

DAS Case Studies



Introduction

- Founded in 1998 Wireless Services is a full-service engineering, procurement and construction firm (“EPC”) with an exclusive focus on wireless telecom infrastructure and distributed antenna systems (DAS). We have over 19 years’ experience working with Wireless Service Providers and venues/landlords to develop, design, fund and deploy DAS in unique, high density environments. Our focus is on providing value-driven RF solutions to our venue and carrier partners with approximately 1/3 of our 53 employees in RF Engineering and engineering support roles.
- Working for both Venue owners as well as all of the major wireless carriers and third party operators, we have a very unique perspective on the deployment and funding and administration of these large scale systems.
- Our emphasis is on stadiums, airports and other large public venues and our client list includes some of the most iconic and complex architectural applications in the United States.
- Wireless Services is exclusively focused on DAS and is currently designing, developing, building, administering, monitoring and maintaining distributed antenna systems in multiple large scale environments totaling millions of square feet in convention centers, airports, museums and professional sports arenas throughout the United States. Our systems serve tens of millions of tourists, passengers and fans for all of the major wireless service providers in these demanding, high profile environments.
- Complex DAS is all that we do.

EverBank Field



Future Proofing in Florida

Legacy system replacement, carrier coordination and funding negotiation.



- Client – Jacksonville Jaguars/SMG
- Scope of Services
 - *Engineering, Procurement, Construction, commissioning and carrier coordination of original neutral host DAS for 2005 Super Bowl.*
 - *Ongoing monitoring, maintenance & repair.*
 - *Currently upgrade of the entire stadium with a state-of-the-art JMA Teko DAS with Verizon as lead carrier. We provided EPC Services as well as all carrier coordination, lease and carrier funding services. On-air date October 2017.*
- Venue – NFL Stadium and associated campus including the adjacent Veterans Memorial Arena and Prime Osborne Convention Center.
- Everbank Field is the home of the Jacksonville Jaguars with a maximum capacity of 82,000. It hosted Super Bowl XXXIV as well as the annual NCAAF Florida v. Georgia game and the TaxSlayer Bowl (formerly the Gator Bowl), concerts, soccer and other events throughout the year. The original system had reached end-of-life and a plan was put in place to migrate to a modern, fiber fed system that allows for expansion and upgrades to future technologies on a cost effective basis.
- Working with SMG and Verizon, we are currently designing the expansion of the system to cover Veterans Memorial Arena and the Prime Osborne Convention Center on campus.



Kyle Field, Texas A&M



Literally, Gig 'em Aggies

Building the best stadium DAS with Gigabit PON



- Client – The 12th Man, Texas A&M Athletic Department
- Scope of Services
 - *Installation, construction and commissioning of the G-PON, neutral host DAS and WiFi.*
- Venue – Kyle Field, Bryan College Station, TX
- Kyle Field had contracted with IBM and Corning for the design of one of the largest and most complex stadium deployments in the US. Wireless Services was retained to install and construct the DAS and the remote headend, located approximately 5 km away.
- Kyle Field is a 54 sector DAS, with over 1,300 APs for the WiFi. The system supports building automation, IPTV, Point of Sale systems, WAN, Media operations and is expandable for future technologies. The remote headend is designed to support DAS and oDAS platforms throughout the A&M Campus.
- At any given time, Wireless Services managed over 125 individual associates or sub-contractors on property working up to 24 hours per day as sections of the stadium remodel were completed to meet an aggressive on-air schedule.
- The system was on air September 2015 and has consistently broken data handling records for college football every year.



The Smithsonian Institution



Smithsonian
Institution

Turn-key DAS of Historic Proportions

Connecting with Art, Science and History on the National Mall



- Client – The Smithsonian Institution, Office of the CIO
- Scope of Services
 - *Development, engineering, procurement, construction and commissioning of the neutral host DAS.*
 - *Carrier Coordination and lease negotiation.*
 - *Monitoring, maintenance, repair and administration.*
- Venue(s) – Smithsonian Institution – National Air & Space Museum, National Museum of Natural History, National Museum of the American Indian, The Freer, The Hirschorn Museum, National Museum of American History, The Castle, The National Museum of African Art, Arthur M. Sackler Gallery, The Ripley Center and The National Museum of African American Art History and Culture.
- Remote headend is located in the Air & Space Museum serving this entire campus largely incorporating the National Mall from the US Capitol Building to the Washington Monument. We also maintain the North/South fiber backbone utilized by all carriers in support of the National Mall projects.
- Wireless Services acts as the Developer and Administrator of the DAS/CWAS on behalf of the Smithsonian Institution, providing financial modeling, carrier coordination, lease negotiations, engineering, procurement and construction of the original Corning Mobile Access platform in 2008 and all other enhancements to the system in response to carrier or Smithsonian needs.
- In 2016, we began the deployment of the next generation CWAS in the award winning National Museum of African American Art History and Culture based on the Corning One platform.
- All of these buildings are architecturally sensitive, historic and secure locations.



The United States Senate



Turn-key DAS of Historic Proportions

Bridging the “communication gap” in Washington, DC



- Client – Architect of the Capitol and US Senate, Office of the CIO
- Scope of Services
 - *Development, engineering, procurement, construction and commissioning of the neutral host DAS.*
 - *Architectural review and historical preservation compliance.*
 - *Carrier Coordination and lease negotiation.*
 - *Monitoring, maintenance, repair and administration.*
- Venue(s) – Senate Chamber, United States Senate and certain associated off-campus office buildings.
- Wireless Services designed and deployed the original Corning Mobile Access system in the US Senate in 2005 and performed a complete system refresh in 2012.
- This installation had unique complexities given the historic nature of the building and the nuances of working in this complex environment.
- All of these buildings are architecturally sensitive, historic and secure locations and required unique permitting and security measures and close coordination with the Office of the Architect of the Capitol.



Charlotte-Douglas Int'l. Airport



Growing with the market

Turn-key neutral host DAS and Project Management Services



- Client – City of Charlotte, NC
- Scope of Services
 - *Turn-key DAS project from concept to delivery of an on-air system with all carriers participating in 2012*
 - *Engineering, procurement, construction, commissioning, carrier coordination and lease/license negotiation.*
 - *Ongoing monitoring, maintenance & repair services.*
 - *OEM analysis and selection consulting for next generation system 2017.*
- Venue(s) – Charlotte Douglas International Airport (CLT) is the 11th busiest airport in the US with over 44 million passengers and the 7th busiest in the world based on aircraft movements. CLT is the 2nd largest hub for American Airlines sitting on over 5,500 acres with 9 major airlines operating out of 97 gates.
 - *CLT is undergoing a \$2.5 Billion improvement and expansion that will include the addition of an additional 25 gates in 2018.*
- Wireless Services delivered a fully-funded neutral host DAS in 2012. This system, while state-of-the-art at that time, is not fiber to the edge. CLT has made the decision to not only expand the coverage to outdoor areas including the airside/tarmac, but will also transition the existing and new indoor DAS to the Corning One platform as the new gates are completed.
- Worked with CLT and American Airlines to test various aircraft types and configurations to evaluate RF propagations and improve in-plane coverage for flight crews and passengers under the new outdoor DAS design.



Metro Washington Airport Authority

Carrier Complexity

Legacy system installation through end-of-lease and renegotiation.



- Client – Carrier Group Consortium (VZW, ATT, Sprint, TMO) under Teaming Agreement.
- Scope of Services
 - *Architectural review, permitting, construction, commissioning and carrier coordination of original neutral host DAS in 2006.*
 - *Ongoing monitoring, maintenance & repair services.*
 - *Carrier representation and lease/license negotiation.*
- Venue(s) – Ronald Reagan Washington National Airport and Dulles International Airports are operated by the Metropolitan Washington Airport Authority (MWAA). The airports are ranked 28th and 24th in the nation for passengers with approximately 22 million and 24 million passengers respectively.
 - *DCA sits on 880 acres with 44 gates. The Terminal A building is a historic building on the National Registry. IAD sits on 11,000 acres of land, serves 143 airlines and has 250 gates. These are large, complex, secure environments.*
- Wireless Services was retained by the carrier consortium in 2006 to complete the systems after another integrator struggled to manage the complex projects. We assisted the carriers in completing their lease negotiations with the Airport Authority as well as the construction, commissioning, monitoring, maintenance and repair of the DAS and the free public WiFi.
- The original carrier leases expired in 2016 without the parties reaching an Agreement as to how to proceed. Wireless Services, beyond the scope of our ongoing Project Management Agreement with the carriers, mediated the resolution and negotiation of the new leases which will guarantee coverage for the next decade and potentially far beyond.
- We continue to maintain these complex systems at no cost to the airports as the carriers evaluate the path forward to future proof the next generation platforms for these key properties.

San Antonio Convention Center



Carrier Advocacy and Project Management

RFP Response and Engineering Services



- Client – Verizon Wireless
- Scope of Services
 - *Site Acquisition Services and RFP response (accelerated turn around)*
 - *Engineering, Procurement, and Construction Rough Order of Magnitude assessment.*
 - *Preparation of fully vetted RFP response documents.*
 - *Technical and business support of Verizon Wireless presentation to City of San Antonio procurement evaluation committee for Verizon led, neutral host DAS and Public Safety System.*
- Venue – Henry B. Gonzalez Convention Center, City of San Antonio, is a 514,000 square foot, multi-purpose convention center. Over 85,000 SF is column free open space representing a unique design challenge for our RF Engineering team.
- After the City of San Antonio’s original RFP process failed to produce an actionable response, Wireless Services was retained by Verizon Wireless to prepare their response to a follow-on RFP in a compressed timeframe. We provided site acquisition services, engineering analysis, financial modeling, document preparation and advocacy in support of Verizon’s proposal to act as the lead carrier in this critically important building to the City of San Antonio. Working closely with Verizon, business, legal and engineering teams, this response was completed in less than 3 weeks.
- Wireless Services created a construction management schedule that will have the system on-air in time for the NCAA Final Four in March of 2018.
- This proposal was ultimately successful and Verizon was awarded the DAS project. Construction to begin as soon as practicable.



New Orleans French Quarter & CBD



Stealth oDAS in a historic City Center

Installation and Maintenance and Repair



- Client – Crown Castle
- Scope of Services
 - *Installation and deployment of an outdoor DAS (oDAS).*
 - *Maintenance and repair services*
- Venue – The French Quarter is a historic district located in the heart of the City of New Orleans encompassing approximately 420 acres. In 2016, nearly 10.5 million tourists visited the French Quarter. The Central Business District is adjacent to the Quarter to the west.
- The oDAS consists of approximately 80 transmit locations or nodes and the headend is in a remote location approximately 2 miles from the French Quarter proper.
- Wireless Services worked with Crown Castle to deploy nodes in stealth enclosures throughout the area to accommodate the large crowds during typical loads and large events such as Jazz Festival and Mardi Gras.



Contact Information

Luis Gonzalez

Chief Commercial Officer

LuisG@WirelessServices.com

(713) 240-5227

Ian Gaffney

Director of Sports & Large Public Venues

IanG@WirelessServices.com

(503) 975-2473

Samantha Copeland

Director of Carrier Relations

SamC@WirelessServices.com

(240) 472-2010

Anna Burnham

RF Solutions Engineer

AnnaB@WirelessServices.com

(504) 415-3115

