



# DAS / Nodes / Small Cells

# Tectonic

PRACTICAL SOLUTIONS. EXCEPTIONAL SERVICE.



[www.tectonicengineering.com/teleco](http://www.tectonicengineering.com/teleco)

# ABOUT US

Tectonic Engineering & Surveying Consultants P.C. (Tectonic) was founded in 1986 and is a multi-disciplined engineering and professional service firm, employing a staff of over 500 professionals. Tectonic has over 30 years experience, with a reputation for offering professional quality services to its clients; earning a ranking in the ENR Top 500 Engineering Design Firms since 2001.

Tectonic's success stems from a philosophy of providing clients with superior service through a staff of quality-minded professionals. When you choose Tectonic, you work with some of the finest professionals in the business; professionals who will earn your trust and confidence, every day, every project.

## MISSION STATEMENT

### TECTONIC'S GOALS, MISSION STATEMENT AND PHILOSOPHY

Tectonic has been guided by a focused philosophy and goals since the firm's beginning - vision, integrity and technical expertise. Simply put, Tectonic's goals are to:

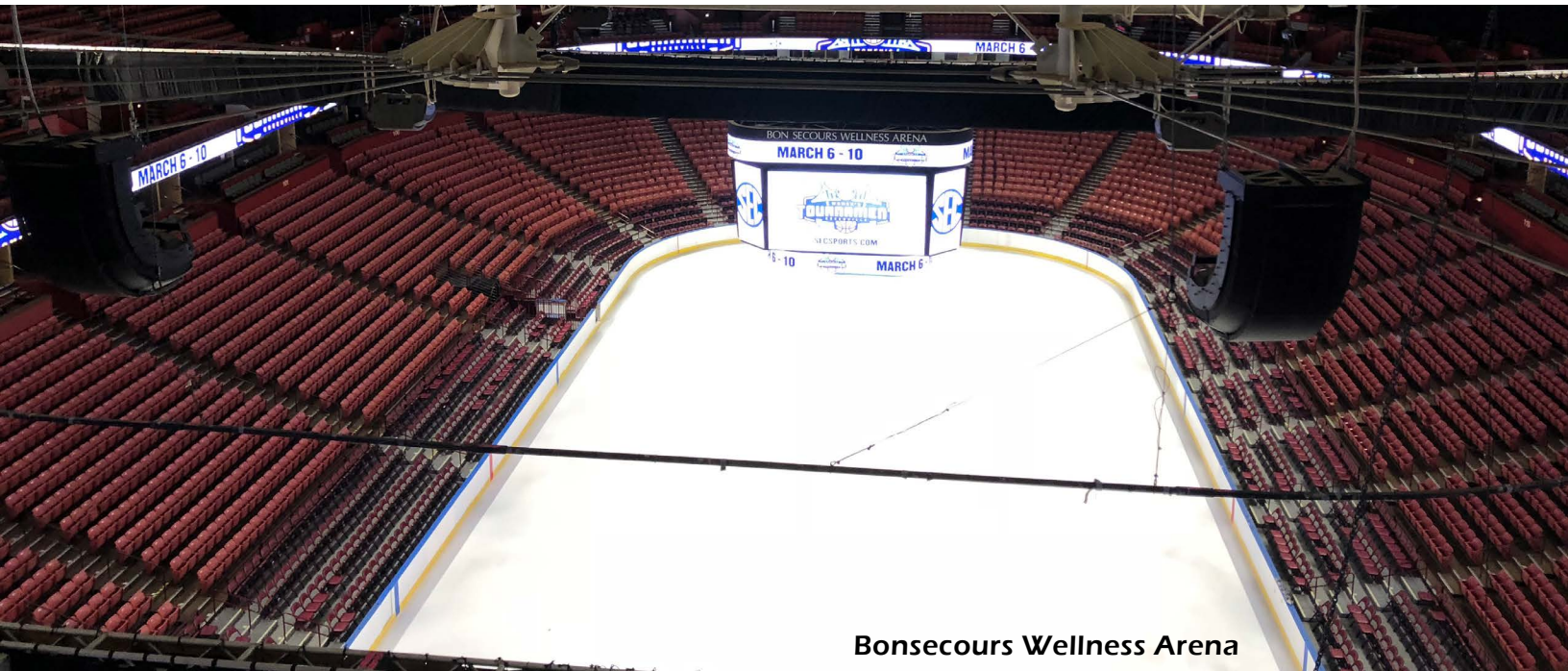
- Maintain the highest standard of quality on each and every project.
- Complete projects within budget and on-time.
- Exceed our Client's expectations.

*"Practical Solutions, Exceptional Service"*



# DAS AND SMALL CELL CAPABILITIES

Tectonic provides a full range of site acquisition, leasing and design services for the programming and development of both interior and exterior Distributed Antenna System (DAS) and Small Cell installations throughout the nation. We have provided a multitude of services ranging from site surveys, feasibility evaluation and due diligence, drawings, documentation and permitting to construction compliance which has enhanced and extended localized wireless coverage and provided seamless voice and data signals for users within a structure. Our extensive experience with numerous wireless carriers, venue managers, and wireless asset management firms, enables Tectonic to deliver and execute these projects effectively and efficiently from concept to completion.



**Bonsecours Wellness Arena**

## **DAS and Small Cell venues include the following:**

Colleges and Universities  
High Rise Commercial Office Buildings  
Hotels and Casinos  
Hospitals  
Mass Transit Systems  
Airports

Municipal Solutions  
Stadiums  
Shopping Malls  
Tunnels  
Warehouses





# DAS/SMALL CELL - PROJECT LOCATIONS



Small Cell - Phoenix, AZ





# SITE ACQUISITION SERVICES MANAGEMENT

Tectonic provides site acquisition and real estate support services to DAS and Small Cell clients in the public and private sectors comprised of carriers, tower companies, public utility companies and municipalities. Tectonic's turnkey solutions include services associated with all aspects of DAS and Small Cell network systems nationwide.

## **Site Acquisition Services**

Site Identification

Site Audits

Leasing

Zoning Analysis

Municipal Permitting

Due Diligence

Municipal Coordination / Permitting

Program Management

A&E Coordination

Building and Electrical Permits

Regulatory Compliance

Third Party Vendor Management

Utility Coordination / MSA's





Smith Ball Park

# A/E AND PROFESSIONAL SERVICES

Tectonic's technical staff maintains multiple professional engineering registrations nationwide.

## **A/E Services**

Program Management  
Construction Management  
Edge Technologies  
Site Due Diligence  
Site Visits / Audits  
Tower and Mount Analysis  
Zoning and Construction Drawings  
Structural Assessment / Design  
Fiber Routing / Make Ready Design  
Foundation Investigations  
Photo Simulations  
Permitting  
NEPA / Phase I and II Studies

## **Professional Services**

Civil Engineering  
Geotechnical Investigations  
Structural Engineering / Analysis  
Environmental Studies  
Surveying  
Electrical Engineering  
HVAC Engineering  
OSP Fiber Planning / Design







# CONSTRUCTION SERVICES

Tectonic offers a practical experience and proven approach managing and constructing projects from concept to completion. The firm tailors its resources to meet the demands of each client. Tectonic's professionals provide turnkey construction management solutions for telecommunication projects nationwide.

## **Construction Services:**

- |  |  |
|--|--|
| Project Status Reporting                 | Small Cell Construction  |
| Owner and Contractor Meetings            | OSP Fiber Installation   |
| Bid Packages and Bid Walks               | Implementation Planning  |
| Estimating / Bill of Materials           | Project Coordination with Design, Permitting & Special Inspections |
| Contractor/Subcontractor Installation    | Project Scheduling & Budgeting                                     |
| Construction Oversight / QA/QC           | Development and Maintenance of Project Tracker Schedules           |
| Shop Drawing Review                      | Coordination of Professional Services                              |
| Change Order Compliance                  | Project Close Out Packages   |
| Construction Procurement                 |  |
| Materials Storage / Inventory Management |  |







## REFERENCES

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Verizon Wireless  
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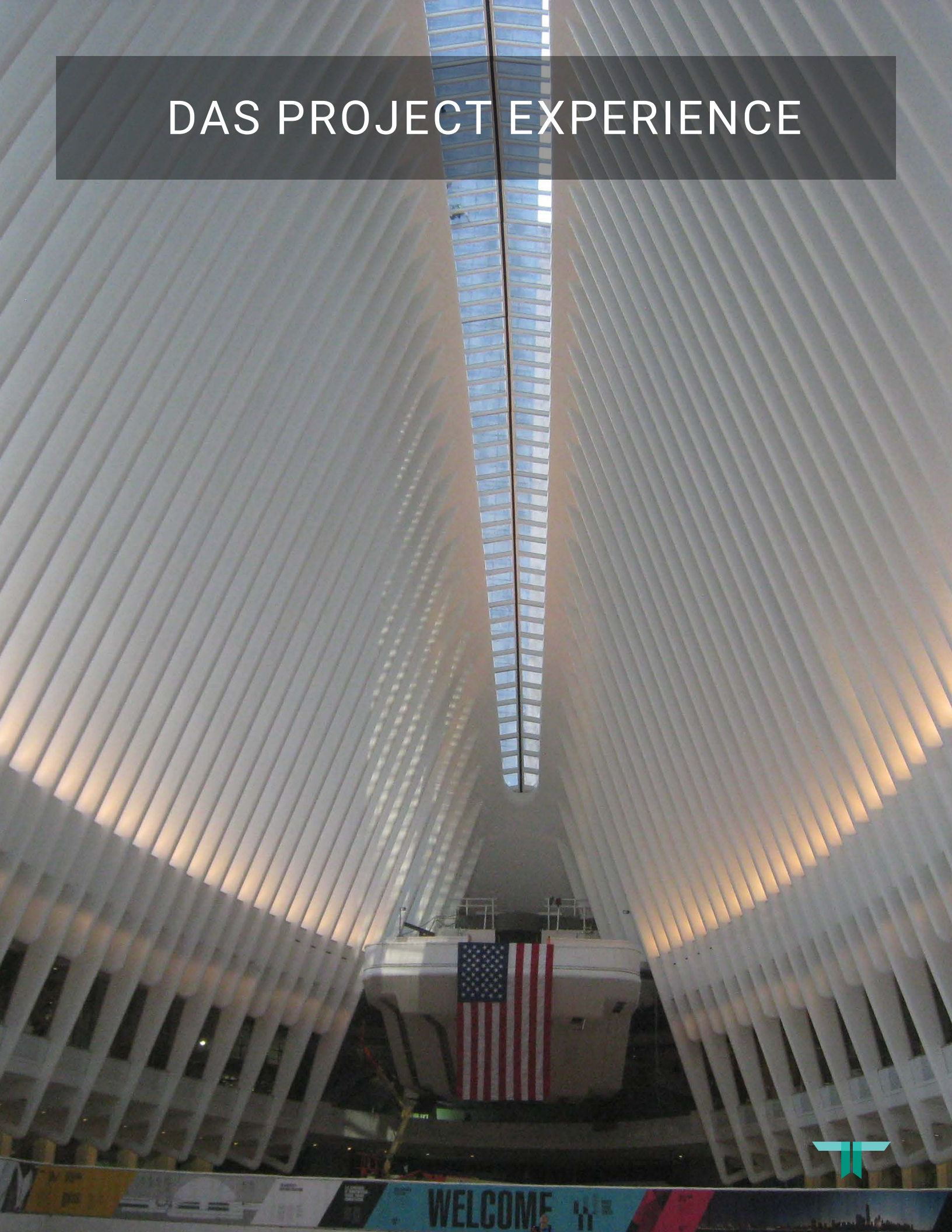
**Amjad Syed**

Director / Project Operations  
Ericsson  
(862) 621-4635





# DAS PROJECT EXPERIENCE



WELCOME

# DAS PROJECTS

Tectonic has provided services for numerous carriers, venue managers and wireless asset firms on the following projects:

**Bon Secours Wellness Arena**, Greenville, South Carolina

**Savannah/Hilton Head International Airport** Savannah, South Carolina

**Baptist Health Care**, Jackson, Mississippi

**Austin-Bergstrom International Airport**, Austin, Texas

**Smith's Ballpark**, Salt Lake City, Utah

**Alerus Center Arena**, Grand Forks, North Dakota

**XFINITY Theatre**, Hartford, Connecticut

**Medical College of Virginia, Virginia Commonwealth University**, Richmond, Virginia

**Lane Football Stadium, Virginia Tech**, Blacksburg, Virginia

**Grand Central Terminal** New York City, New York

**Shoreline Amphitheater**, Mountainview, California

**Newark-Liberty Airport**, Newark, New Jersey

**New Orleans Airport**, New Orleans, Louisiana

**Holland, Lincoln, Queens Mid-Town and Brooklyn Battery Tunnels**, New York City, New York

**World Trade Center, Building 7**, New York City, New York

**IBM Corporate Office Building**, New York City, New York





# DAS PROJECTS

Tectonic has provided services for numerous carriers, venue managers and wireless asset firms on the following projects:

**Oak Mountain Amphitheatre**, Pelham, Alabama

**Charlotte Metro Credit Union Amphitheatre**, Charlotte, North Carolina

**Raising Cane's River Center Arena**, Baton Rouge, Louisiana

**Lander Center Arena**, Southaven, Mississippi

**State Bank Amphitheatre at Chastain Park**, Atlanta, Georgia

**Coral Sky Amphitheatre**, Palm Beach County, Florida

**Veterans United Home Loans Amphitheater at Virginia Beach**, Virginia

**Jiffy Lube Live**, Prince William County, Virginia

**Good Samaritan Hospital**, Suffern, New York

**Red Bull Stadium**, Harrison, New Jersey

**Palisades Mall**, West Nyack, New York

**The Resorts Casino & Hotel**, Atlantic City, New Jersey

**CBS Broadcast Center**, New York City, New York

**MIDFLORIDA Credit Union Amphitheatre**, East Lake-Orient Park, Florida

**Coastal Credit Union Music Park at Walnut Creek**, Raleigh, North Carolina

**PNC Center**, Homdel Township, New Jersey



# DAS VENUES, MUNICIPAL, CAMPUSES

Tectonic has provided services for numerous carriers, venue managers and wireless asset firms on the following projects:

**Red Bull Stadium, Harrison, NJ** - Tectonic provided services including site meetings and inspections, feasibility evaluation, structural and framing design, construction drawings and documentation, including Antenna layouts and routing, permitting as well as construction compliance inspections.

**Newport News Shipyard, Newport News, VA** - Tectonic provided head-end design and technical support services for installation of a shipyard-wide Distributed Antenna System (DAS).

**Lane Football Stadium Virginia Tech, Blacksburg, VA** – Tectonic provided professional engineering services including coordination with the DAS network supplier at each location; pre-program planning to develop the overall DAS system network including backhaul availability; engineering of utility and fiber optic systems; Carrier and DAS power distribution to all equipment; grounding designs; and civil & structural systems including cable trays and steel framing.

**ODAS Network, Los Angeles, CA** - Tectonic provided the design of 5-node Distributed Antenna Systems (DAS) in the residential neighborhoods of Eagle Rock and Encino. The scope of work included site design and preparation of construction drawings, wind loading analyses of each pole, and preparation of traffic control plans at replacement pole locations.

**Campus-Wide DAS System for the University of Virginia, Charlottesville, VA** - Tectonic provided professional engineering services including coordination with the DAS network supplier at each location; pre-program planning to develop the overall DAS system network including backhaul availability; engineering of utility and fiber optic systems; Carrier and DAS power distribution to all equipment; grounding designs; and civil & structural systems including cable trays and steel framing.

**Jiffy Lube Live, Prince William County, VA** - Tectonic provided a multi node DAS system for the Jiffy Lube Live Amphitheatre. Jiffy Lube Live is located in Bristow, Virginia, is an outdoor amphitheater in suburban Prince William County, about 35 miles west of Washington, D.C. that can seat 25,262 sf. Tectonic provided Electrical, Structural, Civil and Permitting Services.









# DAS TRANSPORTATION PROJECTS

## REPRESENTATIVE PROJECTS

### **Port Authority Holland and Lincoln Tunnels Carrier Equipment Installation New DAS Site Builds**

- Tectonic provided construction management and design services to multiple carriers for integration into the existing Neutral Host DAS. In addition, Tectonic provided TAA (Tenant Alteration Application) submission, equipment platform structural design, and close out/final inspection with Port Authority Facilities and Resident Engineering departments.

### **Port Authority Holland and Lincoln Tunnels, New York & New Jersey, LTE & AWS Upgrade Project**

- Tectonic provided architectural & engineering, construction management & monitoring, TAA (Tenant Alteration Application) submission, design & construction management services for fiber optic cable runs, and close out/final inspection with Port Authority Facilities & Resident Engineering departments.

### **Port Authority Trans Hudson Carrier Fiber Upgrade Newport PATH Station**

- Tectonic provided architectural & engineering services, TAA (Tenant Alteration Application) submission & approval support, and close out & final inspection with Port Authority Facilities and Resident Engineering departments.

### **Port Authority Trans Hudson Carrier Fiber Upgrade 33rd Street PATH Station**

- Tectonic provided a full range of design services for the upgrade of the network backhaul including,

**Design Services**, - TAA (Tennant Alteration Application) submission and approval support, and close out & final inspection with Port Authority Facilities and Resident Engineering departments.





# DAS TRANSPORTATION PROJECTS

## REPRESENTATIVE PROJECTS

**MTA Queens Midtown Tunnel and Brooklyn Battery Tunnel, New York City, NY** - Tectonic provided design and review of the construction drawings, and MTA submittal package, daily field representatives for construction management, close out & final inspection/sign off with the MTA and Resident Engineering Department and construction management services for fiber optic cable runs.

**Grand Central Station, New York City, NY** - Tectonic provided architectural & engineering services including mechanical, electrical and fire protection design for the new Grand Central Station multi-carrier DAS head-end and antenna system.

**Grand Central Terminal Wireless Project, New York** - Tectonic was asked to repackage & streamline the design of the Grand Central Terminal wireless project involving the installation of three simultaneous wireless systems including “neutral host” and first responder systems. Tectonic is providing site surveys & verification and full project construction drawings.

**MTA Queens Midtown Tunnel and Brooklyn Battery Tunnel, New York City, NY** - Tectonic provided design & construction management services.

**New York Penn Station, New York, NY** - Tectonic provided design & consultation services including coordinating safety training, preparation of Amtrak permit submittal packages, detailed scope of work documents, site surveys & design drawings. DAS layout and planning to extensive construction drawings including existing condition survey, coordination with the local IBM authorities, antenna layout and cable routing through the building floors.



# DAS COMMERCIAL BUILDINGS & MALLS

## REPRESENTATIVE PROJECTS

**World Trade Center, Building 7, New York City** - Tectonic provided a full range of engineering services, including design, planning, permitting including New York City approval along with Port Authority approval, programming and construction compliance for the development of Distributed Antenna System (DAS) installations that covers over 1.6 million square feet.

**Palisades Center Mall, West Nyack, NY** - Tectonic provided a full range of design services for the development of the Distributed Antenna System installation at the 2-million square foot Palisades Center Mall. Tectonic's services included site planning and inspections, feasibility evaluation, construction drawings and documentation including antenna layouts throughout the mall building, utility & power systems and grounding design.

**CBS Broadcast Center, New York City** - Tectonic provided services for the interior DAS system at the 800,000 square foot CBS Broadcast Center including site meetings and inspections, construction documentation and drawings, neutral-host network design, backhaul and utility

systems, grounding design, construction compliance inspection and as-built drawing preparation.

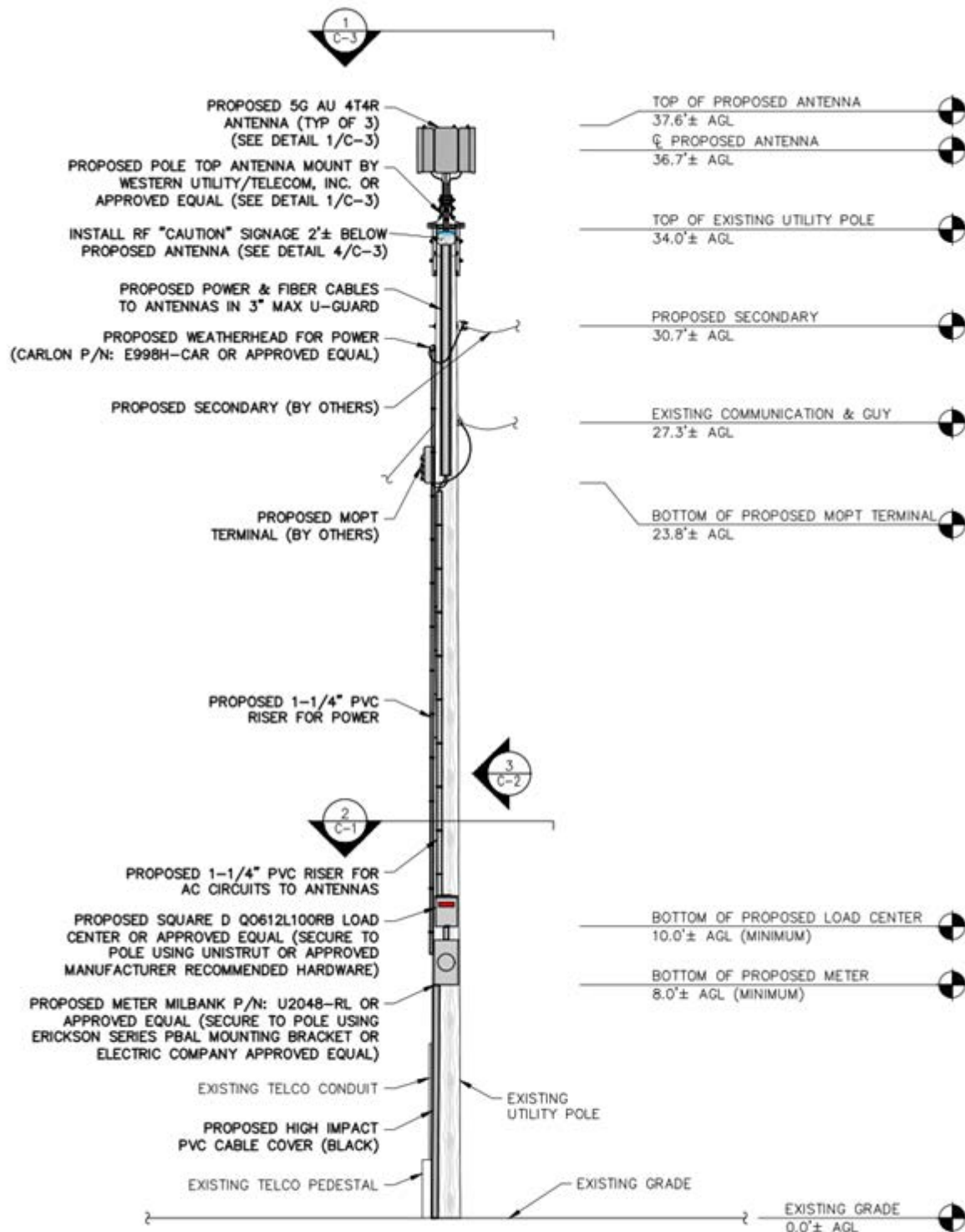
**Medical College of Virginia, Virginia Commonwealth University, Richmond, VA** - Tectonic provided services for the DAS deployment, in the 8 story 200,000 square foot facility, including pre-program planning to develop the overall DAS system network including backhaul availability; engineering of utility and fiber optic systems; carrier and DAS power distribution to all equipment; grounding designs; civil and structural systems including cable trays and steel framing / foundations for all specialty systems.

**Empire State Plaza, Albany, NY** - Tectonic's scope of services for the 12 building DAS deployment consisted of documenting existing conditions at the head end equipment shelter locations, steel frame design for all equipment shelters, routing & design of power & fiber conduit feeds, electrical circuit routing & design for the DAS radio equipment, construction drawings, and post construction inspection.





# SMALL CELL PROJECT EXPERIENCE



**UTILITY POLE ELEVATION**  
SCALE: 3/16" = 1'-0" (11x17 SIZE)  
3/8" = 1'-0" (22x34 SIZE)



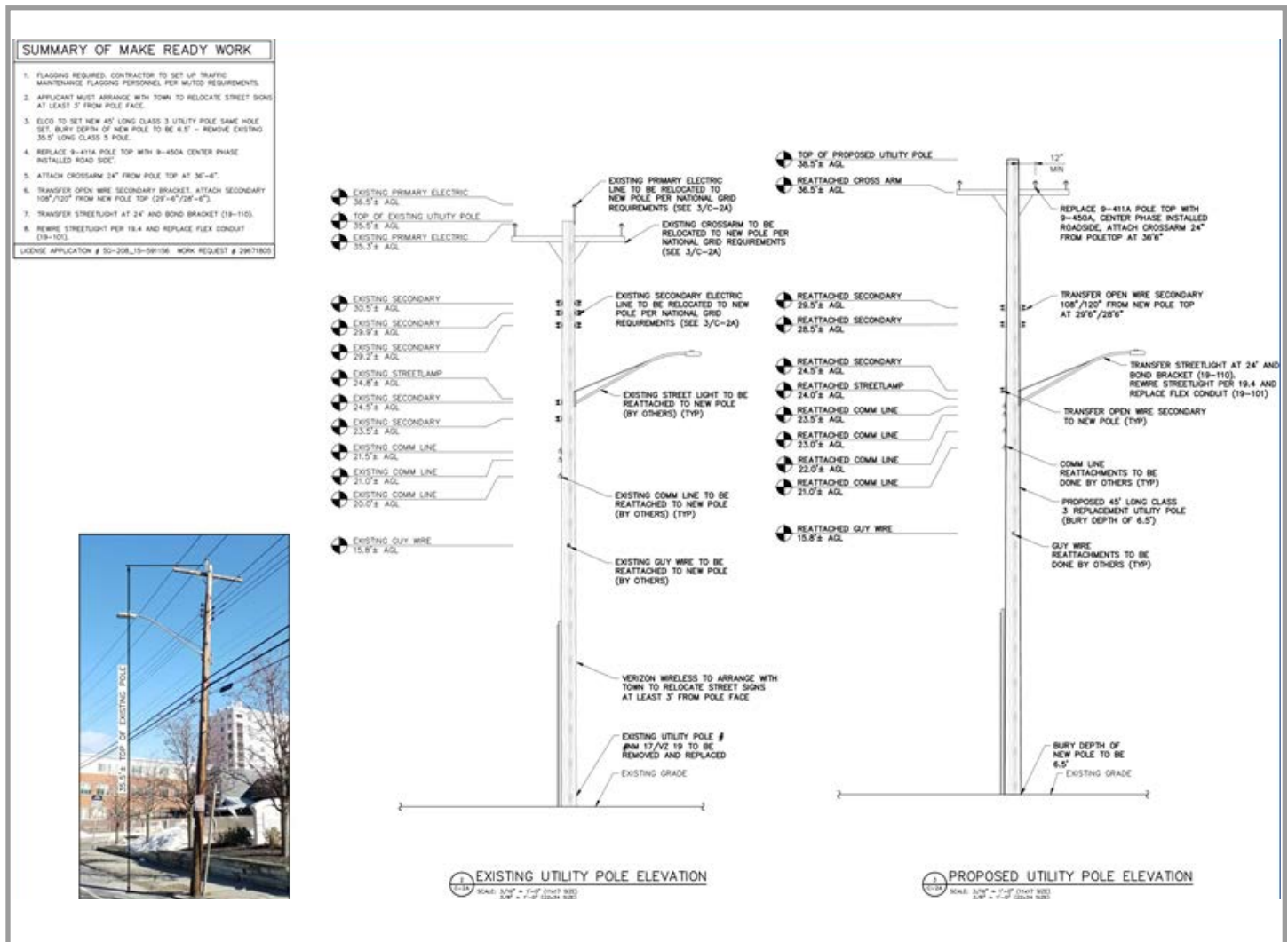
# SMALL CELL / NODE PROJECTS

Tectonic has provided services for numerous carriers, venue managers and wireless asset firms on the following projects:

**Tectonic is currently providing site acquisition and A/E Services for Verizon Wireless Small Cells in Schenectady, NY for 300 Sites.**

**Tectonic provided Site Acquisition and A/E services for 40 critical small cell sites for Verizon Wireless to support the 2015 XLIX Superbowl in Phoenix, AZ.**

**Tectonic provided Site Acquisition, Survey and A/E Design services for 200 Verizon Wireless Small Cell sites in the Southern California market. (Los Angeles and Irvine, CA)**





# SMALL CELL / NODE PROJECTS

Tectonic has provided services for numerous carriers, venue managers and wireless asset firms on the following projects:

**For Verizon Wireless in New York Metro and New York State, we are currently providing 5G turnkey services for a 450 node project that includes real estate and A/E services. (New York State).**

**Provided AT&T / Bechtel with survey services, underground utility mapping, bore right of way design and assigned as Point of Contact to coordinate utilities to all 5G sites for 175 Small Cells. (Phoenix, AZ)**

**Provided Verizon Wireless with A/E services for 40 Small Cell Nodes for power transmission towers, utility poles and rooftops within their Virginia market. (Hampton Roads, Newport News and Richmond, VA)**

**Provided Site Acquisition Services and Small Cell Design Services to AT&T in their Southern California market. (Los Angeles, CA)**

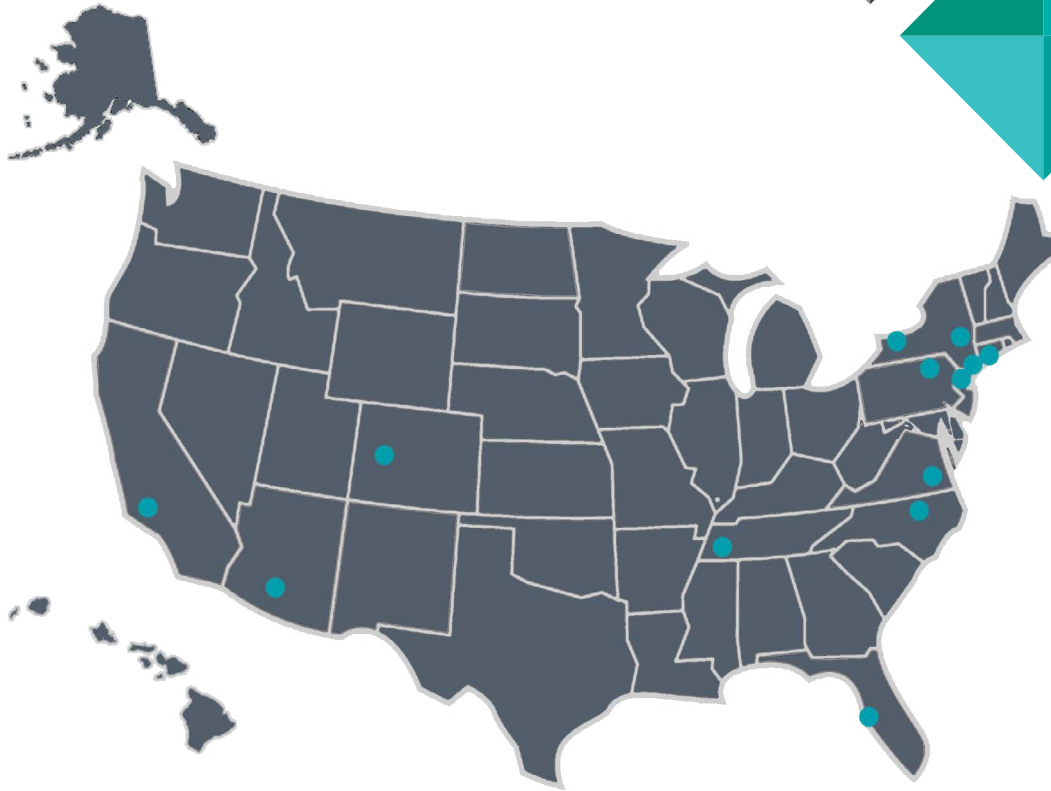
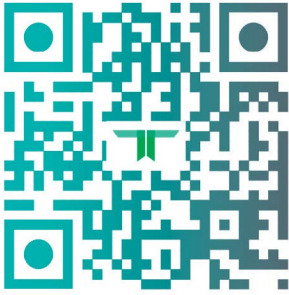
**Tectonic provided Site Acquisition, Utility Coordination and A/E Services for 60 Small Cell sites within the Verizon Wireless Southwest Market. Assisted Verizon Wireless to develop their small cell design needs including equipment, power, light pole specifications and stealth sites on designated private property. Provided site and boundary surveys, coordinated power installation and located fiber to all sites. Additionally, Tectonic provided guidance to town planners and power companies with development of standard construction documents for their review processes. (Phoenix / Tempe / Tucson, AZ and El Paso, TX)**

**Provided 5G Make Ready services for municipal owned utility poles for Crown Castle Nodes in the Los Angeles market. (Los Angeles, CA)**

**Verizon Wireless New England Market – For 75 sites, Tectonic provided A/E Services for both 4G and 5G Small Cell Utility Poles. (Connecticut, New Hampshire)**

**Since 2014, Tectonic provided 4G LTE small cell rooftop, utility pole, and private pole designs for Verizon Wireless that included real estate and A/E services for over 600 sites. (Upstate New York Market)**





TECTONIC Office Locations.

Arizona | California | Colorado | Connecticut | Florida | New Jersey  
New York | North Carolina | Pennsylvania | Tennessee | Virginia

### **TECTONIC Telecommunications Division**

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**Tectonic**

revised 2/21/23

