' and description 'Regroup1 test'.
   - Change 'Profile Name' to 'Regroup1' and change 'End User Group Id' to 'Regroup1'.
   - Click 'OK' and save to click 'Save' the changes to the UAS.
5. Click 'Manage Regroup' check the box for 'Regroup1' and select the button for 'Regroup'.
   - Click 'Save' to start regroup.
   - Verify that Radio A and Radio B are forced to 'Talkgroup 64003'.
6. At 'Radio A' and 'Radio B', attempt to change talkgroups away from 'Talkgroup 64003'
   - Verify that both radios are forced to remain on 'Talkgroup 64003'.
7. PTT 'Radio A' on 'Talkgroup 64003'.
   - Verify that 'Radio C' hears audio on 'Talkgroup 64003' and can respond.
8. Clear the dynamic regroup from the UAS client.
   - Verify 'Radio A' and 'Radio B' are no longer forced to 'Talkgroup 64003' (i.e., they can select other predefined talkgroups).

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# UNIT DEREGISTRATION

**Purpose:** Demonstrate that a radio will automatically deregister when the radio is turned off.

**Expected Results:** Test will show that the radio is off and will not create traffic load demand.

**Setup:** Radio A is the only radio on 'TG A' for this test. All other radios should be on different talkgroups. UAS>System Properties>Protocol Timer>Radio Re-Registration Timer for P25 trunked sites must be lowered to a minimum value to test this feature. It is typically setup for 360 minutes. Set the timer for two minutes and note the "calculated" value of "VNIC Remove Demand Timer". The VNIC Remove Demand Timer value is the "wait time" to see the radio be "deregistered" by the system after losing connectivity. Restart the VNIC following the change. Be sure to set the timer back to 360 minutes following the test.

**Execution:**

1. Browse to https://s0u1rnm.vida.local/nmc and log in with an Active Directory account. Choose 'System Map' and select 'Launch Application' button. Open 'Realtime' tab and click 'Mobiles.'
   > Verify Radio A LID is shown registered on the site.
2. PTT console and verify it communicates on the system to Radio A.
   > Return call from Radio A to the console.
3. Turn off Radio A and wait for expiration of the radio timeout period.
4. Refresh RNM mobiles screen periodically and verify Radio A is deregistered after VNIC *Remove Demand Timer* has passed.
5. PTT console, after the expiration of the timeout.
   > Verify no channel is assigned to site, since no demand exists at the sites.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# UAS SITE ADJACENCY CONFIGURATION (FIELD TEST)

**Purpose:** Demonstrate the capability to configure site adjacencies in the UAS.

**Expected Results:** Site adjacencies will be successfully configured and modified.

**Setup:** UAS is installed and functioning on system network.

**Execution:**

1. In the UAS go to System > System Properties > Site adjacency.
2. Select a site on the left-hand side to configure for adjacency information.
3. Use the left-hand side to add adjacencies for the site.
   > Confirm the adjacent sites are removed from the non-adjacent site list and display correctly on the right side.
4. Use the right-hand side to remove a site adjacency.
   > Confirm the removed adjacency disappears on the right side and is displayed as a non-adjacent site on the left side.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# UNIT ENABLE/DISABLE FROM THE UAS

**Purpose:** Demonstrate the ability to disable a lost/stolen radio from the UAS.

**Expected Results:** Test will disable and re-enable a designated radio.

**Setup:** Ensure radios can communicate together on same trunk group. Verify all sites are connected to the NSC and are online.

*Note: If a radio is encrypted, unit disable will automatically delete the encryption key from the radio, as it is disabled. To restore unit functionality for an encrypted radio, the radio must have the encryption key re-installed.*

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| Radio A | TG A |
| Radio B | TG A |
| Radio C | TG A |

**Execution:**

1. PTT on Radio C and verify call is heard on other Radios.
2. From the UAS:
   - Click Radio C Enable/Disable.
   - Under the Unit Enable/Disable tab, enter the ID of Radio C to be modified.
   - Select the disable button and check the status.
   - Attempt to PTT Radio C and verify that it will not communicate with the other radios.
   - PTT Radio A and verify that Radio C cannot receive the call.
3. Enable the ID of Radio C.
   - Verify that the Enable/Disable screen indicates that the current state of the radio is enabled.
   - Confirm that the radios can communicate by placing call.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# UAS SITE ACCESS CONTROL FOR INVALID USER ID

**Purpose:** Demonstrate access control for subscriber units with invalid radio IDs and high availability of the Regional System Manager (RSM).

**Expected Results:** Radio will be denied access to the system with an invalid subscriber ID. Once the radio is added to the system in the UAS database, the primary RSM will download the database that includes it to the sites and allow the radio access. When the primary RSM is turned off and the radio is deleted from the UAS database, the secondary RSM will download the database that deletes the radio from the system. Once the radio is deleted from the system, the radio will again be denied access.

**Required Materials:** Three radios, a programming cable, and computer with RPM2 installed.

**Setup:** Use the table below to set up the new radio in the UAS.

| VOICE END USER | INPUT | SUBSCRIBER UNIT | INPUT |
|---|---|---|---|
| User ID | 010:998:9150 | Description | Radio9150 |
| Name | Rad9150 | Electronic Serial No. | 0109989150 |
| Description | Radio9150 | RSI | 0000000109989150 |
| Personality | Pers1 | Protocol Mask | P25 |
| User Privilege | 998_10_default | Status | Enabled Unit |
| Message Trunked Icall | TRUE | Sub Type | Harris XL-200P |
| Enable P25 AES OTAR | TRUE | Assigned End User | 010:998:9150 |
| Manually Keyed | FALSE | Algorithm Support | AES |
| Preferred Vocoder | P25 Half Rate | | |
| Transc Allowed Flag | TRUE | | |

**Execution:**

1. Log into a site traffic controller, issue a “show udb 9989150.”
   > Verify radio is not present in the traffic controller database.
2. Program Radio A with an ID 9989150.
3. Attempt to PTT Radio 9150.
   > Verify access to the site is denied and audio is not heard.
4. Use the supplied table to enter Radio 0109989150 into the UAS database.
   > Select Agency/”agency name”/Voice End User. Click ‘Add Entry’ and then on the ‘End User’ Detail screen input the user ID, password (“p25user”), name, description, etc. of the user.
   > Select agency/”agency name”/subscriber unit and enter appropriate user ID, IP address, and ESN for the user.
5. Log into a site traffic controller, issue a “show udb 0109989150.”
   > Verify the radio is now present in the traffic controller database.
6. Key Radio A (9150).
   > Verify access to the site is permitted and audio is heard on radio.
7. Delete 0109989150 from the UAS database.
8. Key Radio A (9150)
   > Verify access to the site is not permitted and audio is not heard.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# Network Management

## REAL-TIME SITE MONITORING (RNM)

**Purpose:** Demonstrate the capability to monitor real-time call activity from the RNM.

**Expected Results:** This test will show active call traffic on specific talkgroups and caller IDs.

**Setup:** Administrator access to the RNM.

Radio A and Radio B operating on a site and NSC under test, both programmed with Group A.

**Execution:**

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log into the RNM.
   - Choose the 'System Map' and select the 'Launch Application' button.
   - Open the 'Real-time' tab and click 'Site Activity'.
   - Select the site and expand.
2. Check the box next to the channels and select it to add the channels to the target list. Select the 'OK' button to launch the application.
3. Place a group call from Radio A to Radio B on the site.
   - Verify the event viewer displays the talkgroup ID and caller ID.
   - Verify the state changes from free to talk.
   - Verify the trunk group alias displays the group number.
4. Place an emergency call from Radio A to Radio B on the site.
   - Verify the event viewer displays the emergency indication.
   - Verify the event viewer displays the talkgroup ID and caller ID.
5. Place an individual call from Radio A to Radio B on the site.
   - Verify the event viewer displays an individual call on the channel.
6. For P25 Phase 2: Verify the P25 Phase 2 RF traffic channels are sub-divided into two bearers (2-slot TDMA) when all Radios on the TG are Phase 2 capable.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# REGIONAL NETWORK MANGER (RNM) MONITOR SYSTEM STATUS

**Purpose:** Demonstrate the capability to monitor system status from the RNM.

**Expected Results:** This test will show system level equipment icons.

**Setup:** Administrator access to the RNM.

**Execution:**

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log into the RNM.
2. Choose the system map and select the 'Launch Application' button. Select the 'Network' tab and expand the tree in the left-hand panel until you can see a site in the right-hand panel.
   > Verify the infrastructure is presented.
   > Select an object and right click to select properties to view information related to the object.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# RF SYSTEM ALARMS INDICATIONS ARE REPORTED (RNM)

**Purpose:** Demonstrate the capability to monitor system faults and alarms at the RNM.

**Expected Results:** Site equipment will send alarms to the RNM.

**Setup:** Need access to the site under test and the regional RNM. The alarm will need to be generated by equipment being physically powered-down or reset. Note the time of the alarm condition for later tests. On the 'RNM Domain' screen, verify all map icons are either green or blue. On the fault browser screen, delete any prior alarms.

**Execution:**

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log in with an Active Directory account.
   - Choose the system map and select the 'Launch Application' button.
   - Select the 'Network' tab and expand the tree in the left-hand panel until a site is in the right-hand panel.
2. Generate an alarm on a device (see chart) by powering down or otherwise disabling the device.
   - Verify that the RNM Network Viewer indicates a site alarm for the affected device.
   - Review alarm details by doing a right mouse click on an 'Alarm Object'. Select the desired menu option.
   - Verify alarm is listed in the 'Fault Browser'.
3. Turn the device back ON.
   - Verify that the device alarm clears and displays green.
4. Repeat Steps 2 - 3 for all equipment listed in the chart below.
5. Substitute https://s0u2rnm.vida.local/nmc and repeat test Steps 1 - 4 for the second RNM.
6. Record the results below for each site.

*Note: This form can be modified to reflect actual as-built alarms*

| SITE # | | SITE NAME | |
|---|---|---|---|
| **ALARM #** | **NAME** | **RESULTS (PASS/FAIL)** | **REMARKS** |
| 1 | Traffic Controller | | Press the reset button on the TC and watch for the alarm |
| 2 | Router | | Remove cable from Gi0/0 (interface to SAS) |
| 3 | Switch | | Remove a cable from a PLAN port |
| 4 | PA | | Disable one of the site PAs |

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# NETWORK SENTRY SITE ALARM INDICATIONS ARE REPORTED (RNM)

## FIELD TEST ONLY

**Purpose:** Demonstrate the capability to monitor site faults and alarms at the RNM.

**Expected Results:** Site level equipment will indicate faults and alarms at the RNM. During factory testing the alarm will be simulated by changing the active state polarity. During field acceptance testing the jumper alarm contacts will be opened or closed to simulate an alarm. An actual alarm could be monitored if the contacts have been connected.

**Setup:** This test verifies that the site and shelter alarms are connected to the new system and alarm names are programmed to show the alarm types and locations. Site specific digital alarm inputs connected to the alarm management system (Network Sentry) alarm unit.

**Execution:**

1. On a client computer, open the Windows Internet Explorer and browse to https://s0u1rnm.vida.local/nmc and log in with the Active Directory account.
2. Choose the system map and select the 'Launch Application' button.
3. Select the 'Network' tab and expand the tree in the left-hand panel until you can see a site in the right-hand panel.
4. Select a physical site to test alarm inputs.
5. Create a condition that will either simulate an alarm (jumper alarm contacts) or the actual event to trigger each alarm
   > Verify that the alarm is detected and displayed in the RNM Network Viewer and is listed in the 'Fault Browser.'
6. Clear the alarm condition.
   > Observe that the alarm indication has cleared in both the 'Network Viewer' and the 'Fault Browser.'
7. Repeat for each alarm and for each site in the system.
8. Record the results below for each site.

   *Note: This form can be modified to reflect actual as-built alarms.*

| SITE # | | SITE NAME | |
|---|---|---|---|
| ALARM # | NAME | RESULTS (PASS/FAIL) | REMARKS |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# ENTERPRISE NETWORK MANAGEMENT DISPLAY VERIFICATION (ENM)

**Purpose:** Demonstrate ENM monitoring capabilities.

**Expected Results:** Monitor various components of the LMR system.

**Setup:** The ENM product must be configured in Active Directory, in the “VIDA ENM Administrators” group. The user must log into the ENM with an administrator account.

**Execution:**

1. Open Internet Explorer and browse to https://s0u0enm.vida.local.
2. On the left side of the screen select the “Maps” heading and the “Maps Dashboard” sub-heading. From here, you can select the type of map you would like to view.
3. Verify that geographical maps display system and NSC information as configured.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# ENTERPRISE NETWORK MANAGER ALARM AND ALERT TEST (ENM)

**Purpose:** Demonstrate the capability to monitor system faults and alarms at the ENM.

**Expected Results:** ENM will detect in system status by displaying the appropriate alarm.

**Setup:** Need access to the system under test and the ENM. The alarm will need to be generated by equipment being powered-down or reset. The ENM product must be configured in Active Directory in the "VIDA ENM Administrators" group. The user must log into ENM with an administrator account.

**Execution:**

1. On a client computer, open Windows Internet Explorer and browse to https://s0u0enm.vida.local. Log in with the Active Directory account.
2. On the left side of the screen select "Maps" heading and "Maps Dashboard" sub-heading. Then select "System" map. At the "System" map, select the icon for the NSC that you will be working on.
3. Generate an alarm on a device (see chart below) by powering down or otherwise disabling the device.
4. The machine will take a few minutes to shut down.
   > Verify after a few minutes that the host will be highlighted red, and the icon in the "Status" column will turn red.
5. Turn the device back on.
   > Verify after a few minutes the icon in the "Status" column will turn green. (It may take some time for the red highlight to clear).
6. Repeat Steps 1 - 5 for all equipment listed in the below chart.

   *Note: This form can be modified to reflect actual as-built alarms.*

| Alarm # | Name | Description | Results (Pass/Fail) | Remarks |
|---|---|---|---|---|
| | | **NSC1** | | |
| 1 | NSS | Network Switching Service | | |
| 2 | ISSI | Inter Sub-System Interface | | |
| 3 | ADSA | Active Directory Server (A, B, C) | | |
| 4 | RCA/SCA | Root Certificate Authority/ Subordinate Certificate Authority | | |
| 5 | VCC (vCenter) | VCenter Computer | | |
| 7 | UAS | Unified Administration System | | |
| 8 | RSM/PRO | Regional Site Manager | | |
| 9 | LAP (BeOn) | LMR Access Point | | |
| 10 | RNM | Regional Network Manager | | |
| 11 | VPS | VIDA Presence Server | | |
| 12 | TXT | TextLink Server | | |
| 13 | EDTA | eData Server | | |
| 14 | KMF | Key Management Facility | | |

| Alarm # | Name | Description | Results (Pass/Fail) | Remarks |
|---|---|---|---|---|
| 15 | EPO | ePolicy Orchestrator | | |
| 16 | SUMS | Security Update Management Service | | |
| 17 | BAK | Backup Server (Unitrends) | | |
| 18 | DFC | Defense Center Server | | |
| 19 | NIDS | Network Intrusion Detection | | |
| 20 | SMT | System Management Terminal | | |
| 21 | Console- Dispatch (CON) | Console | | |
| 22 | VMT | Virtual Management Terminal | | |
| 23 | XCD | Transcoder | | |
| | | NSC2 | | |
| 1 | NSS | Network Switching Service | | |
| 2 | ISSI | Inter Sub-System Interface | | |
| 3 | ADSA | Active Directory Server (A, B, C) | | |
| 4 | SCA | Subordinate Certificate Authority | | |
| 5 | PRO | Regional Site Manager | | |
| 6 | LAP (BeOn) | LMR Access Point | | |
| 7 | RNM | Regional Network Manager | | |
| 8 | VPS | VIDA Presence Server | | |
| 9 | EDTA | eData Server | | |
| 10 | BAK | Backup Server (Unitrends) | | |
| 11 | DFC | Defense Center Server | | |
| 12 | NIDS | Network Intrusion Detection | | |
| 13 | VMT | Virtual Management Terminal | | |
| 14 | XCD | Transcoder | | |

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# Cybersecurity Testing

## ACTIVE DIRECTORY

**Purpose:** The purpose of this test is to view the GPO structure on an Active Directory server.

**Expected Results:** The GPO structure is valid.

**Setup:** None

**Execution:**

1. Remote desktop into an active directory server on the system.
2. Open Active Directory 'Users and Computers'
   - Validate that the computer accounts are in the appropriate containers. No computers should appear in the "Computers" container.
   - Verify VIDA administrator group and VIDA Dispatch group exist.
   - Verify VIDA administrators template exists for creation of new accounts.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# SUMS

**Purpose:** Demonstrate the SUMS server is communicating with the remote client.

**Expected Results:** Test will verify the SUMS server is communicating with the remote clients and that the remote clients are updated.

**Setup:** N/A

**Execution:**

1. Remote Desktop into the SUMS server.
2. Launch the 'IBM Endpoint Manager Console' and log into the console with the SUMS administrative user.
3. Expand 'Sites' 'Custom Sites' 'VIDA' and select 'Subscribed Computers'
   - Verify that each computer is listed, in the "Subscribed Computers" window
   - Check to make sure that each computer has reported to the SUMS server within the last 30 minutes by checking the 'Last Report Time' column.
   - To check to make sure all the subscriber computers are updated by selecting the 'Baseline' in the left-hand window.
   - Make sure the 'Baseline' window is empty or all computers in the window are gray.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# EPOLICY ORCHESTRATOR

**Purpose:** This test verifies that ePolicy Orchestrator is communicating with its end devices and it will report actions taken by McAfee Antivirus on a remote computer.

**Expected Results:** ePolicy Orchestrator is accessible and displays valid reporting.

**Setup:** N/A

**Execution:**

1. Use Internet Explorer on a client PC to navigate to the McAfee E-Policy Orchestrator server located at “https:/s0u1epo.vida.local:8443”.
2. Log in using proper credentials
   > Use local account user “xAdministrator”.
3. Go to ‘System Tree.’
4. Expand VIDA groups.
   > Verify all servers and computers are present within EPO and are communicating.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# UNITRENDS SYSTEM BACKUP

**Purpose:** This test verifies the Unitrends server has a schedule for performing backups of network computers and that it can display the backup status of those computers.

**Expected Results:** The test will verify the backup configuration.

**Setup:** N/A

**Execution:**

1. Use Internet Explorer on a client PC to navigate to the Unitrends backup servers:
   > s0u1bak.vida.local located at "https://10.128.0.145".
   > s0u2bak.vida.local located at "https://10.128.0.177".
2. Log in using root.
3. On the left panel click protect.
4. On the left look at file level and VMware backups.
   > Verify that devices are visible and configured for backups.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# Activity Warehouse

## SITE ACTIVITY USING THE ACTIVITY WAREHOUSE

**Purpose:** Demonstrate the capability to create various agency level system usage reports.

**Expected Results:** Test will create an agency level user report.

**Setup:** Ensure radio traffic has occurred across the network recently. If necessary or desired, place some calls with a known radio ID on multisite talkgroups prior to running the test for reference during the test.

**Execution:**

1. Open a web browser and browse to 'https://s0u1pro.vida.local/reports' and log in with active directory credentials.
2. Select 'Activity Reports' → Call Activity
3. Enter the time period for the report (Example: 2-hour window before this test).
4. Enter additional report information required.
5. Click on "View Report"
   > Check to make sure that there is call activity.

   *NOTE: These reports can be up to two hours behind.*

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# Transcoder Test

## TRANSCODER TEST

**Purpose:** Test will demonstrate the transcoder ability to transcode calls made with different vocoders.

**Expected Results:** This test will verify that the transcoder is needed to transcode a call, and each transcoder will transcode calls.

**Setup:** Radio A Personality: Systems > P25 Trunked > Select the “System Name” > “TDMA Capable” needs to be unchecked (for FDMA / Phase 1).

Radio B Personality: Systems > P25 Trunked > Select the “System Name” > “TDMA Capable” needs to be Checked (for TDMA / Phase 2).

UAS > Agencies > Voice End User >

- Radio A > P25 Full Rate
- Radio B > P25 Half Rate

| DESCRIPTION | TYPE | TG DESCRIPTION | SITE |
|---|---|---|---|
| Radio A | Phase 1 Radio | Half rate TG | 1 |
| Radio B | Phase 2 Radio | Half rate TG | 2 |
| Console | | Half rate TG | |

**Execution:**

1. Shutdown s0u1xcda.vida.local, s0u2xcda.vida.local and s0u1xcdb.vida.local.

| TRANSCODER | STATE |
|---|---|
| s0u1xcda.vida.local | Off |
| s0u2xcda.vida.local | Off |

2. From the console place a call on Talkgroup, a P25 TDMA Phase 2 call.
   - Verify call is not heard on P25 FDMA Radio A on Talkgroup, this call failed, since there is no working transcoder.
   - Verify call is heard on P25 TDMA Radio B on Talkgroup.
3. From FDMA Radio A place a call on Talkgroup.
   - Verify call is not heard on TDMA Radio B on Talkgroup, since there is no working transcoder.
4. Restart s0u1xcda.vida.local.

| TRANSCODER | STATE |
|---|---|
| s0u1xcda.vida.local | On |
| s0u2xcda.vida.local | Off |

5. From the console place a call on Talkgroup, a P25 TDMA call.
   - Verify call is heard on P25 FDMA Radio A, call is using s0u1xcda.vida.local.
   - Verify call is heard on P25 TDMA Radio B.
6. From FDMA Radio A place a call on Talkgroup.
   - Verify call is heard on TDMA Radio B on Talkgroup, call is using s0u1xcda.vida.local.
7. Restart s0u2xcda.vida.local wait for 15 minutes for services to start

8. Shutdown s0u1xcda.vida.local.

| TRANSCODER | STATE |
|---|---|
| s0u1xcda.vida.local | Off |
| s0u2xcda.vida.local | On |

9. From the console place a call on Talkgroup, a P25 TDMA call.
   > Verify call is heard on P25 FDMA Radio A, call is using s0u2xcda.vida.local.
   > Verify call is heard on P25 TDMA Radio B.
10. From FDMA Radio A place a call on Talkgroup.
   > Verify call is heard on TDMA Radio B on Talkgroup, call is using s0u2xcda.vida.local.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# BeOn Features

**Purpose:** Demonstrate the BeOn features.

**Expected Results:** Following tests will demonstrate that BeOn works as designed.

**Setup:** Tests will show that the BeOn system allows a smartphone to communicate with the radio system.

## TRANSMIT GRANT TONE

**Purpose:** Demonstrate the grant tone on BeOn.

**Expected Results:** When the smartphone PTTs on the BeOn app, it will play a grant tone.

**Setup:** Grant tone (Ready to Talk tone) enabled in smartphone radio personality.

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| BeOn Phone 1 | TG A |
| BeOn Phone 2 | TG A |
| BeOn Phone 3 | TG A |

**Execution:**

1. Press PTT button on smartphone with valid group selected.
   > Verify grant tone is heard at smartphone when working channel access is granted.
   *Note: If the call is queued, the grant tone will be delayed until the call is assigned a working channel.*

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# GROUP CALL

**Purpose:** Confirms BeOn can make group calls.

**Expected Results:** Selected talkgroup call audio is heard.

**Setup:** Set Smartphones 1, 2, and 3 to (Group A) per test group structure. Make sure Scan is turned OFF.

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| BeOn Phone 1 | TG A |
| BeOn Phone 2 | TG A |
| BeOn Phone 3 | TG A |

**Execution:**

1. PTT on BeOn Phone 1 and talk.
   > The transmit (TX) indicators should turn on at BeOn Phone 1.
   > Audio should be heard in BeOn Phone 2 and BeOn Phone 3.
   > The ID of BeOn Phone 1 should be seen at BeOn Phone 2 and BeOn Phone 3.
2. Set BeOn Phone 3 to TG B. PTT on BeOn Phone 1 and talk.
   > The transmit (TX) indicators should turn on at BeOn Phone 1.
   > Audio should be heard in BeOn Phone 2 only.
   > The ID of BeOn Phone 1 should be seen at BeOn Phone 2 only.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# INDIVIDUAL (PRIVATE) CALL

**Purpose:** Confirms individual calls can be initiated using BeOn enabled smartphones.

**Expected Results:** Individual calls are confirmed.

**Setup:**

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| BeOn Phone 1 | TG A |
| BeOn Phone 2 | TG A |
| BeOn Phone 3 | TG A |

**Execution:**

1. Using the BeOn Phone 1, select the pre-stored ID of BeOn Phone 2 or enter the BeOn Phone 2 ID directly from the keypad, and PTT Smartphone 1.
   > Verify that BeOn Phone 2 receives the call and displays the ID of Smartphone 1.
   > Verify that BeOn Phone 3 remains idle.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# GROUP SCAN

**Purpose:** Confirms the scan function which allows a smartphone to hear audio on selected talkgroups other than the current talkgroup.

**Expected Results:** Selected talkgroup call audio is heard.

**Setup:** BeOn Phone 1 set up with Talkgroup A P25 and B P25 in the scan list, Talkgroup A P25 selected, and group scan initially disabled.

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| BeOn Phone 1 | TG B |
| BeOn Phone 2 | TG A |

**Execution:**

1. Place a call from BeOn Phone 2 on Talkgroup A P25.
   > Verify the call is not received by BeOn Phone 1.
2. Enable group scan on BeOn Phone 1.
3. Place another call from BeOn Phone 2 on Talkgroup A P25.
   > Verify that the call is now received, and audio is heard on BeOn Phone 1.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# EMERGENCY GROUP CALL

**Purpose:** Confirms an emergency can be declared, recognized, and cleared by a smartphone.

**Expected Results:** The emergency is declared, recognized, and cleared.

**Setup:**

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| BeOn Phone 1 | TG A |
| BeOn Phone 2 | TG B |
| BeOn Phone 3 | Talkgroup C |

**Execution:**

1. Press the emergency call button on BeOn Phone 3 and then PTT BeOn Phone 3.
   > Verify that BeOn Phone 3 indicates the “TX EMER” declaration and that it reverts to the home group.
   > Verify that BeOn Phone 1 and BeOn Phone 2 indicate a “RX EMER” and hear audio on the emergency home group.
2. Clear the emergency with supervisor phone or console.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# BeOn Server High Availability (Field Test Only)

## BEON SERVER HIGH AVAILABILITY

**Purpose:** Demonstrate BeOn LAP servers operate as high availability.

**Expected Results:** Verify BeOn LAP servers provide high availability BeOn operational status.

**Setup:** Two BeOn LAP servers are up and operational. Test can include BeOn Windows client, BeOn iOS client, BeOn Android client if available for testing.

> Use RNM > “Network” tab > BeOn Sites > LAP1 and LAP2 to view Server Active Status.

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| BeOn Windows Client | TG A |
| BeOn iOS Client | TG A |
| BeOn Android Client | TG A |
| Radio A | TG A |

**Execution:**

1. All BeOn clients and BeOn-capable radios are on same Talkgroup.
   > Verify all BeOn clients and radios can transmit and receive on Talkgroup.
2. On RNM > “Network” tab > BeOn Sites > LAP1 and LAP2 > “Properties”:
   > Verify both LAP1 and LAP2 are “Online” and “Reachable” and “Up”.
3. Shutdown LAP1 server.
4. Monitor at RNM, the status of LAP1 server, to indicate when LAP1 server is down. RNM > “Network” tab > BeOn Sites > LAP1 > “Properties”.
   > Verify “Monitor” is “Offline”.
   > Verify “Connectivity” is “Unreachable”.
   > Verify “Operation” is “Down”.
5. Ensure at RNM, status of LAP2 server remains “Online”, “Reachable”, and “Up”.
   > Verify “Monitor” is “Online”.
   > Verify “Connectivity” is “Reachable”.
   > Verify “Operation” is “Up”.
6. PTT Radio A on Talkgroup and talk. Transmit (TX) indicator should turn on at Radio A.
   > Verify BeOn Windows client, BeOn iOS client, BeOn Android client and BeOn-capable Radio B all receive the call audio.
7. Restart LAP1 server.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# High Availability NSS Switchover

## HIGH AVAILABILITY WIDE AREA ROUTER FAILURE

**Purpose:** Demonstrate capabilities of the system to work after a WAR failure.

**Expected Results:** System components that are set-up with high availability will continue to work after a WAR failure.

**Setup:** These tests are setup to be run twice, once on each router. After completing Step 4 restart the WAR router if not already running. Wait 20 minutes and rerun the tests for the second router. These tests will simulate a WAR failure by disconnecting it from the Wide Area Network (WAN), so the WAR to WAN connection will need to be known.

| DESCRIPTION | TG DESCRIPTION | SITE |
|---|---|---|
| Radio A | TG A | 1 |
| Radio B | TG A | 1 |
| Radio C | TG A | 1 |
| Radio D | TG A | 2 |

**Execution:**

1. Use Radio A to initiate a call
   > Verify that the call is heard on the Radio B. Keep the call active during fail-over.
2. Use Radio C to initiate a call
   > Verify that the call is heard on Radio D. Keep the call active during fail-over.
3. Log in to s0u1nss and s0u2nss; change your user to the Root User and enter the password.
4. Type ‘HArunning’ into both NSSs, one will report that it is the ‘Stand By’ and one will report that it is the ‘Primary’. Note the name of the primary NSS and the primary WAR.

| DESCRIPTION | TEST RUN 1 | TEST RUN 2 |
|---|---|---|
| Primary NSS Name | | |
| Primary RNM Name | | |
| Primary RNM Name | | |
| Primary RSM Name | | |
| Time of Server Reboot | | |

5. Log into the WAR that is associated with the ‘Primary’ NSS. “Reload” the WAR router.
   > The call from Radio C to Radio D will be dropped.
   > The call from Radio A to Radio B will continue and the console will lose connectivity to the VNIC.
   > Verify that after a short delay, the backup server NSS2 automatically takes over as the primary server.
6. Wait 20 minutes for the two NSS servers to synchronize and replicate their databases.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# NSC Test Notes / Issues

# NSC Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

| NEW KENT Representative | L3Harris Technologies Representative |
| --- | --- |
| Signature | Signature |
| Printed Name and Title | Printed Name and Title |
| Date | Date |

# SYMPHONY CONSOLE FEATURE SET

## TRANSMITTING WITH A MICROPHONE

**Purpose:** Demonstrate Symphony operator can initiate communication with a radio using Symphony select functions and foot pedal.

**Expected Results:** Confirms Symphony communication with radio

**Setup:** Radio set to same TG as console

**Execution:**

1. Press INSTANT TX function (right mouse button) on module with test group.
   - Verify call is heard on radio.
   - Verify a ripple effect on 'TX' indicator is displayed.
   - Verify a channel access tone is heard.
   - Release the Instant TX key.
2. Click the 'Select' button on the module to make the TG the selected talkgroup.
   - Verify module for TG is highlighted, indicating it is selected talkgroup.
3. Make a call on TG by pressing PTT foot pedal.
   - Verify a channel access tone is heard.
   - Verify halo around the 'TX' indicator is displayed.
   - Verify call is heard on radio.
   - Verify audio is heard at radio on talkgroup.
   - Release foot pedal to end call.
4. Make a call on TG by pressing headset button.
   - Verify a channel access tone is heard.
   - Verify halo around 'TX' indicator is displayed.
   - Verify call is heard on radio.
   - Verify audio is heard at radio on talkgroup.
   - Release headset button to end call.
5. Make a call on TG by selecting it with a mouse.
   - Verify a channel access tone is heard.
   - Verify halo around 'TX' indicator is displayed.
   - Verify call is heard on radio.
   - Verify audio is heard at radio on talkgroup.
   - Release mouse button to end call.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# RECEIVING CALLS (UNIT ID DISPLAY, TALKGROUP ID DISPLAY, ALIASING)

**Purpose:** Confirm Symphony operator can receive communications from a radio, using both TG A and individual calling.

**Expected Results:** Communications are initiated and received on appropriate speaker (select or unselect) and radio's ID is displayed.

**Setup:** Symphony has talkgroups A, B, and C configured with TG B selected.

## Talkgroup Call

**Execution:**

1. Key radio and verify
   - That call is heard at unselect speaker.
   - Calling radio ID is displayed on module for TG.
   - A green light ID displayed indicating an incoming call on module TG A.
2. Switch radios talkgroup to TG B and key radio.
   - Verify call is heard at select speaker.
   - Verify calling radio ID is displayed on TG B module.
   - Verify a green light ID displayed indicating an incoming call on module for TG B.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# Individual Call (Unit – Unit)

**Execution:**

1. Right click on ‘Harris’ box on top left-hand side of screen.
2. Select ‘Open Directory’ this will open a pop-up window for ‘Directory’.
3. Select ‘Users’ tab.
4. Select ‘Radio A’ under “ALIAS’ column.
5. Press ‘Radio A’ button right side to screen to place an individual call to ‘Radio A’.
   > Verify ripple effect on ‘TX’ indicator is displayed.
   > Verify a ringing tone will be heard at console and radio.
   > Verify radio displays ‘INDV’ and consoles ‘ID”.
6. Respond to console by PTTing radio.
   > Verify call is heard on Symphony and calling radio’s ID and call indicator are displayed.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# EMERGENCY CALL AND EMERGENCY ALARM

**Purpose:** Confirms Symphony indicates an emergency declared by a radio and can reset and clear emergency.

**Expected Results:** Symphony indicates and can clear emergency.

**Setup:** Test requires a test radio capable of generating and clearing an emergency (i.e. supervisor radio).

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| Radio A | TG A |

**Execution:**

1. Using test radio, declare an emergency on TG A.
   > Verify TG A module turns red,
   > Verify ID/name of test radio is displayed
   > Verify emergency alert tone is heard on Symphony.
2. Select triangle with a '!' to access emergency menu.
   > Verify acknowledge 'Ack' button is red and check box is red.
3. Using radio, transmit on talkgroup
   > Verify call is received by Symphony.
4. With Symphony, transmit on group with emergency.
   > Verify test radio receives call and is still in emergency mode.
5. Acknowledge emergency by selecting 'Ack' button
   > Verify button changes from 'Ack' to clear.
   > Verify radio and Symphony are still in emergency mode.
6. Clear the emergency by selecting 'Clear X' button
   > Verify Symphony clears emergency.
   > Verify radio clears emergency.
7. Transmit on radio.
   > Verify emergency is cleared and normal group calls have resumed.
8. Select TG A group selected on Symphony, declare an emergency on test group by pressing 'Emer Declare'.
   > Verify Symphony and radio have same indications as Steps 2 to 4.
9. Acknowledge by hitting 'Ack' in Step 5.
10. Clear emergency with Symphony.

| TEST RESULTS | | | | |
|---|---|---|---|---|
| Tester: | | | | |
| Date: | | | | |
| Result: | ☐ | Pass | ☐ | Fail |

# ALERT TONES

**Purpose:** Confirm Symphony can initiate alert tones which can be heard at radio.

**Expected Results:** Tones can be initiated and heard.

**Setup:** Symphony programmed with TG A.

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| Radio A | TG A |

**Execution:**

1. Make TG A P25 selected talkgroup.
2. Select tones tab on talkgroup module.
3. Select one of three ALERT TONE keys by selecting drop-down list next to orange button.
4. Radio A will receive tone.
5. Test all three alert tones to ensure all alert tones can be heard on radio.
   > Verify ALERT TONE is received by Radio A and is also heard on Symphony.
6. When ALERT TONE key is released.
   > Verify tone on Radio A drops.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# CONSOLE PRE-EMPT

**Purpose:** Confirm Symphony can pre-empt an ongoing call between radios.

**Expected Results:** Call started by the radio will be interrupted by the console.

**Setup:** Symphony programmed with TG: TG64001 P25

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| Radio A | TG A |
| Radio B | TG A |

**Execution:**

1. Key Radio A on TG A and hold call up. Verify that audio is heard at Radio B and Symphony.
2. Key Symphony on TG A and hold, while continuing to hold call up on Radio A
   - Verify console pre-empts.
   - Verify transmit indicator is displayed along with pre-empted caller LID and CALL indicator.
   - Verify second radio begins to hear Symphony audio and not first radio call.
   - Verify pre-empted radio audio is still heard on pre-empting console.
3. Un-key first radio.
   - Verify pre-empted caller LID and CALL indicators are removed, and pre-empted radio audio is no longer heard on pre-empting Symphony.
4. Un-key Symphony.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# SIMULSELECT

**Purpose:** Confirms operation of Symphony simulselect feature, which allows multiple talkgroups to be selected for communication simultaneously.

**Expected Results:** Symphony can select multiple talkgroups and communication is allowed.

**Setup:** Symphony programmed with TGs A, B, C, and D.

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| Radio A | TG A |
| Radio B | TG B |
| Radio C | TG C |
| Radio D | TG D |

**Execution:**

1. Create simulselect group on 4 test group modules.
2. Place a call from Symphony on simulselect group.
   > Verify call is heard at all four radios.
3. Place a call from each radio.
   > Verify only Symphony hears calls.
   > Verify only radios on the same talkgroup hear each other.
4. Deactivate simulselect group.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# PATCH

**Purpose:** Confirms Symphony patch feature creates shared communication between multiple selected talkgroups.

**Expected Results:** Patched talkgroups can communicate.

| DESCRIPTION | TG DESCRIPTION |
|---|---|
| Radio A | TG A |
| Radio B | TG B |
| Radio C | TG C |
| Radio D | TG D |

**Execution:**

1. Create patch on PATCH 1 with all four groups above.
2. Place a call from newly created patch.
   > Verify call is heard on all radios.
3. Place a call from each radio.
   > Verify call is heard on Symphony and each radio.
4. Deactivate patch.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# CALL HISTORY

**Purpose:** Confirms a history of calls processed at the Symphony.

**Expected Results:** History is accessible and valid.

**Setup:** Test compares programmed module call activity to history scroll lists. Utility page, dispatch menu will be selected. Select either “Select History” or “Unselect History”.

**Execution:**

1. Press ‘scroll up’ and ‘scroll down’ buttons to scroll through Unselect Call History list.
   > Compare these calls with known activity.
2. Press ‘scroll up’ and ‘scroll down’ buttons to scroll through Selected Call History list.
   > Compare these calls with known activity.
3. Press ‘Esc’ button to exit history scroll mode.
4. To monitor call history on a single group, use ‘module history’ button on ‘module modify’ menu.
5. Use ‘scroll up’ and ‘scroll down’ buttons to scroll through calls for picked module.
   > Compare these calls with known activity.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# GROUP EMERGENCY AND UNIT ALERT WITH SYMPHONY

**Purpose:** Confirm Symphony receives a group emergency and an emergency unit alert declared by a radio. Confirm console can acknowledge and clear emergency alarm (unit alert) and acknowledge and clear group emergency.

**Expected Results:** Symphony Console can indicate emergency alarm (unit alert) and group emergency. Symphony can also clear unit alert & cancel group emergency.

**Setup:** Radios A & B have "Emergency Alarm" enabled in personalities.

| DESCRIPTION | TG DESCRIPTION | TG ID |
|---|---|---|
| Radio A | TDMA TG A | 64152 |
| Radio B | TDMA TG B | 64152 |

**Execution:**

1. Select TDMA TG A on the console. On Radio A, declare an emergency on TG B. PTT Radio A to talk to the dispatcher.
   > Verify Radio B on site 2 receives emergency and hears emergency group call.
2. On Symphony's TG B Module:
   > Verify TG B Module has a striped red background.
   > Verify TG Smart Button flashes an "emergency icon", which alternates with TG icon.
   > Verify Declarer ID is shown in Red on TG Module.
   > Verify emergency alarm tone and radio emergency group call audio is heard on Symphony.
3. On Symphony's Sidebar Panel, go to the Emergency Panel:
   > Verify emergency listed shows TG B, in a mini module, with a red background.
   > Verify declarer ID is listed, with an "ACK" button and a number '1', for number of group emergencies declared, [listed below TG Mini Module].
   > Verify below declarer ID, single unit icon and declarer ID is listed, with an "ACK" button.
4. To clear group emergency alarm tone on Symphony emergency sidebar panel, select top "ACK" button next to declarer ID.
   > Verify group emergency alarm tone is silenced on the console.
   > Verify group emergency is still displayed on talkgroup module and emergency sidebar panel.
   > Verify unit alert "ACK" is still displayed below group emergency.
5. On Symphony, select and transmit on TG B.
   > Verify Radio A and B both receive emergency call.
6. Clear group emergency on Radio A.
   > Verify console TG module no longer indicates a group emergency.
   > Verify the group emergency is no longer seen on Radio A and Radio B.
7. PTT on Radio A, to do a group call:
   > Verify an emergency group call goes to the Symphony on TG B module, and to Radio B.
   > Verify emergency is also seen in emergency sidebar panel.
   > (This occurs, since emergency unit alert is still active on TG B.)

8. On Symphony emergency sidebar panel, clear unit alert tone by selecting second “ACK” button next to unit icon and declarer ID. Also, clear group emergency alarm tone on TG B, by selecting first “ACK” button next to declarer ID.
   > Verify all emergency tones have been silenced.
9. On emergency sidebar panel, clear group emergency by selecting first “Clear” button next to declarer ID. Also, clear unit alert by selecting second “Clear” button next to Unit Icon and declarer ID.
   > Verify emergency on TG B has been cleared from Symphony, Radio A, and Radio B.
10. PTT on Radio A on TG B, to do a group call.
   > Verify a group call without an emergency is seen and heard at Symphony and Radio B.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# CONSOLE TO CONSOLE CROSS-MUTE

**Purpose:** Confirm creation of a cross-mute of another console to quiet the muted consoles audio on the local console.

**Expected Results:** Cross-muted console's audio cannot be heard on local console.

**Setup:** Establish two Symphony consoles (A and B) to test cross mute function. Both Symphony consoles must be on same NSC. Program and select a test group on both consoles.

**Execution:**

1. Place a call on Console A on test group.
   > Verify Console B can hear Console A.
2. Open Symphony configuration utility for Console B, add ID for Console A to 'cross mute' list.
3. Select 'Apply' to save changes.
4. Place a call on Console A on test group.
   > Verify call can't be heard at Console B.
5. Restore desired cross mute setup.

| TEST RESULTS | | |
|---|---|---|
| Tester: | | |
| Date: | | |
| Result: | ☐ Pass | ☐ Fail |

# Symphony Console Test Notes / Issues

| |
|---|
| |

# Symphony Console Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

| NEW KENT Representative | L3Harris Technologies Representative |
| --- | --- |
| Signature | Signature |
| Printed Name and Title | Printed Name and Title |
| Date | Date |

# Subscriber Unit Test Notes / Issues

| |
|---|
| |

# Subscriber Unit Test Acceptance

This Functional Test Acceptance Procedure has been fully and successfully completed with all action items resolved.

| NEW KENT Representative | L3Harris Technologies Representative |
| --- | --- |
| Signature | Signature |
| Printed Name and Title | Printed Name and Title |
| Date | Date |

# Failure Reporting

Upon observing a system issue, System Tester will notify the designated System Monitors and provide the necessary information required to complete a Radio System Issue Report (Figure 1).

In the event that System Monitors identify an abnormal system condition, alarm, or alert, either from the Regional Network Manager (RNM) or from a System Tester report, the monitor will complete the Radio System Issue Report (Figure 1) and submit it to the Test Committee within 12 hours. Upon receipt of the issue report, the L3Harris representative will log the report and make a preliminary classification of the issue and report it to the Test Committee within 12 hours of receiving the report.

Should the issue be classified as a major failure, the test will be halted until resolved.

In the unlikely event that the Test Committee cannot reach consensus on the issue classification, or restart of the test after a major failure, the L3Harris Project Manager and the County Project Manager will meet and discuss. If they cannot reach agreement, the test will resume, and the issue will be referred to the Dispute Resolution Board.

Weekly meetings will take place to review the progress of the test, discuss issues identified and their resolution. Attendees of the meetings will include the Test Committee and others as identified by the County and L3Harris Project Managers. The L3Harris Project Manager will document and distribute meeting minutes and action items for each meeting.

**Figure 1. P25 Radio System Issue Report Form**

| P25 RADIO SYSTEM ISSUE REPORT FORM | |
|---|---|
| Name / User: | |
| Date: | |
| Time: | |
| Location: | |
| In Building (Y/N): | |
| GPS Coordinates: | |
| Agency: | |
| User ID: | |
| Talk Group / Channel: | |
| Selected System: | |
| ISSUE DESCRIPTION | |
| | |

*Note: The P25 System Issue Reporting Form is also available on the last page of this document to use as a handout during testing.*

# Scheduled Maintenance or Intermediate Failure

Upon completion of the maintenance or resolution of the failure, the test shall resume as if the maintenance or failure had not occurred (i.e., if the test is stopped on Day 5 for maintenance, it would then resume on Day 6 after the maintenance is complete).

# Major Failure

Should a major failure occur, the L3Harris team will take prompt action to evaluate the issue and implement corrective action. After resolving the issue, the L3Harris Project Manager or Engineering Manager will document the resolution and provide notice of restarting the test at Day 1.

# Resources and Designations

L3Harris and the County will determine the necessary resources to execute and monitor the testing and ensure they are available to meet, perform, and complete the technical requirements as agreed upon. Such resources include personnel, facilities, site access, and the assistance of required NEW KENT personnel to conduct testing. Identified and agreed upon resources will be made available such that there is no impact to the cycle-time of the reliability test and performance of the task.

# Acceptance

As identified on the project schedule, upon successful completion of the <<#RelDays>>-Calendar Day System Reliability Test, L3Harris will submit the results of the test including a summary of issues and descriptions of resolutions performed. A joint meeting will follow, at a mutually agreeable location, to review the test documentation and obtain acceptance and agreement that the System Reliability Test was successfully executed, completed, and approved.

# P25 Radio System Issue Report Form

| P25 RADIO SYSTEM ISSUE REPORT FORM | |
|---|---|
| Name / User: | |
| Date: | |
| Time: | |
| Location: | |
| In Building (Y/N): | |
| GPS Coordinates: | |
| Agency: | |
| User ID: | |
| Talk Group / Channel: | |
| Selected System: | |

| ISSUE DESCRIPTION |
|---|
| |

# APPENDIX A – ACRONYMS AND DEFINITIONS

| ACRONYM | DEFINITION |
|---|---|
| AD | Active Directory |
| AES | Advanced Encryption Standard |
| ATP | Acceptance Test Procedure |
| CAI | Common Air Interface (usually in reference to P25) |
| CME | Cisco Mobility Exchange (Telco Interconnect) |
| CNM | Central Network Manager, a L3Harris product |
| Confirmed Call | A confirmed call is a special type of call where the call is queued until all sites have resources available, or until the confirmed call timer expires (configurable, typically one or two seconds) |
| COTS | Commercial-off-the-Shelf |
| CPC | Channel Performance Criterion |
| DAQ | Delivered Audio Quality |
| DES | Digital Encryption Standard |
| LMR | Enterprise Land Mobile Radio |
| ESN | Electronic Serial Number (64 bits) |
| FDMA | Frequency Division Multiple Access |
| GID | Group ID (16 bit). This corresponds to a talkgroup. The group ID is unique within a VNIC and can be reused on other VNICs within the same WACN. Some of the older P25 documents refer to the GID as a talkgroup ID (TGID) |
| HA | High Availability |
| Individual Call | An individual call is a private call between one user and another. It can be between two radios, or between one radio and a dispatch console |
| KEK | Key Encryption Key |
| KID | 16-bit encryption key ID |
| KMF | Key Management Facility |
| KMM | Key Management Message |
| LAN | Local Area Network |
| MASTR V | An L3Harris base station product |
| MES | Mobile End System, a subscriber radio |
| MME | Miniature mobility exchange, which consists of L3Harris software running on a SitePro card at the base site. The MME runs the SNDCP layer of the data protocol and is the equivalent of the P25 RFG (RF Gateway) |

| ACRONYM | DEFINITION |
|---|---|
| N(S) | A 3-bit sequence number for the packet data unit |
| NSC | Network Switching Center |
| NSS | Network Switching Server |
| NWS | Network Sentry |
| OTAP | Over-the-air-programming |
| OTAR | Over-the-air-rekeying |
| P25 | Project 25, a suite of standards for digital radio communications, developed by the Association of Public Safety Communications Officials (APCO) under the TIA TR-8 engineering committee, and published as the TIA-102 set of documents |
| Priority Talkgroup | The priority talkgroup selected on the subscriber device. Usually this is the talkgroup that the radio will transmit on when the user presses PTT |
| ProFile | An L3Harris product used for configuring radios over the P25 radio channel |
| ProScan | An L3Harris software algorithm used for radio roaming |
| PTT | Push-to-Talk |
| RAR | Regional Access Router |
| RF | Radio Frequency |
| RNM | Regional Network Manager |
| RSM | Regional Site Manager, a server that runs the RSM, Activity Warehouse and Device Manager applications |
| RSSI | Received Signal Strength Indicator |
| RVM | Regional VIDA Manager, a server that runs the UAS and RNM applications |
| SAN | Storage area network |
| SMT | System management terminal. |
| SU | Subscriber unit. In the P25 world, an SU is a mobile or portable radio |
| SUT | System Under Test |
| SUMS | Security Update Management Service (an L3Harris product) |
| SUMSplus | Version of SUMS |
| TAC | Technical Assistance Center, an L3Harris service |
| TDMA | Time Division Multiple Access |
| TEK | Traffic Encryption Key |
| TGID | Talkgroup ID (16 bit, equivalent to GID). The P25 documents usually use GID but some of the older documents use TGID |
| Traffic Controller | Software entity that resides in a base station at the site and generates the P25 control channel |
| Tx | Transmit |
| UAC | Unified Audio Card |

| ACRONYM | DEFINITION |
|---|---|
| UAS | Unified Administration System |
| UKEK | User Key Encryption Key |
| UPS | Uninterrupted Power Supply |
| VAS | VIDA Application Server |
| VIDA | Voice, Interoperability, Data, Access (an L3Harris system product) |
| VLAN | Virtual Local Area Network |
| VM | Virtual Machine |
| VNIC | Voice Network Interface Controller, the L3Harris voice switch |
| VPN | Virtual Private Network |
| VTI | VIDA Telephone Interconnect |
| WACN | Wide area communication network (20 bit network ID, part of SUID). This is a customer network that can include many VNICs |
| WAR | Wide Area Router |
| Zeroize | A P25 control channel command which causes the mobile radio to erase its encryption keys (but then requires manual loading to restore encryption keys) |

# EXHIBIT B

## SOFTWARE LICENSE AGREEMENT

This License Agreement ("License Agreement") is made upon the Effective Date of the Primary Agreement (the "Effective Date") between L3Harris Technologies, Inc., a Delaware Corporation, acting through its Communication Systems Segment, ("LICENSOR" or "L3Harris") with offices at 221 Jefferson Ridge Parkway, Lynchburg, VA 24501 and New Kent County, Virginia ("LICENSEE"). LICENSOR is the owner of certain wireless communications software programs and LICENSEE desires to obtain a license from LICENSOR to use such wireless communications programs.

**1.0 Definitions.**

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1.2 "Designated Terminals": Means the LICENSOR's Terminals purchased by LICENSEE.

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Licensee acknowledges that the Licensed Programs are subject to the laws and regulations of the United States and Licensee will comply with all applicable laws and regulations, including export laws and regulations of the United States. Licensee will not, without the prior authorization of L3Harris and the appropriate governmental authority of the United States, in any form export or re-export, sell or resell, ship or reship, or divert, through direct or indirect means, any item or technical data or direct or indirect products sold or otherwise furnished to any person within any territory for which the United States Government or any of its agencies at the time of the action, requires an export license or other governmental approval. Violation of this provision is a material breach of this License Agreement.

**11.0 Governing Law.**

This License Agreement will be governed by the laws of the Unites States to extent that they apply and otherwise to the laws of the ~~State of New York~~Commonwealth of Virginia. The terms of the U.N. Convention on Contracts for the International Sale of Goods do not apply. The parties expressly agree that the Uniform Computer Information Transactions Act ("UCITA") applicable in any jurisdiction shall not apply to this License Agreement.

**12.0 U.S. Government.**

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**13.0 Agreement.**

This License Agreement may be part of a Primary Agreement between LICENSOR and LICENSEE for the purchased products by LICENSEE from LICENSOR. The Primary Agreement and this License Agreement contain the full understanding of the parties with respect to the subject matter hereof and which supersede all prior understandings and writings relating thereto and which shall become binding on the Effective Date of this License Agreement. No waiver, consent, modification, amendment, or change to the terms of this License Agreement shall be binding unless agreed to in a writing signed by LICENSEE and LICENSOR. If there is any conflict between the terms of the Primary Agreement and this License Agreement as to the Licensed Programs, the terms of this License Agreement will prevail.

**14.0 Notices.**

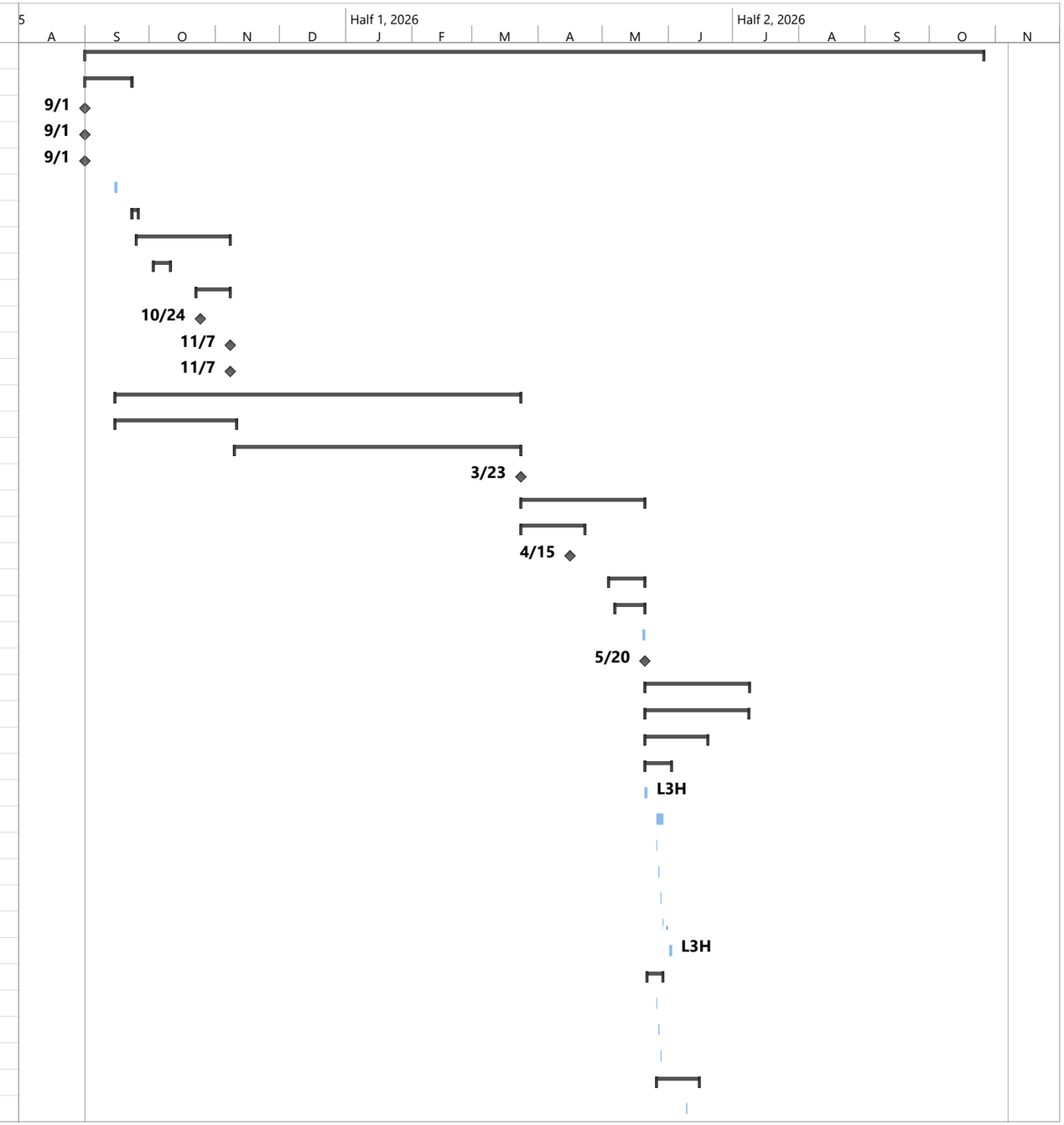
Notices shall be provided as set forth in the Primary Agreement. In the event there is no notice provision in the Primary Agreement, notices and other communications between the parties shall be transmitted in writing by certified mail or nationally recognized overnight courier service.

**15.0 Survival.**

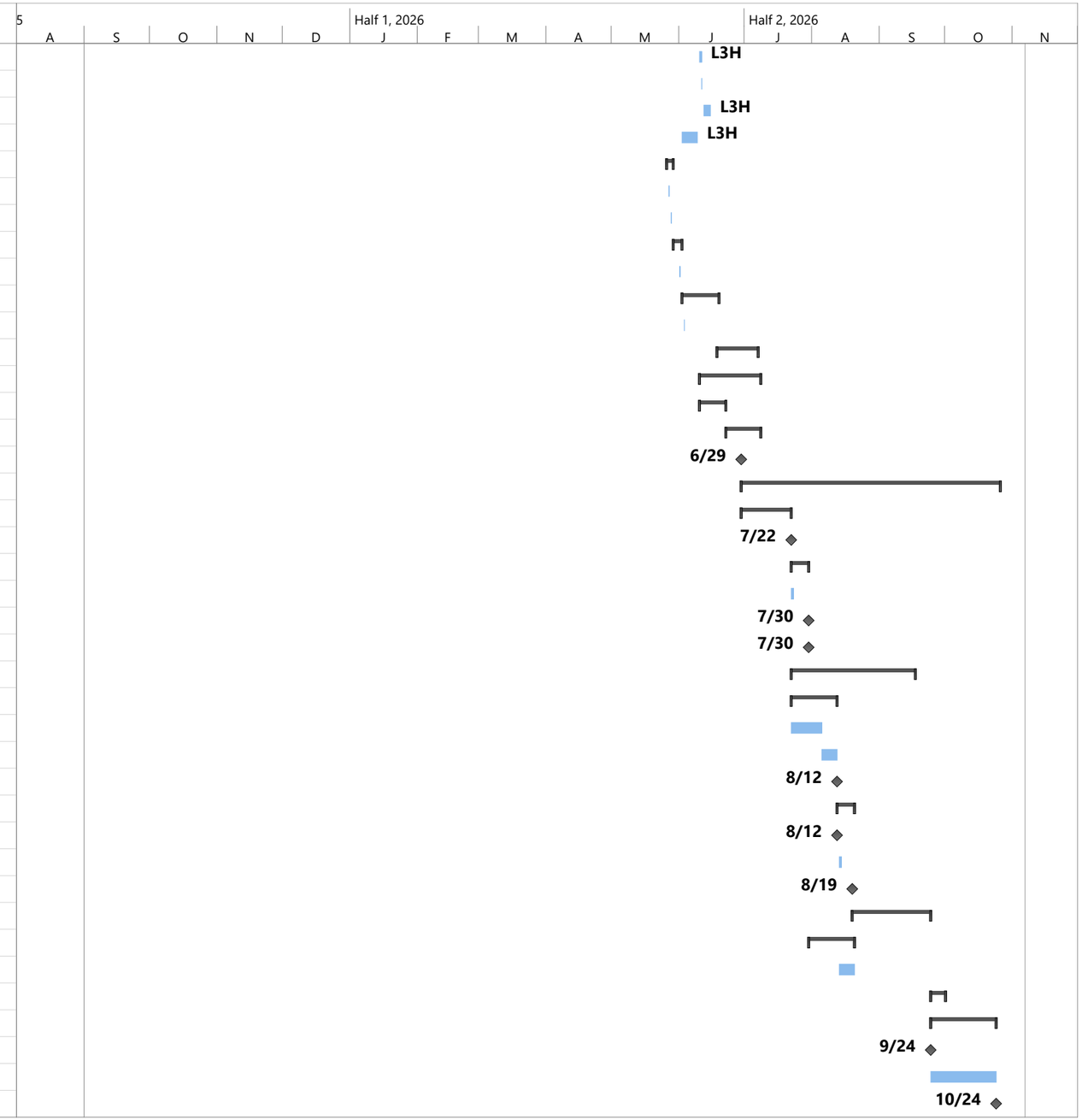
Sections 2, 3, 5, 6, 8, 9, 11, and 13 of this License Agreement shall survive termination of this agreement.

[*End of Document*]

| Name | Duration | Start | Finish |
|---|---|---|---|
| **New Kent County** | **285.85 days** | **Mon 9/1/25** | **Mon 10/26/26** |
| **L3H Internal Startup** | **15 days** | **Mon 9/1/25** | **Mon 9/22/25** |
| **Contract Start** | **0 days** | **Mon 9/1/25** | **Mon 9/1/25** |
| Contract Signed | 0 days | Mon 9/1/25 | Mon 9/1/25 |
| Contract Execution Billing Milestone | 0 days | Mon 9/1/25 | Mon 9/1/25 |
| Rebuild As-Sold Falcon Files for accuracy/bring up to date | 1 day | Mon 9/15/25 | Mon 9/15/25 |
| **Hold Kick-Off Meeting with Customer** | **3 days** | **Tue 9/23/25** | **Thu 9/25/25** |
| **Detailed Design Review** | **32 days** | **Wed 9/24/25** | **Fri 11/7/25** |
| **Finalize Initial Design Review** | **6 days** | **Fri 10/3/25** | **Fri 10/10/25** |
| **Detailed Design Review (DDR) with Customer** | **12 days** | **Thu 10/23/25** | **Fri 11/7/25** |
| Customer Detailed Design Review Complete | 0 days | Fri 10/24/25 | Fri 10/24/25 |
| Customer Approval of DDR | 0 days | Fri 11/7/25 | Fri 11/7/25 |
| Detailed Design Review Billing Milestone | 0 days | Fri 11/7/25 | Fri 11/7/25 |
| **Procurement** | **125 days** | **Mon 9/15/25** | **Mon 3/23/26** |
| **Subsystems Procurement** | **41 days** | **Mon 9/15/25** | **Mon 11/10/25** |
| **LMR Standard Material Orders** | **85 days** | **Mon 11/10/25** | **Mon 3/23/26** |
| Equipment Procurement Billing Milestone | 0 days | Mon 3/23/26 | Mon 3/23/26 |
| **LMR Factory Production** | **42 days** | **Tue 3/24/26** | **Wed 5/20/26** |
| **LMR Assembly and Staging** | **22 days** | **Tue 3/24/26** | **Wed 4/22/26** |
| Equipment Staging at Factory Billing Milestone | 0 days | Wed 4/15/26 | Wed 4/15/26 |
| **Shipping** | **13 days** | **Mon 5/4/26** | **Wed 5/20/26** |
| **System Tear Down and Shipping** | **10 days** | **Thu 5/7/26** | **Wed 5/20/26** |
| Inventory of equipment at Warehouse or sites | 1 day | Wed 5/20/26 | Wed 5/20/26 |
| Infrastructure Equipment Shipment Billing Milestone | 0 days | Wed 5/20/26 | Wed 5/20/26 |
| **LMR Installation and Optimization** | **33 days** | **Wed 5/20/26** | **Wed 7/8/26** |
| **System Infrastructure Installation and Optimization** | **32.85 days** | **Thu 5/21/26** | **Wed 7/8/26** |
| **Install Equipment (bolt down, wire, connect to pwr)** | **20.5 days** | **Thu 5/21/26** | **Fri 6/19/26** |
| **Courthouse** | **7.5 days** | **Thu 5/21/26** | **Tue 6/2/26** |
| NW Travel for Installs | 1 day | Thu 5/21/26 | Thu 5/21/26 |
| EXACOM Call Recording Install and configuration | 3 days | Tue 5/26/26 | Fri 5/29/26 |
| Change Network Sentry 4 to VVS with Network Sentry A | 1 day | Tue 5/26/26 | Wed 5/27/26 |
| Update Interoperability Devices (Pathway + Gateways) | 1 day | Wed 5/27/26 | Thu 5/28/26 |
| Update UAC to Pathway+ | 1 day | Thu 5/28/26 | Fri 5/29/26 |
| Update Basestation S/W | 1 day | Fri 5/29/26 | Mon 6/1/26 |
| Optional: Add new VVS + C1111-4P | 1 day | Mon 6/1/26 | Tue 6/2/26 |
| **Quinton** | **4.5 days** | **Thu 5/21/26** | **Fri 5/29/26** |
| Change Network Sentry 4 to VVS with Network Sentry A | 1 day | Tue 5/26/26 | Wed 5/27/26 |
| Update Interoperability Devices (Pathway + Gateways) | 1 day | Wed 5/27/26 | Thu 5/28/26 |
| Update Basestation S/W | 1 day | Thu 5/28/26 | Fri 5/29/26 |
| **Dispatch Sites** | **14 days** | **Tue 5/26/26** | **Mon 6/15/26** |
| Upgrade 2 Quorum PCs to Win10 O/S | 1 day | Tue 6/9/26 | Wed 6/10/26 |



| Name | Duration | Start | Finish |
|---|---|---|---|
| Upgrade 7705 MPLS routers S/W (Qty 4) | 1 day | Wed 6/10/26 | Thu 6/11/26 |
| Update Interoperability Devices (Pathway + Gateways) | 1 day | Thu 6/11/26 | Fri 6/12/26 |
| Return NW Travel | 1 day | Fri 6/12/26 | Mon 6/15/26 |
| Optional: Upgrade Symphony Consoles from SDP 1.0 to | 5 days | Tue 6/2/26 | Tue 6/9/26 |
| **Providence Forge** | **3 days** | **Tue 5/26/26** | **Fri 5/29/26** |
| Change Network Sentry 4 to VVS with Network Sentry A | 1 day | Wed 5/27/26 | Thu 5/28/26 |
| Update UAC to Pathway+ | 1 day | Thu 5/28/26 | Fri 5/29/26 |
| **West Point** | **2 days** | **Fri 5/29/26** | **Tue 6/2/26** |
| Change Network Sentry 4 to VVS with Network Sentry A | 1 day | Mon 6/1/26 | Tue 6/2/26 |
| **Mumford Rd-CCC** | **13 days** | **Tue 6/2/26** | **Fri 6/19/26** |
| Change Network Sentry 4 to VVS with Network Sentry A | 1 day | Wed 6/3/26 | Thu 6/4/26 |
| **Network Switching Center & Console Optimization** | **12 days** | **Thu 6/18/26** | **Tue 7/7/26** |
| **RF Site and Interop Optimization, and Final Audit** | **19.35 days** | **Wed 6/10/26** | **Wed 7/8/26** |
| **RF Site Alignment** | **8.35 days** | **Wed 6/10/26** | **Mon 6/22/26** |
| **Acceptance Testing Readiness** | **11 days** | **Mon 6/22/26** | **Wed 7/8/26** |
| Installation (System) Billing Milestone | 0 days | Mon 6/29/26 | Mon 6/29/26 |
| **Acceptance** | **83 days** | **Mon 6/29/26** | **Mon 10/26/26** |
| **Customer Field Acceptance Testing** | **16 days** | **Mon 6/29/26** | **Wed 7/22/26** |
| Functional Test Approved | 0 days | Wed 7/22/26 | Wed 7/22/26 |
| **System Acceptance** | **6 days** | **Wed 7/22/26** | **Thu 7/30/26** |
| Submit Letter of System Acceptance | 1 day | Wed 7/22/26 | Thu 7/23/26 |
| Customer Signs Letter of Acceptance of System | 0 days | Thu 7/30/26 | Thu 7/30/26 |
| Customer Warranty Start | 0 days | Thu 7/30/26 | Thu 7/30/26 |
| **Cutover Planning and Execution** | **40 days** | **Wed 7/22/26** | **Thu 9/17/26** |
| **Cutover Planning** | **15 days** | **Wed 7/22/26** | **Wed 8/12/26** |
| Final Cutover Planning (Migration strategy, etc.) | 10 days | Wed 7/22/26 | Wed 8/5/26 |
| Customer Reviews Cutover Plan | 5 days | Wed 8/5/26 | Wed 8/12/26 |
| Customer Approval of Cutover Plan | 0 days | Wed 8/12/26 | Wed 8/12/26 |
| **Cutover Execution** | **6 days** | **Wed 8/12/26** | **Thu 8/20/26** |
| Notified Users of Cutover time | 0 days | Wed 8/12/26 | Wed 8/12/26 |
| Cutover to the new L3Harris Radio System | 1 day | Thu 8/13/26 | Fri 8/14/26 |
| Cutover Complete | 0 days | Wed 8/19/26 | Wed 8/19/26 |
| **Decommissioning** | **25 days** | **Wed 8/19/26** | **Thu 9/24/26** |
| **Program Documentation** | **15 days** | **Thu 7/30/26** | **Thu 8/20/26** |
| Deliver Final As-Built Documentation Package to the Custome | 5 days | Thu 8/13/26 | Thu 8/20/26 |
| **Warranty Hand off Meeting with Customer** | **4.5 days** | **Thu 9/24/26** | **Thu 10/1/26** |
| **Final Acceptance** | **21.15 days** | **Thu 9/24/26** | **Sat 10/24/26** |
| Final Acceptance Billing Milestone | 0 days | Thu 9/24/26 | Thu 9/24/26 |
| Customer Invoice Processing | 30 edays | Thu 9/24/26 | Sat 10/24/26 |
| Project Complete | 0 days | Sat 10/24/26 | Sat 10/24/26 |



New Kent County Board of Supervisors
P O Box 150, 12007 Courthouse Circle
New Kent, VA 23124

# AGENDA ITEM REQUEST

(TO BE SUBMITTED NO LATER THAN 12 DAYS PRIOR TO THE MEETING)

Meeting Date: 9/29/2025

Agenda Item

| | |
|---|---|
| Motion: "Mr. Chairman, I move to (not required for Consent Agenda items) | |
| Subject | **Other Business** |
| Issue | |
| Recommendation | |
| Fiscal Implications | |
| Policy Implications | |
| Legislative History | |
| Discussion | |

| | | | |
|---|---|---|---|
| Time Needed: | 10:00 a.m. | Person Appearing: | |
| Request prepared by: | W. Watkins, Deputy Clerk of the Board | Telephone: | 804-966-9687 |
| Copy provided to: | | | |

**REVIEWERS:**

| Department | Reviewer | Action | Date |
|---|---|---|---|
| Clerk | Watkins, Wanda | Approved | 9/18/2025 - 8:28 AM |

New Kent County Board of Supervisors
P O Box 150, 12007 Courthouse Circle
New Kent, VA 23124

# AGENDA ITEM REQUEST

(TO BE SUBMITTED NO LATER THAN 12 DAYS PRIOR TO THE MEETING)

Meeting Date: 9/29/2025

Agenda Item

| | |
|---|---|
| Motion: "Mr. Chairman, I move to (not required for Consent Agenda items) | adjourn |
| Subject | **Adjournment** |
| Issue | |
| Recommendation | Approval |
| Fiscal Implications | |
| Policy Implications | |
| Legislative History | |
| Discussion | The next regularly scheduled meeting of the Board of Supervisors will be held at 6:00 p.m. on Tuesday, October 14, 2025, and the next work session will be held at 9:00 a.m. on Tuesday, October 28, 2025 both in the Boardroom of the County Administration Building |

| | | | |
|---|---|---|---|
| Time Needed: | 10:10 a.m. | Person Appearing: | |
| Request prepared by: | W. Watkins, Deputy Clerk of the Board | Telephone: | 804-966-9687 |
| Copy provided to: | | | |

**ATTACHMENTS:**

| Description | Type |
|---|---|
| Closed Session Motions (PDF) | Cover Memo |

**REVIEWERS:**

| Department | Reviewer | Action | Date |
|---|---|---|---|
| Clerk | Watkins, Wanda | Approved | 9/18/2025 - 8:31 AM |

## MOTIONS FOR CONVENING A CLOSED SESSION

1 I move to go into closed session pursuant to §2.2-3711A.1 of the Code of Virginia for *(discussion, consideration, or interviews of prospective candidates for employment; assignment, appointment, promotion, performance, demotion, salaries, disciplining, or resignation of specific public officers, appointees, or County employees)* involving _____.

3 I move to go into closed session pursuant to §2.2-3711A.3 of the Code of Virginia for *discussion or consideration of the acquisition of real property for a public purpose, or of the disposition of publicly held real property, where discussion in an open meeting would adversely affect the bargaining position or negotiating strategy of the County*) involving _____.

4 I move to go into closed session pursuant to §2.2-3711A.4 of the Code of Virginia for *(the protection of the privacy of individuals in personal matters not related to public business)* involving _____.

5 I move to go into closed session pursuant to §2.2-3711A.5 of the Code of Virginia for *(discussion concerning a prospective business or industry or the expansion of an existing business or industry where no previous announcement has been made of the business' or industry's interest in locating or expanding its facilities in the community)* involving _____.

6 I move to go into closed session pursuant to §2.2-3711A.6 of the Code of Virginia for *(discussion or consideration of the investment of public funds where competition or bargaining is involved, where, if made public initially, the financial interest of the County would be adversely affected)* involving _____.

7 I move to go into closed session pursuant to §2.2-3711A.7 of the Code of Virginia for (*consultation with legal counsel and briefings by staff members or consultants pertaining to actual or probable litigation, where such consultation or briefing in open meeting would adversely affect the negotiating or litigating posture of the public body; and consultation with legal counsel employed or retained by the Board regarding specific legal matters requiring the provision of legal advice by such counsel)* involving _____.

19 I move to go into closed session pursuant to §2.2-3711A.19 of the Code of Virginia for (*discussion of plans to protect public safety as it relates to terrorist activity and briefings by staff members, legal counsel, or law-enforcement or emergency service officials concerning actions taken to respond to such activity or a related threat to public safety; or discussion of reports or plans related to the security of any governmental facility, building or structure, or the safety of persons using such facility, building or structure*) involving _____.

28 I move to go into closed session pursuant to §2.2-3711A.28 of the Code of Virginia for (*discussion or consideration of records excluded from this chapter pursuant to subdivision 11 of § 2.2-3705.6 by a responsible public entity or an affected local jurisdiction, as those terms are defined in § 56-557, or any independent review panel appointed to review information and advise the responsible public entity concerning such records)* involving _____.

29 I move to go into closed session pursuant to §2.2-3711A.29 of the Code of Virginia for (*discussion of the award of a public contract involving the expenditure of public funds, including interviews of bidders or offerors, and discussion of the terms or scope of such contract, where discussion in an open session would adversely affect the bargaining position or negotiating strategy of the Board)* involving _____.

33 I move to go into closed session pursuant to §2.2-3711A.3 of the Code of Virginia for (*discussion or consideration of confidential proprietary records and trade secrets excluded from this chapter pursuant to subdivision 18 of § 2.2-3705.6.)* involving _____.

## CERTIFICATION OF CLOSED SESSION

A. Motion

I move that the Board certify by roll call vote that to the best of each member's knowledge only public business matters lawfully exempted from open session requirements of the Freedom of Information Act and identified in the motion to go into closed session were heard, discussed or considered in the closed session.

B. Vote taken on certification.

| Present: | Vote: |
|---|---|
| Thomas W. Evelyn | |
| C. Thomas Tiller, Jr. | |
| Patricia A. Paige | |
| Ron Stiers | |
| John N. Lockwood | |

Revised August 2020