NETSYNC

Request for Proposals (RFP)
Broadband Network Grid

ORIGINAL

July 29, 2022
6:00 PM PST

Submitted to:

City of Perris
Purchasing Department
101 N D St.
Perris, CA 92570
Attn: City Clerk
1 Hardcopy

Submitted by:

Netsync Network Solutions
111 West Ocean Blvd., Suite 400
Long Beach, CA 90802
Account Manager: Garrett Curran
P: 909.841.7880
E: gcurran@netsync.com

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1. Cover Letter – Introduction

City of Perris
The City Clerk
101 N D St., Perris, CA 92570

Dear City of Perris:

Netsync Network Solutions ("Netsync") is pleased to respond to the City of Perris's (the City) Request for Proposals (RFP) for Broadband Network Grid. This competitively priced and value-added proposal provides the City with a scalable wireless solution that meets its immediate needs and capabilities to grow in the future.

Netsync has been exclusively serving the public, energy, manufacturing, and financial sectors with quality IT products and solutions, competitive pricing, and comprehensive service, along with support for more than 17 years; with this focus comes expertise. Over the years, Netsync has developed into one of the largest technology solution providers in Texas and quickly growing in other regions.

Netsync goal is to provide a proposal that meets the City's needs, financially, technically, and operationally. This will allow the City to recognize additional efficiencies, cost-reduction, and compliance through automation and simplified processes for citizens and employees.

Netsync has extensive experience providing broadband connectivity through fiber and wireless solutions at multiple county, city, and school district entities. Netsync holds Cisco Gold Integrator, Master Collaboration, Master Networking, Master Security, Master Service Provider Partner, and Customer Experience (CX) Partner; HP Amplify Power Services Partner; Dell Platinum Partner; and Intel Platinum Partner certifications, among many other certifications and specializations from several of the industry's top best-of-breed manufacturers. Our dedicated team of highly skilled, certified, and seasoned engineers is available 24 hours a day, 7 days a week. We understand the importance of cost-effective solutions and provide reduced pricing based on a best-value formula. Our strengths lie in large-scale deployments, and Netsync professionals involved in this response offer exceptional technical expertise, a firm understanding of the scope of work, and invaluable insight to ensure a swiftly and smoothly run project.

Our strengths lie in our commitment to customer excellence with our Customer Experience specialization with broadband connectivity and outdoor wireless. This is proven in our ability and skills to perform large-scale deployments, software contract management and lifecycle management. The Netsync professionals involved in this response offer exceptional technical expertise, a firm understanding of the scope of the RFP requirements, and invaluable insight to ensure a swift and smooth adoption of the technologies included in the RFP.

NETSYNC

With an unwavering commitment to customer service since our founding in 2002, Netsync has quickly grown to be a leading minority/woman-owned, value-added reseller (VAR) nationwide and is Texas Historically Underutilized Business (HUB)-certified. Specializing in comprehensive IT life cycle solutions, including collaboration, data center, cloud, network infrastructure, wireless, physical and network security, end-user computing and VDI, optical/WAN, managed services, and customer experience, we offer customized solutions that meet our clients' needs.

The City's account is overseen by Netsync's Account Manager (AM), Garrett Curran who is located in Fontana, CA. Netsync has 62 Cisco Certified Internetwork Experts (CCIEs) located throughout the U.S. who individually specialize in collaboration, enterprise networking, wireless, data center, physical security, network security, and optical. We have a team of pre- and post-sales engineers who can assist with design, implementation, and troubleshooting.

Netsync looks forward to the opportunity to work with you. If you require additional information about our response, please do not hesitate to contact me.

Respectfully,

Garrett Curran
Account Manager
M: 909.841.7880
E: gcurran@netsync.com

2. Project Understanding

Executive Summary and References

Netsync partners with global leadership in mobile and fixed network infrastructure through state-of-the-art software, hardware, and services for any type of networks. We are uniquely positioned to help communication service providers, governments, and large enterprises deliver on the promise of 5G, the Cloud and the Internet of Things (IoT). Our mobile broadband partner solutions for LTE infrastructure are deployed by Verizon, AT&T, T-Mobile, and Sprint and in all of the largest mobile broadband networks in the world.

Netsync's Ecosystem of Fixed Wireless/pLTE Partners

With a track record of working with enterprise and government clients, Netsync and our Partners design, implement, operate, and support advanced telecommunications solutions and services for enterprise segment, utilities, public safety, transportation, healthcare, hospitality, education, manufacturing and warehouse/logistics industries around the world. These projects range from access and backbone infrastructures for inter-office administrative networks to next-generation mission-critical broadband networks. With an extensive products and services portfolio, Netsync is in the position to provide best-in-class end-to-end network infrastructure that is IP reliable, resilient, and secure systems encompassing access, optical, IP, and microwave routing, core, as well as applications. Further, our advanced features for quality of service, priority and security functions meet the needs of the enterprise industries and public safety community. With its world leading services organization whose responsibilities include network planning and optimization, network implementation, integration services to build and deploy the network, along with managed and care services to maintain and evolve that network.

General Solution Description

Netsync has a clear vision and strategy for implementing wireless broadband networks. Private LTE (P-LTE) solution will enable our clients to provide high-quality Wireless Broadband Network infrastructure and services to provide home access to the internet within school district private network and to get the network infrastructure ready for 5G future transformation. The Netsync proposal will provide highly flexible and cost-efficient design for the fast deployment and easy maintenance.

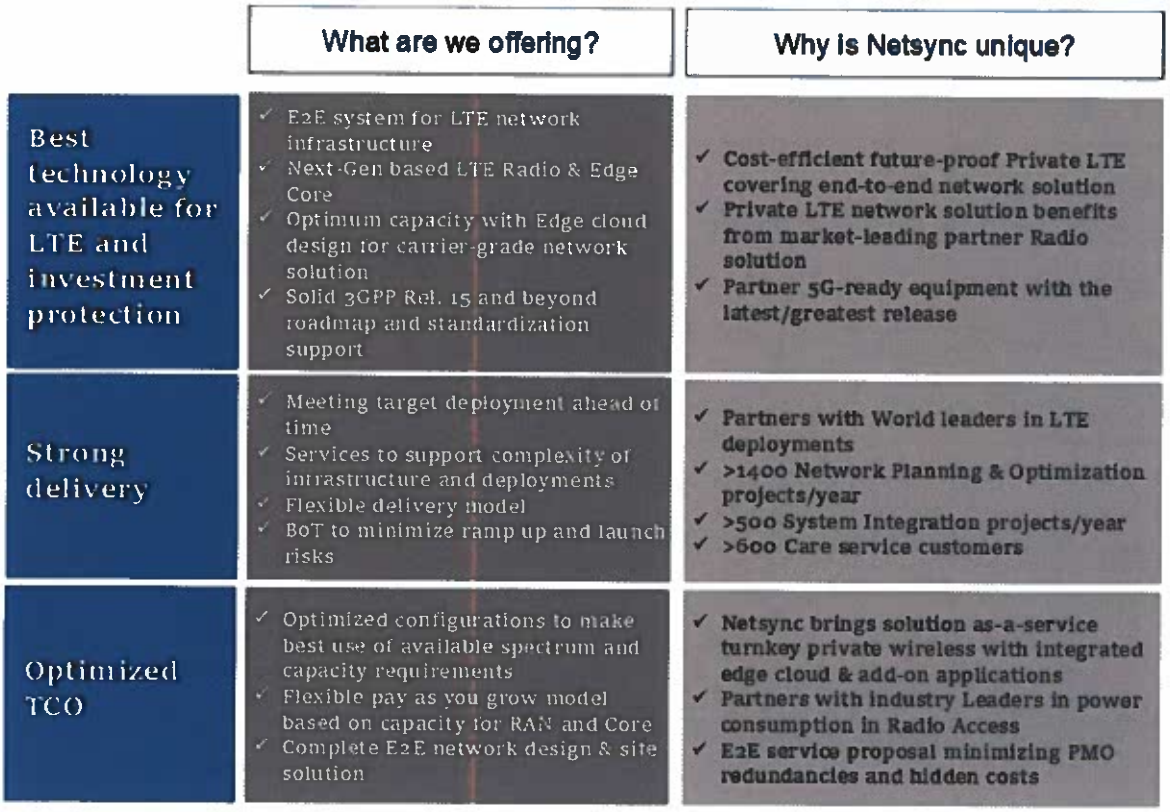


Figure 2: Netsync's Proposal: Build a Unique Private LTE Network/5G Network

The Netsync solution approach involves design-build-integrate-maintain a Private LTE network infrastructure using Citizens Broadband Radio Service (CBRS) spectrum for general authorized access (GAA) deployment with cell bandwidth of up to 40MHz secured in the area including SAS subscription for Federal Communications Commission (FCC) certified Citizens Broadband Radio Service Device (CBSD) equipment.

The Netsync solution will create a P-LTE network infrastructure that has unmatched geographical reach providing our clients the flexibility to add any end-node device anywhere in the coverage territory by simply deploying an LTE receiver/client premises equipment (CPE) or any other CBRS certified end user device (EUD). This network will provide the platform that will help scale enterprise service line network on demand up to the envisioned hundreds of thousands of devices or more with only incremental investment on the infrastructure. Due to the proximity of the Airport, additional Federal Aviation Administration (FAA) and FCC studies and approvals would be needed.

End-to-End (E2E) Solution Architecture

The Netsync E2E P-LTE network solution addresses the requirements raised by the City with various network elements forming the Private cellular network infrastructure, the E2E solution architecture is shown in Figure 3.

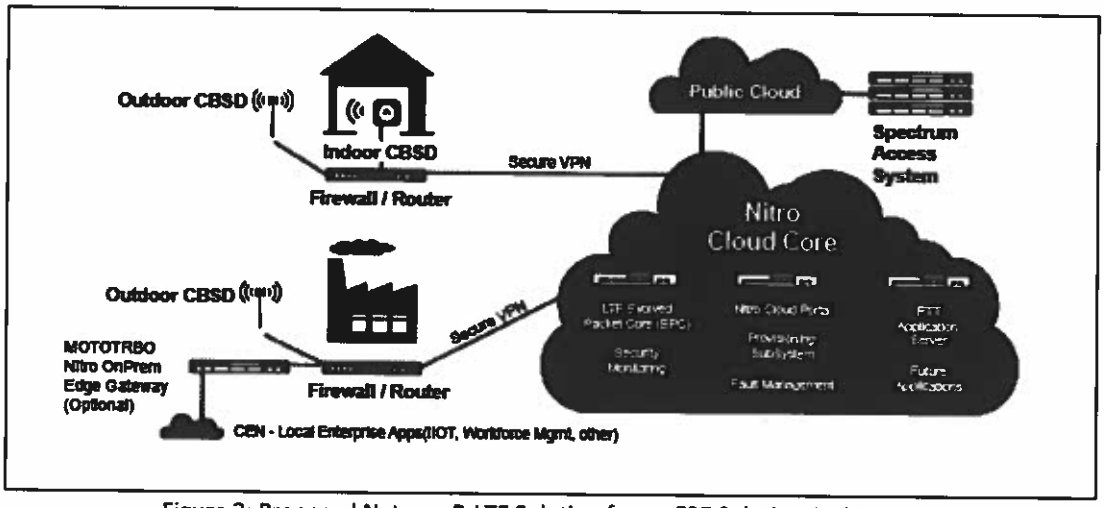


Figure 3: Proposed Netsync P-LTE Solution for an E2E Solution Architecture

End User Devices (EUD):

The EUD (phones and Laptops) are typically connected to CPE using Wi-Fi within the house/building where the CPE is located.

Customer Premises Equipment (CPE):

The CPE are connected wirelessly to the P-LTE network using the CBRS spectrum, and the LTE eNB is the element that transmit and receive the wireless signal to/from the CPE.

LTE eNBs:

LTE eNBs are typically deployed at existing facilities, but can also be deployed at water towers, cellular towers, etc. In this case, we will re-use as much as possible of the City towers and buildings, whenever applicable.

Typical LTE eNB is a 3 or 6-sector site – the number of sectors can be estimated based on capacity and coverage needs. And each eNB will require a 1GE backhaul connected to the centralized Evolved Packet Core (EPC) core.

The following table summarized the typical P-LTE solution components to build a private wireless network infrastructure, and describes the typical location of those elements.

Domain	Logical Functionality	Product Solution	Location
Edge Core	MME	EPC	On-Premises
	SGW/PGW		
	HSS		
	PCRF		

Domain	Logical Functionality	Product Solution	Location
RAN/CBSD	eNodeB Macro Cell	Baseband + PLTE Radios	On-Premises
End User Device	CBSD-CPE Indoor Wireless Router End User Device (EUD)	Outdoor Receiver Indoor Gateway	On-Premises
SAS	SAS	SAS	Cloud
OSS	Management System	Private LTE Partner Customer Portal	Cloud

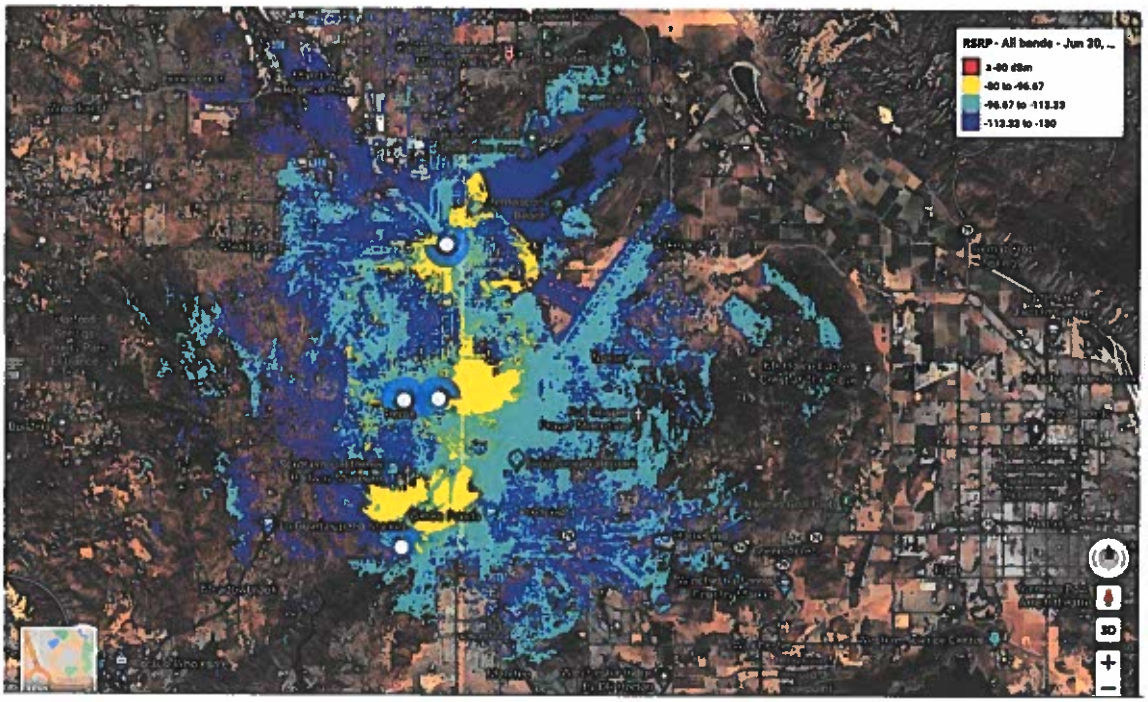
Table 1: Typical P-LTE Product Solution

Preliminary Radio Frequency (RF) Coverage and Capacity

Netsync has performed a preliminary RF design analysis to understand what the possible coverage could be in the included. Netsync has made the following high-level assumptions when generating these preliminary RF plots:

- Each LTE eNB is a sectorized site to provide a maximum 360 deg coverage with an assumed antenna height of 85-feet, with City Hall being 60 on top of the Theater stage.
- Outdoor CPEs are located at a height of 25-feet.
- Output power and EIRP of eNB and UEs are within the requirements of FCC Part 96.

The preliminary RF coverage plot shows the received signal at the CPE device in the area of coverage based on the CBRS signal broadcasted from the LTE eNBs.



As can be seen from above, preliminary RF coverage plots up to 0.5 miles is achievable, and with usage of a high gain outdoor CPE, that range can be extended well beyond 3.5 miles, if that is required by the design. The typical CBRS deployments focus on down link speed as priority with TDD Configuration 1 or 2. There are options that can shift to more of a up link speed priority to allow more data in the uplink, key to improved nature of video camera and surveillance traffic patterns.

Uplink-downlink configuration	Downlink-to-Uplink Switch-point periodicity	Subframe number									
		0	1	2	3	4	5	6	7	8	9
0	5 ms	D	S	U	U	U	D	S	U	U	U
1	5 ms	D	S	U	U	D	D	S	U	U	D
2	5 ms	D	S	U	D	D	D	S	U	D	D
3	10 ms	D	S	U	U	U	D	D	D	D	D
4	10 ms	D	S	U	U	D	D	D	D	D	D
5	10 ms	D	S	U	D	D	D	D	D	D	D
6	5 ms	D	S	U	U	U	D	S	U	U	D

Table 2. Uplink-Downlink Configurations

From a capacity point of view, with the assumption that min. 20MHz of CBRS spectrum is available in the area of the network, as controlled by the SAS, each eNB should be able to support up to 225 users of typical internet data user or more, depending on number of sectors/eNB and spectrum availability. For the capacity expectation of high bandwidth video, we are planning for no more than 5 users per sector, assuming video feeds are live 24x7 and uplink speed is 1-5 mbps.

Capacity assumptions for this project consider the IOT devices in use at the parks.

Private LTE Deployment Approach

A typical P-LTE deployment approach is a phased approach, one example could be as following.

Netsync Phased Deployment Approach

Objective

- Provide wireless broadband services for targeted parks and City locations.
- Support for remote IOT devices in the park system.
- Provide wireless broadband services for City entities.
- Enable evaluation of service effectiveness.

Service Definition

- Provide projection of coverage and capacity using designated sites.
- Cell edge contours mapped for various data rates.

Phased Deployment

- Initial phase deployment of 4 eNBs cell sites at designated pilot locations.
- Provides an opportunity to evaluate effectiveness:
    - Will evaluate park usage, coverage, and capacity.
- Next phase would be a future expansion by addition of new sites, as needed:
    - Leverage additional sites to increase user density.

3. Approach and Management Plan

Please see the following pages for the organization chart showing proposed relationship among consultant team/staff.

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NETSYNC

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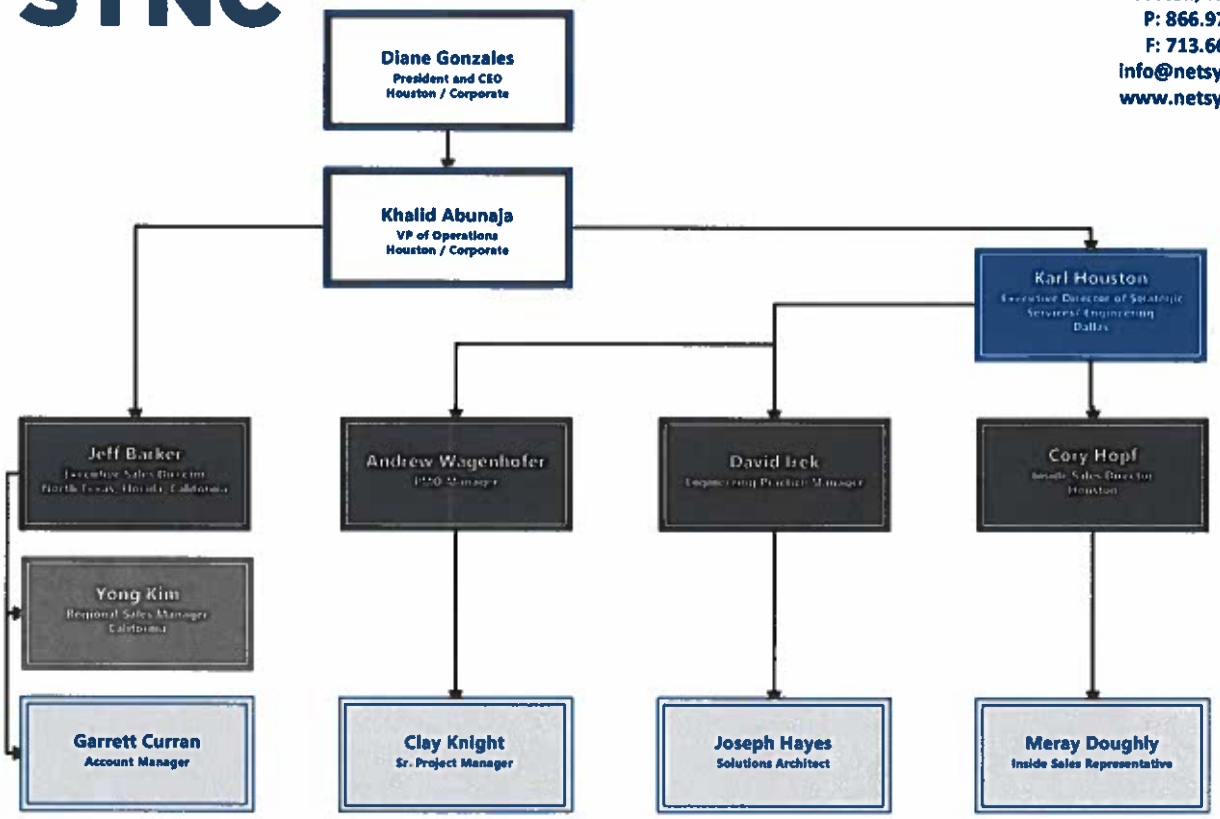
www.netsync.com

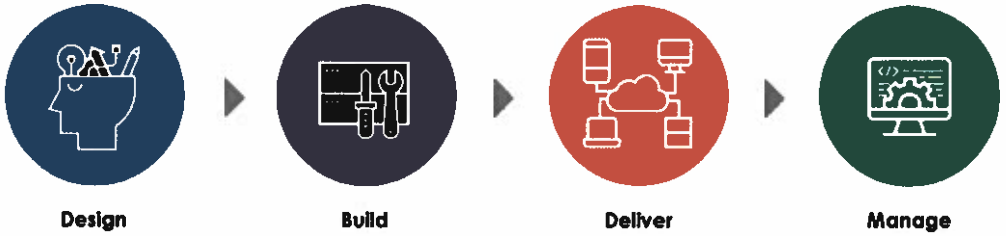


4. Qualifications and Experience – Company Overview

About Netsync Network Solutions

Founded in 2002, Netsync is a minority-owned business (MBE), women-owned small business (WOSB), and Texas Historically Underutilized Business (HUB) value-added reseller (VAR), specializing in technology solutions. We originated as a team of select senior technical consultants and built our business primarily through relationships and referrals, a true testament to the quality technology services Netsync provides. An end-to-end IT solutions consulting company, Netsync is based in Houston, TX, with offices across the US. Netsync uses a true business consultative approach to determine clients' requirements and architects innovative and synergistic IT solutions to meet clients' needs. Our highly skilled and seasoned engineering team is available 24 hours a day, 7 days a week, 365 days a year.

Netsync helps public and private organizations implement complex IT strategies build on advanced technology solutions to achieve desired business outcomes. Our team of solution experts brings tangible business value through our progressive Design, Build, Deliver, and Manage services methodology. Netsync ensures each part of our clients' infrastructure is architected, implemented, and supported to provide the best business value from their infrastructure.



As a Cisco Gold, Master Collaboration, Master Networking, Master Security, Master Service Provider, and Customer Experience (CX) Partner; an HP Amplify Power Services Partner; a Dell Platinum Partner; and an Intel Platinum Partner; and holding certifications and specializations from many of the industry's top best-of-breed manufacturers, Netsync has built its reputation serving the public sector/SLED market. We have extensive experience deploying complex IT solutions for K-12 and higher education institutions, municipalities, and government agencies. Netsync also completes enterprise and SMB large-scale implementations for corporate clients across a diverse array of industries, including financial services, energy, healthcare, retail, manufacturing, and service provider.

Optical/WAN

Optical networks provide enterprise-scale speed and data capacity to support the most demanding operational requirements. With massive data transmission abilities, optical networks allow organizations to consolidate their networks for more efficient management and reduced complexity. Transfer voice, mainframe, Ethernet, and storage capabilities over to a single optical network with redundant systems for exceptional uptime.

Netsync can work with enterprises to devise, procure, and implement a network architecture capable of supporting strategic business priorities. Optical network solutions are ideal for data storage centers, and Netsync can consult with organizations looking to install a single, comprehensive solution.

Netsync's Wide Area Network (WAN) Solutions team has a long-term relationship with Cisco to offer the full product lines of optical networking equipment. The WAN is at the heart of our clients' IT systems, connecting everything together: data centers, multi-cloud, internet of things (IoT), software-defined WAN (SD-WAN), 5G, security, and more. Netsync's industry-leading, turnkey solutions offer multilayer network intelligence, optimized infrastructure for 100GbE demands, preparing for 400G and beyond. We offer seamless platform integration and interoperability, along with migration paths.

Our Optical Solutions will monetize and optimize your bandwidth with flexibility, while enabling massive scale in a small footprint. Netsync also merges traditional transport and routing, providing a common platform that enables programmable, flexible, and end-to-end solutions that offer industry-leading scale and performance. Netsync has dedicated, certified engineers who specialize in providing Cisco Optical Solutions and training. We are one of only a few Cisco Gold Integrators that have four Master Certifications: Master Service Provider, Master Security, Master Collaboration, and Master Networking. We also hold certifications and specializations from many of the industry's leading technology manufacturers.

Netsync has extensive experience. The WAN team has a mature bench with an average of 15-plus years in the WAN space. Six of the WAN team members are former Cisco employees. All members of the team have Cisco Red-Badge access; this is the same as being a contractor for Cisco and provides Netsync with access to Cisco resources, as if we were employees. Netsync supports over 40 WAN optical cleints from small metro networks to large regional and long-haul clients.

NETSYNC

Netsync Offices

Texas
- Houston (HQ)
- Houston Warehouse
- Austin
- Dallas
- Dallas Warehouse
- McAllen
- San Antonio
- San Antonio Warehouse

Arizona
- Tempe

California
- Long Beach

Georgia
- Alpharetta

Florida
- Miami
- Tampa

Illinois
- Chicago

Texas Department of Information Resources (DIR) Contract Information

Netsync is currently a prime vendor of the Texas Department of Information Resources (DIR), which provides statewide leadership and oversight for management of government information and communications technology. Netsync has been awarded and currently holds master contracts with DIR. DIR contracts extend beyond Texas and offer cooperative access to Texas DIR contracts.

Prime Contracts

Cloud Services	Data Storage & Communications, Networking, & Related Services	Security (ITS) Hardware, Software, & Related Services	Tech.-Based Recording Equip., Software, Conf. Products, & Related Services
DIR-TSO-4273	DIR-CPO-4430	DIR-TSO-4169	DIR-TSO-3871

Authorized Reseller Contracts

Anixter	Brother Int'l.	Carahsoft	Cisco Systems	Dell
DIR-TSO-4247	DIR-CPO-4410	DIR-TSO-4288; DIR-TSO-3926 DIR-CPO-4444; DIR-TSO-4356	DIR-TSO-4167	DIR-TSO-3763

EMC	Epson	Graybar	HP Enterprise	HP Inc.	Lenovo
DIR-TSO-4299	DIR-TSO-3858	DIR-TSO-4359	DIR-TSO-4160	DIR-TSO-4159	DIR-TSO-3808

Lenovo Global	Microsoft	NetApp	OKI Data	Pure Storage	Synnex
DIR-TSO-4119	DIR-CPO-4471	DIR-TSO-4286 DIR-CPO-4432	DIR-CPO-4413	DIR-TSO-4331	DIR-TSO-4075 DIR-TSO-4383 DIR-TSO-3897

DIR
Dept. of Information Resources

NETSYNC

Additional Contract Information

Prime SEWP Contract

Netsync
NNG15SC76B

Prime GSA Contract

Netsync
47QTCA19D00KL

Authorized Reseller – GSA Contracts

NetApp/Immix Group
GS-35F-0511T

Promark Technology
GS-35F-303DA

Hanwah Techwin America
GS-07F-0200W

Synnex
47QTCA19D00MM

Tech Data
GS-35F-0349S

Westcon Comstor Americas (Synnex)
GS-35F-0563U

Prime CMAS Contract

State of California
CMAS 3-19-70-3677A, CMAS 3-19-70-3677B, CMAS 3-20-70-3677C

Authorized Reseller – Additional Contracts

Carahsoft
The Quilt – MSA05022106F
California NVP #AR2472 7-17-70-40-05

Cisco Systems
California NVP #AR233 (14-19)

Cisco Systems
Florida NVP #AR233 (14-19)

Cisco Systems
Florida NVP #AR233 (14-19) Palm Beach County

Cisco Systems
Florida NVP #AR233 (14-19) Volusia County Schools

HP Inc.
California NVP
#MNNVP-133
7-15-70-34-001

Immix Group
Oklahoma ITSW1006

Ingram Micro
Citrix CSP 751649

NetApp/Immix Group
Missouri NVP
MNWNC-121

NETSYNC

International Organization for Standardization (ISO) Certifications

ISO/IEC 27001:2013 Certified NETSYNC

ISO/IEC 20000-1:2018 Certified NETSYNC

ISO 9001:2015 Certified NETSYNC

ISO/IEC 20243:2018 Certified NETSYNC

National Minority Supplier Development Council (NMSDC) Certification

THIS CERTIFIES THAT

Netsync Network Solutions, Inc.

NMSDC
National Minority Supplier Development Council

* Nationally certified by the **HOUSTON MINORITY SUPPLIER DEVELOPMENT COUNCIL**

*NAICS Code(s): 541519; 541512; 517911; 334111; 334118; 334290; 423430; 423440; 334210; 334220

* Description of their product/services as defined by the North American Industry Classification System (NAICS)

04/12/2022 Issued Date		HS04678 Certificate Number
05/31/2023 Expiration Date	Ying McGuire NMSDC CEO and President	Ingrid M. Robinson, President

By using your password (NMSDC issued only), authorized users may log into NMSDC Central to view the entire profile: http://nmsdc.org

Certify. Develop. Connect. Advocate.

* MBEs certified by an Affiliate of the National Minority Supplier Development Council, Inc.®

Texas Historically Underutilized Business (HUB) Certification

Texas Historically Underutilized Business (HUB) Certificate

HUB
Statewide Historically Underutilized Business Program

Certificate/VID Number: 1329030329800
Approval Date: September 16, 2021
Scheduled Expiration Date: September 16, 2025

The Texas Comptroller of Public Accounts (CPA), hereby certifies that

Netsync Network Solutions, Inc.

has successfully met the established requirements of the State of Texas Historically Underutilized Business (HUB) Program to be recognized as a HUB. This certificate printed **September 16, 2021**, supersedes any registration and certificate previously issued by the HUB Program. If there are any changes regarding the information (i.e., business structure, ownership, day to day management, operational control, business location) provided in the submission of the business; application for registration/certification as a HUB, you must immediately (within 30 days of such changes) notify the HUB Program in writing. The CPA reserves the right to conduct a compliance review at any time to confirm HUB eligibility. HUB certification may be suspended or revoked upon findings of ineligibility.

Statewide HUB Program
Statewide Procurement Division

Note: In order for State agencies and institutions of higher education (universities) to be credited for utilizing this business as a HUB, they must award payment under the Certificate/VID Number identified above. Agencies, universities and prime contractors are encouraged to verify the company's HUB certification prior to issuing a notice of award by accessing the Internet (https://mycpa.cpa.state.tx.us/tpasscmblsearch/index.jsp) or by contacting the HUB Program at 512-463-5872 or toll-free in Texas at 1-888-863-5881.

Motorola Letter of Authorization

MOTOROLA SOLUTIONS

July 22, 2022

To Whom it May Concern,

RE: Letter of Authorization as a Motorola Solutions Reseller

This letter will serve to inform you that Netsync Network Solutions with a main place of business located at 2500 West Loop South, Suite 410, Houston, TX 77027 is a reseller and a member of Motorola Solutions, Inc ("Motorola") PartnerEmpower channel partner program.

As such, Netsync Network Solutions is authorized to sell Nitro Solutions.

Should you have any questions please feel free to contact me at (847) 878-3383 or Dave.Schwarz@motorolasolutions.com.

Sincerely,

Dave Schwarz
NA Channel Operations
Motorola Solutions, Inc.

5. Staffing Plan – Netsync and Motorola

Garrett Curran
Account Manager
111 West Ocean Blvd., Suite 400
Long Beach, CA 90802
O: 713.218.5000 | M: 909.841.7880 | F: 713.664.9964
E: gcurran@netsync.com

As an Account Manager for Netsync, Garrett Curran acts as the main point of contact for services by obtaining quotes and schematics for presentations and providing project coordination for each client. Garrett has full access to all staff assigned to his clients, including deployment technicians, directorial staff, and accounting and purchasing representatives. Garrett is authorized to coordinate with Netsync and manufacturer staff to ensure each project assigned is completed on time and within budget.

Garrett holds a Bachelor's degree in Business Administration with a concentration in Business Management from University of La Verne. As an Account Manager, he frequently coordinates Netsync's marketing events for the California area. Garrett is responsible for managing multiple, complex accounts and takes part in all aspects of his clients' long-term projects. Garrett has been with Netsync for one year and is responsible for securing many of the contracts that Netsync holds with independent school districts and state and local government entities in the Southern California area. Holding over 15 active accounts with most of his clients engaged in long-term commitments, Garrett also holds state and local contracts that service multiple agencies, facilities, and individual entities.

Joseph Hayes (Joe Hayes)
Solutions Architect

Fixed Wireless/Service Provider/WAN Networking

Joe Hayes, a 30-year veteran of the telecommunications industry specializing in optical networking, has seen major changes in his field and made considerable contributions designing and implementing telecommunications network architectures. Joe has extensive experience providing network design support, and pre- and post-sales support for service provider accounts in all 50 states.

Joe offers a background of client advocacy and client consultation skills and provides indispensable experience planning and implementing flexible long-term network solutions.

Joe is currently designing Citizens Broadband Radio Service (CBRS) Private LTE networks for schools, cities, and counties. Networks being deployed are using Nokia Digital Automation Cloud (NDAC), Motorola Nitro, and Ericsson Evolved Packet Core (EPC) technologies, as well as other fixed wireless technologies leaders, such as Tarana Wireless and RADWIN with Beamforming technology.

Joe also has in-depth knowledge turning-up, provisioning, and supporting service provider networks. Joe is well-versed in Cisco Aggregation Services Routers (ASR)-900 series, Cisco ASR-9000, Cisco ASR-9900, Cisco Network Convergence System (NCS)-500, and Cisco NCS 5500 product families.

Areas of Expertise (Fixed Wireless)

Nokia	Motorola
• NDAC EPC Core • Nokia Radio, Macro, Micro, Pico • Nokia FastMile CPE	• Nitro EPC Core • Airspan Radio • Cradlepoint PCN Routers

Areas of Expertise (Service Provider)

Cisco ASR-9K	Cisco ASR-900/NCS4200	Cisco NCS5K/NCS500
• Core and Aggregation technologies • Core routing, MPLS, SR • Install, Provision, Test, Troubleshoot	• Access technology • IP/MPLS • IOS-XE	• Latest Jericho/Jericho+ • High Density Aggression • IOS-XR

Project Experience Highlights

- Designed and deployed Private LTE network in Fresno, CA, (Nokia) and Plainview, TX, (Motorola).
- Designed and installed Core IP and Mobile Core networks for the countries of Suriname and Guyana, South America.
- Installed, provisioned, and maintained core and aggregation routers, which included planning and managing maintenance windows and rerouting live traffic for a major communications company.
- Has extensive experience designing and troubleshooting Cisco Access, Aggregation, and Core networks.

***Note:** The personnel provided below are subject to change based on availability and schedule. Netsync can provide specific profiles upon award.*

Clay Knight, PMP
Senior Project Manager

An adaptive, flexible, and experienced IT professional, Clay Knight has over 29 years of experience in project management for all size projects with emphasis on quality, cost containment, and enhancing profits. As a Senior Project Manager, he has all the skills needed to get the job finished. Clay's demonstrated ability to implement winning strategies, policies, and procedures has led to continued success as a leader capable of building relationship skills and motivating and developing IT teams.

Areas of Proficiency

- Client and project communications, including executive level reporting
- Experience is multiple client fields: medical, oil and gas, education both K-12 and higher, travel and transportation, legal services, and municipal local, state, and federal
- Oversees client and vendor relationships
- Seeks consistent process improvement both personally and professionally
- Project documentation: status reporting, project timelines, and executive summaries

Project Experience Highlights

- Enterprise-level Data Center design and implementation management, including Cisco Software Defined Access (SDA)
- Large Cisco wireless access point (AP) and network switch upgrades and deployments
- Multiple Cisco audio-visual (AV) room implementations for large health care providers
- Microsoft Exchange 2010 migrations and upgrades
- Active Directory upgrades
- Citrix XenApp, XenDesktop, NetScaler, and Nexus implementations
- Cisco Unified Communications Manager Express (CME)/CallManager rollouts and installations
- RSA enVision and EMC storage implementations
- Vulnerability and security penetration assessments
- PCI scope assessments and ISO gap assessments and remediation efforts
- General data center and office moves and setups

Certifications
Project Management Professional (PMP) from Project Management Institute (PMI) – No. 270558

Academic Education	Institution
Lean Six Sigma	Villanova University

Netsync Capabilities

Netsync is dedicated to building a culture of teamwork, collaboration, and longevity; and dedicates significant effort into the continuous training of all business, technical, and operational resources. Netsync has recognized that blended training is becoming increasingly popular, and as a company, we have seen an increase in knowledge through blended training. Blended training is the effective combination of online learning, classroom learning, and on-the-job training. Other benefits include:

- Improved employee performance.
- Improved employee satisfaction and morale.
- Improved areas of weakness.
- Increased productivity, and adherence to quality standards.
- Increased innovation in new strategies. This is crucial to keeping engineering resources challenged and fulfilled.
- Reduced employee turnover.

Certifications

Netsync engineers hold over 700 Cisco certifications, including:

- CCNA – qty. 134.
- CCNP – qty. 87.
- CCIE – qty. 61.
- CCDE – qty. 3.

Netsync engineers hold additional industry standard certifications, including:

- CWNE – qty. 2.
- CWDP – qty. 4.
- CWSP – qty. 3.
- CWAP – qty. 3.
- CWNA – qty. 5.
- CMNP Meraki Master – qty. 3.
- CMNA – qty. 32.
- RCDD – qty. 1.
- CEH – qty. 2.
- CND – qty. 1.
- ITIL – qty. 4.

Netsync maintains numerous additional certifications within our preferred partners, including but not limited to:

- Deployment Consultants – qty. 57.
- Project Managers – qty. 23.
- Skilled Technicians – qty. 60.

Project Management Team – Motorola

The following sections describe the members of Motorola Solutions' project team for the proposed solution, as well as their qualifications. Citizens Broadband Radio Service Devices (CBSDs) are provisioned, certified, and signed off by trained professionals, known as Certified Professional Installers (CPI) who verify power, location, elevation, and antenna parameters and then report those parameters to the SAS.

Project Manager – Mike Harris, BSCE

Motorola has assembled a team of talented, experienced, and local Motorola personnel to provide the design, implementation, and support for the City's System.

The Project Manager (PM) is responsible for the successful implementation of the proposed system. Successful implementation takes place when the project is completed on schedule in accordance with the requirements and meets both the City's and Motorola's objectives. The PM will have direct lines of communication with the City's PM, Motorola Product Groups, Systems Technologists, Engineering, Financial, and Legal departments, and will have the authority to make binding commitments and decisions on Motorola's behalf.

Key responsibilities assigned to the PM are as follows:

- Act as Motorola's single point of contact for all issues related to the contract.
- Provide the leadership and vision for the team to thrive in an environment conducive to project success.
- Maintain overall responsibility for Motorola project resources, including additional Project Managers who will implement major subsystems.
- Provide and update the detailed Implementation Schedule representing major events, planned activities, and progress.
- Oversee the management of all field installation and implementation teams ensuring all integration and optimization tasks are performed within contract requirements.
- Ensure quality workmanship by all Motorola subcontractors.
- Oversee the product ordering process and assure manufacturing schedules meet the requirements of the Implementation Schedule.
- Ensure all deliverables are met while achieving Motorola's quality standards.
- Manage the project to ensure total customer satisfaction.
- Develop and manage a Risk Mitigation Plan designed to identify and address potential project risks and impact.
- Manage contractual requirements including change orders and schedule adherence.
- Prepare and conduct regular progress meetings and provide progress reports as required.
- Ensure a successful transition to the warranty and maintenance phase of the project.

Project Manager	Motorola Solutions, Inc. - Mike Harris
Motorola Professional Experience	Lead project manager for Motorola Nitro implementations. Deployed Nitro Private LTE networks for the following: City of Pittsburg, KS City of Columbus, OH City of Yonkers, NY City of Mesa, AZ Nitro Deployment PM Responsibilities *April 2020 – Present* Equipment order tracking, shipping, inventory Management of subcontracted installers Installation and deployment scheduling Create and run weekly project calls with project team Schedule System commissioning to include testing and device configuration Obtain System Acceptance Motorola IDEN Engineering and Project Management *January 1997 – April 2020* Project manager & Engineer for IDEN Implementations for Nextel Communications and Southern Linc Wireless Cellular infrastructure design and deployment Software upgrades and feature roll-out Account management Engineering tool design Performance metrics analysis Customer advocacy Field support
Other Professional Experience	U.S Air Force – 1988 – 1992 Cheyenne Mountain Air Force Base – NORAD Mainframe computer maintenance and service Missile Warning and Space Surveillance Systems MS Air National Guard – 1992 – 1996
Education	Mississippi State University, 1993 - 1996 Bachelor of Science in Computer Engineering

System Engineer – David S. Taylor

The System Engineer will take responsibility for and oversee all technical aspects of the project from contract award until system acceptance.

Key responsibilities include:

- Final design and implementation of the network; this includes requesting and reviewing existing documentation to understand the City's existing systems, backhaul network, and equipment inventory.
- Managing the system design and ensuring system installation and testing in accordance with the approved system design.
- Customer presentations.
- Site survey reports.
- System staging.
- System acceptance testing.
- Complete system documentation including ensuring the accurate development of block diagrams, system-level diagrams, and rack diagrams.
- System upgrades.

Engineering Manager – Nitro	Motorola Solutions, Inc. - David S. Taylor
Motorola Solutions Experience	Knowledgeable, diversified information technology professional. Experience dealing with a wide variety of customers and clients in both pre-sales and post-sale deployment environments. Extensive experience managing teams and deploying large, complex wireless systems. Skills include project engineering, design, implementation, and troubleshooting of wireless LAN systems, networks, and radio systems (trunked and conventional). Senior Engineering Manager – Channels Solutions and Services *November 2020 - Present* Manage Channel Engineering team, supporting our channel partners on large, complex projects. Focused on pre-sale and post-sale efforts related to Nitro, our CBRS solution offering, for both channel and direct accounts across the United States. Also support other channel portfolio products such as MOTOTRBO, Avtec, and Avigilon. Engineering Manager – Channel Solutions and Services *June 2019 – November 2020* Manage Channel Engineering team, supporting our channel partners on large, complex projects. Focused on pre-sale and post-sale efforts related to Nitro, our CBRS solution offering, for both channel and direct accounts across the United States. Also support other channel portfolio products such as MOTOTRBO, Avtec, and Avigilon. Principal Staff Engineer – Commercial Markets *January 2018 – June 2019* Sales engineer responsible for the design and deployment of communications solutions. Currently focusing on Fortune 100 customers. Engineering Manager - Enterprise Global Solutions and Services System Integration

Engineering Manager – Nitro	Motorola Solutions, Inc. - David S. Taylor
	April 2010 - February 2014 Managed team of ten technical professionals responsible for the installation, commissioning, and troubleshooting of our enterprise wireless portfolio. This included wireless LAN controllers and access points, wireless LAN security and management portfolio (AirDefense), and site surveys (LanPlanner). Worked with team of engineers to design and deliver wireless internet for the media centers at Super Bowls 44, 45, and 46. Recognized for work on the response team for BP Gulf of Mexico oil spill. Deployed Radio Over IP systems to integrate over 20 radios sites together to support clean-up efforts along the coastline. Senior Staff Systems Engineer *April 2004 - April 2010* Supported enterprise customers in the energy and manufacturing markets. Designed and implemented mission critical communication systems using the Motorola portfolio of wireless products - ASTRO 7.x, SmartNet, CentraCom dispatch, and Canopy PMP and PTP products
Other Professional Experience	Zebra Technologies Senior Manager Systems Integration Engineering - Business Consulting *November 2016 - December 2017* Manage team of engineers to provide solutions and services for Zebra customers related to voice, wired, and wireless network assessments. Assist with integration of Zebra product portfolio into customer environments. Senior Manager Systems Integration Engineering - Solutions Architects *March 2015 - November 2016* Managed team of Solutions Architects to provide solutions and services for large named accounts and focused verticals. Responsible for overall solution in complex systems that involved third party products outside of the Zebra portfolio (switches, firewalls, etc.). Engineering Manager - Global Services Top 5 Projects *October 2014 - March 2015* Continued involvement in large projects after acquisition of Motorola Solutions Enterprise Business by Zebra Technologies.
Education	University of California, Irvine - The Paul Merage School of Business, 1992 – 1994 Master of Business Administration (M.B.A.), Executive MBA Program Texas A&M University, 1983 - 1988 Bachelor's Degree, Electrical Engineering Member (1983-1988) W5AC amateur radio club, president (1988).
Training, Certifications, and Memberships	Certified Information Systems Security Professional (CISSP) - (ISC)². Issued Dec 2003 - Expires Dec 2021 GIAC Advisory Board - Global Information Assurance Certification (GIAC). Issued Apr 2002 - Expires Aug 2019 GIAC Certified Incident Handler (GCIH) - GIAC Certifications. Issued Jun 2007 - Expires Jun 2019 GIAC Assessing and Auditing Wireless Networks (GAWN) - GIAC Certifications. Issued Aug 2011 - Expires Aug 2019 Network + - Comp-TIA Emergency Medical Technician (EMT) - Texas Department of State Health Services. Issued Mar 2011 - Expires Mar 2023

Engineering Manager – Nitro	Motorola Solutions, Inc. - David S. Taylor
	GIAC Security Essentials Certification (GSEC) (Expired) - GIAC Certifications. Issued Apr 2002 - Expires Apr 2016 GIAC Gold Research Paper (Expired) - GIAC Certifications. Issued Apr 2002 - Expires Apr 2016 CWNA - Certified Wireless Network Administrator (Expired) - Certified Wireless Network Professional. Issued Dec 2011 - Expires Dec 2014 CWSP - Certified Wireless Security Professional (Expired) - Certified Wireless Network Professional. Issued Dec 2011 - Expires Dec 2014

System Technologist – Jovito J Valbuena Sanchez, BSEE

Motorola Solutions System Technologists (ST) are highly skilled, factory-trained, technical individuals who optimize and configure networks to ensure the system is ready for acceptance testing. The ST will work with the Motorola Solutions Project Manager(s), System Engineers, and City representatives to establish and confirm the final configuration of the system.

Key responsibilities include:

- System Technologists perform the following responsibilities:
- Oversee the integration and optimization of all system hardware and software, which includes:
- Equipment programming and configuration development
- Equipment optimization
- Acceptance Testing
- Prepare installation drawings and provide as-built configuration files.

Technologist System III	Motorola Solutions, Inc. - Jovito J Valbuena Sanchez
Motorola Professional Experience	Install, optimize, maintain, repair and work in the field on Motorola Solutions' ASTRO 25 and MOTOTRBO Systems for Public Safety departments and Private Sector Organizations in The United States of America, Canada and Latin America. Harris County NITRO: Certified Professional Installer (CPI) responsible for entering CBSD information into the Motorola Portal and Spectrum Access Systems (SAS) CEN Configuration and Optimization Performance Verification for CBSD sites Suncor – Fort Hills ASTRO 7.14 System Implementation and Optimization *April-May 2017* RF Site Optimization. Point to Point and Fiber Links Test & Optimization Consoles Sites Optimization and Configuration CEN Configuration and Optimization ATP Support to completion. Suncor – Fort Hills System Upgrade from ASTRO 7.14 to ASTRO 7.16 *July 2017* Core and RF System Upgrade with UO Remote Support

Technologist System III	Motorola Solutions, Inc. - Jovito J Valbuena Sanchez
	Chevron System Upgrade ASTRO 7.15 to ASTRO 7.17 *July 2017* Core and RF System Upgrade with UO Remote Support Toronto Hydro ASTRO 7.16 *January February 2017* RF Site Optimization. Moscad Configuration & Optimization Consoles Sites Optimization Syncrude ASTRO 7.15 *2015-2016* RF Site Optimization. Point to Point and Fiber Links Test & Optimization Consoles Sites Optimization and Configuration CEN Configuration and Optimization ATP Support to completion. Dow Chemical Plant – Fort Saskatchewan *November 2016* System Implementation RF Site Optimization. Consoles Sites Optimization and Configuration City of Toronto TRIP ASTRO 7.13 *March 2014-December 2015* System Implementation RF Trunking and Conventional Site Optimization. Consoles Sites Optimization and Configuration
Other Professional Experience	Service Manager - BEARCOM *2005-2008* Design, coordinate and organize different Telecommunication Projects to be executed by the Service Department. Analyze and study different situations for the implementation of new telecommunication designs, and improve the conditions of existing systems. Consult and help customers to choose the best system, equipment and tools to execute telecommunication projects. Supervise and coordinate the labor executed by the staff of technicians. Telecommunications Engineer - BEARCOM *2003-2005* Design, install, maintain and repair Radio Systems and 911 Telephony Systems for different Public Safety offices and business in the Twin Cities area. Design, install, maintain and repair Telecommunication Systems and Network Systems. Install and Maintain Satellite Links. Install and Maintain Telecommunication Console Systems for Public Safety Organizations. Telecommunications Technician - CAPITOL 2-WAY COMMUNICATION *2001-2003* Install, maintain and repair radio systems for different Public Safety Offices and business in the Twin Cities area. Design a cordless security system for airplanes using Spread Spectrum Technology. Electronics Assembler - BURNS PERSONNEL *September 2001-December 2001* Assembling optic parts for KODAK X-Ray equipment. Electrical Engineer - Part Time Job - EVALIN, C.A.

Technologist System III	Motorola Solutions, Inc. - Jovito J Valbuena Sanchez
	1998 - 2001 Design the layout for a city street lighting project according to the Electrical National Code. Design the complete electrical layout of a local toll station. Perform inspections and electrical lighting installation projects for CASANOVA GODOY Avenue phases 2, 3, and 4. Telecommunications Engineer - FUNDEM 1998 – *2000* Install, maintain and administrate the CENTRALINK 171 (System similar to 911 used in USA) by MOTOROLA. Install, maintain and administrate the MOTOROLA Radio Trunking System SMARTZONE using TADIRAN Microwave System. Install, maintain and administrate the Conventional VHF, UHF, and HF Radio Systems for the Emergency System of Mérida's State. Install and maintain a wireless computer network using SPIKE technology. Electronics Technician - Universidad de Los Andes *1995 – 1997* Repair and maintain electronic equipment in the Instrumental Laboratory of Science - School of Medicine. Electronics Technician - CVG - Venalum *1996* Repair the MOD-300 Monitoring System in the furnace area of the Process Control Department - Quality Control and Process Management. Assistant Engineer - EVALIN, C.A. *1993 - 1996* Assistant engineer for projects and evaluations of roadways and bridges. Electronics Technician - Universidad de Los Andes *1988 – 1989* Repair and maintain the electronic equipment in the Instrumental Laboratory of Science - School of Science.
Education	Century College, White Bear Lake. Minnesota (2003-2005) Information and Telecommunication Technologies (Cisco CCNA Program) Universidad de Los Andes, Mérida, Venezuela (1990 – 1996) Bachelor of Science in Electrical Engineering Manuel A. Pulido M. Technical High School, Mérida, Venezuela (1983 – 1988) Diploma Electronics Technician
Training, Certifications, and Memberships	Comp TIA Networking + /Motorola Networking Tier 2 & 3 Certified Cisco CCNA levels 1, 2 and 3 Approved. Motorola Solutions Training and Certification in several Astro P25 Products. Motorola Solutions TNCT Certified. Motorola Solutions Transport Network Design State of Minnesota Power Limited Technician License Motorola R56 ETA - Certified Senior CET ETA-International Certified. FCC General Radiotelephone Operator & Radar Licenses. PLANT-CML ECS-1000 & RescueStar 911 Systems – Certified Certified Professional Installer for CBRS

6. Work Plan and Schedule

Project Summary

The City of Perris ("City"), headquartered in Perris, CA, requested that Netsync Network Solutions ("Netsync") submit a statement of work (SOW) in response to the City's Request for Proposals (RFP) for Broadband Network Grid project.

The purpose of this SOW is to provide Customer Management and Project Management of the Motorola Nitro solution as the turnkey partner.

Project Objectives

- Site walk with the City and Motorola to ensure accuracy of the deployment
- Oversee Motorola to ensure the complete physical installations of the Nitro gear
- Oversee Motorola as testing and validation of successful implementation is performed
- Provide up to eight hours of Day 1 support

Project Scope and Phases

Discovery

Kickoff Meeting

1. Netsync will conduct a kickoff meeting:
    a. Identify and introduce key stakeholders, who will participate in developing the definition of requirements for success.
    b. Identify project goals, success criteria, and timeline, including but not limited to:
        i. Review SOW.
        ii. Confirm contacts needed to gain entry and perform work in the buildings.
        iii. Confirm any holidays or "non-working" hours for the installation.
        iv. Confirm any City-required change control processes and any potential impacts that these processes may have on the installation schedule.
        v. Schedule technical discovery meeting(s).
        vi. Review and discuss invoicing preferences and applicable billing milestones.

Site Walk

1. Netsync will attend the site walks with the City and Motorola to ensure the planned deployments are meeting the City's expectations.

Implementation

1. Netsync will oversee Motorola installation of the Nitro Citizens Broadband Radio Service (CBRS) gear to ensure the highest standards are met.

Testing and Validation

1. Netsync will oversee Motorola testing and validation of the Nitro CBRS gear to ensure the highest standards are met.

Knowledge Transfer

1. Netsync will provide eight hours of knowledge transfer for up to five City attendees. Before the project start, Netsync will work with the City to define the specific location, the schedule, and any additional topics for the knowledge transfer session(s). The following topics will be covered:
    a. Features of all products and technologies deployed in the solution.
    b. Review of the as-built documentation to familiarize the City with the overall solution and key configuration details.
    c. Basic administration and common operational tasks.
    d. Reinstallation and/or reconfiguration in case of failure.
    e. Monitoring, testing, and maintaining the products deployed in the solution.
    f. Warranty and support procedures for all products deployed in the solution.
    g. Additional City questions or topic requests.
2. If it is determined that the duration of knowledge transfer requested by the City will exceed the hours stated above, then Netsync can provide supplementary session(s) at an additional hourly rate.

Note: Knowledge transfer is intended to provide familiarity and conceptual understanding of the specific technologies deployed within this SOW. It is not intended to be comprehensive technical training. The included session(s) may not provide the City all of the necessary knowledge and skills to fully manage, monitor, and maintain the solution. Netsync recommends formal training from the solution vendor(s) to address those needs.

Project Prerequisites

1. The City will fulfill cabling requirements, if applicable. (Netsync will coordinate.)
2. The City will provide Netsync all necessary hardware and information on current environment.
3. The City will provide Netsync local and remote administrative credentials (root access) to all equipment to be accessed during the process of this SOW.
4. The City will make available authorized personnel during the project with a working knowledge of existing network infrastructure for facility access, questions, and clarification of issues.
5. The City will provide Netsync access to all work locations, along with safety, access, security, and emergency protocols.
6. The City will obtain all necessary work permits.
7. The City will provide a work area for Netsync to use, as needed, during on-site activities to include internet and public phone access.
8. The City will provide parking passes and adequate parking for the Netsync project team.
9. The City will comply with all physical and environmental requirements per vendor specifications.

Project Management

Netsync approaches all projects using standard Project Management Institute (PMI) methodologies and processes. Once a Project Manager (PM) is assigned, a project kickoff conference call or meeting will be held with the City, the PM, the Account Manager (AM), and assigned resource(s) to ensure each party is in alignment with all aspects of this SOW. The PM will also perform the following project management activities throughout the engagement to ensure the City's expectations are consistently met and the project is delivered on time and within the established budget:

- Create the Project Plan.
- Ensure that accurate and timely status updates, action items, and scheduled tasks are received by the assigned resource(s) and uploaded as entries to the City's applicable Netsync SAVANT project portal. The PM will ensure status information clearly reaches the City to also include supplemental budget and milestone updates.
- Manage the Notes-Status-Issues Log portal web part and ensure timely updates.
- Lead recurring project status meetings with the City and the Netsync project team to communicate overall progress.
- Oversee a quality assurance review of documentation-based deliverables before providing to the City.

Project Updates

- The City will receive email alerts indicating an update has been made to the Notes-Status-Issues Log portal web part for the following communication entry types:
    - Meeting Notes.
    - Engineering Status Update(s).
    - Issue Tracking.
- If the City wishes not to use the Netsync SAVANT project portal, then the City has the option to request direct email correspondence from the Netsync PM for all communication and updates.

Project Scope Change Requests

Netsync is fully committed to completing this project on time and within the established budget. All scope changes and out-of-scope (OOS) requests must be clearly communicated to the AM or PM before those changes or requests are acted on or performed by the assigned resource(s). The following outlines the scope change or OOS request procedure:

1. The City will notify the AM or PM regarding the requested move, add, or change.
2. The PM will submit a Change Request (CR).
3. The assigned Netsync Lead Engineer will verify the technical accuracy of the CR.
4. The PM will submit the CR to the City for subsequent approval and sign-off.
5. The City will return a signed copy of the CR to either the AM or PM.

All other terms within the original SOW, in addition to the signed CR, will remain intact.

Project Documentation

Netsync will provide the City the following documentation:

Included (Yes/No)	Document Type	Owner	Description	Frequency
Project Management Documentation				
Yes	Microsoft Project Plan	PM and Senior Lead Engineer	Task list and timeline of project work activities and scoped deliverables; may or may not require a formal Gantt chart	Once
Yes	Status Entry	PM and Senior Lead Engineer	Summary of technical accomplished, outstanding, and planned activities	Log entry, as needed
Yes	Issues Log Entry	PM and Senior Lead Engineer	List of tracking issues, action items, reminders, or questions	Log entry, as needed
Yes	Meeting Notes Entry	PM	Recap directly following a meeting outlining status, issues, and events discussed	Log entry, as needed
Closeout Documentation				
Yes	As-Built	Engineer	Post-implementation technical documentation of new configuration(s) and applicable support information	Once

High-Level Design (HLD)

Based on presales discussions, preliminary walkthroughs, and data gathering sessions, an HLD is included within this document. The purpose of the HLD is to present and illustrate the overall solution from an industry best-practice and conceptual level. The HLD is subject to change. Netsync will work with Motorola to ensure the HLD is delivered timely and accurately.

Low-Level Design (LLD)

The LLD will replace all existing HLDs upon receipt of a purchase order and subsequent full walkthroughs and formal post-sales planning and design sessions. The LLD will be a fully executed document agreed to by both parties before implementation begins. Netsync will work with Motorola to ensure the LLD is delivered timely and accurately.

Deliverables Acceptance

The City will acknowledge receipt and acceptance or rejection of all deliverables associated with this SOW within 10 business days of delivery (not including federal holidays). If such acknowledgement is not received within this period, then all deliverables will be deemed acknowledged and accepted.

Project Risks and Assumptions

1. The City will participate in all design and planning sessions and be prepared to sign off on all milestones.
2. The City will provide Netsync with full access to the relevant functional, technical, and business resources with adequate skills and knowledge to support the performance of services.
3. Multiple outages may occur due to the nature of this project; however, they will all occur at scheduled and approved times.
4. The City delays to provide Netsync the necessary data to accomplish each task may result in timeline changes.
5. Netsync is not responsible for project delays caused by other vendors and/or manufacturing issues that may impede progress and/or closure of Netsync SOW deliverables.
6. This SOW assumes that the engagement will be a mixture of on-site and remote work to drive efficiency. If the City requires a 100% on-site engagement, then the City must notify Netsync before agreeing to this SOW.
7. If the City requires a copy of Netsync's standard Certificate of Insurance (COI) with City-added endorsements, then it should allow up to 10 business days for delivery.
8. Anything not specifically stated in this document is outside the scope of this SOW.

Service Level Agreement

Hours of Operation

- Standard hours of operation are **8:00 AM to 5:00 PM local time Monday through Friday**. Netsync understands that due to the nature of the industry and work performed, after-hours and weekend availability are often required. In the event Netsync resources are required to perform work outside of the standard hours of operation, agreed-upon work windows will be discussed and subsequently documented via email. A City project stakeholder or technical contact must be either on location or on call during the agreed-upon after-hours and/or weekend work window(s).

Pricing and Fees

Fee Type

Fixed Price: The proposed hours are fixed. Additional hours required for in-scope work will not be invoiced, unless OOS work is required.

Invoicing Type

Invoice terms are based on credit approval.

Unless specifically noted in the master services agreement (MSA) between the City and Netsync, if applicable, Netsync will use the following invoicing type:

1. Milestone Invoicing – A portion of the project will be invoiced based on achieving the following milestones in the project plan (see milestone table below); the PM will work with the City, the AM, and Accounting for appropriate invoicing.

Netsync will send the City invoice(s) on Net 30 terms for all applicable hardware, supplemental material, and licenses immediately after delivery and receipt of signed packing/delivery slips.

Project Milestones

This price is based on work taking place during standard hours of operations, **8:00 AM to 5:00 PM local time Monday through Friday**. Additional charges may be incurred for efforts that must be performed outside of this time frame.

Site Name	% Billed Once Site Is Complete
Site Walks	25%
Hardware Delivery	25%
Installation/Implementation	25%
Test Acceptance and Close Out	25%

*See Netsync quote for project cost.

Appendix

Bill of Materials (BOM)

Part	Description	Qty.
	City Hall	
AAE50048INB2AN	City Hall SLX 5000 3550-3700M 2W	2
CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	2
CA03682AA	ADD: Direct Mount GPS Antenna 4	2
CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	2
CA03685AA	ADD: SLX5000 SFP Connector Adapter	2
PS000435A01	AC/DC CONVERTER 48V 154W, IP65	2
CN001149A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 3 POLES	2
CN001148A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 2 POLES	2
DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	2
AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	4
DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	8
DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	8
DQBFN	MOUNTING KIT FOR SUPPRESSORS	8
DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	8
DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1
DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1
DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	4
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2
DSJRM23855HC	Rohm single mast 10'X2-3/3" roof mount	3
DSJRMPAD	Rohm Roof Pads for JRM Series Non-Penetraing Mounts	3
	Labor	
NET-PRO-SRVC	Installation & Deployment per SoW. | WAN: Fixed Wireless	4
	Morgan Park	
AAE50048INB2AN	Morgan Park SLX 5000 3550-3700M 2W	2
CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	2
CA03682AA	ADD: Direct Mount GPS Antenna 4	2
CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	2
CA03685AA	ADD: SLX5000 SFP Connector Adapter	2
PS000435A01	AC/DC CONVERTER 48V 154W, IP65	2
CN001149A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 3 POLES	2
CN001148A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 2 POLES	2
DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	2

Part	Description	Qty.
AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	3
DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	6
DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	6
DQBFN	MOUNTING KIT FOR SUPPRESSORS	6
DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	6
DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1
DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1
DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	4
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2
Bob Long Park		
AAE50048INB2AN	Bob Long SLX 5000 3550-3700M 2W	1
CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	1
CA03682AA	ADD: Direct Mount GPS Antenna 4	1
CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	1
CA03685AA	ADD: SLX5000 SFP Connector Adapter	1
PS000435A01	AC/DC CONVERTER 48V 154W, IP65	1
CN001149A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 3 POLES	1
CN001148A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 2 POLES	1
DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	1
AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	2
DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	4
DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	4
DQBFN	MOUNTING KIT FOR SUPPRESSORS	4
DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	4
DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1
DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1
DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2
Monument Ranch Park		
AAE50048INB2AN	Monument Ranch SLX 5000 3550-3700M 2W	1
CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	1
CA03682AA	ADD: Direct Mount GPS Antenna 4	1
CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	1
CA03685AA	ADD: SLX5000 SFP Connector Adapter	1
PS000435A01	AC/DC CONVERTER 48V 154W, IP65	1

Part	Description	Qty.
CN001149A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 3 POLES	1
CN001148A01	CONNECTOR STANDARD-BTB,3, CONNECTOR STANDARD-CABLE JOINER 2 POLES	1
DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	1
AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	2
DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	4
DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	4
DQBFN	MOUNTING KIT FOR SUPPRESSORS	4
DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	4
DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1
DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1
DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2
DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2
EPC Core		
EQ000235A01	EPC Core uFalcon-MXG MSI Bundle (uFalcon-MXG, AC Adapter, Rack Shelf, 3YRS Ext HW/SW Warr w/ SW Upgrades for 5yr total)	1
DSGNSS1TMG40N	GLOBAL GNSS TIMING ANTENNA, 40DB, GPS, GLONASS, GALILEO AND BEIDOU	1
DSGPSTMGMNT	MOUNT KIT, COLLAR BRACKET	1
DSACC014J50	1/4" ULTRA FLEXIBLE, 50 OHM, CORRUGATED, COPPER OUTER CONDUCTOR, LOW S	90
DSNMA01450	N MALE FOR 1/4" ACC SERIES CABLE	4
SVC03SVC0104D-PTP	CABLING, SPECIAL COMMSCOPE DSC240NFSM1M CNT240 BRAIDED CABLE ASSEMBLY 1M (Exception Needed)	45
DSGPS06NFF	BULKHEAD COAXIAL RF SURGE PROTECTOR, TYPE N F/F, 1.2GHZ - 1.6GHZ, 10W,	1
T8789	NITRO EDGE & HUB ROUTER & FIREWALL - AC	2
SVC03SVC0104D	CABLING, ANCILLARY RAN	500
DSIGEXSFP10GEDAC1M	SFP+ 10 GB ETHERNET DIRECT ATTACH COPPER CABLE - 1M	5
EQ000239A01	EX4300-48MP POE++ SWITCH BNDL W/ RED 1400W PSU, 2 US PWRCRDS, 24XPERP 1G 24X100M/1G/2 5G/5G/10G COPPER	2
DSEXUM4SFPPMR	Juniper EX4300MP 4-port 1GbE/10GbE SFP+ Uplink Module - required for Fiber connections	2
DSQFXQSFPDAC1M	1M CABL QSFP+ TO QSFP+ ETHERNETCABL DIRECT ATTACH COPPER TWINAX COPPER	2
SQM01SUM0332	NITRO High Capacity ONPREM EDGE GATEWAY	2
SUA CBSDSLX	SLX 5000 Outdoor CBSD 3550-3700M 2W	72
SUA multi carrier	ADD: Multi-Carrier Connection for SLX 5000	48
SUA Nitro	Nitro High Capacity OnPrem Edge Gateway	24
Optional Network Monitoring (NM) Services (1 Years	Optional Network Monitoring (NM) Services (1 Years)	1

Part	Description	Qty.
Optional Network Monitoring Services (NM) w/ Enhan	Optional Network Monitoring Services (NM) w/ Enhanced NBI (1 Years)	1
Optional Advanced Replacement (AR) Services (1 Yea	Optional Advanced Replacement (AR) Services (1 Years)	1
Optional Basic Standalone NBI Services (1 Years) (	Optional Basic Standalone NBI Services (1 Years) (only available if NM is not purchased)	1
Optional Enhanced Standalone NBI Services (1 Years	Optional Enhanced Standalone NBI Services (1 Years) (only available if NM is not purchased)	1
Optional On Site Infrastructure Support Services	Optional On Site Infrastructure Support Services	1
NITRO Deployment Services	NITRO Deployment Services	1
Consolidation and Shipping Service	Consolidation and Shipping Service	1
Nitro Installation Services	Nitro Installation Services PTP Link Installation Licensed PTP Link Installation A/C NEMA Box SiteX No Climb Tower Power for CBSD Nitro Site install Nitro RAN install Nitro High Power CPE Install Nitro Site hardware install NEMA Box Install	1
PtP Microwave		
PtP Cambium	Cambium 650 or equal with integrated antenna systems for PTP links	3
PtP Cambium License	Licensed PTP System or equal for high capacity City Hall link to Bob Long Park	1
PtP Cambium HP	High Performance MW Dishes and Mounts	2
CPE End Units		
DSAS5410	AIRSPOT 5410 4G, B48, C12 POE, US PLUG, HIGH POWER CAT-B CPE W 3 YR HW	21
HK2116A	Nitro SIM CARD (10-PACK)	10
SUA High Power	High Powered CPE	252
SUA Data	Unlimited Data Plan - BYOD	252

Planning Activities

1. Communicate and coordinate with City Project Manager on a regular basis.

   Netsync will provide PMO Project Management services as part of our solution.

2. The City is looking for vendors capable of identifying and erecting small cell antenna sites around the City. Examples of adequate sites are locations such as parks and public meeting spaces.

   Netsync is planning to build a CBRS network to provide adequate coverage to each park. The initial design will provide each park with one CBRS high powered end device. The high power end device will provide higher speeds in the uplink to allow the best speeds to support camera video upstream speed. Netsync will reuse park resources when available such as existing light poles. Netsync will work with the City Park engineering team to ensure adequate integration to the existing Wi-Fi solution as well as the expected IOT network use cases.

   a. Small cell antennas are defined as "low-powered cellular radio access nodes that operate in licensed frequencies"

      The CBRS rulemaking defines two classes of base stations Citizens Broadband Radio Service Device (CBSD): class A and class B. A class A base station can be thought of as indoor or low power outdoor small cells with a maximum conducted power of 24 dBm (per 10 MHz) and maximum EIRP of 30 dBm (1 watt). This type of small cell is similar to "enterprise-class" small cells in the marketplace with 250mW transmit power with a typical 2 dBi omni antenna or up to 6 dBi directional antenna. Meanwhile, a class B base station is meant for outdoor use with a maximum EIRP of 47 dBm (50 watts). With a very high-gain antenna, outdoor CBRS base station can potentially be used for fixed wireless purposes. All the ENodeB in the Netsync design will be class B to ensure coverage to the most distant parks as part our Fixed Wireless design. The devices at the parks are consider end user devices, there are three classifications of these devices and our design is based on the Cat B devices, AirSpot 5410.

Table 1:

CBDS Type	Maximum EIRP (dBm/10 MHz)	Maximum EIRP (dBm/MHz)	Antenna Height (Meter)
Category A	30 dBm or 1 watt	20 dBm	< 6 meters
Category B	47 dBm or 50 Watt	37 dBm	> 6 meters
End User Device (EAD)	23 dBm or 200 mili Watt	NA	NA

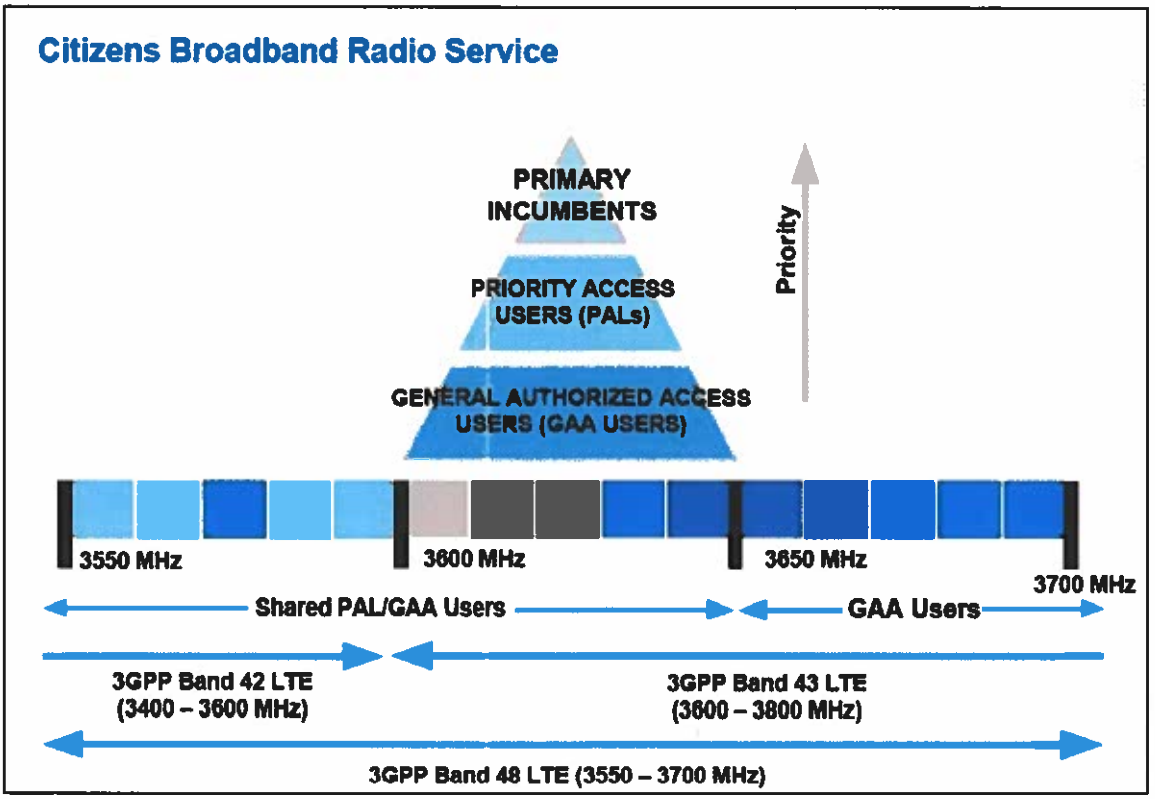
AirSpot 5410 is an advanced, LTE, CAT12, outdoor, multi-service product specifically designed to meet data needs for residential, business and enterprise users. Supporting Gigabit networking functionality and multiple TDD band operations, it enables wide-coverage and high-data throughput. Multiple operator network support can allow deployment across the country with different operators. The AirSpot 5410 provides a Gigabit PoE connection to connect user terminal devices, such as a router or WiFi AP products. The AirSpot 5410 is CAT-B CBSD FCC and SAS compliant.

b. Radio communications will broadcast under the US Citizens Broadband Radio Service (CBRS) frequency band 48.

Netsync Response: Comply

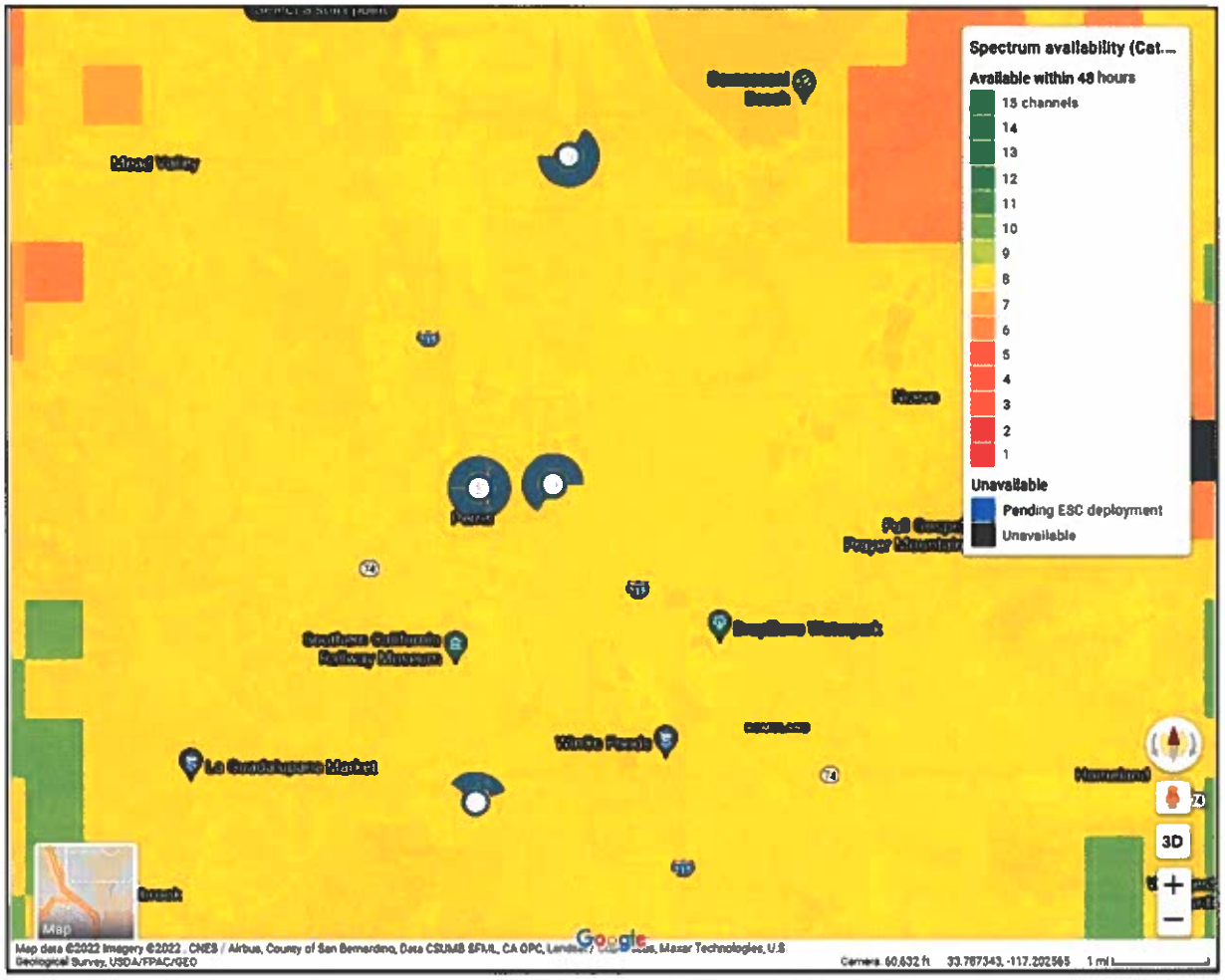
Netsync is collaborating with Motorola to provide the Nitro solution; Nitro is a fully-managed radio network that combines business-critical voice with private broadband data. The network design will be based on the Generally Available Access (GAA) user types, which has grants from Spectrum Access System.

See attachment "cbrs-white-paper.pdf"

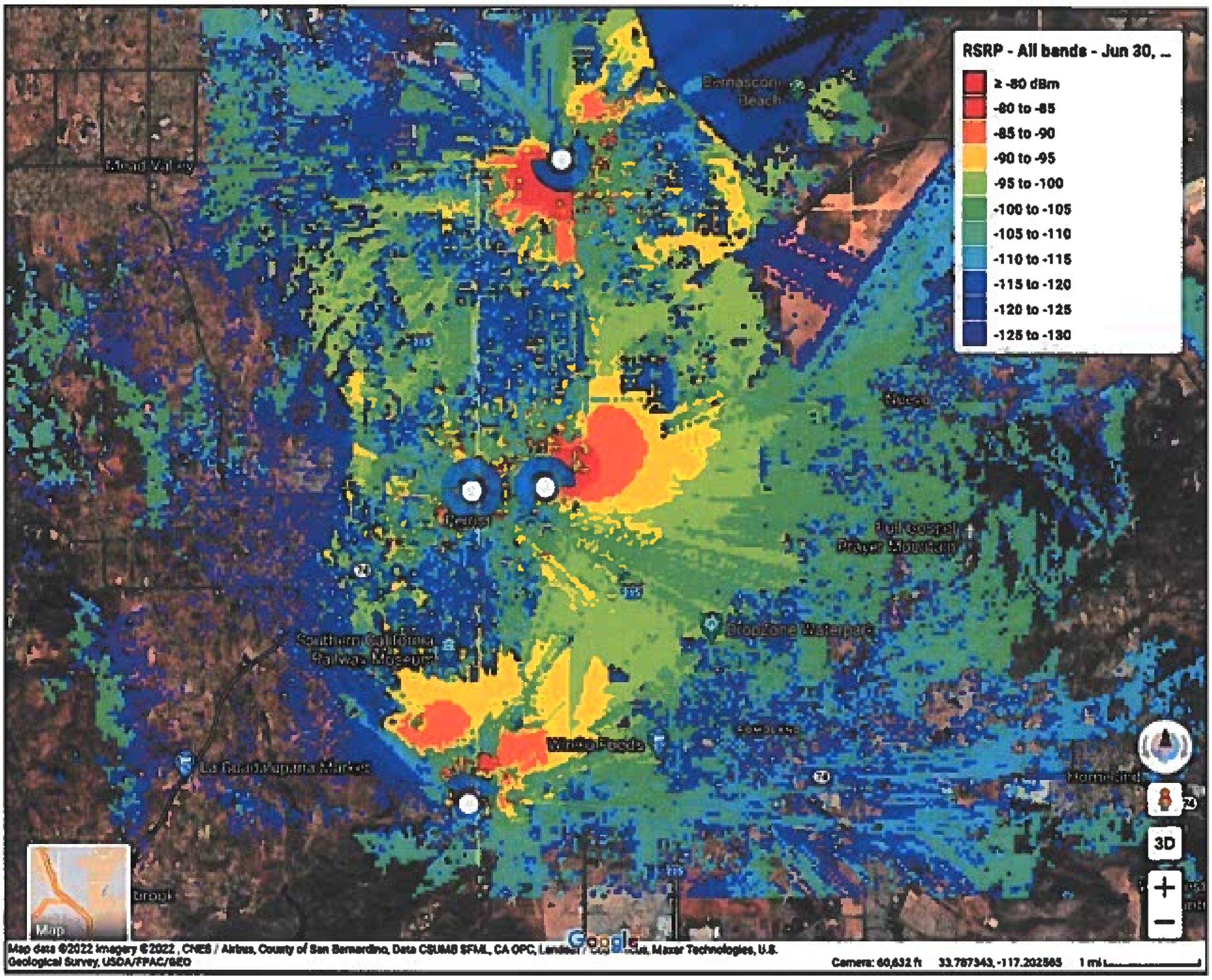


CBRS Spectrum availability in the City, there are users (PAL) that have higher priority and are currently in use. As of writing this RFP response, there are 8 GAA channels available in the City.

Spectrum coverage in use in the City:



Projected RF analysis based on basic assumptions of locations and height for the CBSD radios:



As part of the overall network design with CBRS use cases, the Nitro solution is the building block of services that may evolve for the City.

Main Network Infrastructure Components

- CBSDs:
  - Provide local LTE RF coverage
  - SLX 2000 (indoor)
  - SLX 4000 (outdoor)
- Firewall/Router:
  - Connect the City to backhaul toward cloud-based LTE core and hosted services
  - Juniper SRX345 Firewall/Router
- Switches:
  - Provide local networking and PoE for RAN
  - Juniper EX3400-24P Managed Switch (copper)

- Juniper EX4300-32F Managed Switch (fiber)
- Juniper EX4300-48MP Managed Switch (copper/PoE++)

- PTP IEEE 1588v2 Grandmaster Clock FibroLAN μFalcon-ST/G
  - Provide timing for RAN
- Nitro Edge Gateway
  - Connect RAN to local APN at the City's location

See attachment "nitro_slx_series_spec-sheet.pdf"

c. The selected consultant should assume there is no existing fiber infrastructure at potential deployment zones, all small cell deployable antennas will communicate wirelessly preferably through microwave. If the chosen consultant has an alternative solution, the solution that is most efficient and cost-effective will be chosen.

Netsync Response: Comply

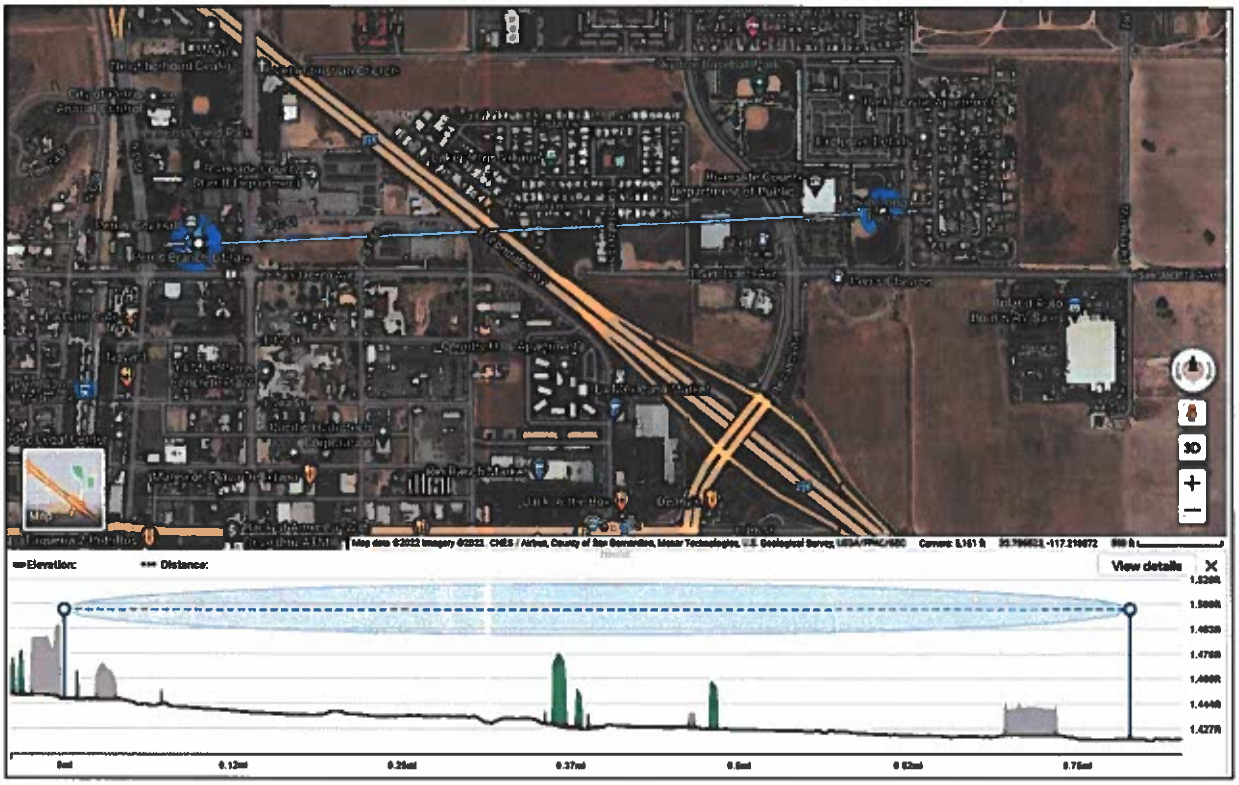
The Netsync design will include a Microwave solution that will provide a minimum of 1G of throughput over the air and each of the connected CBSD's. The design recommends using the roof top of the theater at City Hall to place roof top sleds. These sleds will house provide the ability to place the CBRS radios and the Microwave radios to be able to connect the networks. The network design will include 3 individual Microwave connections. These connections are point-to-point licensed links. Final placement on City Hall will be based on the approved site surveys that will be completed as part of the project.

Connections:

- City Haul to Bob Long Park
- City Haul to Morgan Park
- City Haul to Monument Ranch Park

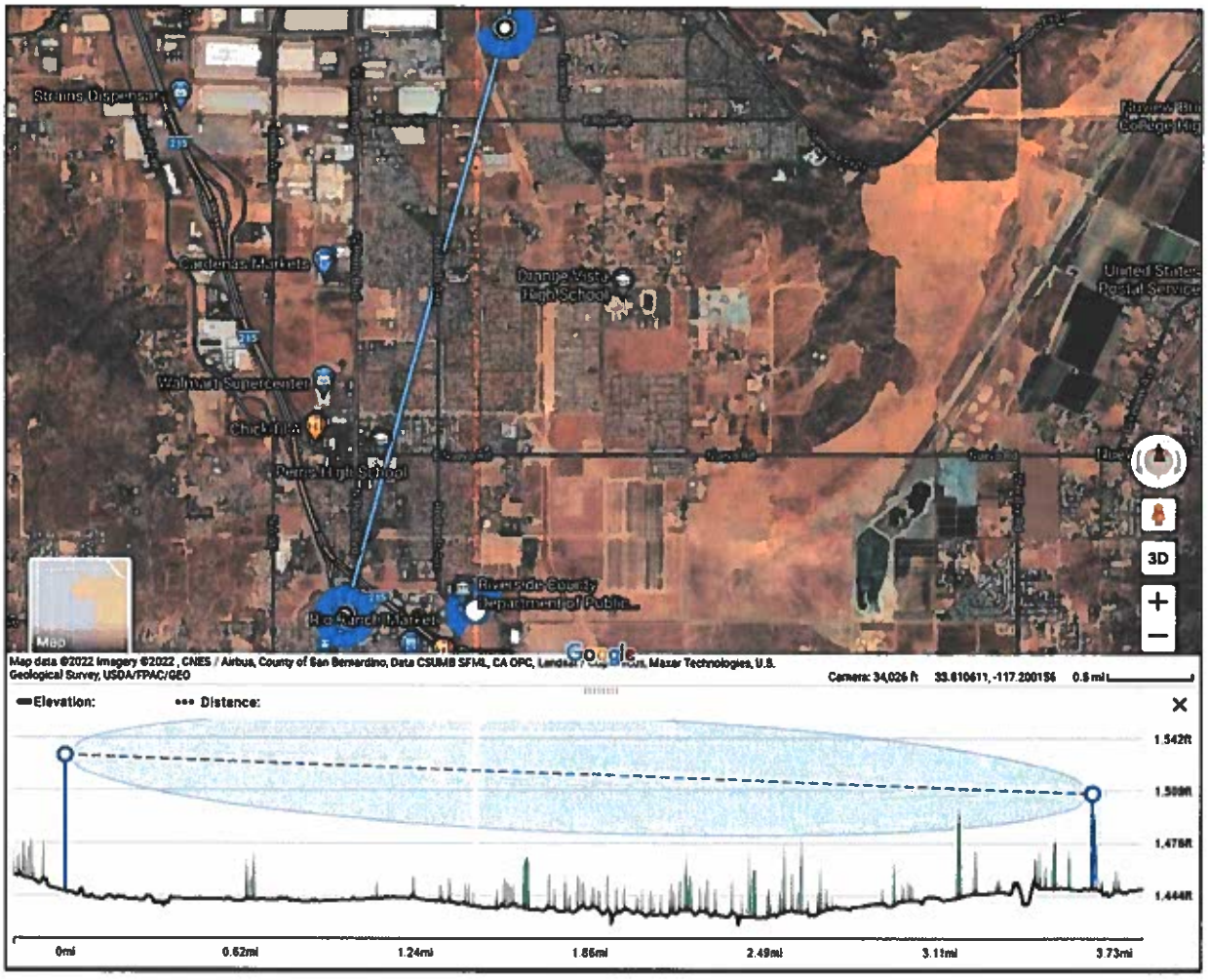
Bob Long Park link summary:

- Unobstructed 0.78 Miles
- City Haul antenna height est (59-feet above ground level [AGL])
- Bob Long antenna height 75-feet AGL



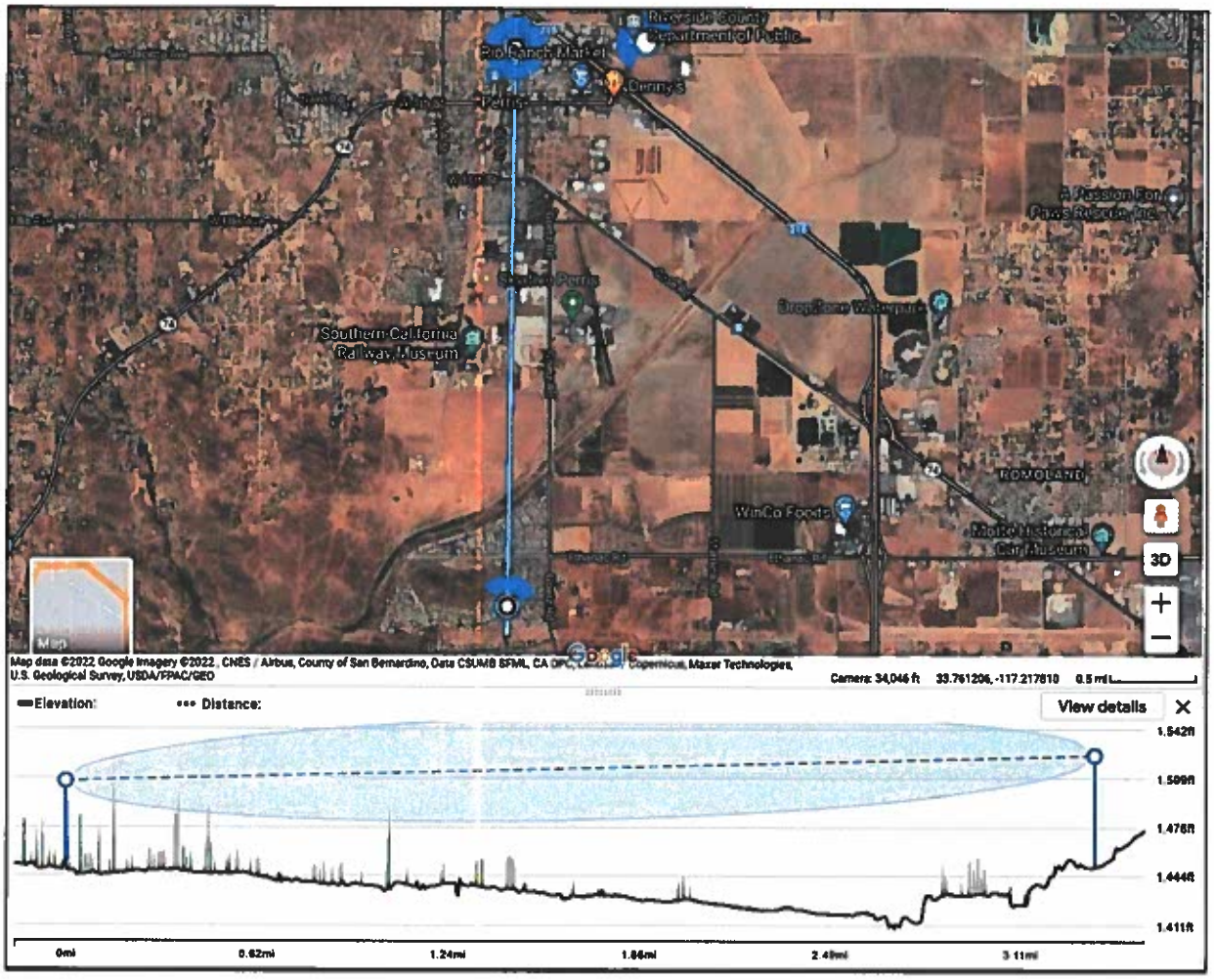
Morgan Park link summary:

- Unobstructed 3.65 Miles
- City Haul antenna height estimated (59-feet AGL)
- Morgan Park antenna height 75-feet AGL



Monument Ranch Park link summary:

- Unobstructed 3.35 Miles
- City Haul antenna height estimated (59-feet AGL)
- Monument Ranch Park antenna height 75-feet AGL



d. The final product should be scalable and have the ability to integrate into the City's already existing Wireless Access Point (WAP) system

Netsync Response: Comply

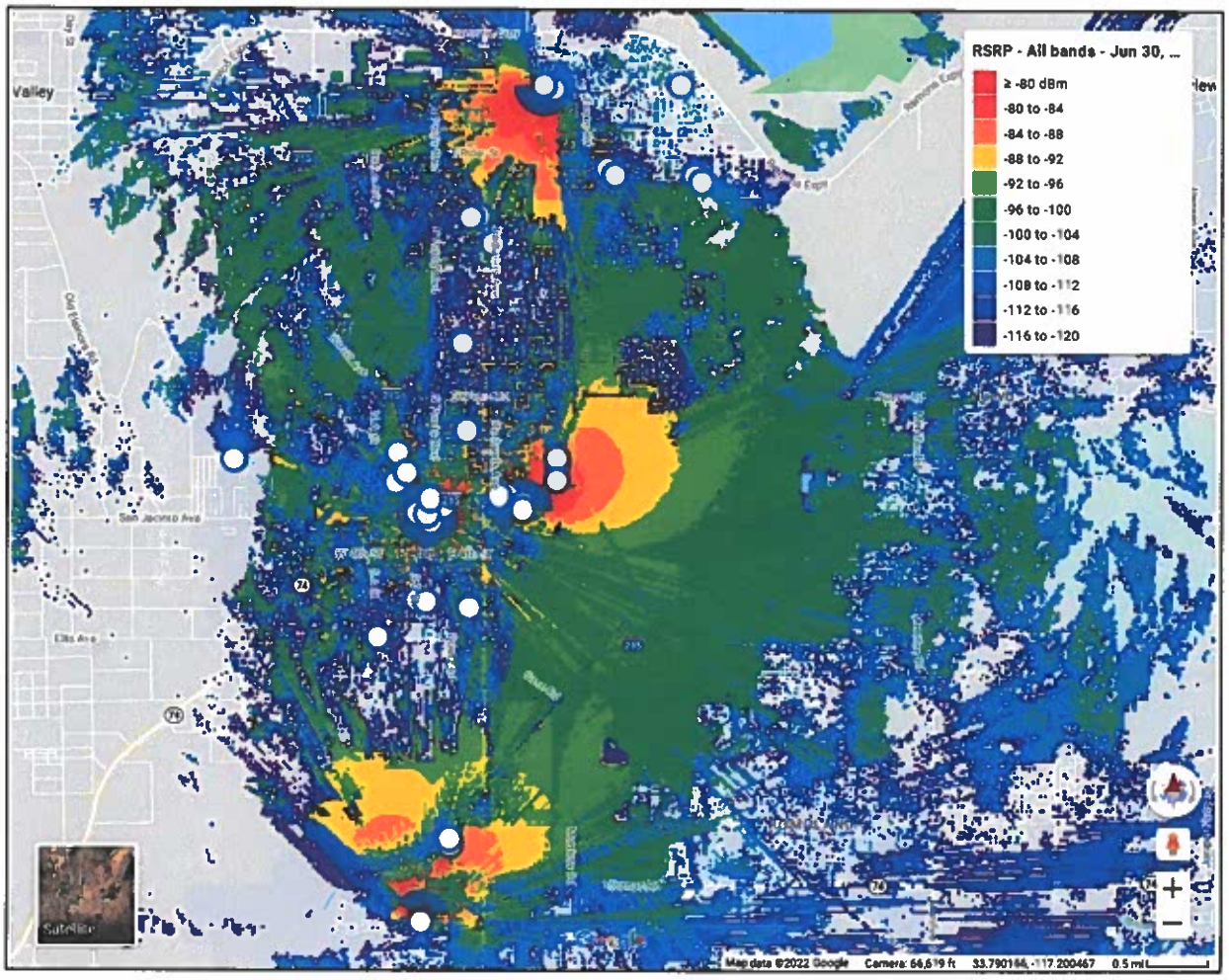
Netsync will work with the City to ensure a smooth integration is completed to provide an Ethernet hand off at each park into the existing Wi-Fi solution.

3. The City has identified 19 potential park sites for small cell deployment, which are listed in addendum one. Consultants can take advantage of the City's already existing facility light poles and affix antennas where they see fit.

   Netsync Response: Comply

   The Netsync design shown below has 4 CBSD and the parks shown with coverage.**(Note:** Coverage shown is represented at 2 meters AGL. Very specific park locations will be selected based on availability of lights and buildings in the parks as needed, giving better height to allow the CAT-B User Device to have a better signal and connection back to the CBSD.

   The parks are shown as the small blue dots, with several options in each park for placement of these devices.



Netsync is planning on a connection to Enchanted Hills Park, with a CBRS connection from Monument Ranch Park. Enchanted Hills Park should install a light pole at the corner of West Metz Road and Altura Road. This pole should be 75-feet tall from the City.

4. The implemented system should be scalable for future smart city and Internet of Things (IoT) initiatives with additions and future growth in mind.

   Netsync Response: Comply

   The Netsync solution based on Motorola Nitro, Smart Cities run on data. It requires lightning-fast, enterprise-grade data flowing securely across every level of your operation. Nitro delivers private LTE broadband that outperforms Wi-Fi while providing unmatched simplicity and control. It is the first fully-managed Citizens Broadband Radio Service (CBRS) platform. Quick, reliable, and secure, Nitro supports a wide range of applications like video, IoT, remote learning and more.

   See attachment "Nitro-Smart-Cities_Use Case_Brief.PDF"

5. The City will OWN all related equipment and facets of the project and not pay a monthly service fee.

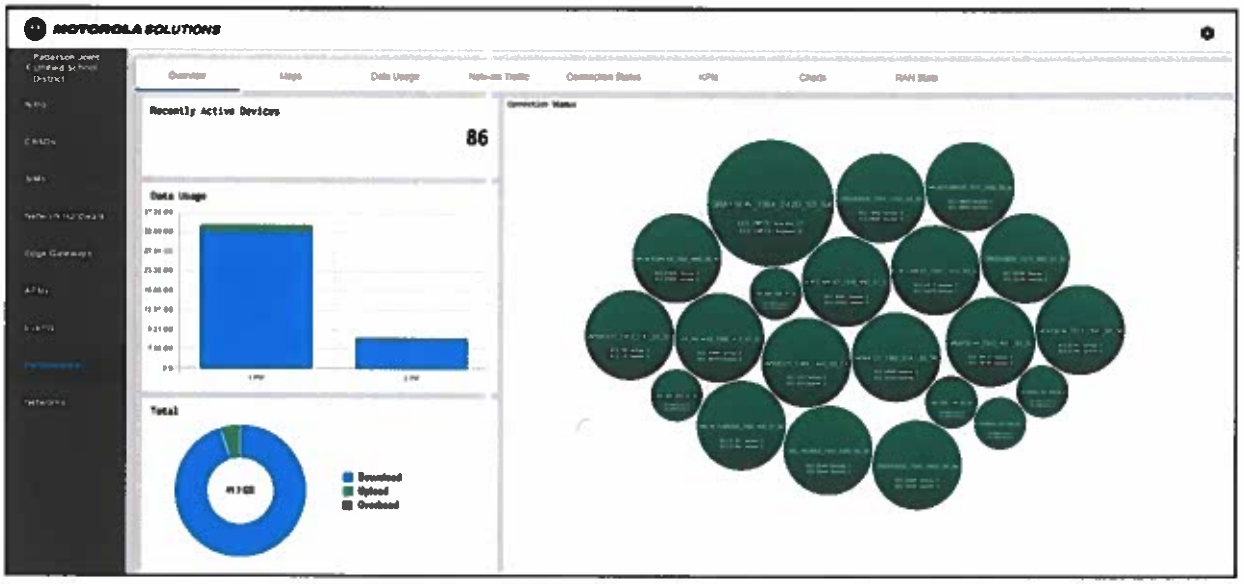
   Netsync Response: Comply

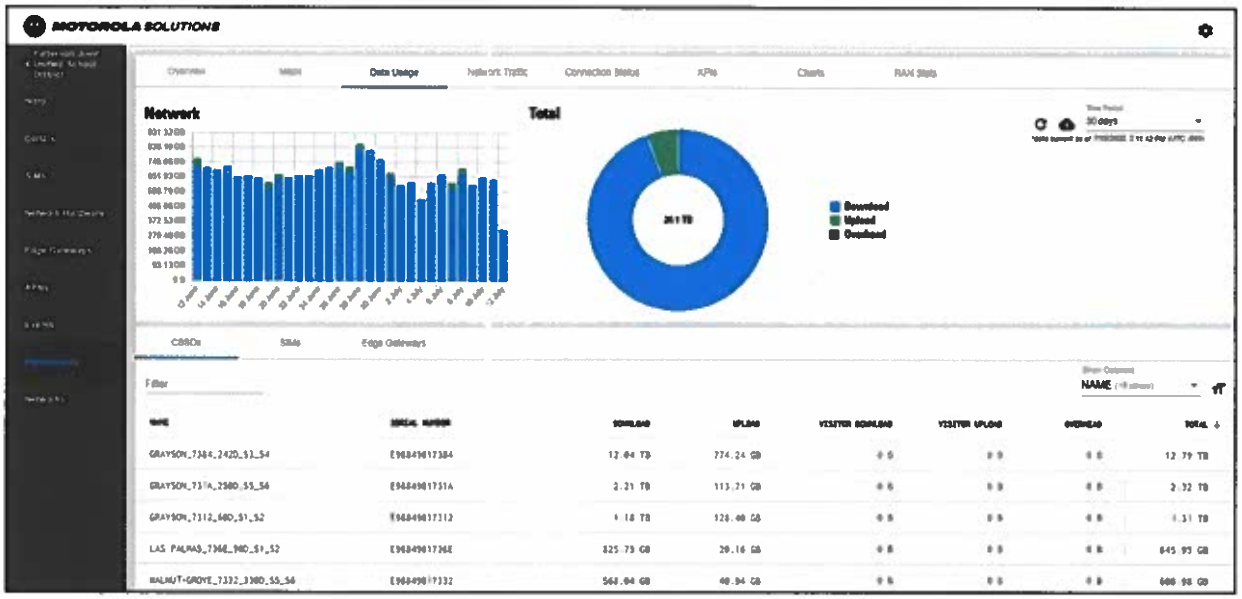
   As CBRS is a licensed service, the network solution will offer turnkey upfront pricing for up to one year for all hardware, support and services including Nitro Subscriptions, and SAS connections.

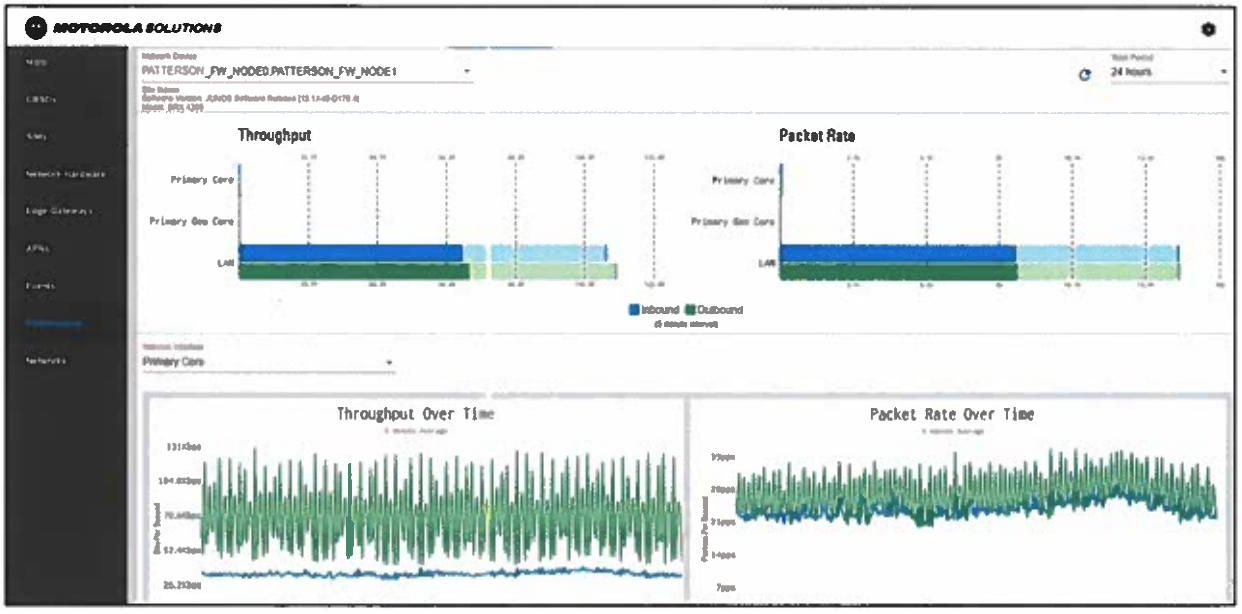
6. Prepare/Support the development of reports, presentations, and other communications materials and tools to convey issues and outcomes to a broad variety of stakeholders and provide editable non- proprietary electronic copies of all such materials for the City's use. All materials for public meetings will be reviewed and approved by City staff prior to their use in the public meetings.

   Netsync Response: Comply

   The Nitro portal offers the City access to monitor a wide variety of KPI for their network. A few examples are shown below.







Project Timeline

Please see the following pages for the timeline. Please also see Staffing Plan section for resumes and/or profiles.

Installation Plan and Methodology

The Motorola Project Manager (PM) will be the single authority for subcontractor actions and reporting and will have the full responsibility for quality performance, schedules, and cost control. Each subcontractor will assign a lead manager who will be responsible for their company's performance. These managers will report directly to Motorola's PM on contractual issues and to the System Engineer on specific technical assignments. All subcontractors will submit progress reports to Motorola describing progress, level of effort, and anticipated problems, which will be integrated into project tracking systems. The subcontractor's weekly progress reports and Motorola's inspections will serve as our primary mechanism for ensuring schedule, quality, and deliverables from all subcontractors.

Schedule and Time Management

Motorola's PM will have the responsibility to schedule and provide oversight of site development, system staging, installation, optimization, cutover, training and system acceptance. Motorola will employ Critical Path Method scheduling and will use computer-based project management tools and software to aid in the planning, control, and evaluation of the project, ensuring timely performance and completion. Motorola will also develop schedules and Gantt charts for each of the activities during system implementation.

During the Design Review (DR), the Motorola PM will provide an updated project schedule with specific sub-activities depicting the start and completion dates of the project accurately. Motorola will regularly update this schedule during the implementation of the project. Motorola will develop the schedule accurately defining tasks, sequencing, task duration, time control and division of responsibilities between Motorola and the customer. The schedule will illustrate the task dependencies and key milestones that are essential for the successful completion of the project. Motorola will closely monitor the schedule, coordinate with the customer, make appropriate adjustments and take corrective actions as required. Prior to finalizing the contract or during the Contract Design Review phase of the project, Motorola will work together with the customer to identify all project responsibilities for the successful completion of the project.

Communications Management

An effective communications plan is critical to the success of a project. Our experiences as a prime contractor and team member have led to an effective communications management approach. Motorola will work with the City to establish a communication plan for conveying pertinent information throughout the project in a timely manner. In addition, the Motorola Program Management team will integrate the subcontractor's managers into the project team organization in a manner that promotes communication and coordination. The Motorola PM team will manage subcontractor team members in accordance with Motorola's standard policies and procedures. All subcontractors will report directly to the PM team on a weekly basis, providing schedule status and participating in project reviews, as required.

NETSYNC

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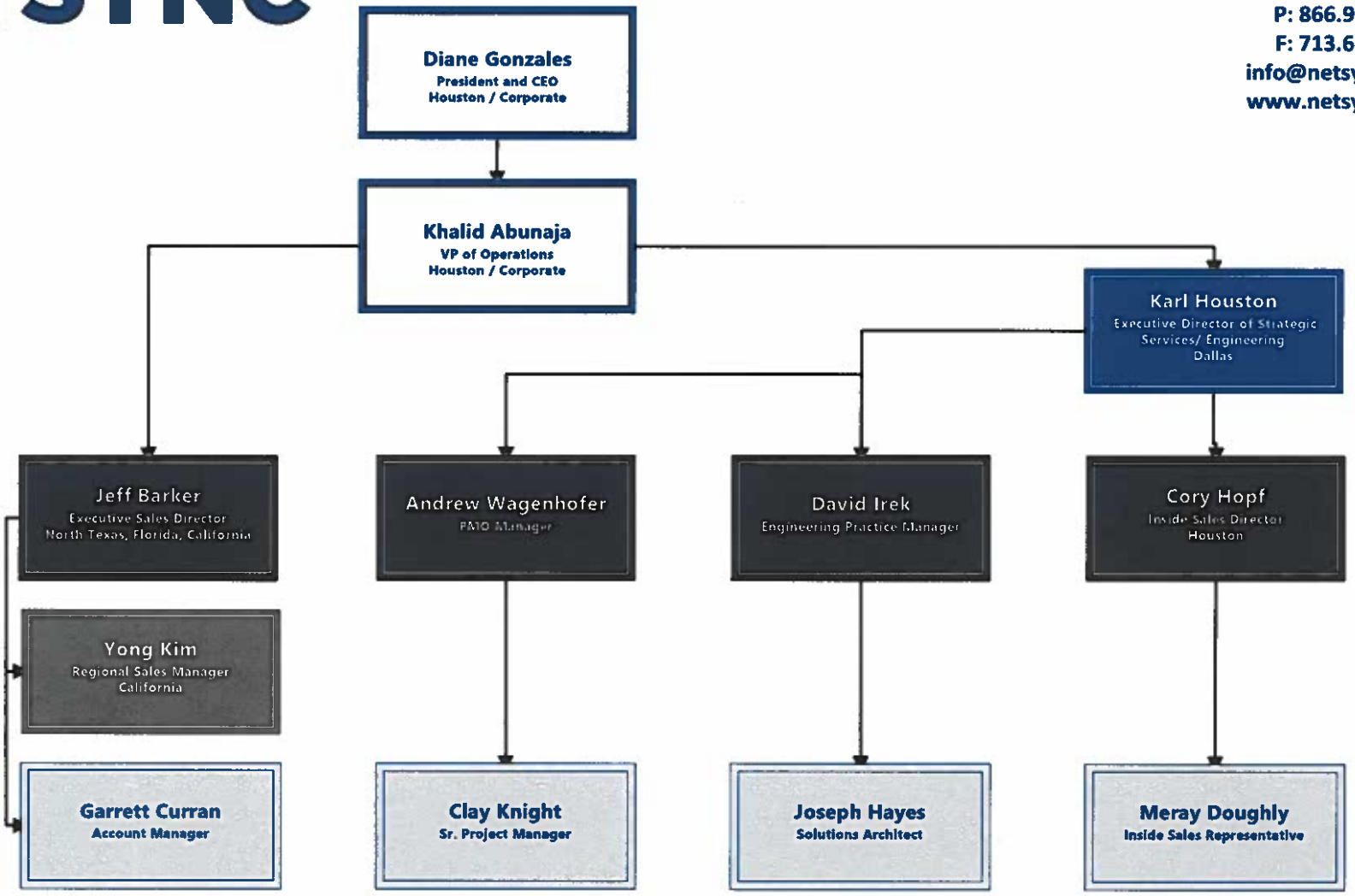
www.netsync.com



7. Quality Control and Assurance (QA/QC)

Netsync's goal is to make our team seamless and transparent. We assign a single point of contact, the AM, to facilitate communication between the teams, the agency, and the staff. In addition, the AM has easy access to Netsync's executive staff.

Netsync follows a standardized QA/QC methodology that governs our projects and is based on industry and best practice standards, and is designed to be in compliance with federal, state, and local government regulations. The QA/QC plan for the ISE implementation project will be based on this methodology and focus on assuring rather than simply controlling the quality of work to provide client satisfaction. Both are based on the premise that quality is everyone's responsibility and accountability is addressed throughout Netsync's organizational structure and the project lifecycle.

As we strive for increased quality within Netsync, we became students, study methodologies on a daily basis, and take direction from industry leaders. Netsync employs a multiphased approach to ensure QA/QC and client satisfaction, as follows:

- A QC plan will be established for the basic services. The AM will lead the team to provide follow-up on the production of deliverables to determine client satisfaction, review open issues/problems to determine escalation and follow up requirements, and analyze trends in problem reports to recommend and deploy proactive solutions for unique client issues.
- Netsync has established and maintains an independent corporate QA Review Board. The QA Review Board reports directly to Netsync's executive management and will provide feedback on project status, quality objectives, and continuous improvement initiatives. The board will constantly be evaluating emerging technologies, system lifecycle methodologies, and industry best practices to ensure the highest level of performance achievement on this project. Additionally, they will provide the QA records and conduct the project reviews.
- QA goals and action plans will be established for each functional requirement on the contract, addressing service levels, performance metrics, critical success factors, potential problems and impact assessments, contingency plans, cost, schedules, activity interdependencies, and critical path monitoring of all service objectives. Quarterly Project Reviews with the executive management and Boardwalk management will summarize the status of goals and action plans. Netsync encourages all employees to participate in the QA program.

Note: All of the QA practices work in combination to provide a comprehensive QA/QC program that fosters strategic project planning, purposeful execution, proactive monitoring, quantitative measurement of results, and a performance-based system of rewards/incentives.

8. Statements and Information

Include all statements and information required by Section IV—IV. Consultant's Proposal.

Please see below for statements and information provided by Netsync.

IV. Consultant's Proposal

A statement that this Request for Proposal and the Consultant's Proposal will jointly become part of the Agreement for Professional Consultant Services for this project when said Agreement is fully executed by the Consultant and City project manager.

A. A statement that the Consultant's Services to be provided, and fees therefore, will be in accordance with this Request for Proposal except as otherwise specified in the Consultant's Proposal under the heading "ADDITIONS OR EXCEPTIONS TO THE CITY'S REQUEST FOR PROPOSAL."

   We respectfully request the removal of any and all references to "Liquidated Damages" herein.

B. A single and separate section with the heading "ADDITIONS OR EXCEPTIONS TO THE CITY'S REQUEST FOR PROPOSAL" containing a complete and detailed description of all the exceptions to the provisions and conditions of this Request for Proposal upon which the Consultant's Proposal is contingent and which shall take precedent over this Request for Proposal for Professional Consultant Services.

   - 21 high-power CPE will require fixed outdoor mounting location (will need to be added into installer SOW).
   - High-power CPE interface is gigabit ethernet and will require bridge device to work with Wi-Fi.
   - An outdoor rated POE injector may be required for the high-power CPE.
   - Site backhaul will be the provided Microwave PTP solution.
   - Site walks required to determine if clear line of sight is available for microwave backhaul and for outdoor high-power CPE mount locations.
   - Designed for 5 cameras per sector at 15Mbps DL/5Mbps UL.
   - Nitro system will operate as a backhaul and will require final connectivity to be provided to end devices.
   - Installation based on provided scope and specifications.
   - Final pricing will be determined upon site surveys and job walks.
   - Does not include any equipment rentals (i.e., lift) or third-party support.
   - Does not include any plans, fees, and permits.
   - Site assumes the City will provide adequate power and grounding within 25-feet.
   - Infrastructure equipment is assumed to be housed in climate controlled facility/enclosure provided by the City.
   - Outdoor-rated weather proof enclosures (for power supplies, cpes, etc.) are to be provided by the City and not included.

Site Assumptions:

- Physical install of equipment is additional cost (i.e. CBSDs, GPS antenna on the roof, all cabling including the LAN Cables, and antenna coax cables must be installed and interconnected).
- Installation by Motorola certified installer required.
- The City will complete structural analysis of all mounting structures prior to physical installation and ST arrival.
- Any structural analysis is the responsibility of the City.
- No Ethernet/Optical Line is included and should be provided by installer.
- All copper runs are to be less than 100 meters.
- Budgetary BOM not orderable without design review.
- This system requires an internet connection to data center equipment for proper operation.
- PTP Server Antenna will require roof mount.
- CBSDs are assumed to be mounted on tower within 6-feet of the other antenna.
- Connections from local switch to CBSDs are assumed 1GB single-mode fiber.
- Connections between sites are assumed 1GB single-mode fiber.
- Connections between Core RAN to the City CEN are assumed Copper 1G Ethernet.
- Connections between Core RAN to internet backhaul are assumed Copper 1G Ethernet.
- Core switches always included unless otherwise provided.
- Cable for DC power will be required for CBSD.
- ST time includes portal training for up to 30 CPE devices.
- Any site prep work (trenching, pole installation, etc.) to be performed by the City/installer prior to MSI arrival.
- 21 high-power CPE will require fixed outdoor mounting location (will need to be added into installer SOW).
- High-power CPE interface is gigabit ethernet and will require bridge device to work with Wi-Fi
- An outdoor rated POE injector may be required for the high-power CPE.
- Site backhaul will be the provided Microwave PTP solution.
- Site walks required to determine if clear line of sight is available for microwave backhaul and for outdoor high-power CPE mount locations.
- Designed for 5 cameras per sector at 15Mbps DL/5Mbps UL.
- Nitro system will operate as a backhaul and will require final connectivity to be provided to end devices.
- Installation based on provided scope and specifications.
- Final pricing will be determined upon site surveys and job walks.
- Does not include any equipment rentals (i.e., lift) or third-party support.
- Does not include any plans, fees, and permits.

- Site assumes the City will provide adequate power and grounding within 25-feet.
- Infrastructure equipment is assumed to be housed in climate controlled facility/enclosure provided by the City.
- Outdoor-rated weather proof enclosures (for power supplies, cpes, etc.) are to be provided by the City and not included.

Coverage Assumptions:

- Assume sufficient CBRS spectrum available.
- No coverage guarantee implied.

C. A summary that highlights the contents of the Consultant's RFP response to provide the Evaluation Committee with a broad understanding of the Consultant's approach, qualifications, experience, and staffing.

Please see Project Understanding section.

D. A statement of qualifications applicable to this project including the names, qualifications and proposed duties of the Consultant's Staff to be assigned to this project; a listing of recent similar projects completed (within the past 36 months) including the names, titles, addresses and telephone numbers of the appropriate persons whom the City could contact. If one or more of the Consultant's staff should become unavailable, the Consultant may substitute other staff of at least equal competence only after prior written approval by the City.

Please see Qualifications and Experience as well as Staffing Plan section.

E. A statement of Consultant's area of expertise and a description of how those strengths will benefit the City. Resumes of the lead person that will act as the primary liaison with the City and additional key individuals who will be performing the services will be included.

Please see Qualifications and Experience as well as Staffing Plan section.

F. A statement of any possible conflicts of interest with any current clients or staff members and the City.

Please see Staffing Plan section.

G. A copy of the Consultant's hourly rate schedule and a statement that said hourly rate schedule is part of the Consultant's Proposal for use in invoicing for progress payments and for extra work incurred that is not part of this RFP. All extra work will require prior approval from the City. Will require prior approval from the City.

Please see Work Plan and Schedule section.

H. A statement that all charges for Consultant services is a "Not-to-Exceed Fee" which must include conservatively estimated reimbursable expenses, as submitted with and made a part of said Consultant's Proposal.

Netsync accepts credit card payments for orders of $5,000 or less. A fee of 3% is applied to these orders.

I. A statement that the Consultant will document and provide the results of the work to the satisfaction of the City. This may include preparation of field and final reports, or similar evidence of attainment of the Agreement objectives.

Closeout documentations will be included for every ENodeB CBSD location. The documentation will include all site specific information on the hardware and the pictures on all the aspects of the installation, including power, communication connections, equipment, and all design parameters.

For the preliminary design based on information from the RFP, shown below is an example of site location design.

Site Name	Lat	Long	Antenna Height	Antenna Azimuth	Antenna Mechanical Tilt (Degrees)
City Hall_sector_1	33.787171	-117.227211	59	20	0
City Hall_sector_2	33.787171	-117.227211	59	160	0
City Hall_sector_3	33.787171	-117.227211	59	210	0
City Hall_sector_4	33.787171	-117.227211	59	320	0
Bob Long Park_sector_1	33.7876203	-117.2135136	85	40	2
Bob Long Park_sector_2	33.7876203	-117.2135136	85	320	6
Morgan Park_sector_1	33.8381721	-117.2104783	85	70	2
Morgan Park_sector_2	33.8381721	-117.2104783	85	125	2
Morgan Park_sector_3	33.8381721	-117.2104783	85	215	2
Monument Ranch Park_sector_1	33.738695	-117.227967	85	340	0

J. A statement that the Consultant will not discriminate against any employee or applicant for employment because of race, religious creed, color, national origin, ancestry, physical disability, mental disability, medical condition, marital status, sex, age, sexual orientation, ethnicity, status as a disabled veteran or veteran of the Vietnam era.

Netsync/Consultant acknowledges this statement.

K. A statement that all federal laws and regulations shall be adhered to notwithstanding any state or local laws and regulations. In a case of conflict between federal, state, or local laws or regulations the strictest shall be adhered to.

Netsync acknowledges this statement.

2. Proposal submittals shall include a detailed Milestone or Proposed Timeline Report, clearly identifying the project milestones and expected dates to complete. A recovery action plan should also be included to indicate steps that will be taken if milestones or timelines are not met as anticipated.

Please see Work Plan and Schedule section.

3. The Cost Proposal shall be an itemized breakdown of expenses by proposed task. The Cost Proposal shall include all items that will be charged to the City, including travel, administrative and other direct charges that will be involved in the project. Costs shall be segregated to show staff where funds are being allocated.

   Please see Cost Proposal section.

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9. Cost Proposal

Please see the following pages for the cost proposal.

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NETSYNC
2500 West Loop South, Ste. 410/510
Houston, TX 77027 USA
713.218.5000

QUOTE
AAAQ370462

Quote #:	AAAQ370462
Date:	07/25/2022
Valid for:	30 Days

Sell To Contact	Inside Sales	Account Manager
City of Perris Pplopez@cityofperris.org 951-943-6100, 296	Meray Doughly MDoughly@netsync.com	Garrett Curran GCurran@netsync.com

Please send purchase order to: PO@netsync.com

Line #	Part	Descrption	Qty	Unit Price	Ext Price
City Hall					Sub Total 241,617.50
	Default Group				
1.0	AAE50048INB2AN	City Hall SLX 5000 3550-3700M 2W	2	5,871.76	11,743.52
1.1.0	CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	2	0.00	0.00
1.2.0	CA03682AA	ADD: Direct Mount GPS Antenna 4	2	189.41	378.82
1.3.0	CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	2	288.23	576.46
1.4.0	CA03685AA	ADD: SLX5000 SFP Connector Adapter	2	70.00	140.00
1.5.0	PS000435A01	AC/DC CONVERTER 48V 154W, IP65	2	193.52	387.04
1.6.0	CN001149A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 3 POLES	2	10.58	21.16
1.7.0	CN001148A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 2 POLES	2	11.47	22.94
1.8.0	DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	2	204.70	409.40
1.9.0	AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	4	592.94	2,371.76
1.10.0	DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	8	74.11	592.88
1.11.0	DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	8	35.41	283.28
1.12.0	DQBFN	MOUNTING KIT FOR SUPPRESSORS	8	12.35	98.80
1.13.0	DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	8	35.82	286.56
1.14.0	DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1	5,520.94	5,520.94
1.15.0	DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1	168.82	168.82
1.16.0	DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2	23.88	47.76
1.17.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	4	1,111.76	4,447.04
1.18.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2	1,111.76	2,223.52
1.19.0	DSJRM23855HC	Rohm single mast 10'X2-3/3" roof mount	3	929.41	2,788.23
1.20.0	DSJRMPAD	Rohm Roof Pads for JRM Series Non-Penetraing Mounts	3	368.23	1,104.69
	Labor				
2.0	NET-PRO-SRVC	Installation & Deployment per SoW. | WAN: Fixed Wireless	4	52,000.97	208,003.88
Morgan Park					Sub Total 28,812.38
	Default Group				
3.0	AAE50048INB2AN	Morgan Park SLX 5000 3550-3700M 2W	2	5,871.76	11,743.52
3.1.0	CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	2	0.00	0.00
3.2.0	CA03682AA	ADD: Direct Mount GPS Antenna 4	2	189.41	378.82
3.3.0	CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	2	288.23	576.46
3.4.0	CA03685AA	ADD: SLX5000 SFP Connector Adapter	2	70.00	140.00

NETSYNC
2500 West Loop South, Ste. 410/510
Houston, TX 77027 USA
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QUOTE

AAAQ370462

Quote #:	AAAQ370462
Date:	07/25/2022
Valid for:	30 Days

Line #	Part	Description	Qty	Unit Price	Ext Price
3.5.0	PS000435A01	AC/DC CONVERTER 48V 154W, IP65	2	193.52	387.04
3.6.0	CN001149A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 3 POLES	2	10.58	21.16
3.7.0	CN001148A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 2 POLES	2	11.47	22.94
3.8.0	DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	2	204.70	409.40
3.9.0	AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	3	592.94	1,778.82
3.10.0	DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	6	74.11	444.66
3.11.0	DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	6	35.41	212.46
3.12.0	DQBFN	MOUNTING KIT FOR SUPPRESSORS	6	12.35	74.10
3.13.0	DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	6	35.82	214.92
3.14.0	DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1	5,520.94	5,520.94
3.15.0	DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1	168.82	168.82
3.16.0	DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2	23.88	47.76
3.17.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	4	1,111.76	4,447.04
3.18.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2	1,111.76	2,223.52
Bob Long Park				Sub Total	18,840.87
Default Group					
4.0	AAE50048INB2AN	Bob Long SLX 5000 3550-3700M 2W	1	5,871.76	5,871.76
4.1.0	CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	1	0.00	0.00
4.2.0	CA03682AA	ADD: Direct Mount GPS Antenna 4	1	189.41	189.41
4.3.0	CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	1	288.23	288.23
4.4.0	CA03685AA	ADD: SLX5000 SFP Connector Adapter	1	70.00	70.00
4.5.0	PS000435A01	AC/DC CONVERTER 48V 154W, IP65	1	193.52	193.52
4.6.0	CN001149A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 3 POLES	1	10.58	10.58
4.7.0	CN001148A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 2 POLES	1	11.47	11.47
4.8.0	DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	1	204.70	204.70
4.9.0	AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	2	592.94	1,185.88
4.10.0	DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	4	74.11	296.44
4.11.0	DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	4	35.41	141.64
4.12.0	DQBFN	MOUNTING KIT FOR SUPPRESSORS	4	12.35	49.40
4.13.0	DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	4	35.82	143.28
4.14.0	DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1	5,520.94	5,520.94
4.15.0	DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1	168.82	168.82
4.16.0	DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2	23.88	47.76
4.17.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2	1,111.76	2,223.52

NETSYNC
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Quote #:	AAAQ370462
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Valid for:	30 Days

Line #	Part	Description	Qty	Unit Price	Ext Price
4.18.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2	1,111.76	2,223.52
Monument Ranch Park				**Sub Total**	**18,840.87**
	Default Group				
5.0	AAE50048INB2AN	Monument Ranch SLX 5000 3550-3700M 2W	1	5,871.76	5,871.76
5.1.0	CA03731AA	DEL: INTEGRATED RF ANTENNA FOR SLX 5000	1	0.00	0.00
5.2.0	CA03682AA	ADD: Direct Mount GPS Antenna 4	1	189.41	189.41
5.3.0	CA03683AA	ADD: SLX5000 Wall/Pole Mount Bracket	1	288.23	288.23
5.4.0	CA03685AA	ADD: SLX5000 SFP Connector Adapter	1	70.00	70.00
5.5.0	PS000435A01	AC/DC CONVERTER 48V 154W, IP65	1	193.52	193.52
5.6.0	CN001149A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 3 POLES	1	10.58	10.58
5.7.0	CN001148A01	CONNECTOR STANDARD-BTB,3,CONNECTOR STANDARD-CABLE JOINER 2 POLES	1	11.47	11.47
5.8.0	DS11011110	SPD, 48V DC DEFENDER, PARALLEL OR SERIES INSTALLED,	1	204.70	204.70
5.9.0	AN000409A01	ALPHA WIRELESS 3300-3800MHZ 2X2 33 DEG 20.5DBI FIZED DOWNTILT 4 DEGREE N-TYPE	2	592.94	1,185.88
5.10.0	DQL4ANMNM6P	(LDF4-50A) 6 FT-JUMPER W/TYPES N-MALE & N-MALE CONNECTORS-PIM RATED	4	74.11	296.44
5.11.0	DSLPGTVNFM	SPD DC-7000 MHz N Male & N Female Bi-Directional	4	35.41	141.64
5.12.0	DQBFN	MOUNTING KIT FOR SUPPRESSORS	4	12.35	49.40
5.13.0	DSWKU	WK-U, UNIVERSAL WEATHERPROOFING KIT	4	35.82	143.28
5.14.0	DSEX430032F	Juniper EX4300 32-port 100/1000BASE-X	1	5,520.94	5,520.94
5.15.0	DSIGJPSU350ACAFO	350W AC PWR SUP FRONT TO BACK PWR AIRFLOW FOR EX4300	1	168.82	168.82
5.16.0	DSCBLEXPWRC13US	Juniper AC power cable, U.S. for EX3400-24P Switch and EX4300-32P	2	23.88	47.76
5.17.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2	1,111.76	2,223.52
5.18.0	DSEXSFP1GELX	Juniper 1000Base-LX GbE Optics SFP, 10 km transmission on SMF	2	1,111.76	2,223.52
EPC Core				**Sub Total**	**419,505.36**
	Default Group				
6.0	EQ000235A01	EPC Core uFalcon-MXG MSI Bundle (uFalcon-MXG, AC Adapter, Rack Shelf, 3YRS Ext HW/SW Warr w/ SW Upgrades for 5yr total)	1	4,846.47	4,846.47
6.1.0	DSGNSS1TMG40N	GLOBAL GNSS TIMING ANTENNA, 40DB, GPS, GLONASS, GALILEO AND BEIDOU	1	223.17	223.17
6.2.0	DSGPSTMGMNT	MOUNT KIT, COLLAR BRACKET	1	26.76	26.76
6.3.0	DSACC014J50	1/4" ULTRA FLEXIBLE, 50 OHM, CORRUGATED, COPPER OUTER CONDUCTOR, LOW S	90	2.27	204.30
6.4.0	DSNMA01450	N MALE FOR 1/4" ACC SERIES CABLE	4	19.35	77.40
6.5.0	SVC03SVC0104D-PTP	CABLING, SPECIAL COMMSCOPE DSC240NFSM1M CNT240 BRAIDED CABLE ASSEMBLY 1M (Exception Needed)	45	1.17	52.65
6.6.0	DSGPS06NFF	BULKHEAD COAXIAL RF SURGE PROTECTOR, TYPE N F/F, 1.2GHZ - 1.6GHZ, 10W,	1	88.11	88.11
6.7.0	T8789	NITRO EDGE & HUB ROUTER & FIREWALL - AC	2	10,582.35	21,164.70
6.8.0	SVC03SVC0104D	CABLING, ANCILLARY RAN	500	1.17	585.00

NETSYNC
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QUOTE

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Quote #:	AAAQ370462
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Valid for:	30 Days

Line #	Part	Description	Qty	Unit Price	Ext Price
6.9.0	DSIGEXSFP10GEDAC1M	SFP+ 10 GB ETHERNET DIRECT ATTACH COPPER CABLE - 1M	5	82.35	411.75
6.10.0	EQ000239A01	EX4300-48MP POE++ SWITCH BNDL W/ RED 1400W PSU, 2 US PWRCRDS, 24XPERP 1G 24X100M/1G/2 5G/5G/10G COPPER	2	6,164.70	12,329.40
6.11.0	DSEXUM4SFPPMR	Juniper EX4300MP 4-port 1GbE/10GbE SFP+ Uplink Module - required for Fiber connections	2	1,173.52	2,347.04
6.12.0	DSQFXQSFPDAC1M	1M CABL QSFP+ TO QSFP+ ETHERNETCABL DIRECT ATTACH COPPER TWINAX COPPER	2	163.05	326.10
6.13.0	SQM01SUM0332	NITRO High Capacity ONPREM EDGE GATEWAY	2	20,176.47	40,352.94
7.0	SUA CBSDSLX	SLX 5000 Outdoor CBSD 3550-3700M 2W	72	95.29	6,860.88
8.0	SUA multi carrier	ADD: Multi-Carrier Connection for SLX 5000	48	63.52	3,048.96
9.0	SUA Nitro	Nitro High Capacity OnPrem Edge Gateway	24	42.35	1,016.40
10.0	Optional Network Monitoring (NM) Services (1 Years	Optional Network Monitoring (NM) Services (1 Years)	1	4,202.39	4,202.39
11.0	Optional Network Monitoring Services (NM) w/ Enhan	Optional Network Monitoring Services (NM) w/ Enhanced NBI (1 Years)	1	4,546.86	4,546.86
12.0	Optional Advanced Replacement (AR) Services (1 Yea	Optional Advanced Replacement (AR) Services (1 Years)	1	6,433.79	6,433.79
13.0	Optional Basic Standalone NBI Services (1 Years) (	Optional Basic Standalone NBI Services (1 Years) (only available if NM is not purchased)	1	1,694.11	1,694.11
14.0	Optional Enhanced Standalone NBI Services (1 Years	Optional Enhanced Standalone NBI Services (1 Years) (only available if NM is not purchased)	1	2,823.52	2,823.52
15.0	Optional On Site Infrastructure Support Services	Optional On Site Infrastructure Support Services	1	12,205.88	12,205.88
16.0	NITRO Deployment Services	NITRO Deployment Services	1	67,673.97	67,673.97
16.1.0	Consolidation and Shipping Service	Consolidation and Shipping Service	1	3,647.05	3,647.05
16.2.0	Nitro Installation Services	Nitro Installation Services PTP Link Installation Licensed PTP Link Installation A/C NEMA Box SiteX No Climb Tower Power for CBSD Nitro Site install Nitro RAN install Nitro High Power CPE Install Nitro Site hardware install NEMA Box Install	1	222,315.76	222,315.76
PtP Microwave				Sub Total	53,235.27
	Default Group				
17.0	PtP Cambium	Cambium 650 or equal with integrated antenna systems for PTP links	3	8,529.41	25,588.23
17.1.0	PtP Cambium License	Licensed PTP System or equal for high capacity City Hall link to Bob Long Park	1	21,764.70	21,764.70
17.2.0	PtP Cambium HP	High Performance MW Dishes and Mounts	2	2,941.17	5,882.34
CPE End Units				Sub Total	17,187.44
	Default Group				
18.0	DSAS5410	AIRSPOT 5410 4G, B48, C12 POE, US PLUG, HIGH POWER CAT-B CPE W 3 YR HW	21	657.88	13,815.48
18.1.0	HK2116A	Nitro SIM CARD (10-PACK)	10	70.58	705.80

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QUOTE

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Quote #:	AAAQ370462
Date:	07/25/2022
Valid for:	30 Days

Line #	Part	Description	Qty	Unit Price	Ext Price
18.2.0	SUA High Power	High Powered CPE	252	5.29	1,333.08
18.3.0	SUA Data	Unlimited Data Plan - BYOD	252	5.29	1,333.08

Notes: 220036665-119182-08

Moto RFP Quote

Total	798,039.69
Tax/Vat	45,540.26
Shipping	0.00
Grand Total USD	**843,579.95**

10. Netsync and Motorola References

Reference #1	
Organization	Harris County, Texas
Contact Name	Jim McMillan
Title	Assistant Chief Technology Officer
Address	P.O. Box 1525, Houston, TX 77251
Phone	713.274.8837
Email	jim.mcmillan@us.hctx.net
Project Description	12/2020; Operating a 25 site Nitro network for digital divide, student learning, and smart city.

Reference #2	
Organization	San Antonio, Texas
Contact Name	John Rodriguez
Title	Assistant IT Director
Address	100 Military Plaza San Antonio, TX 78205
Phone	210.387.6969
Email	john.a.rodriguez@sanantonio.gov
Project Description	10/2020; Operating a wide area Nitro network for remote learning. 5 sites are up today with future site expansion contracted. Goal is to connect over 20k homes.

Reference #3	
Organization	Pittsburg, Kansas
Contact Name	Dr. Brad Hanson
Address	510 E Deill St, Pittsburg, KS 66762
Phone	620.235.3100
Email	bhanson@usd250.org
Project Description	11/2020; Operating a wide-area Nitro Private LTE network for remote learning.

Reference #4	
Organization	Mesa, Arizona
Contact Name	Harry Meier
Title	Deputy CIO for Innovation
Address	200 South Center St, Mesa, AZ 85210
Phone	480-644-2952
Email	harry.meier@mesaaz.gov
Project Description	10/2021-Phase 1, site 1 is Complete. Phase 2, 2/22-Estimated completion in 8/2022 for 20 sites. The plan is to operate a 21 site Nitro network for Smart City applications, digital divide, public Wi-Fi, and first responders.

Reference #5	
Organization	Patterson, California
Contact Name	Eric Drabert
Title	IT Director
Address	510 Keystone Blvd, Patterson, CA 95363
Phone	209.895.7700
Email	edrabert@patterson.k12.ca.us
Project Description	9/15/2020; Operating a wide-area Nitro network for last mile broadband coverage and remote learning.

Reference #6	
Organization	Fresno Unified School District
Contact Name	Dr. Philip Neufeld
Address	4498 North Brawley Ave, Fresno, CA 93722
Phone	559.457.3868
Email	philip.neufeld@fresnounified.org
Project Description	05/2021 – 04/2022; Wireless broadband solution; initial project included deployment of 15 sites to critical sites. Secondary phase will continue to deploy district wide. Netsync, along with Nokia and Cradlepoint, architected and implemented a CBRS network spanning 19 sites to help the district bridge the digital divide. Students are issued CradlePoint devices that connect back to the district owned CBRS network and provide secure network access to students in unserved and uner-served communities.

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11. Additional Revelant Information

Netsync has provided supplemental materials, brochures, and more on the following pages.

- Certificate of Insurance—Netsync will provide a certificate of insurance specific to City of Perris upon award.
- Authorized Signatories.
- Form W-9.
- Netsync Internet of Things.
- Motorola Support Materials.

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ACORD

CERTIFICATE OF LIABILITY INSURANCE

DATE (MM/DD/YYYY): 05/23/2022

THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.

IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must have ADDITIONAL INSURED provisions or be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).

PRODUCER	CONTACT NAME: Ali Hussein	
Ali Hussein Insurance Agency, Inc. 6420 Richmond Ave , Ste # 350 Houston, TX 77057	PHONE (A/C, No, Ext): (713)784-8787	FAX (A/C, No): (713)784-8737
	E-MAIL ADDRESS: ahussein@husseinagency.com	
	INSURER(S) AFFORDING COVERAGE	NAIC #
	INSURER A : Charter Oaks Fire Ins Company	25615
INSURED	INSURER B : The Travelers Indemnity Company of America.	25666
Netsync Network Solutions 2500 West Loop South # 410 Houston, TX 77027	INSURER C : Travelers Indemnity Company of CT	25682
	INSURER D : Travelers Casualty Ins Company of America	19046
	INSURER E : United State Liability Insurance Company	25895
	INSURER F : United State Liability Insurance Company	

COVERAGES **CERTIFICATE NUMBER: 00001537-8418196** **REVISION NUMBER: 815**

THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.

INSR LTR	TYPE OF INSURANCE	ADDL INSD	SUBR WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS	
A	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE X OCCUR GEN'L AGGREGATE LIMIT APPLIES PER: POLICY X PRO-JECT LOC OTHER:	Y		630-1J092560	11/21/2021	11/21/2022	EACH OCCURRENCE DAMAGE TO RENTED PREMISES (Ea occurrence) MED EXP (Any one person) PERSONAL & ADV INJURY GENERAL AGGREGATE PRODUCTS - COMP/OP AGG	$ 1,000,000 $ 300,000 $ 10,000 $ 1,000,000 $ 2,000,000 $ 2,000,000
B	AUTOMOBILE LIABILITY X ANY AUTO OWNED AUTOS ONLY X SCHEDULED AUTOS X HIRED AUTOS ONLY X NON-OWNED AUTOS ONLY X PIP & UM- 500 DED Primary noncontribu			810-0N736814	06/01/2022	06/01/2023	COMBINED SINGLE LIMIT (Ea accident) BODILY INJURY (Per person) BODILY INJURY (Per accident) PROPERTY DAMAGE (Per accident)	$ 1,000,000 $ $ $
C	X UMBRELLA LIAB X OCCUR EXCESS LIAB CLAIMS-MADE DED RETENTION $			CUP 8H890024	11/21/2021	11/21/2022	EACH OCCURRENCE AGGREGATE	$ 10,000,000 $ 10,000,000
D	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? (Mandatory in NH) Y/N N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A		UB- 0J539905-16-I3-G	11/21/2021	11/21/2022	X PER STATUTE OTH-ER E.L. EACH ACCIDENT E.L. DISEASE - EA EMPLOYEE E.L. DISEASE - POLICY LIMIT	$ 1,000,000 $ 1,000,000 $ 1,000,000
E	Professional Libilli			TK1004896L-R	03/05/2022	03/05/2023	Claim Made	5,000,000
F	Cyber coverage			TK1004896L-R	03/05/2022	03/05/2023	Inc In Limits	5,000,000

DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required)

Certificate holder is included as an additional insured (including completed operations) as respects all of the required coverages except workers' compensation and professional liability.

LOC # 1 2500 West Loop South # 410 Houston TX 77027
LOC # 2 2500 West Loop South # 510 Houston TX 77027
LOC # 3 4951 Terminal St # F Bellaire, TX 77401
(continued on ACORD 101 Additional Remarks Schedule)

CERTIFICATE HOLDER

Netsync Network Solutions
2500 Weest Loop South # 410
Houston, TX 77027

CANCELLATION

SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.

AUTHORIZED REPRESENTATIVE

Ali Hussein (ALI)

AGENCY CUSTOMER ID: 00001537

LOC #:

ADDITIONAL REMARKS SCHEDULE

AGENCY	NAMED INSURED
Ali Hussein Insurance Agency, Inc.	Netsync Network Solutions
POLICY NUMBER: N/A	
CARRIER: Multiple Carriers / NAIC CODE:	EFFECTIVE DATE:

ADDITIONAL REMARKS

THIS ADDITIONAL REMARKS FORM IS A SCHEDULE TO ACORD FORM,

FORM NUMBER: 25 FORM TITLE: Certificate of Liability Insurance

(continued from Description of Operations)
LOC # 4 1224 E. Jasmine Suite # B & C, McAllen, TX 78501
LOC # 5 1920 Hutton Ct Ste 400 Dallas, TX. 75234
LOC # 6 2304 Tarpley Road Suite # 114, Carrollton, TX 75006
LOC # 7 7340 Blanco Road # 109 San Antonio, TX 78216

NETSYNC

April 26, 2022

To whom it may concern:

The following is a list of individuals authorized to sign on behalf of Netsync Network Solutions:

- Diane Gonzales, CEO
- Khalid Abunaja, VP of Operations
- Nicole Nordhougen, General Counsel
- Karl Houston, Executive Director of Strategic Services
- Len Noble, Executive Director of Sales
- Jeff Barker, Executive Director of Sales
- Clara Alessi, Human Resource Generalist
- Tejaswini Bhate, RFP Manager
- Shannon Rico, Engineering Manager
- Quoc Nguyen, Engineering Manager
- Shawn Sellers, Director of Vendor Management

Regards,

Nicole Nordhougen
General Counsel
Netsync Network Solutions
2500 West Loop South, Suite 410
Houston, TX 77027
legal@netsync.com
713.218.5000

Netsync Network Solutions, Inc CORPORATE SEAL 2002 Texas

Form **W-9**
(Rev. October 2018)
Department of the Treasury
Internal Revenue Service

Request for Taxpayer Identification Number and Certification

▶ Go to *www.irs.gov/FormW9* for instructions and the latest information.

Give Form to the requester. Do not send to the IRS.

Print or type. See Specific Instructions on page 3.

1 Name (as shown on your income tax return). Name is required on this line; do not leave this line blank.
Netsync Network Solutions

2 Business name/disregarded entity name, if different from above

3 Check appropriate box for federal tax classification of the person whose name is entered on line 1. Check only one of the following seven boxes.

☐ Individual/sole proprietor or single-member LLC ☒ C Corporation ☐ S Corporation ☐ Partnership ☐ Trust/estate

☐ Limited liability company. Enter the tax classification (C=C corporation, S=S corporation, P=Partnership) ▶ _____

Note: Check the appropriate box in the line above for the tax classification of the single-member owner. Do not check LLC if the LLC is classified as a single-member LLC that is disregarded from the owner unless the owner of the LLC is another LLC that is not disregarded from the owner for U.S. federal tax purposes. Otherwise, a single-member LLC that is disregarded from the owner should check the appropriate box for the tax classification of its owner.

☐ Other (see instructions) ▶

4 Exemptions (codes apply only to certain entities, not individuals; see instructions on page 3):

Exempt payee code (if any) _____

Exemption from FATCA reporting code (if any) _____

(Applies to accounts maintained outside the U.S.)

5 Address (number, street, and apt. or suite no.) See instructions.
2500 West Loop South, Suite 410

Requester's name and address (optional)

6 City, state, and ZIP code
Houston, TX 77027

7 List account number(s) here (optional)

Part I Taxpayer Identification Number (TIN)

Enter your TIN in the appropriate box. The TIN provided must match the name given on line 1 to avoid backup withholding. For individuals, this is generally your social security number (SSN). However, for a resident alien, sole proprietor, or disregarded entity, see the instructions for Part I, later. For other entities, it is your employer identification number (EIN). If you do not have a number, see *How to get a TIN*, later.

Note: If the account is in more than one name, see the instructions for line 1. Also see *What Name and Number To Give the Requester* for guidelines on whose number to enter.

Social security number

			–			–				

or

Employer identification number

3	2	–	0	0	3	0	3	2	9

Part II Certification

Under penalties of perjury, I certify that:

1. The number shown on this form is my correct taxpayer identification number (or I am waiting for a number to be issued to me); and
2. I am not subject to backup withholding because: (a) I am exempt from backup withholding, or (b) I have not been notified by the Internal Revenue Service (IRS) that I am subject to backup withholding as a result of a failure to report all interest or dividends, or (c) the IRS has notified me that I am no longer subject to backup withholding; and
3. I am a U.S. citizen or other U.S. person (defined below); and
4. The FATCA code(s) entered on this form (if any) indicating that I am exempt from FATCA reporting is correct.

Certification instructions. You must cross out item 2 above if you have been notified by the IRS that you are currently subject to backup withholding because you have failed to report all interest and dividends on your tax return. For real estate transactions, item 2 does not apply. For mortgage interest paid, acquisition or abandonment of secured property, cancellation of debt, contributions to an individual retirement arrangement (IRA), and generally, payments other than interest and dividends, you are not required to sign the certification, but you must provide your correct TIN. See the instructions for Part II, later.

Sign Here Signature of U.S. person ▶ Kae Otten Date ▶ 1/17/2022

General Instructions

Section references are to the Internal Revenue Code unless otherwise noted.

Future developments. For the latest information about developments related to Form W-9 and its instructions, such as legislation enacted after they were published, go to *www.irs.gov/FormW9.*

Purpose of Form

An individual or entity (Form W-9 requester) who is required to file an information return with the IRS must obtain your correct taxpayer identification number (TIN) which may be your social security number (SSN), individual taxpayer identification number (ITIN), adoption taxpayer identification number (ATIN), or employer identification number (EIN), to report on an information return the amount paid to you, or other amount reportable on an information return. Examples of information returns include, but are not limited to, the following.

- Form 1099-INT (interest earned or paid)
- Form 1099-DIV (dividends, including those from stocks or mutual funds)
- Form 1099-MISC (various types of income, prizes, awards, or gross proceeds)
- Form 1099-B (stock or mutual fund sales and certain other transactions by brokers)
- Form 1099-S (proceeds from real estate transactions)
- Form 1099-K (merchant card and third party network transactions)
- Form 1098 (home mortgage interest), 1098-E (student loan interest), 1098-T (tuition)
- Form 1099-C (canceled debt)
- Form 1099-A (acquisition or abandonment of secured property)

Use Form W-9 only if you are a U.S. person (including a resident alien), to provide your correct TIN.

If you do not return Form W-9 to the requester with a TIN, you might be subject to backup withholding. See What is backup withholding, *later.*

4116406

State of California
Secretary of State

CERTIFICATE OF QUALIFICATION

I, ALEX PADILLA, Secretary of State of the State of California, hereby certify that on the **22nd day of February, 2018, NETSYNC NETWORK SOLUTIONS, INC.,** a corporation organized and existing under the laws of **Texas**, complied with the requirements of California law in effect on that date for the purpose of qualifying to transact intrastate business in the State of California, and that as of said date said corporation became and now is qualified and authorized to transact intrastate business in the State of California, subject however, to any licensing requirements otherwise imposed by the laws of this State.

IN WITNESS WHEREOF, I execute this certificate and affix the Great Seal of the State of California this day of February 22, 2018.

ALEX PADILLA
Secretary of State

tej

NP-25 (REV 01/2015)

The Internet of Things is Real
and it's Everywhere

The Internet of Things (IoT) is truly vast, with connectivity no longer limited to just phones, tablets and computers. It also encompasses thermostats, lightbulbs, alarm systems, doorbells, and much, much more. In the business world, it's become an invaluable tool for gathering and analyzing volumes of collected data about customers, products and trends in order to make key, strategic business decisions.

Netsync's IoT experts work with customers to provide a custom-tailored solution that delivers network compatibility and efficiency. Guided by their deep understanding of IoT and its evolving protocols and standards, our experts not only design and deploy customer networks driven by a web of devices and sensors, but help them make sense out of the volumes of data they transmit and collect every day.

"More than 25% of all cyberattacks against businesses will be IoT-based by 2025."
—Gartner Research

Netsync's IoT experts are keenly aware of the critical role security plays in IoT, so they meticulously integrate a variety of security methods into their Internet-based deployments, including authentication, network-based protection, secure software development, asset discovery and tracking, and heightened visibility through the monitoring, detection and rapid response times of devices and sensors.

IoT Applications

- Traffic management
- Smart lighting
- Waste management
- Weather/air quality monitoring
- Utilities management
- Safety & security
- Connected devices
- Digital health
- Smart supply chain
- Public transportation
- Video intelligence
- Smart roads
- Gunshot detection
- Citizen portals
- Social monitoring

For more on Netsync IoT Practice contact us at info@netsync.com and see us online at www.netsync.com/iot

NETSYNC

IoT and Analytics Transform Collected Data into Roadmaps for Success

Netsync's IoT professionals utilize key analytics to help customers make informed, educated business decisions from the analytics gleaned from collected data. That data can then be used to enhance mobile apps, cloud solutions, automation, and more, providing increased value to your company and your customers.

Netsync's IoT team is experienced and highly skilled at designing, deploying and monitoring IoT solutions for a variety of industries, including:

Utilities

IoT is playing a major role in extending our energy supply. Smart sensors, connected to a smart energy grid, can deliver real-time energy consumption information, enabling utility companies to more effectively manage energy flow into buildings. These same companies are now able to more flexibly accommodate new energy sources, better manage assets and organizations, enhance security, provide heightened reliability and better customer service, and more efficiently enable new business models and services.

Municipalities

Smart cities are on the horizon, and will address such chronic problems as traffic management, street lighting, parking, waste disposal, and more. And they're all made possible by a widely dispersed network of edge sensors working together to improve both efficiency and quality of service.

Healthcare

IoT is enabling healthcare organizations to take advantage of wearable devices, allowing doctors and clinicians to gather more information about their patients and provide a higher level of personalized care, especially as it relates to proactively addressing time-sensitive health needs.

Industrial and Manufacturing

Often referred to as the Industrial Internet of Things (IIoT), this set of new initiatives is based on constantly collected and analyzed data. It works with quality control, sustainable and green practices, supply chain traceability, overall efficiency and inefficiencies, and addresses problems sooner than non-IoT equipped devices.

NETSYNC

Netsync is an end-to-end technology solutions consulting company that helps public and private organizations implement complex IT projects to achieve exceptional outcomes. Our team of engineers bring tangible business value to every project through our progressive Design, Build, Deliver, and Manage services methodology, allowing them to tailor solutions for each client based on time, budget and desired outcome.

As a Cisco Gold, Master Collaboration, Master Networking and Master Security Partner; an HP and Intel Platinum Partner; and holding certifications and specializations from many of the industry's leading technology manufacturers, Netsync has extensive experience performing large-scale implementations and deploying complex IT solutions for K-12 and higher education institutions, civic organizations, municipalities, government agencies and corporate clients across several industries, including energy, healthcare, retail and financial services.

Netsync Corporate HQ
2500 West Loop South
Suite 410
Houston, TX 77027
sales.netsync.com
Tel: 713.218.5000
Fax: 713.664.9964

Netsync Dallas
2304 Tarpley Road
Suite 114
Carrollton, TX 75006

Netsync Austin
Netsync San Antonio
Netsync McAllen
Netsync El Paso
Netsync Long Beach
Netsync Tampa
Netsync Chicago

Learn more about Netsync at netsync.com and on our social channels.

Airspan

CPE-CBSD
AirSpot 5410
DATASHEET

Easy and Reliable Wireless Broadband Access

CPE-CBSD, Rugged, CAT12, 18 dBi Outdoor CPE

Part of Airspan's end-to-end CBRS solution, the AirSpot 5410 is an advanced, LTE, CAT12, outdoor, multi-service product specifically designed to meet data needs for residential, business and enterprise users. Supporting Gigabit networking functionality and multiple TDD band operations, it enables wide-coverage and high-data throughput. Multiple operator network support can allow deployment across the country with different operators. The AirSpot 5410 provides a Gigabit PoE connection to connect user terminal devices, such as a router or WiFi AP products. It is CAT-B CBSD FCC and SAS compliant.

Rugged and Reliable

Built for the outdoors, with an IP67 rating, it can safely operate in temperatures ranging from -40° to 65° C.

High Performance

Depending on the configuration and traffic split, the unit can provide up to 600 Mbps download speeds and increased cell edge with its internal, high-gain, 18 dBi antennas.

Easy to Use

Once connected to a CBSD, simply connect it to a computer, switch or router, and it's ready to go. Eight LED's easily communicate the status, and IP addresses are dynamically obtained via its internal DHCP.

Easy to Manage

Supports local management access, Telnet, HTTP, HTTPS and standard TR069 remote OTA management, including device configuration, monitoring, and upgrades management. Firmware upgrades can be done from a pre-configured URL using HTTP/FTP.

Advanced Technology

Based on 3GPP standard implementation of LTE CAT12 specifications, it can easily meet requirements of large service providers. Supports up to 4CA DL and 2CA UL, MIMO capabilities, 64QAM modulation (uplink), and 256QAM modulation (downlink).

Need more information? Get in touch with the Airspan sales team by visiting airspan.com/contact.

Specifications

Physical

- **Dimensions:** 350 mm (w) x 350 mm (l) x 76.8 mm (h)
- **Weight:** 2.4 kg (without mounting kit)
- **Power Consumption:** < 12 W
- **Power Adapter:** Standard PoE injector 802.3af
- **AC Input:** 100~240V & 50/60Hz
- **Mounting:** Kit included for multi-angle installation on walls and poles, with rotation, tilt, or pan of the CPE

Environmental

- **Operating Temperature:** -40° C to 65° C
- **Storage Temperature:** -40° C to 85° C
- **Humidity:** Operating 10~90%; Storage 5~95%

LTE RF

- **Radio Access:** 3GPP E-ULTA; Release 12, CAT12
- **Frequency Band:** 42H, 43L, 48
- **MIMO:**
  DL 2 x 2 (4CA)
  DL 4 x 4 (2CA)
  UL 2 x 2 (1CA)
  UL 1 x 1 (2CA)
- **Carrier Aggregation:**
  DL 2CA (4 x 4 MIMO, 64QAM)
  DL 4CA (2 x 2 MIMO, 256QAM)
  UL 2CA (64QAM)
- **Output Power:** 23±2 dBm
- **Antenna:** 4 ports, directional antenna, dual polarization, 18±1 dBi
- **Receive Sensitivity:** -93 dBm (20 Mhz bandwidth)
- **Channel Bandwidth:**
  5, 10, 15, or 20 MHz per carrier
- **Maximum Throughput:** 580 Mbps (2 x 2 MIMO, 4CA, 256QAM)
- **Mounting:** Kit included for multi-angle installation on walls and poles, with rotation, tilt, or pan of the CPE; Allows the CPE to match the phase of the eNB antenna and may increase the receive signal

User Interfaces

- **Data Interface:** 1 x RJ45, Gigabit Ethernet, 802af PoE
- **LED Indicators:** PWR, SYS, NET, SIM, 4 x RF
- **USIM Support:** 1.8V/3.0V 2FF USIM

Data Networking Features

- **Bridge Mode:** Supports up to 4 LAN devices that can connect to LTE public network; Module management via TR-069 from specific APN; Up to 4 public IP's to LAN devices; 4 APN support (can set static router for each APN)
- **NAT Mode:** Firewall configuration; 4 APN support (can set static router for each APN); DMZ support; DHCP (auto DNS or manual DNS support)

Software

- Firewall Configuration (IP, MAC, URL Filter)
- Software Upgrade from HTTP or HTTPS Web Server
- Built-In DHCP Server for LAN Devices
- Admin and User Mode Configuration
- PIN Management, SIM Card Authentication
- Statistics Support (link status (LAN), number of Tx/Rx packets, uptime)
- Multi-APN Support
- IPv4, IPv6 Dual Stack
- Multiple PDN Interface Support
- PCI, EARFCN, and Band Lock
- Status Information (signal strength, network type, network connection status, SIM card status, operator name, system mode, etc.)
- MTU Manual Configuration
- CBSD Status, Update, and View CBSD Certificate
- VPN Service – L2TP Connection Type
- Automatic and Manual DNS Options
- Diagnostics – Ping, iPerf 3.1 and Traceroute from Web UI
- Advanced Logging System for Debug Purpose

Device Management

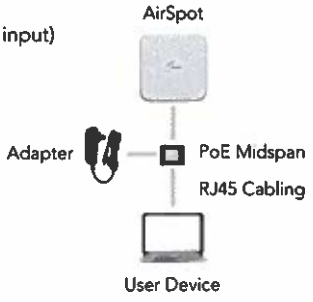
- HTTP/HTTPS Manual and Automatic Firmware Upgrade
- Standard TR-069 Management (firmware upgrade, debugging, monitoring, and configuration)
- Factory Reset
- Throughput Statistics
- Configuration Back-Up and Restore from Web UI

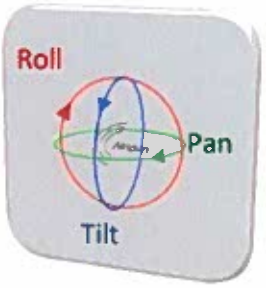
Industry Standards

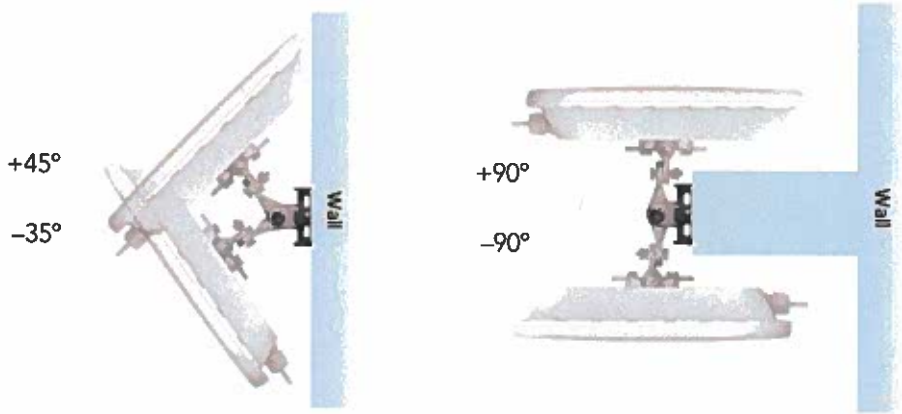
- **ITU**
  3GPP: 3GPP E-UTLA Release 12
- **IEEE**
  IEEE 802.3 10Base Ethernet
  IEEE 802.3u Fast Ethernet
  IEEE 802.3ab Gigabit Ethernet
- **Others**
  Outdoor Rating IP67
  Safety UL
  FCC Part 96

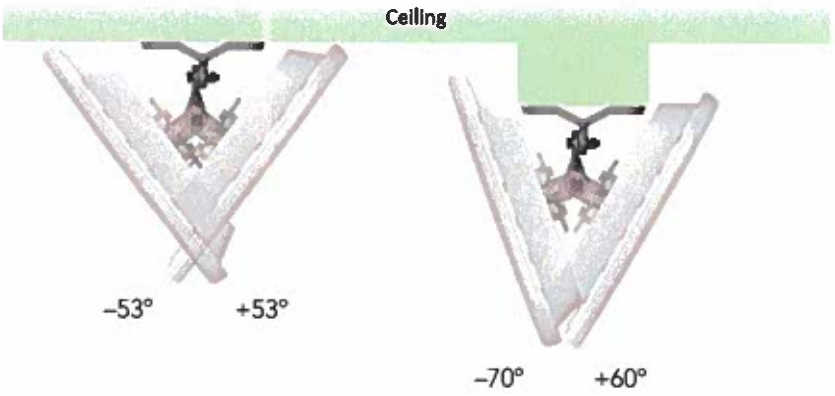
Package Contents

- 4G Outdoor CPE
- PoE Midspan (802.af/100~240 V AC input)
- Quick Start Guide
- Mounting Kit



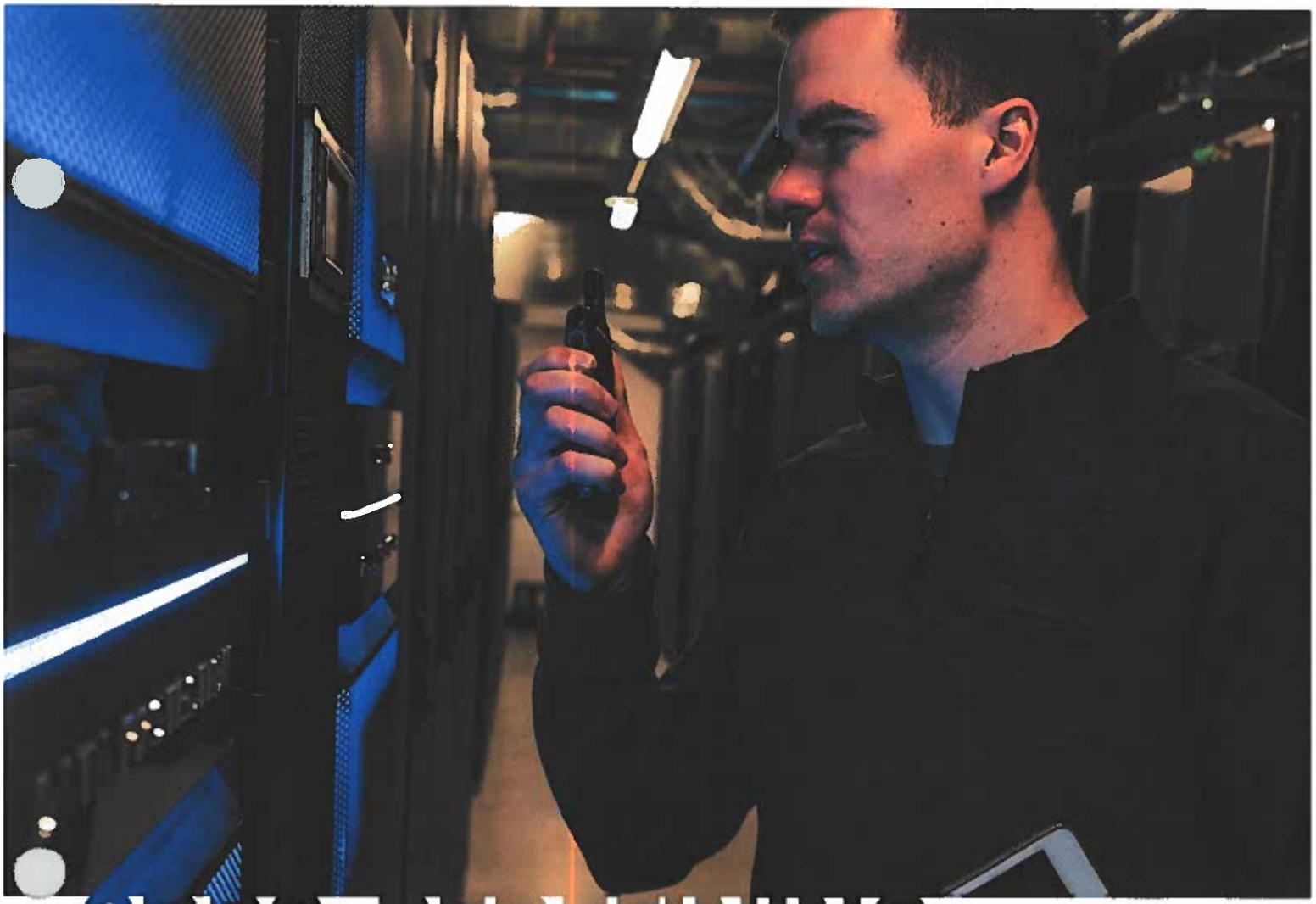






Airspan is a U.S. based, multi-award winning 4G and 5G RAN vendor that supports cloud native open architectures, and boasts close to one million cells deployed in the most cutting edge tier one networks, and vertical applications across the globe. With an expansive product portfolio of indoor and outdoor, compact Femto, Pico, Micro, and Macro base stations, Airspan has the perfect network densification tool kit to exploit the full potential of technologies such as mmWave, sub 6 GHz, massive MIMO, and Open V-RAN architectures, as well as an industry leading Fixed Wireless access and backhaul solution portfolio for PTP and PTMP applications.

 www.airspan.com



CBRS: REDEFINING COMMUNICATIONS

We've entered a data-driven reality – where data has become a "fourth utility" for many businesses; a resource considered as vital as power, water and heating / cooling.[1]

Today, the demand for data is limitless. And organizations want access to their data faster and more securely.

In response to these demands, the U.S. Federal Communications Commission (FCC) has approved the use of Band 48 – also known as CBRS. But what exactly is CBRS and what does it mean for your organization?

MOTOROLA SOLUTIONS

WHAT IS CBRS?

CBRS, or the Citizens Broadband Radio Service, is 150 MHz of spectrum in the 3.5 GHz band. Ranging from 3550 – 3700 Mhz, this band has historically been used sparingly by U.S. federal government radar systems, a few fixed satellite receivers and wireless internet service providers. When looking for additional spectrum to manage the influx of new mobile users, the FCC identified the sparsely-used band for broader use to free spectrum for shared wireless.

In order to ensure access for commercial purposes, CBRS is designed with a three-tiered spectrum sharing framework. At the top is the Incumbent Access tier. This is specifically allocated to existing users of the band, including Department of Defense personnel and U.S. Naval Radar, who will receive permanent priority and site-specific protection. A Priority Access tier is available to organizations that pay a fee for a Priority Access License (PAL). These licenses can be purchased at auction with limited renewal rights. The final tier is General Authorized Access (GAA), which covers the remainder of the spectrum and is available for general use. This three-tiered framework is managed through a Spectrum Access System (SAS) that works to protect higher-tier users from interference from lower-tier users, while optimizing the efficient use of available spectrum for all users.

CBRS SPECTRUM

CBRS is a band that will enable private LTE broadband for commercial enterprises – allowing better coverage and capacity.

HOW WILL CBRS CHANGE COMMERCIAL COMMUNICATIONS?

INCREASED ACCESSIBILITY

CBRS and its increased accessibility is a game-changer for business enterprises. Currently, there is no publicly available broadband spectrum for use by private businesses. As a result, some organizations looking for private broadband coverage are required to lease through carriers – often requiring a multi-million dollar system.

Other businesses turn to public LTE or WiFi to address their business data needs. While this has enabled workers to accomplish tasks on their mobile devices that previously required a computer or their physical presence on the job, network congestion, weak signals in certain locations and security remain critical issues.

CBRS introduces publicly available broadband spectrum for the first time – significantly lowering the barrier to entry for business enterprises. And unlike previous systems, it does not require an organization to purchase spectrum making it a much more cost-competitive option for broadband coverage. Organizations are able to design their own coverage, customizing the network to meet their unique needs. The system can easily be expanded or downsized to evolve with their business.

MORE EFFICIENCY

The economics of CBRS technology are more efficient than those of distributed antenna systems – networks of antenna nodes that provide wireless service within a geographic area or structure. In addition, the speed and consistency of service are considered potentially "more reliable than Wi-Fi" with the potential to "make Wi-Fi outmoded."[2] While WiFi has revolutionized wireless networking, it does have its drawbacks. WiFi coverage and capacity can be limited, access points can be finicky and sign-on processes can be tedious. Ultimately, WiFi wasn't designed for complex commercial operations.

CBRS overcomes these limitations and provides a more efficient option for large commercial enterprises like airports and factories – providing comprehensive on-site coverage that can blanket every corner of your operation.

GROUND-BREAKING ADVANCEMENT

But perhaps the most ground-breaking advancement of this newly introduced access to private broadband spectrum is the ability to employ highly-reliable LTE networks that support the growing number of IoT devices. These devices, including smart meters, real-time surveillance systems and worker safety monitoring sensors, are increasingly becoming critical parts of business operations and they require constant, reliable broadband access. CBRS provides this, enabling organizations to embrace the potential of IoT.

Ultimately, CBRS makes it possible to create an affordable, private data network at a lower cost and without the reliance on a wireless carrier. Looking forward, CBRS and the infinite capabilities it will unlock will help to drive automation, workforce productivity, efficiency and safety – all critical concerns for today's forward-looking organizations.

IS YOUR ORGANIZATION PREPARED?

CBRS ALLIANCE

The CBRS Alliance is a group of more than 120 member companies who are dedicated to promoting LTE-based technology – branded as "OnGo" – as well as use cases and business opportunities. The Alliance has developed detailed specifications and an OnGo certification program to enable the commercialization of OnGo architecture and ensure seamless interoperability across vendors.

OnGo

FOUR MYTHS ABOUT CBRS

MYTH: CBRS is 5G

FACT: CBRS will support 5G technology

5G is the fifth generation of cellular technology – offering faster speeds and increased network versatility. CBRS, on the other hand, is a specific spectrum of broadcast band and is a critical building block that helps to support 5G. 5G requires vast amounts of spectrum to operate, and CBRS can help to enable the growing demands for broadband and future 5G technologies.

MYTH: Spectrum access will be difficult

FACT: Spectrum access will be open and easy

CBRS will be governed by a three-tiered spectrum authorization framework. An Incumbent Access tier is limited to authorized federal and grandfathered Fixed Satellite Service users currently operating under the band. The Priority Access tier consists of Priority Access Licenses (PAL) that can be purchased at auction with limited renewal rights. It is important to note that there is no right to exclude others from the Priority Access tier. The final is a General Authorized Access (GAA) tier. This tier is open to any user, carrier, non-carrier, enterprise, residence or private citizen. GAA can utilize up to 150 MHz of the spectrum, and is guaranteed at least 80 MHz.

MYTH: Carriers will use up the CBRS spectrum

FACT: Three tiers of spectrum will ensure CBRS access

The push for 5G and the need to augment capacity may drive major telecoms carriers to turn to CBRS. However, the three-tiered system will help ensure access. The second level – Priority Access – will be auctioned to the highest bidders across the country and will likely include these telecom organizations. This still leaves the GAA tier for use. In addition, if a company purchases a priority tier and doesn't use it, the spectrum becomes free for others to use – preventing companies from hoarding spectrum.

MYTH: Incumbents will impact effective usage

FACT: Designated spectrum will safeguard open access

There is some concern that military and satellite incumbents who are currently using a portion of the 3.5 GHz band will create interference or block out new users of the band. However, these military incumbents utilize the band within range of the U.S. coasts on a very infrequent basis. In addition, utilizing modern directional RF antenna technology allows new systems to be designed with very little chance of interfering with the incumbents. As the military incumbents only use the lower 100 MHz of spectrum an additional 50 MHz of spectrum is always available for other users.

For information about our CBRS products, please visit: motorolasolutions.com/Nitro

MOTOROLA SOLUTIONS

[1]Why OnGo? https://www.cbrsalliance.org/why-ongo/
[2]A World Without Wi-Fi Looks Possible as Unlimited Plans Rise. https://www.bloomberg.com/news/articles/2017-03-09/a-world-without-wi-fi-looks-possible-as-unlimited-plans-catch-on

Motorola Solutions, Inc. 500 West Monroe Street, Chicago, Il 60661 U.S.A. **motorolasolutions.com**

Nitro™

SLX SERIES

CITIZENS BROADBAND RADIO SERVICE DEVICES (CBSDs)

Don't bring consumer broadband to a commercial site. Get lightning-fast, enterprise-grade broadband data flowing securely across every level of your operation with Nitro.

EXPERIENCE A FIRST

Take full control over your communications network and unlock advanced capabilities with Nitro — the first fully managed platform that combines business-critical voice with private broadband data, enabling a unified, seamless, hassle-free operation.

ENTERPRISE-GRADE PRIVATE BROADBAND

Nitro offers broadband data speeds, so your teams can share information quickly and efficiently. And with up to four times the range* of Wi-Fi, your people will be able to access the network from virtually anywhere on-site, using far fewer access points — whether they're on densely-packed factory floors, at busy airports or by the loading dock.

Nitro also has twice the capacity* of Wi-Fi, so you'll be able to add more devices to the network without being constrained by low bandwidth or slow speeds. You'll also be able to free your Wi-Fi for other purposes, like increased or enhanced guest access.

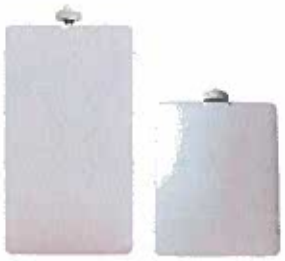
Product Highlights

- OnGo 3.5 GHz network compatible
- Simple management through the Nitro Cloud Portal
- 4G LTE data speeds
- Simple deployment and installation
- Dual Carrier for enhanced capacity and performance
- Enhanced security with IPsec tunneling
- Web-based management and control
  - Provision all infrastructure components (CBSDs, network hardware)
  - Register SIMs and radios; set up users and talkgroups
  - Fault manage and track network health status
  - Analyze data usage across the network
  - Create and manage portal accounts
  - Manage billing and subscription information

*Based on 802.11a standard for 5.0 GHz Wi-Fi using similar channel bandwidths.

MOTOROLA SOLUTIONS

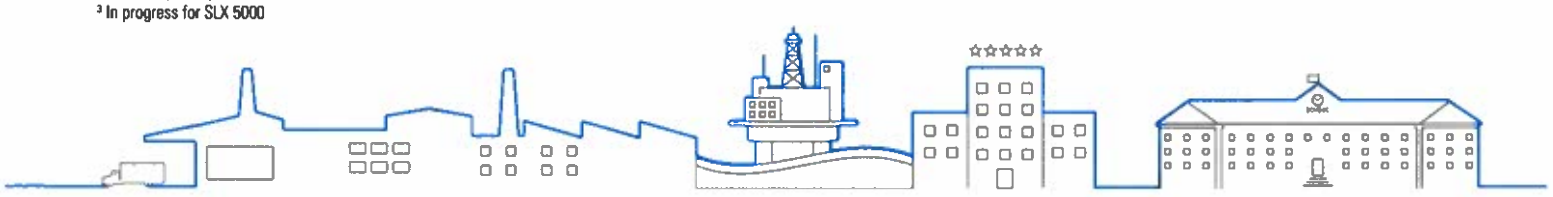
SLX SERIES
CBSDs



GENERAL SPECIFICATIONS

	SLX 2000	SLX 4000	SLX 5000	
Environment	Indoor CAT-A	Outdoor CAT-B	Outdoor CAT-B	
Band	848 (CBRS) 3550 - 3700 MHz			
TxRx Paths	2x 2T2R (2x2 MIMO)			
Carrier Configuration	Single or Dual Carrier contiguous / non-contiguous 2x2, 2CA			
Backhaul	Copper Gb Ethernet / SFP	Copper Gb Ethernet	Copper Gb Ethernet / SFP	
Mounting	Wall / Ceiling	Wall / Pole	Wall / Pole	
Max Tx power per port	4 ports x 25 dBm		4 ports x 33 dBM (4 x 2 W)[1]	
Antenna	Integrated 8dBi Directional 65 (H) x 60 (V)	External (N-Type Female Connector)	Integrated Antenna: 17dBi Directional Beamwidth Azimuth: 65° Elevation: 8°	External Antenna: Not included (N-Type Female Connector)
Channel Size / Max Channel BW	10 or 20 MHz / 2 x 20MHz (40 MHz)			
Modulation	DL: 256 QAM UL: 64 QAM			
Max Active Users (RRC Connected)	128 per CBSD (256)[2]			
Synchronization	1EE1588 / GPS			
Power Source	12 VDC / PoE++ (802.3bt class6)	- 48 VDC		
Nominal Power Consumption	32W	40W	65W	
Weight	4.4 lbs	8.8 lbs	Integrated Antenna: 16.5 lbs	External Antenna: 14.8 lbs
Dimensions (W x L x H)	250 x 250 x 60 mm	220 x 220 x 150 mm	Integrated Antenna: 280 x 500 x 125 mm	External Antenna: 285 x 350 x 125 mm
Operating Temperature Range	-5°C to +40°C	-40°C to +55°C		
Ruggedness	IP40	IP66		

[1] Max EIRP of CAT-B CBSD
[2] Future capability
[3] In progress for SLX 5000



For more information, please visit us at www.motorolasolutions.com/Nitro
or to manage your network, please visit www.motorolasolutions.com/ActivateNitro

MOTOROLA SOLUTIONS

Motorola Solutions, Inc. 500 West Monroe Street, Chicago, Il 60661 U.S.A. 800-367-2346 motorolasolutions.com

Nitro™

PRIVATE LTE
FOR SMART CITIES

Your Smart City runs on data. It requires lightning-fast, enterprise-grade data flowing securely across every level of your operation. Nitro™ delivers private LTE broadband that outperforms Wi-Fi while providing unmatched simplicity and control. It is the first fully-managed Citizens Broadband Radio Service (CBRS) platform. Quick, reliable, and secure, Nitro supports a wide range of applications like video, IoT, remote learning and more.

ON-PREMISE PRIVATE LTE

The services you provide are too important to rely on consumer broadband. With exclusive spectrum access, top-grade security, ample capacity and many times the range* of Wi-Fi, Nitro lets you do more with less.

SIMPLE INFRASTRUCTURE

Deploying a robust broadband network doesn't have to involve complex installation, or a large capital investment. And the hardware is ready to go as soon as you are — all it needs is power and an internet connection.

FULL MANAGEMENT AND CONTROL

Focus less on managing your network and more on leveraging its performance. Remove the hassles of operating your own network core, while retaining spectrum exclusivity and keeping your data local.

PRIMED FOR THE FUTURE

Investment in Nitro is an investment in a long-term partner, not just a platform. With our cutting-edge infrastructure, simple yet smart software and robust, street-ready end user devices, we manage the solution end-to-end — so you can rest assured that everything works well together.

MOTOROLA SOLUTIONS

NITRO FOR SMART CITIES

CITY-WIDE PRIVATE NETWORK

Nitro provides city-wide private data, even in outdoor, remote, and underserved areas that are difficult to cover with Wi-Fi.

IMPROVED DATA STREAMING

Mobile streaming capability provides a great option for video applications, such as security surveillance, digital signage, and mobile streaming video for repairs and utility workers.

ROBUST SENSOR AND IOT SUPPORT

With capacity that outperforms Wi-Fi, Nitro is primed to help your city scale up its interconnectivity with IoT sensors, environmental monitors, traffic lights, fleet management and more.

RELIABLE CONNECTION FOR VIDEO SECURITY

With greater range and outdoor coverage, Nitro blankets your entire city with a reliable outdoor data connection, ideal as a backhaul for your video security cameras and system.

REMAIN IN CONTROL

Nitro is your private LTE network. You decide where coverage is needed. You have exclusive use of spectrum. You control who has access. No sharing frequencies with the public, and no third-party operators.

SENSITIVE DATA KEPT LOCAL

Keep your application data local, for greater security and better throughput. With the Nitro OnPrem Edge Gateway, data is routed to your enterprise network and application servers, never leaving your premises.

OVERCOME THE DIGITAL DIVIDE

By using Nitro to provide local wireless backhaul to your school's network, you can ensure every student living in the district can access online learning programs from the safety of their own homes

USE RESOURCES EFFECTIVELY

Anticipate, prevent and mitigate problems, by combining real-time analytics, IoT, streaming video and data collection to better deploy personnel and equipment. Nitro has the reach and flexibility to make this a reality.

For more information, please visit us at
motorolasolutions.com/nitro

MOTOROLA SOLUTIONS

DATASHEET
AW3170

Common Name- 2 Port 30" 3.5GHz 33° Panel Fixed Tilt

3300-3800MHz	2	Fixed	20.5	33°
Frequency	Ports	Tilt	Gain	Beamwidth

PRODUCT INFORMATION

This fixed tilt 2 port antenna covers 3300-3800MHz (B42, B43 & B48). It was developed for fixed wireless access applications requiring narrow 33° Azimuth Beamwidth.

APPLICATION

Alpha Wireless sector antennas are the most commonly used solution for designing high quality wireless networks. The 33 degree azimuth pattern allows the capacity to increase to 6 sectors without increasing the number of sites.

STANDARD & CERTIFICATIONS

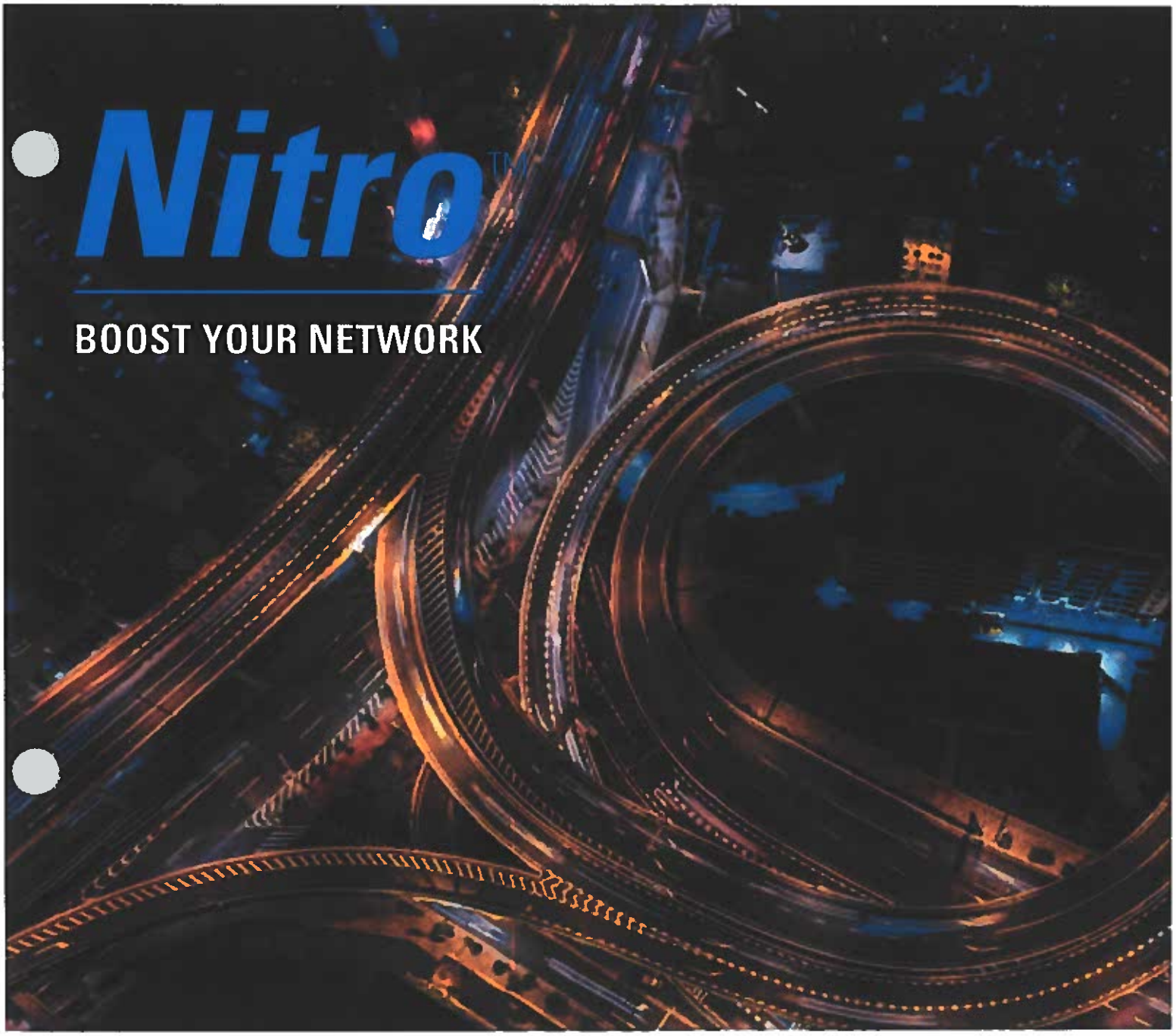
Certification	BS EN ISO 9001:2015

RoHS COMPLIANT CE

FEATURES

- Wide-band antenna for 3GPP bands 42, 43 & 48
- Dual Cross polarization antenna +/- 45°
- Narrow Azimuth beam to increase site capacity
- Mounting bracket with variable tilt

The parameters in this specification follow the definitions and recommendations per NGMN P-Basta, Release 9.6.



PRIVATE LTE

SMARTER, CONNECTED CITIES OF THE FUTURE

MOTOROLA SOLUTIONS

WHAT IS A SMARTER, CONNECTED CITY?

Imagine you're circling a popular shopping district downtown looking for an open parking spot. You receive an alert on your car's internet-connected system that notifies you that a spot down the street has just opened up and you are able to park. Or perhaps the traffic light at a busy intersection is able to receive data from sensors and respond to real-time traffic flow conditions.

This is the reality of a smarter, connected city. Where the data we rely on every day is used to connect, protect and enhance the lives of citizens. Digital technology is used to connect operations with a city-wide nervous system of sensors, cameras, social media and other inputs that can talk to each other and provide critical insights. Using the data collected, cities are able to manage assets, resources and services efficiently – improving operations across the city.

The result is a smart city where traffic flow is improved, transit is more efficient and convenient, crime is reduced, buildings are more energy efficient and services are able to be delivered seamlessly and without requiring additional resources. A city focused on creating well-being for all its citizens.

WHY DO WE NEED SMART CITIES?

Today's cities face unprecedented challenges. Urbanization is a non-ending phenomenon, with 54 percent of people worldwide living in cities – a number that is only expected to rise. The rapid growth in urban populations continues to tax cities' resources and impact their ability to operate efficiently. Commutes are expanding, traffic is increasing, emissions are rising and public safety resources are strained.

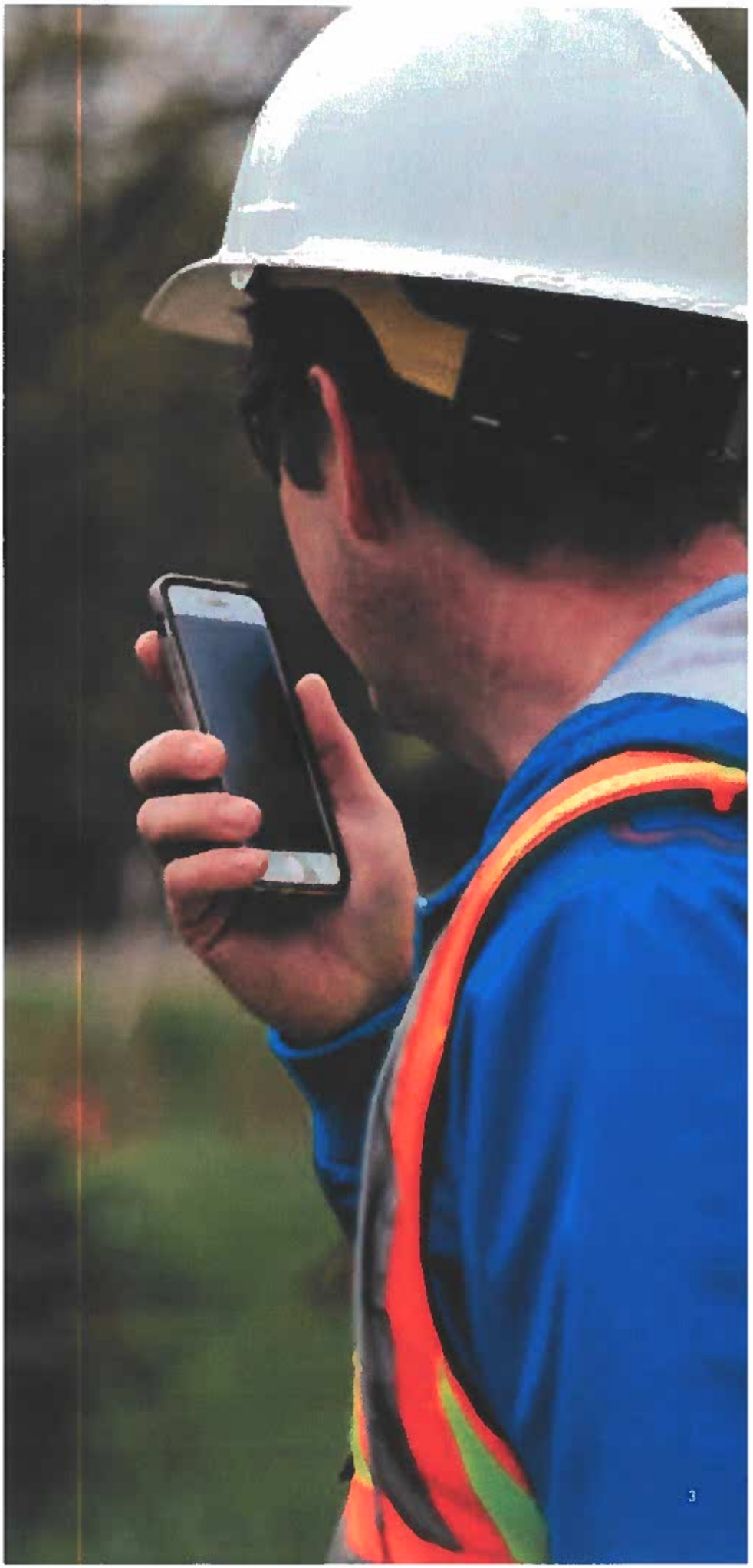
In light of these challenges, cities need to find ways to better utilize their resources. Smart city technology can play a critical role in making cities more effective and efficient. Smart cities that leverage connected technology and make the data already being collected more actionable can offer huge benefits to the community:

INCREASED COMMUNITY ENGAGEMENT

We rely on robust, user-friendly digital services throughout most aspects of our day-to-day lives. By expanding these digital services to the community, cities are able to increase transparency, promote accessibility and encourage collaboration. From mobile applications and self-service portals to interactive maps and live-streamed city hall meetings, the expansion of digital services make smart cities a more attractive place for people to live. The result is closer relationships among citizens, increased civic engagement and growing trust between public officials and the communities they serve.

IMPROVED TRANSPORTATION

The continued growth of cities has had a dramatic impact on public transit and traffic efficiency. As a result, smart city transportation investments have some of the greatest potential to make a marked impact throughout a city. Intelligent traffic signals, smart parking management and public transportation tracking all have the potential to simplify transportation, relieve congestion and make traveling easier for citizens – despite continually growing populations.



GREATER ENVIRONMENTAL SUSTAINABILITY

Growing congestion and expansion has many cities worried about the negative effects on the environment. Cities are often looking for ways to reduce emissions and increase energy efficiency. Deploying technologies – like air quality sensors – can help provide critical data that enables cities to understand the causes of potential air pollution and deliver data necessary to help them shrink their ecological impact.

ENHANCED PUBLIC UTILITIES

Current urban expansion is now competing with a limited supply of natural resources. In order to meet growing human demand, cities are looking at ways to conserve and reduce waste of critical resources such as water and electricity. Smart technologies – including sensors and electric grids – now allow cities to quickly find potential leaks, understand peak usage and identify outages in order to minimize inadvertent waste and ensure continued service. Together with data analytics, these technologies provide cities with a solution to help conserve valuable resources and provide citizens with seamless, efficient utilities.

EXPANDED DIGITAL EQUITY

Digital access continues to be a challenge for many. Today, 30 percent of all K-12 students in the United States lack adequate internet access to sustain learning at home. While it is often assumed that this challenge is limited to rural communities, twenty-one percent of the 16 million children without adequate connectivity are located in urban areas, with 25 percent located in the suburbs. In addition, nearly half a million teachers are unable to teach because of a lack of internet access. Introducing smart city technology can help to bridge the digital divide and create a more equitable environment for citizens. High-speed internet services and strategically-placed public Wi-Fi hotspots can offer reliable internet services to the community.

SAFER COMMUNITIES

Ultimately, a smart community is a safer community. Using data collected from smart city technologies – including connected crime centers, next-generation 9-1-1 and body cameras – can reduce criminal activity and increase response times. Cities are able to become more proactive, rather than reactive – promoting a safer and more secure community.

Today, cities are able to access information that has never before been available. Analyzing this information and developing actionable insights makes it possible for operators to analyze metrics in real-time and respond quickly and efficiently. It also enables effective, data-driven decision making to forecast and plan for evolving community needs.

[1] https://www.un.org/en/development/desa/news/population/world-urbanization-prospects-2014.html

[2] https://www.commonsensemedia.org/sites/default/files/uploads/pdfs/common_sense_media_report_final_7_1_3pm_web.pdf

[3] Based on 802.11a standard for 5.0 GHz Wi-Fi using similar channel bandwidths.

Nitro™

CONNECT YOUR SMART CITY WITH PRIVATE LTE

Did you know your smart city can be powered by our private LTE solution, Nitro™? Nitro delivers private LTE broadband that outperforms Wi-Fi while providing unmatched simplicity and control. It is the first fully-managed Citizens Broadband Radio Service (CBRS) platform. Quick, reliable, and secure, Nitro supports a wide range of applications like video, internet of things (IoT), remote learning and more.

- **On-Premise Private LTE:** The services you provide are too important to rely on consumer broadband. With exclusive spectrum access, top-grade security, ample capacity and many times the range of Wi-Fi, Nitro lets you do more with less.
- **Full Management and Control:** Focus less on managing your network and more on leveraging its performance. Remove the hassles of operating your own network core, while retaining spectrum exclusivity and keeping your data local.
- **Simple Infrastructure:** Deploying a robust broadband network doesn't have to involve complex installation, or a large capital investment. And the hardware is ready to go as soon as you use — all it needs is power and an internet connection.
- **Primed for the Future:** Investment in Nitro is an investment in a long-term partner, not just a platform. With our cutting-edge infrastructure, simple yet smart software and robust, street-ready end user devices, we manage the solution end-to-end — so you can rest assured that everything works well together.

WHAT DOES A SMART CITY POWERED BY NITRO™ LOOK LIKE?

When it comes to keeping your city connected, it's imperative you're getting all the right data to the right person at exactly the right time. Powering your smart city with Nitro will help ensure you'll always have access to critical broadband connections, no matter where you are.

- **City wide private LTE Network:** Nitro provides city-wide private data, even in outdoor, remote, and underserved areas that are difficult to cover with Wi-Fi.
- **Improved Data Streaming:** Mobile streaming capability provides a great option for video applications, such as security surveillance, digital signage, and mobile streaming video for repairs and utility workers.
- **Robust Sensor and IOT Support:** With capacity that outperforms Wi-Fi, Nitro is primed to help your city scale up its interconnectivity with IoT sensors, environmental monitors, traffic lights, fleet management and more.
- **Reliable Connection for Video Security:** With greater range and outdoor coverage, Nitro blankets your entire city with a reliable outdoor data connection, ideal as a backhaul for your video security cameras and system.
- **Applications Program:** Nitro is your private LTE network. You decide where coverage is needed. You have exclusive use of spectrum. You control who has access. No sharing frequencies with the public, and no third-party operators.
- **Overcome the Digital Divide:** By using Nitro to provide local wireless backhaul to your school's network, you can ensure every student living in the district can access online learning programs from the safety of their own homes.
- **Resources Used More Effectively:** Anticipate, prevent and mitigate problems, by combining real-time analytics, IoT, streaming video and data collection to better deploy personnel and equipment. Nitro has the reach and flexibility to make this a reality.
- **Increasingly Connected Communities:** Nitro provides the wireless backhaul your city needs to connect new data sources – including public surveillance feeds, 9-1-1 tips from citizens and neighborhood doorbell cameras – with dispatch and command centers. The addition of real-time analytics to this data enables public safety to proactively detect potential threats, shorten response times and resolve incidents faster – creating safer communities for all citizens.

TRANSFORMING YOUR CITY INTO A SMART CITY

As cities get smarter and more connected, they not only become more effective and efficient, but also more livable, responsive and safer for all citizens. With Nitro™, your city is able to take advantage of all the benefits of a modern smart city. The ability to manage your own data provides critical cost savings for both large and small urban areas alike. And because Nitro is a scalable solution, your investment can grow with you as your city expands – ensuring you are primed for the future.

Now is the time to transform your city into a smart city.

Learn more at: motorolalsolutions.com/nitro

MOTOROLA SOLUTIONS

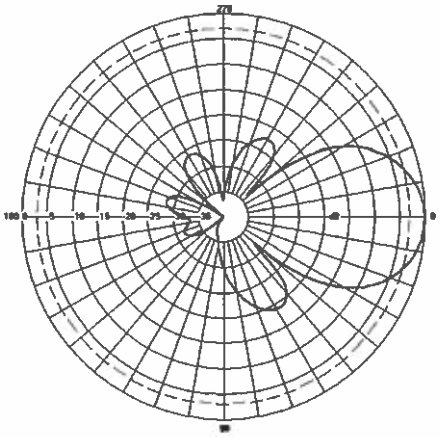
ALPHA WIRELESS

AW3170

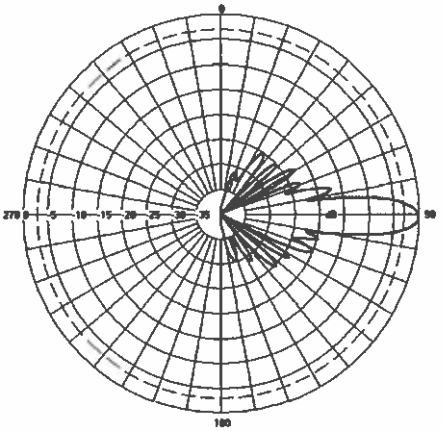
TECHNICAL SPECIFICATION

Electrical Specifications		
Frequency Range	MHz	3300-3800MHz
Polarisation	Degree	+/-45° Slant Linear
Gain	dBi	20.5
Azimuth Beamwidth	Degree	33°
Azimuth Beam Squint	Degree<	3°
Elevation Beamwidth	Degree	7°
Electrical Downtilt	Degree	T0° or T4°
Electrical Downtilt Deviation	Degree<	1°
Impedance	Ohms	50
VSWR	<	1.5
Return Loss	dB>	14
Isolation	dB>	25
Front to Back Ratio: Total Power +/-30°	dB>	27
Upper Sidelobe Suppression, Peak to 20°	dB>	17
Cross-Polar Discrimination	dB>	16
Maximum Effective Power Per Port	W	100

Radiation Pattern Files



Azimuth



Elevation

For radiation pattern files, please login at www.alphawireless.com

ALPHA WIRELESS

AW3170

TECHNICAL SPECIFICATION

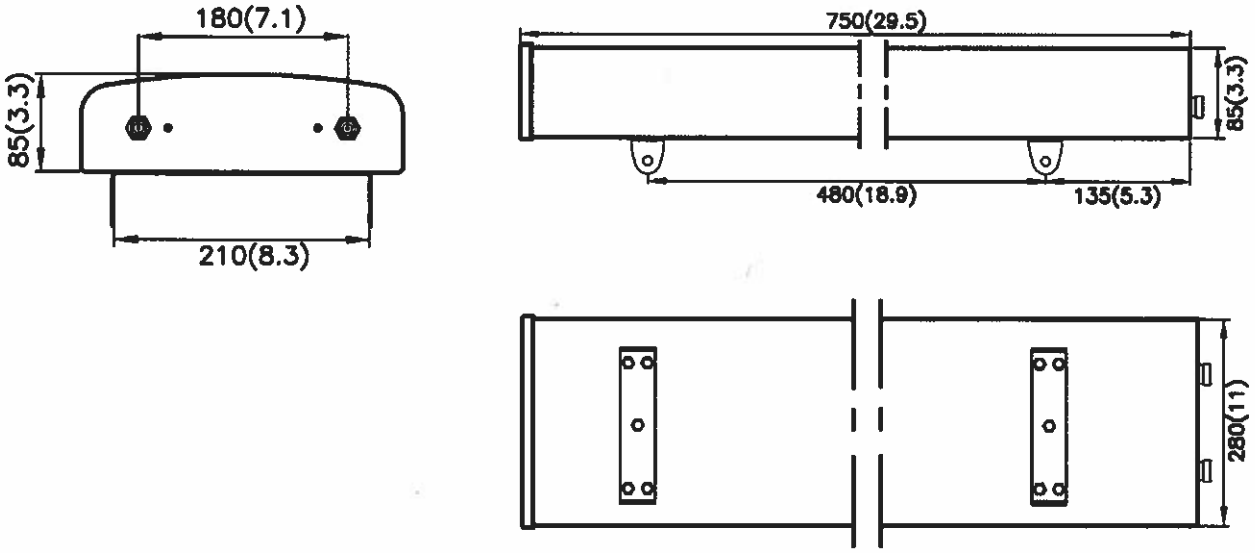
Mechanical Specifications		
Dimensions	mm (in)	750 (29.5) x 280 (11) x 85 (3.3) - (L x W x H)
Packing Size (LxWxD)	mm (in)	793 (31.2) x 340 (13.3) x 178 (7)
Net Weight (antenna)	kg (lb)	6 (13.2)
Net Weight (mount)	kg (lb)	1.5 (3.41)
Shipping Weight	kg (lb)	7.5 (16.61)
Connector Type (Female)	-	4.3-10
Connector Quantity	-	2
Connector Position	-	Bottom
Windload Frontal (at Rated Wind Speed: 150km/h)	N (lbf)	220 (50)
Windload Lateral (at Rated Wind Speed: 150km/h)	N (lbf)	80 (18)
Survival Wind Speed	km/h (mph)	200 (125)
Radome Material	-	UV-Stabilised PVC
Radome Colour	RAL	7035
Product Compliance Environmental	-	RoHS
Lightning Protection	-	DC Grounded
Cold Temperature Survival	°C (°F)	-40 (-40)
Hot Temperature Survival	°C (°F)	70 (158)

ALPHA WIRELESS

AW3170

Mechanical Illustration

All measurements are in mm (in)

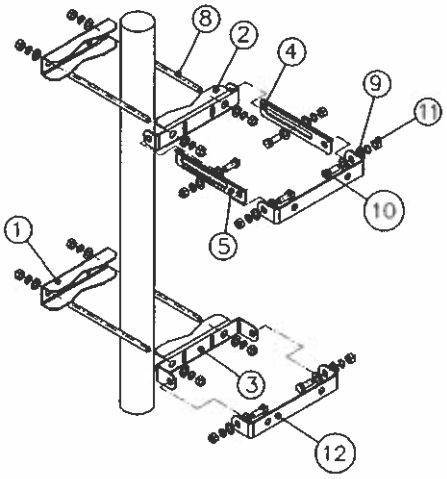


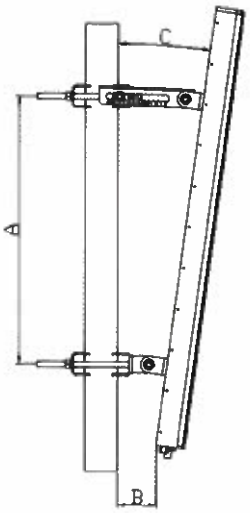
AW3170

TECHNICAL SPECIFICATION

Mounting Bracket Kit

CL-V-104-M8 (20mm 480mm Spacing Mount Kit)





Mounting Kit Tilt Range	Mounting Kit Material	Mounting Kit Pole Diameter
+2° to -10°	Stainless Steel	50mm-115mm (2" to 4.5")

Ordering Info

Order Code - Antenna	Description
AW3170-T0-F	Zero Degrees Fixed Tilt with 4.3-10 Connectors
AW3170-T4-F	Four Degrees Fixed Tilt with 4.3-10 Connectors
Order Code - Accessories	**Description**
AW1012-2-FM-FM	RF Jumper Cable, connector types 4.3-10 (m) / 4.3-10 (m), length 2 metres (6'6")
AW1012-2-FM-NM	RF Jumper Cable, connector types 4.3-10 (m) / N-Type (m), length 2 metres (6'6")
AW1014-2-FM-TM	RF Jumper Cable, connector types 4.3-10 (m) / Nex10 (m), length 2 metres (6'6")

Enquiries

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66214, USA
sales@alphawireless.com
+1 913 279 0008

Alpha Wireless

Installer to provide:

1. Physical Installation of all hardware items onto structure (CBSDs/ Power Supplies/Nema Enclosures, etc)
2. Additional Mount hardware as required
3. Outdoor Rated 2 Conductor 10-14 AWG power cable(depending on run length) for EACH CBSD installed
4. Outdoor Rated Fiber/Ethernet cable + Installation for entire run and interconnectivity back to core RAN installed
5. Nema Enclosure for Power Supplies/CPEs as needed + Installation
6. Dedicated AC power interconnectivity for each CBSD and site switch (if provided) and optional UPS
7. Counterweights for the sled.

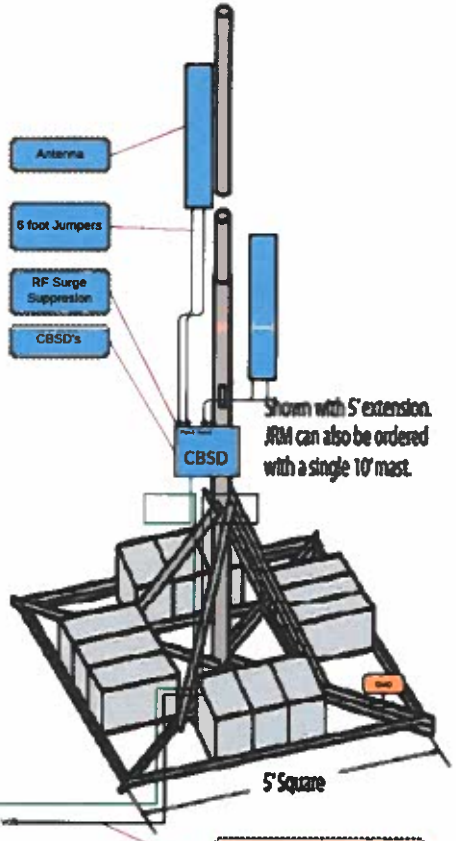
(12 cinder blocks @ 30 pounds each) = 360 pounds

Note: Appropriate grounding must be in place for towers, nema enclosures, power lines, MDF/IDFS for proper installation

Recommended Roof Sled

- Antenna 1 – mounted at top of pipe (120" to 90") (use Azimuth table)
- Space - 12"
- Antenna 2 – mounted below antenna 1, (78" to 48") (use Azimuth table)
- CBSD – mounted below Antenna 2

2 Sector Roof Sled



Hardware	# or PDU	Feed A Amps
-48 volt DC supply (1.7 per)	3	5.1
Total Power Requirements per Circuit		5.1

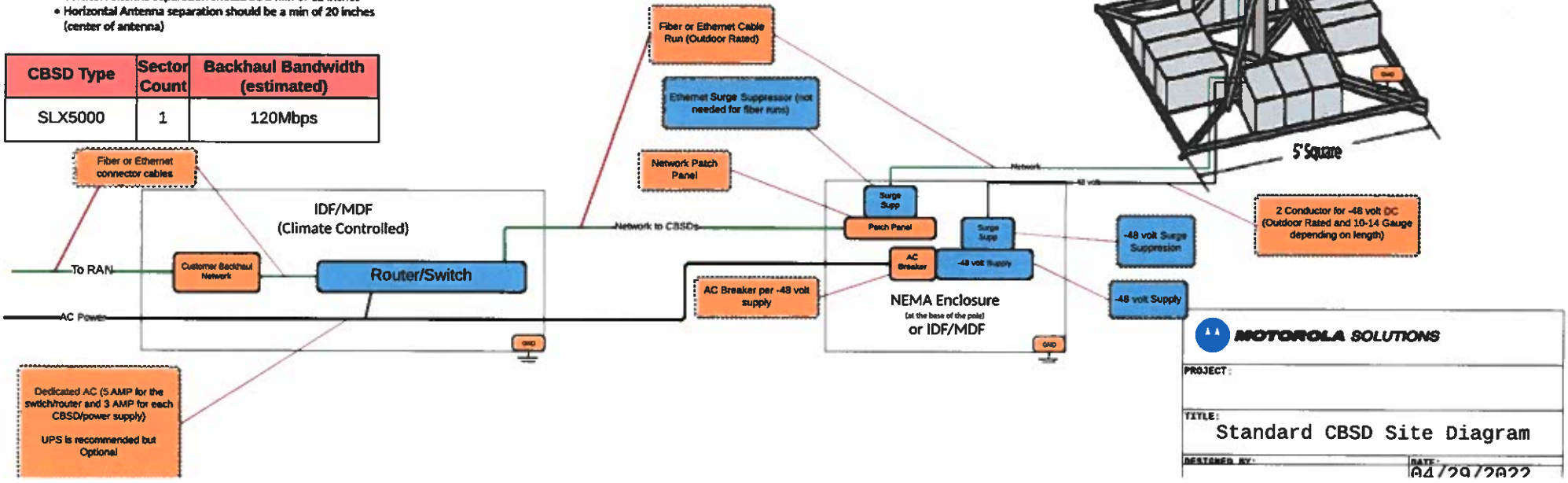
Hardware	# or PDU	Feed A Amps	Feed B Amps
SRX1500	2	3.3	3.3
Total Power Requirements per Circuit		3.3	3.3

Hardware	# or PDU	Feed A Amps	Feed B Amps
EX3400	2	1	1
Total Power Requirements per Circuit		1	1

Mounting Assumption

- Antennas are mounted as high as possible on the structure
- Provided 6' RF jumpers between Antenna and CBSD are adiquate
- CBSDs are mounted below Antennas
- Tower Structural Analsys will be preformed based on the provided specifications
- The antennas must be mounted at the same height and spaced at least 18 inches apart in the horizontal plane. When multi-carrier operation is employed, the two pairs of vertical or horizontal dipole antennas are used. All four antennas must be spaced at least 18 inches apart in the horizontal plane. Alternatively, the antenna assemblies can also have a minimum of 12-inch spacing in the vertical plane.
- Vertical Antenna separation should be a min of 12 inches
- Horizontal Antenna separation should be a min of 20 inches (center of antenna)

CBSD Type	Sector Count	Backhaul Bandwidth (estimated)
SLX5000	1	120Mbps



MOTOROLA SOLUTIONS

PROJECT:

TITLE: Standard CBSD Site Diagram

DESIGNED BY:

DATE: 04/29/2022

Mounting Assumption

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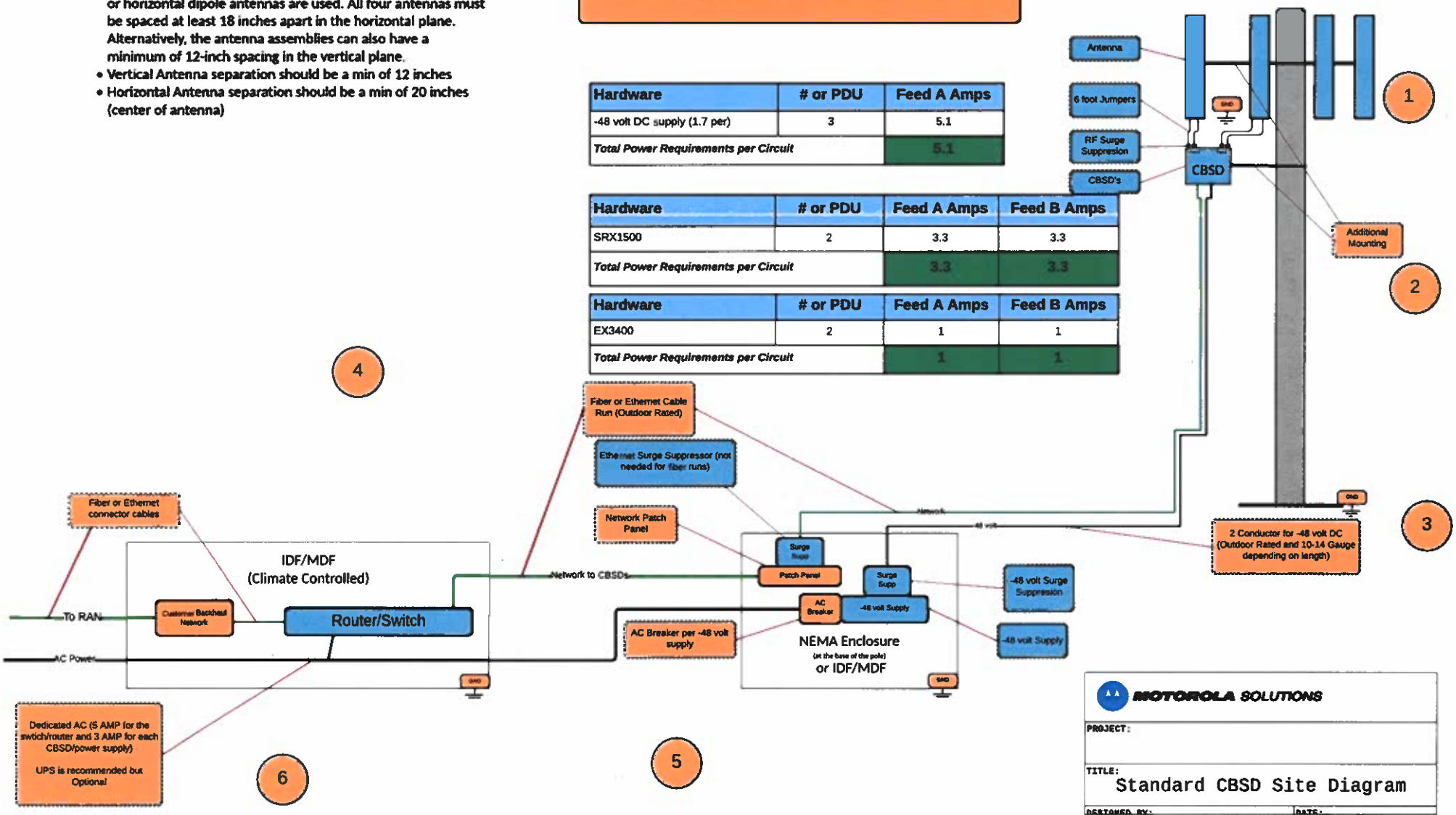
5. Nema Enclosure for Power Supplies/CPEs as needed + Installation
6. Dedicated AC power interconnectivity for each CBSD and site switch (if provided) and optional UPS

Note: Appropriate grounding must be in place for towers, nema enclosures, power lines, MDF/IDFS for proper installation

Hardware	# or PDU	Feed A Amps
-48 volt DC supply (1.7 per)	3	5.1
Total Power Requirements per Circuit		5.1

Hardware	# or PDU	Feed A Amps	Feed B Amps
SRX1500	2	3.3	3.3
Total Power Requirements per Circuit		3.3	3.3

Hardware	# or PDU	Feed A Amps	Feed B Amps
EX3400	2	1	1
Total Power Requirements per Circuit		1	1



MOTOROLA SOLUTIONS

PROJECT:

TITLE: Standard CBSD Site Diagram

DESIGNED BY:

DATE: 04/29/22

12. Addenda

Netsync acknowledges Addendum One.

Addendum One:

CITY OF PERRIS
101 N. D Street
Perris, CA 92570

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