



5G, Small Cell and Deployment Innovations & Trends

September 1, 2022

With unprecedented federal funds for broadband deployment and the ongoing push toward 5G, local governments will continue to face high demand for access to the rights-of-way for years to come. More providers looking for efficient access to often crowded streets and poles means new deployment techniques are coming your way. This panel will explore these innovations, offering local leaders insights into the trends they need to know about to manage their public assets.

Moderator: Mike Lynch, Boston (NATOA BoD)

*Speakers: Jim Lockwood, P.E., CEO & Founder, Aero Wireless/Comptek Technologies
Lucas Turner, Vice President, Government Relations, Helicore
Scott Harry, Manager, Government Affairs, Crown Castle Fiber*



Jim Lockwood, PE
CEO & Founder,
Aero Wireless/
Comptek



Lucas Turner, VP,
Gov't Relations,
Helicore

***5G, Small Cell
and
Deployment
Innovations
& Trends***

Mike Lynch,
Boston cable
guy & your
moderator!



Scott Harry,
Manager,
Gov't Affairs,
Crown Castle Fiber



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Aero Wireless Group and its three companies:

1. Aero Smart Communities
2. Aero Solutions
3. Comptek Technologies, starting in 1998. Verizon vendor for the City Poles family.

aerowirelessgroup.com



Crown Castle aims to double small cell deployments in 2023:

July 22: Crown Castle expects to double the rate of small cell deployments next year compared to the 5,000 nodes the firm originally expected to meet the growing demand from its customers.

Crown Castle CEO Jay Brown stated, “This year, we’ll do about 5,000 nodes on air. And next year, we expect to do 10,000 on air.”

www.crowncastle.com



Helicore has developed an innovative, patented foundation system that solves problems by allowing a fully encompassed streetlight replacement in one day.

The system inherently allows streetlights to remain in the same exact location satisfying municipalities as their streetscape design remains unaltered.

www.helicore.co



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Microtrench NATOA 2022

Crown Castle Fiber

September, 2021

Video

<https://www.youtube.com/watch?v=-rloGDUxWYw>

What is Microtrenching?

Less Impact than Conventional Trenching

In a Central Business District:

Conventional Open Cut Trench = 50–100 feet/day

Microtrenching = 1000 to 1500 feet/day

Schedule Example:

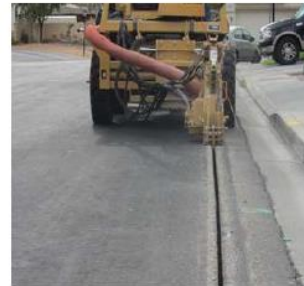
A single 500 foot trench:

Conventional Open Cut Trench = 1 Crew, 5-10

days **Microtrenching = 1 Crew, 6 hours**



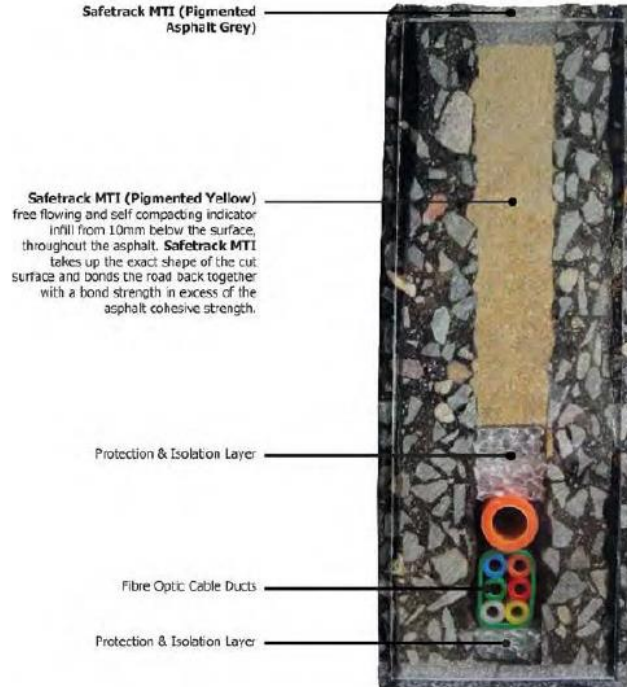
In a recent deployment in Dallas, TX, we were able to microtrench, install & restore the right-of-way within three traffic signal rotations!!!



How is a Microtrench Designed?

Microtrench is a fiber construction technology which allows installation of fiber cable with a lower impact to the right-of-way

- Installed within the roadway at depths between 12 to 24 inches
- Main conduit running line typically requires a saw cut between 1 to 2 inch width



Microtrench – Current Municipal Deployments

Boston

New York City

Eagan, MN

Louisville

Nashville

Charlotte

Atlanta

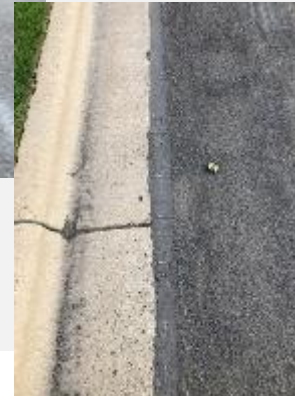
Austin

San Antonio

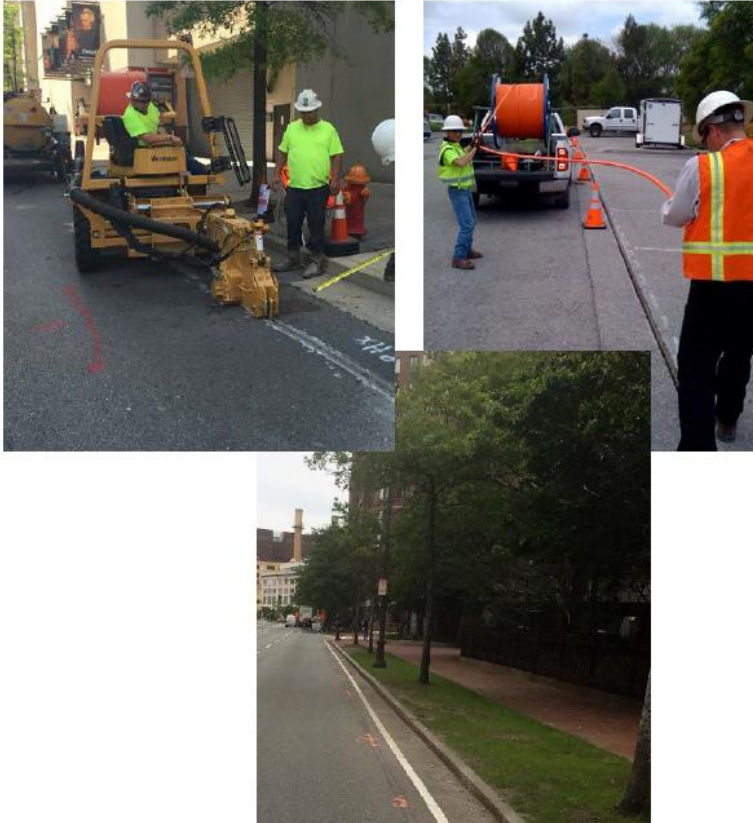
Philadelphia

Los Angeles

Chicago



Benefits of Microtrench



- ✓ Less Time
- ✓ Less Invasive
- ✓ Less Traffic Impact
- ✓ Less Waste
- ✓ Less Restoration
- ✓ Faster Deployment of high speed broadband
- ✓ Improved public safety

Thank you

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HELICORE

INNOVATIVE DESIGN ACCELERATING

4G/5G NETWORK DENSIFICATION & DEPLOYMENT

Presentation last saved: 28m ago



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MEET OUR TEAM



KEVIN J. RUSS

CEO



JOSH A. DOTSON

VP Business
Development



LUCAS B. TURNER

VP Government
Relations



MANDY L. RUSS

VP Operations



Our executive team has over 75 years of combined industry experience.



ANSWERING THE CALL FOR DISRUPTIVE INNOVATION

HELICAL ANCHOR FOUNDATION SYSTEM™

- Steel Foundation Plate with Helical Anchors
- Streamlines Construction Processes (up to 93%)
- Flexible and Forward Thinking Design
- 1 Day Installation - Rain or Shine
- Minimizes Ground and Community Disturbance

- • • U.S. Patent No. 10,781,602
- • • Canadian Patent No. 3,124,025
- • • EU & Mexico - PCT/US2021/09133



BEFORE



AFTER



IT'S ABOUT TIME

HELICORE TECHNICAL TEAM

- Municipal and Government Relations Expertise
- Private Utility Locating Expertise
- Third Party Engineering Liaison
- Procurement and Logistics Management
- Contractor Easy Button





INSTALLATION



BEFORE



STEP 1



STEP 2



STEP 3



STEP 4



All bright ideas are rooted in simplicity.



INSTALLATION



STEP 5



STEP 6



STEP 7



STEP 8



AFTER



Keep the Lights On. The Sidewalks Open. And the Costs Down. All in a Day's Work



FLEXIBILITY

Anchored in Innovative Engineering



**CUSTOM
BUILDS**



**FUTURE
PROOF**



**ADAPTER
PLATES**



THANK YOU



Questions?

This is how it's supposed to be done; the Helicore team has created an innovative solution to fill a gaping need within the industry. This system is best in class - every Carrier and municipality should be incorporating it into their playbooks today."

-LINDON HAYES, CEO of Essentia, named a 2019-2020 Telecom Tech Outlook Top 10 Small Cell Consulting/Services Company



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NATO 2022 Annual Conference

Deployment Innovations & Trends

Smart Pole Installation & Innovations

Jim Lockwood, P.E., CEO
Aero Wireless Group | Comptek Technologies

Smart Pole

Smart pole is a technology center

- Consists of information and communications technology (ICT), IoT, smart lighting, and/or AI sensors
- Can include EV charging station, digital signage, kiosk with 911 and other human machine interfaces (e.g., touchscreens and keypads)
- Can include cameras, lidar, sensors, and other technologies for safety, traffic control, security, environmental sensors, communications, management, and other municipality and service solutions

360° Video Camera

Wireless Network

WiFi Points

Smart Lighting

Pedestrian Counter

Environmental Sensors

Power Meter

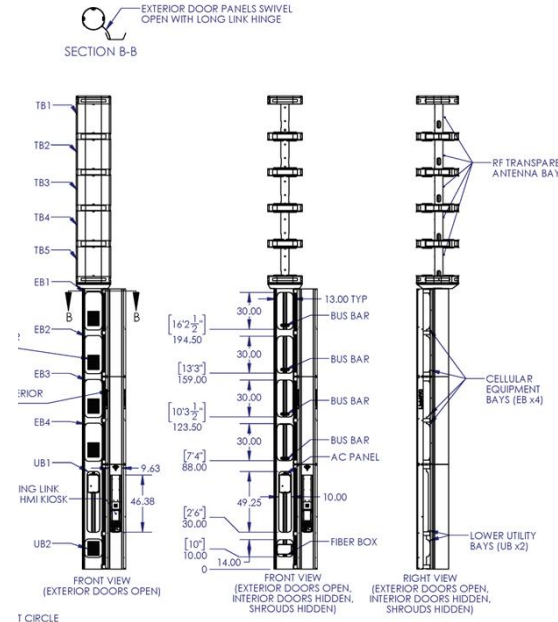
EV Charging

NYC Link5G – Multi-tenant, Multi-tech



Multi-tenant, Multi-technology Structure

- 5 RF-optimized
- Four 5G Bays
- One Wi-Fi Bay
- Fiber Connection
- Digital Display
- HMI Kiosk (Digital Phone, Internet Service)
- Free Wi-Fi (Digital Divide)
- 911 Service
- USB Chargers
- Cameras
- ADA Compliant (e.g., Braille)



Innovation 1

NYC Link5G – Installation



Proprietary & Confidential

Innovation 1

NYC Link5G – Installation (cont.)



Proprietary & Confidential

Innovation 1

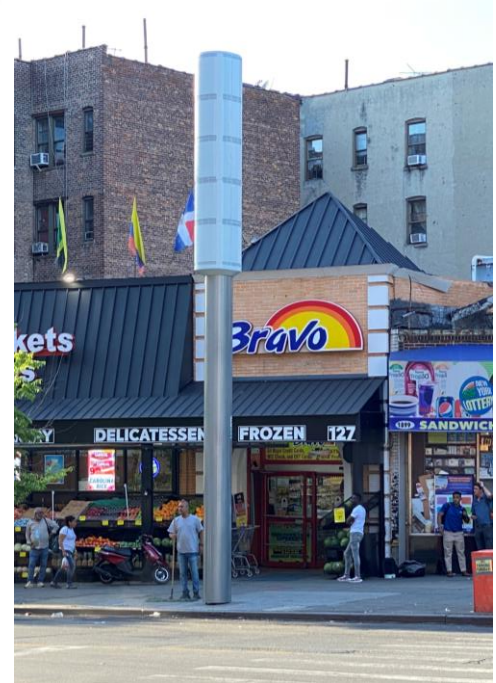
NYC Link5G – Installation (cont.)



Proprietary & Confidential

Innovation 1

NYC Link5G – Installation (cont.)



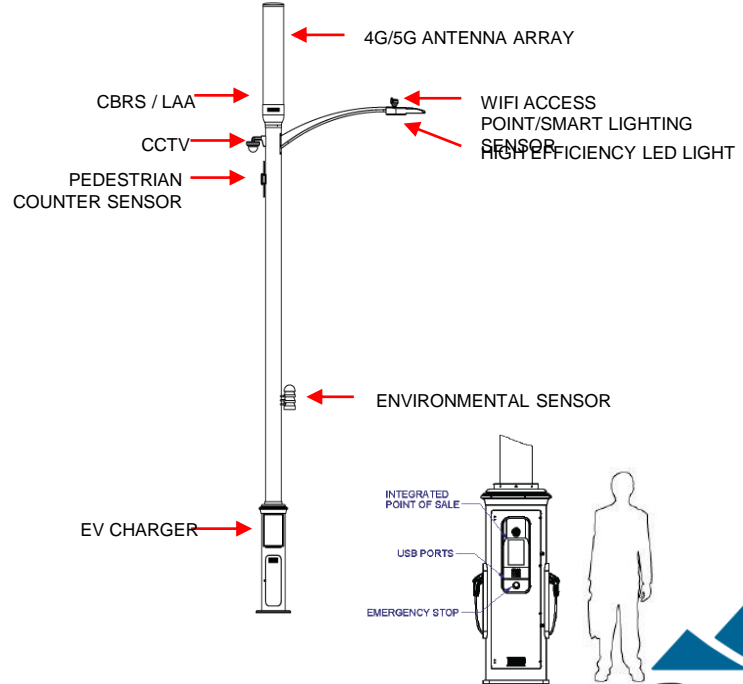
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4G / 5G Wireless with EV Charging Station



4G / 5G, EV Charging Station Smart Pole

- Combined 4G / 5G
- IoT Technologies
- 2 or 4 EV Chargers
- Retractable Charging Cables
- E-bike / E-scooter Charging
- Fiber Connection
- Point of Sale Interface (HMI Kiosk)
- Digital Display
- 911 Service
- USB Chargers



Network Nodes | IoT | Drone Smart Poles



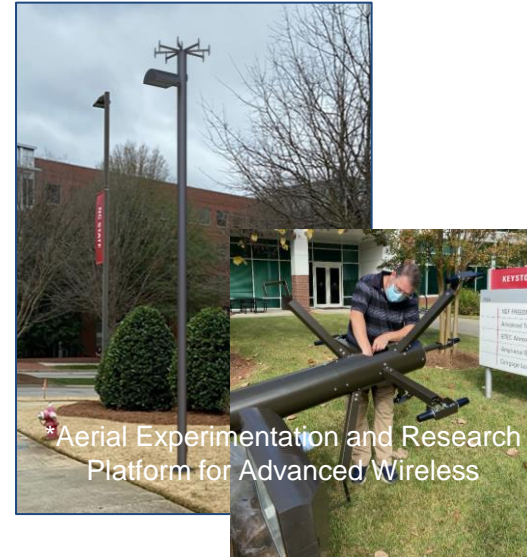
Network Node

- Radio Access Network (5G)
- Situational Awareness (Radar, Cameras, Sensors, Other IoT)
- Precision Navigation (Drones)
- Autonomous Transportation Systems (Smart Mobility)
- Edge Computing

Features & Functions

- CBRS / LAA
- LTE / 5G
- Wi-Fi Access
- EV Charging
- E-bike / E-scooter Charging
- V2X
- HMI Kiosk
- Smart Traffic Management
- Smart Parking (Overhead Sensors / Camera View)
- Smart Mobility
- Integrated Drone Hubs
- Safety & Security (Cameras, Lidar, 9-1-1, Shot Detection)
- Environmental Sensors
- Smart Lighting
- Digital Signage
- Banners
- IoT / ICT Upgrades

AERPAW* Pole



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