DAS @ University of Florida

Covering All of UF – From the Stadium to Beyond!

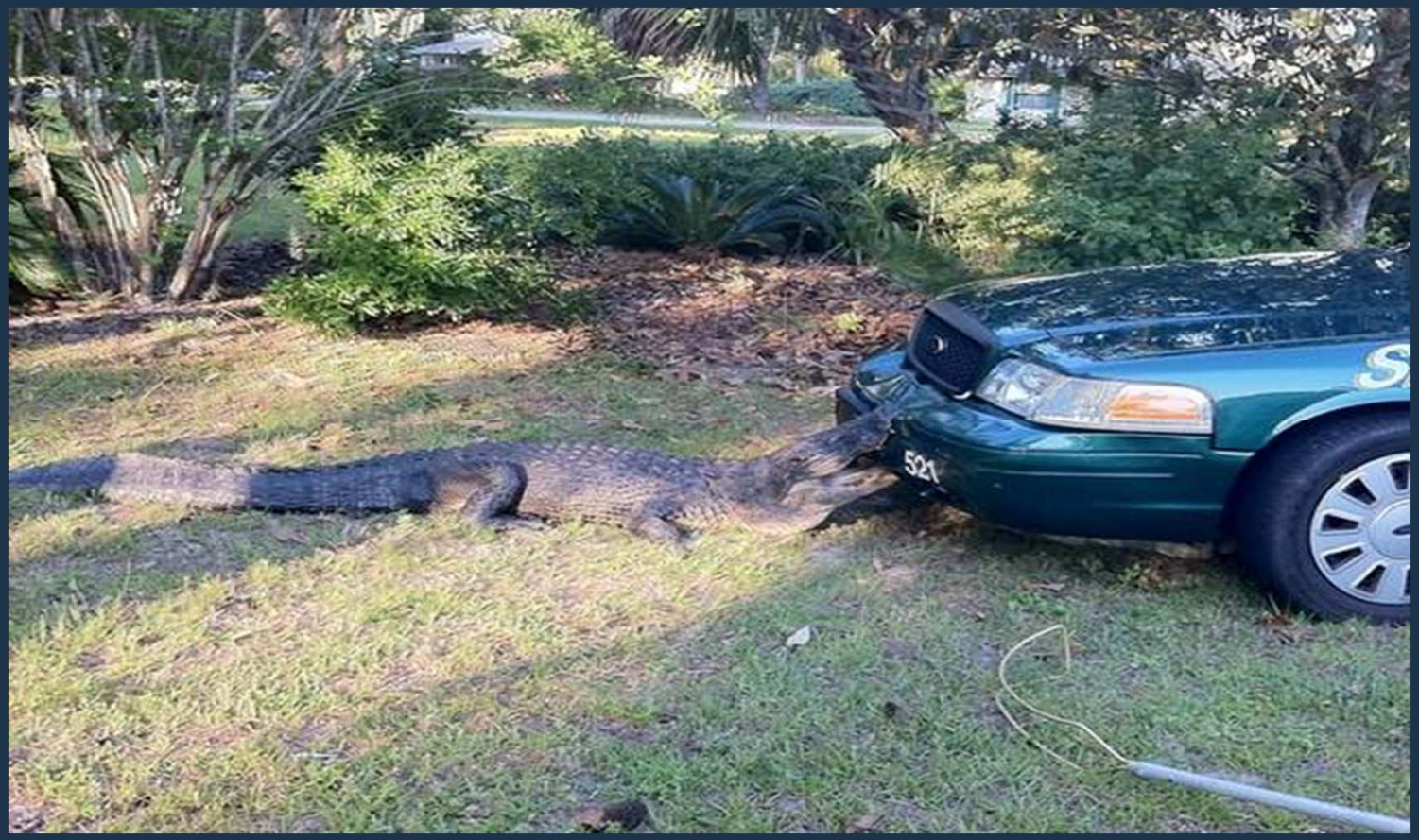
John Madey

University of Florida

University of Florida Overview

- **TOP 10 Public University**
- **LARGE:**
  - Student Total Enrollment = 55,800
  - Faculty and Staff = 15,035
  - 2,000 Acres
  - +1,000 Buildings
- **SMART:**
  - Average SAT: 1350
  - Average ACT: 30
- **RESEARCH FOCUSED:**
  - $838 Million in Awards
  - Gatorade, Sentricon
  - Sid Martin Biotech Incubator

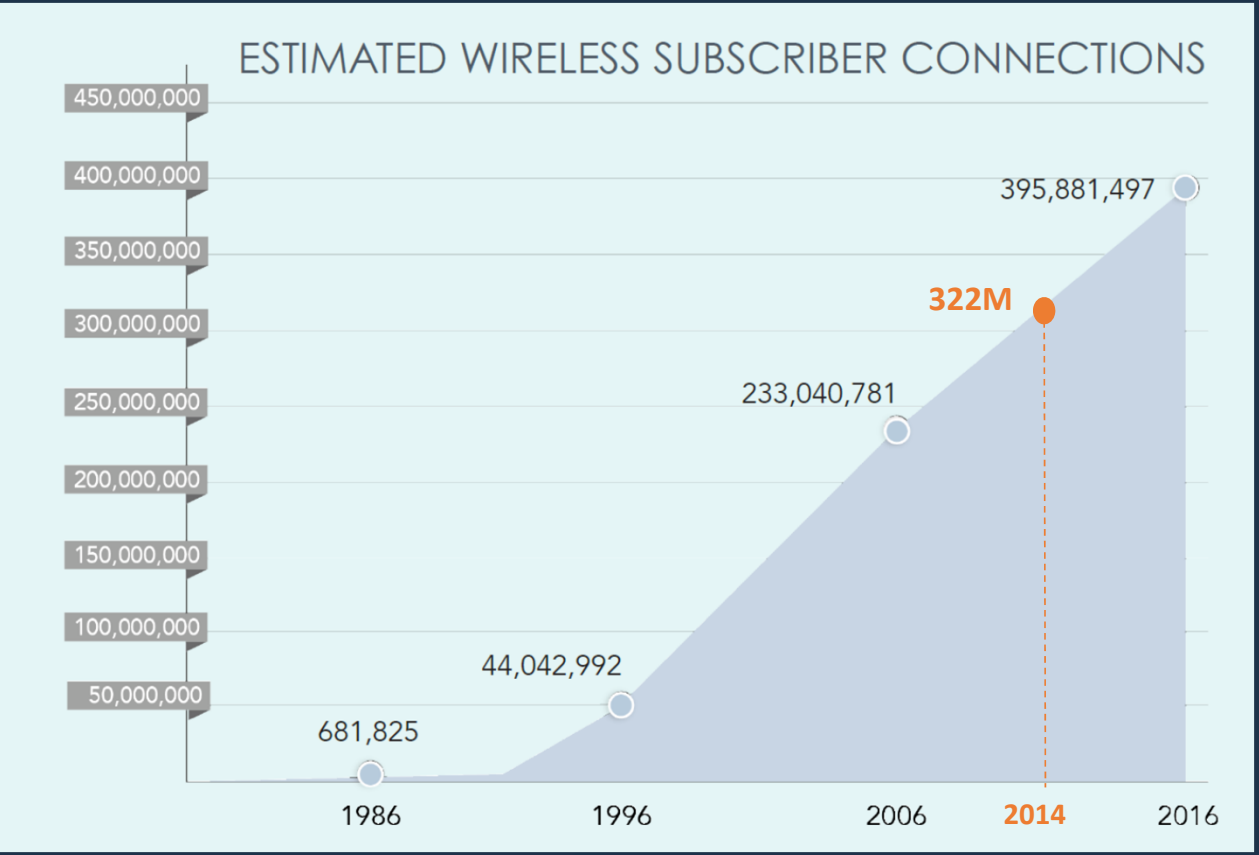
Source: http://news.ufl.edu/media/newsufledu/documents/UF-Fact-Sheet-For-Journalists.pdf


521

UF Information Technology Overview

UFIT – Information & Communication Technology

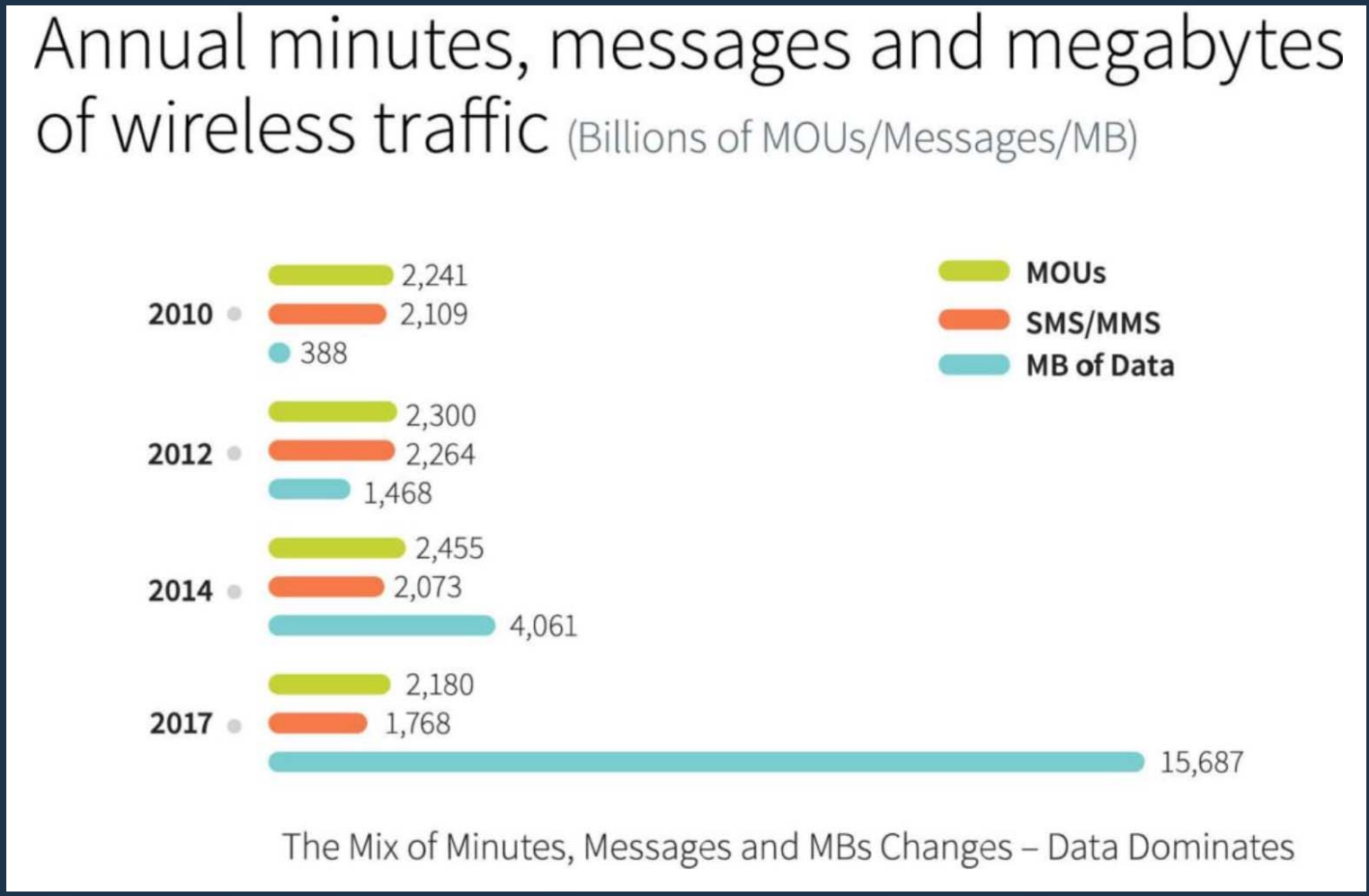
Feeding the Wireless Monster



Source: CTIA.org; The State of Wireless 2016

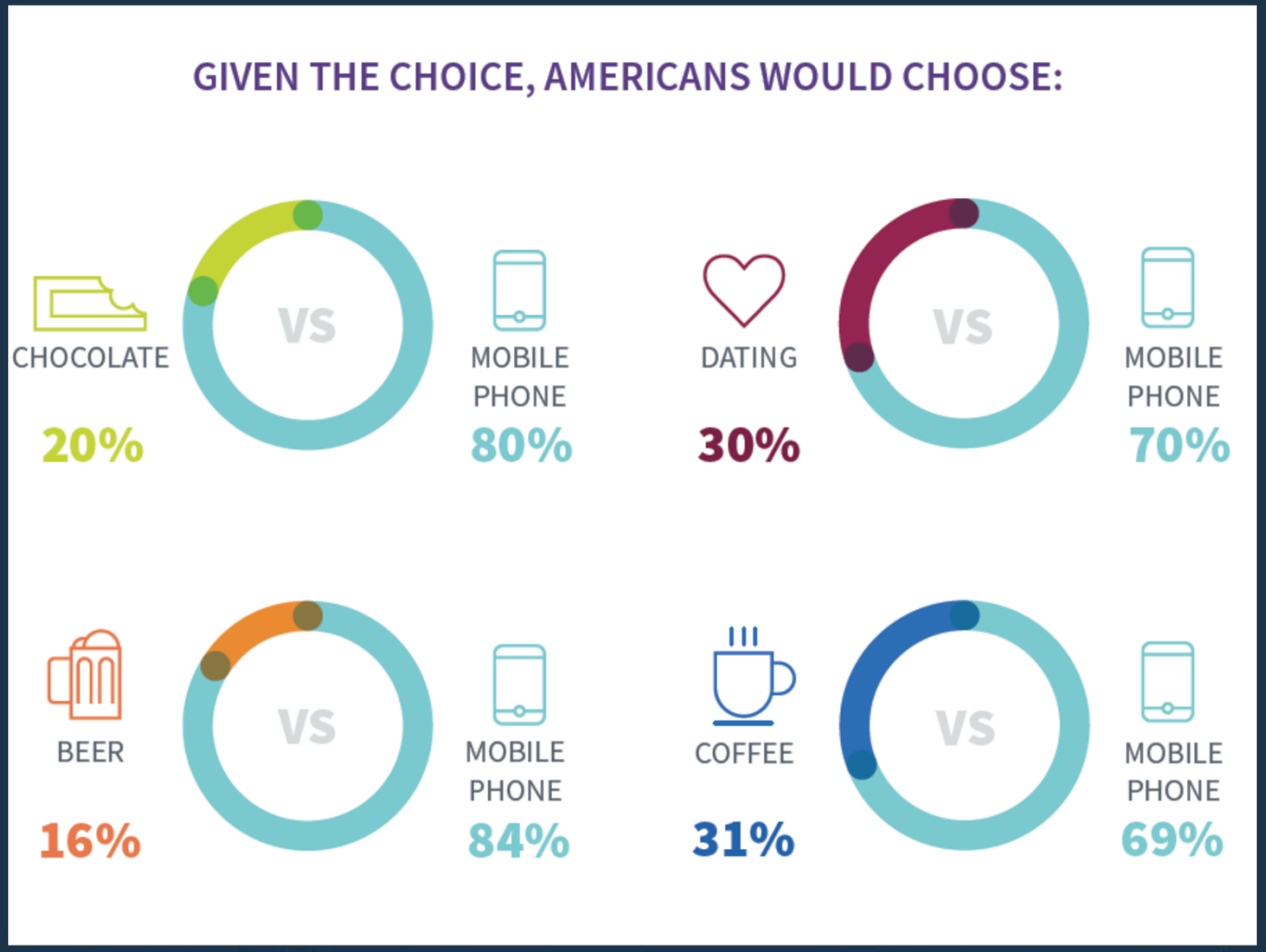
With more than 400 million mobile devices in service, that means there are 1.2 wireless devices for each American.

In addition to 15.7 trillion MBs of mobile data, U.S. wireless networks carried more than 2.2 trillion voice minutes and 1.5 trillion text messages.



Source: CTIA.org; The State of Wireless 2018

Just how important has mobile become to us? More and more Americans are saying they would choose their mobile phone over other popular products or activities.



Source: CTIA.org; The State of Wireless 2018

2018 Final Four – San Antonio

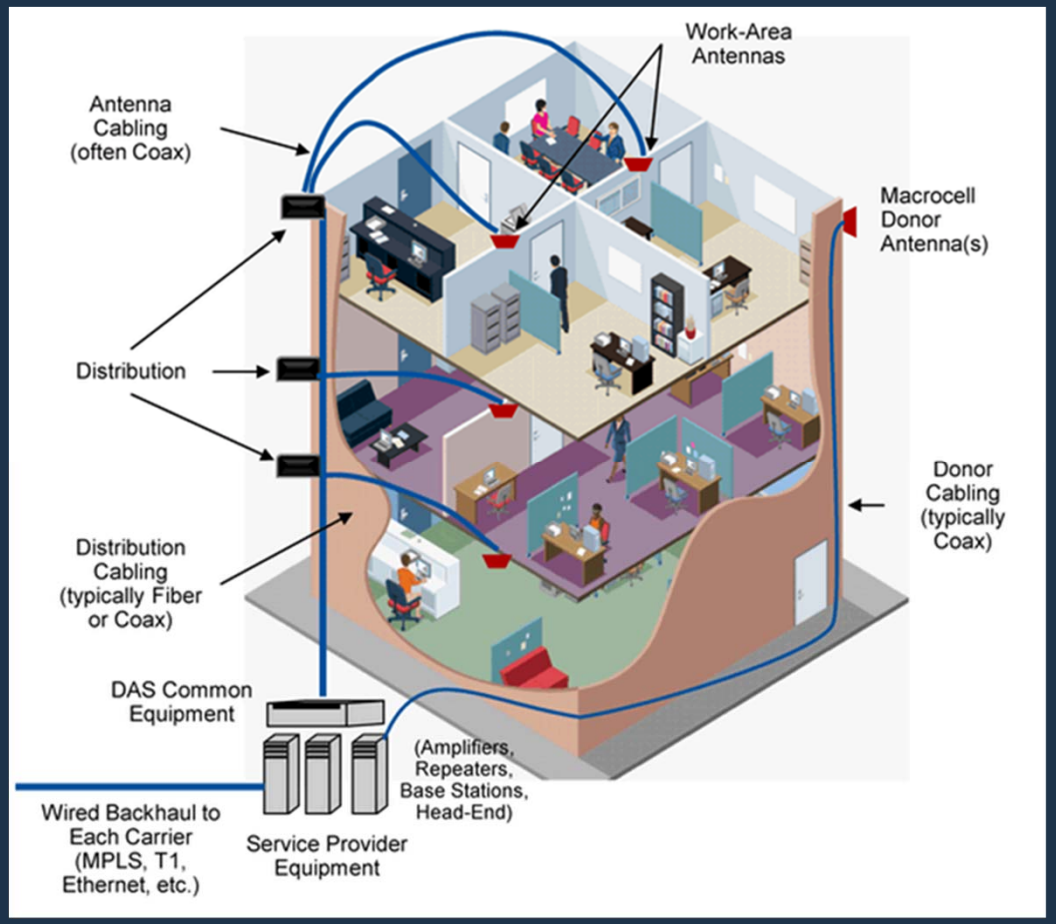
"…for the Alamodome, there were 12,500 unique connections to the Wi-Fi during the Final Four semifinal games and another 12,300 connections during the championship game.

On the DAS side of things, AT&T reported 2 terabytes of data used on their network during the semifinals, and another 1.1 TB used during the final game."

Villanova 79-62 victory over Michigan
67,831 in attendance

Source: Mobile Sports Report / STADIUM TECH REPORT SPRING 2018

DAS 101



Source: Gartner (August 2012)

Source: https://floridagators.com

Where We Left Off……February 2014

- Stadium DAS Installation Completed
- UFHealth Buildings: In Building DAS Installation in Process
- Campus ODAS planning
- East Campus Office Building planning

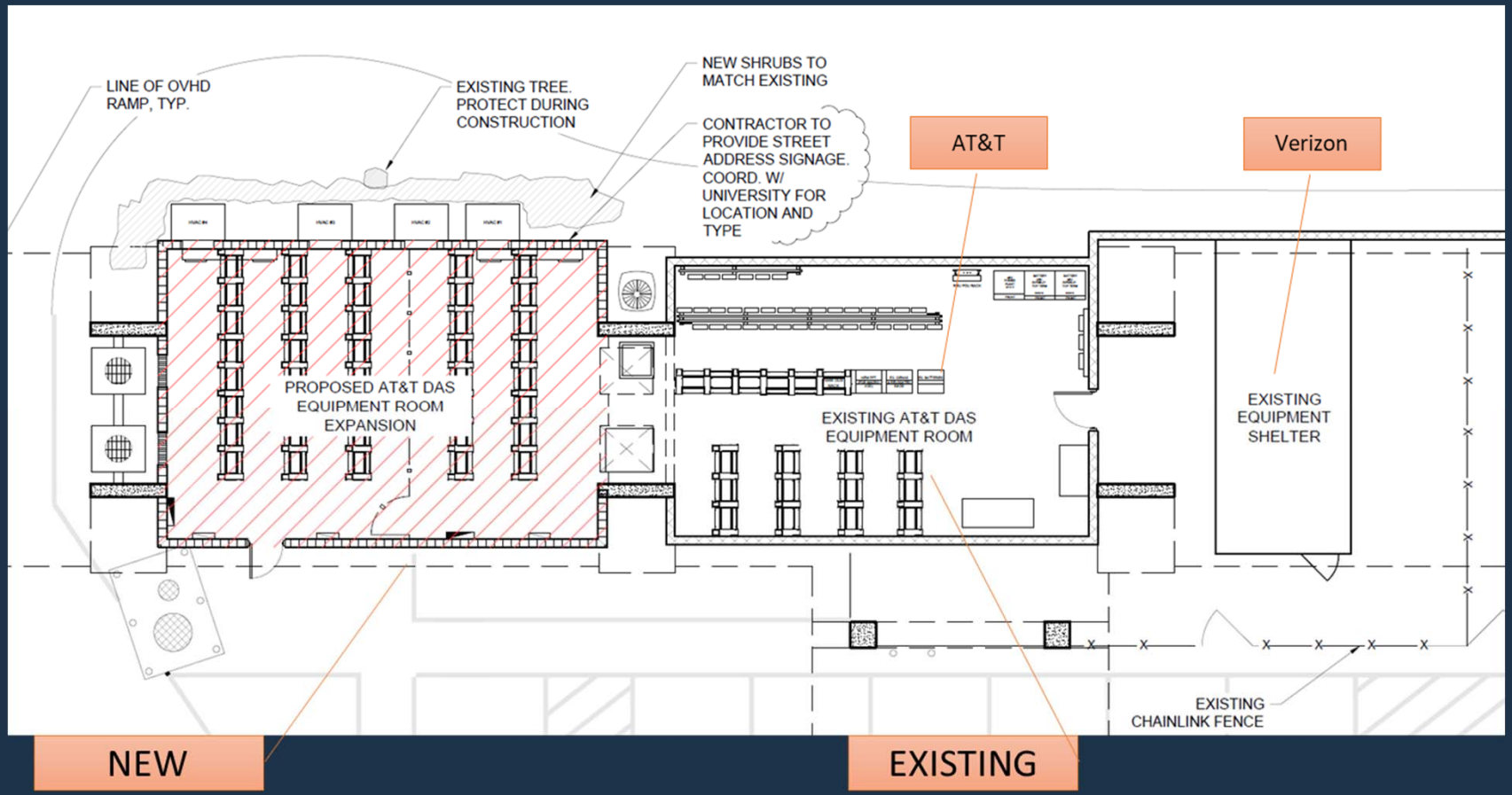
What's been done….UFHealth Buildings (iDAS)

- Shands Medical Plaza
- Health Professions / Nursing & Pharmacy
- Shands General Services Bldg.
- Human Development Building
- Academic Research Building
- Stetson Medical Sciences
- Bio Medical Building
- Dental Science Building
- McKnight Brain Institute
- Communicore Building
- Shands@UF Main Building
- Shands Cancer Hospital

3.8 Million Square Feet

What's been done……Stadium

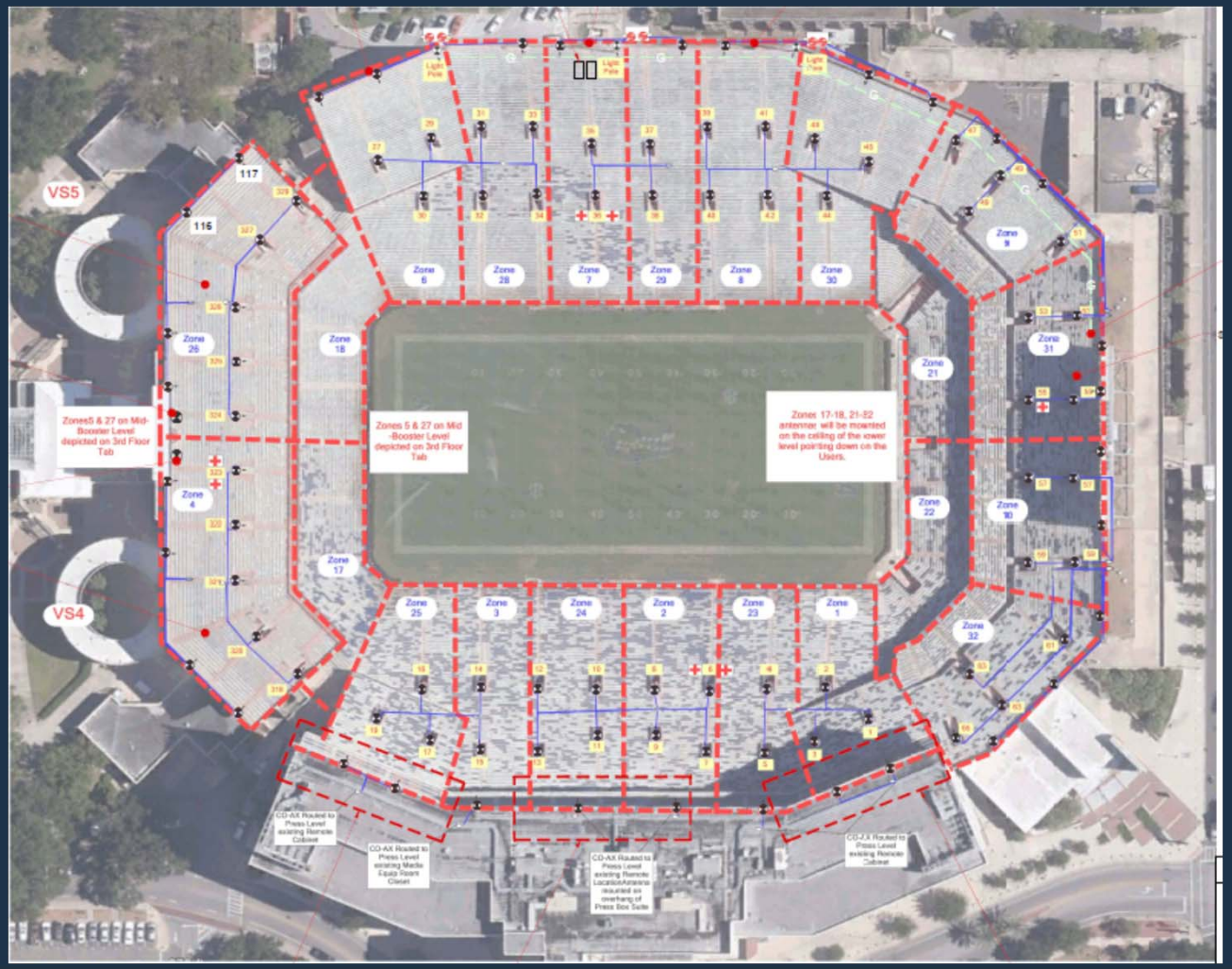
- Ben Hill Griffin Stadium
  - Increased capacity: from 20 Sectors to 30
  - Expanded Equipment Shelter Building
  - Relocated Macro Antennas
  - Flag Pole Antennas Added
  - "Rip and Replace" – twice: upgraded RF electronics, added carriers (capacity) and additional backhaul


LINE OF OVHD RAMP, TYP.
EXISTING TREE. PROTECT DURING CONSTRUCTION
NEW SHRUBS TO MATCH EXISTING
CONTRACTOR TO PROVIDE STREET ADDRESS SIGNAGE. COORD. W/ UNIVERSITY FOR LOCATION AND TYPE
AT&T
Verizon
PROPOSED AT&T DAS EQUIPMENT ROOM EXPANSION
EXISTING AT&T DAS EQUIPMENT ROOM
EXISTING EQUIPMENT SHELTER
EXISTING CHAINLINK FENCE
NEW
EXISTING

Proposed Headend
Equipment Building
Expansion Under Ramp

Stadium Headend Expansion

The DAS upgrade is an extensive project designed to improve cellular service throughout the Stadium



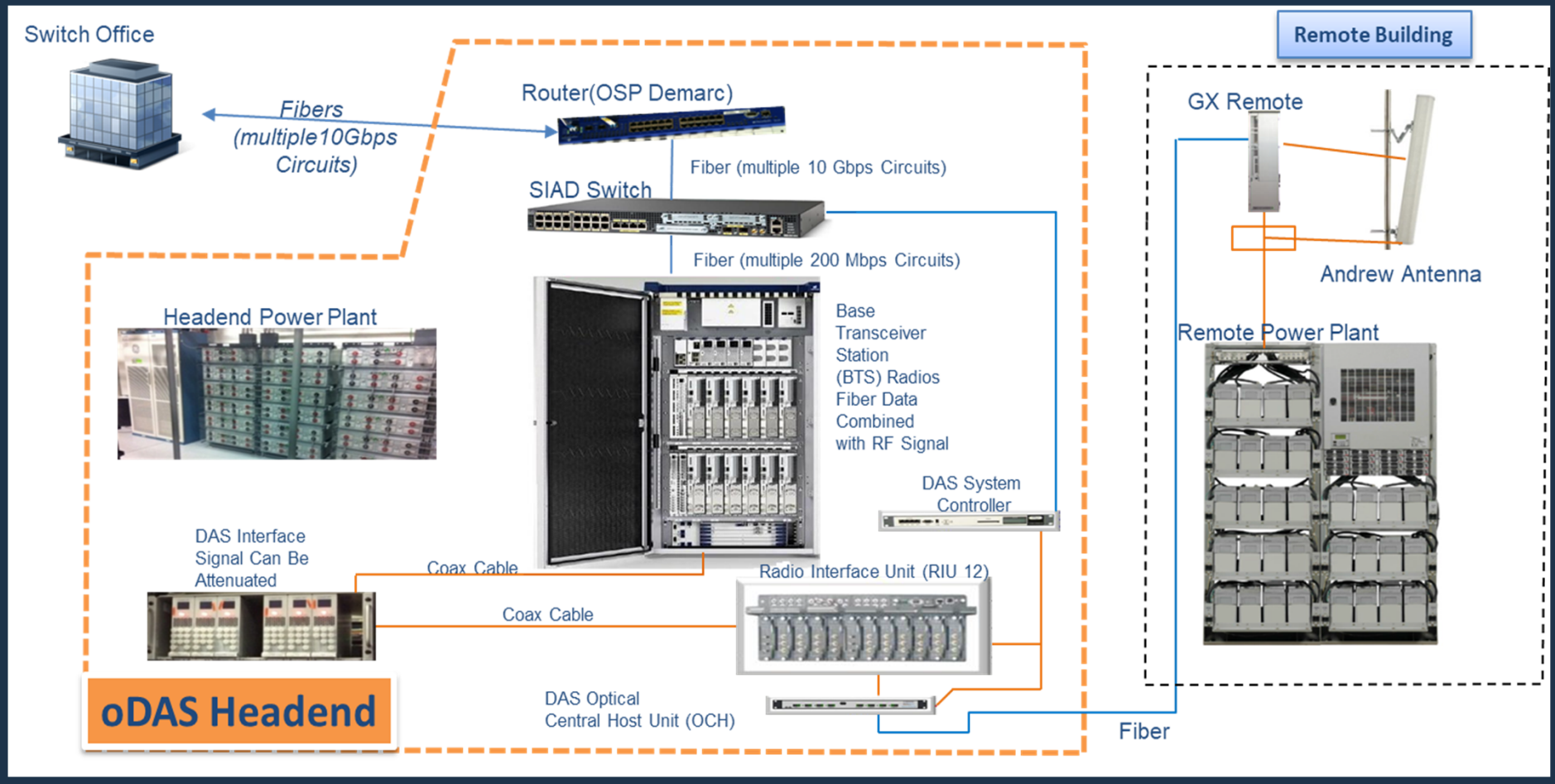
Upper Bowl Gator Flagpole Antennas – Conceptual Drawing

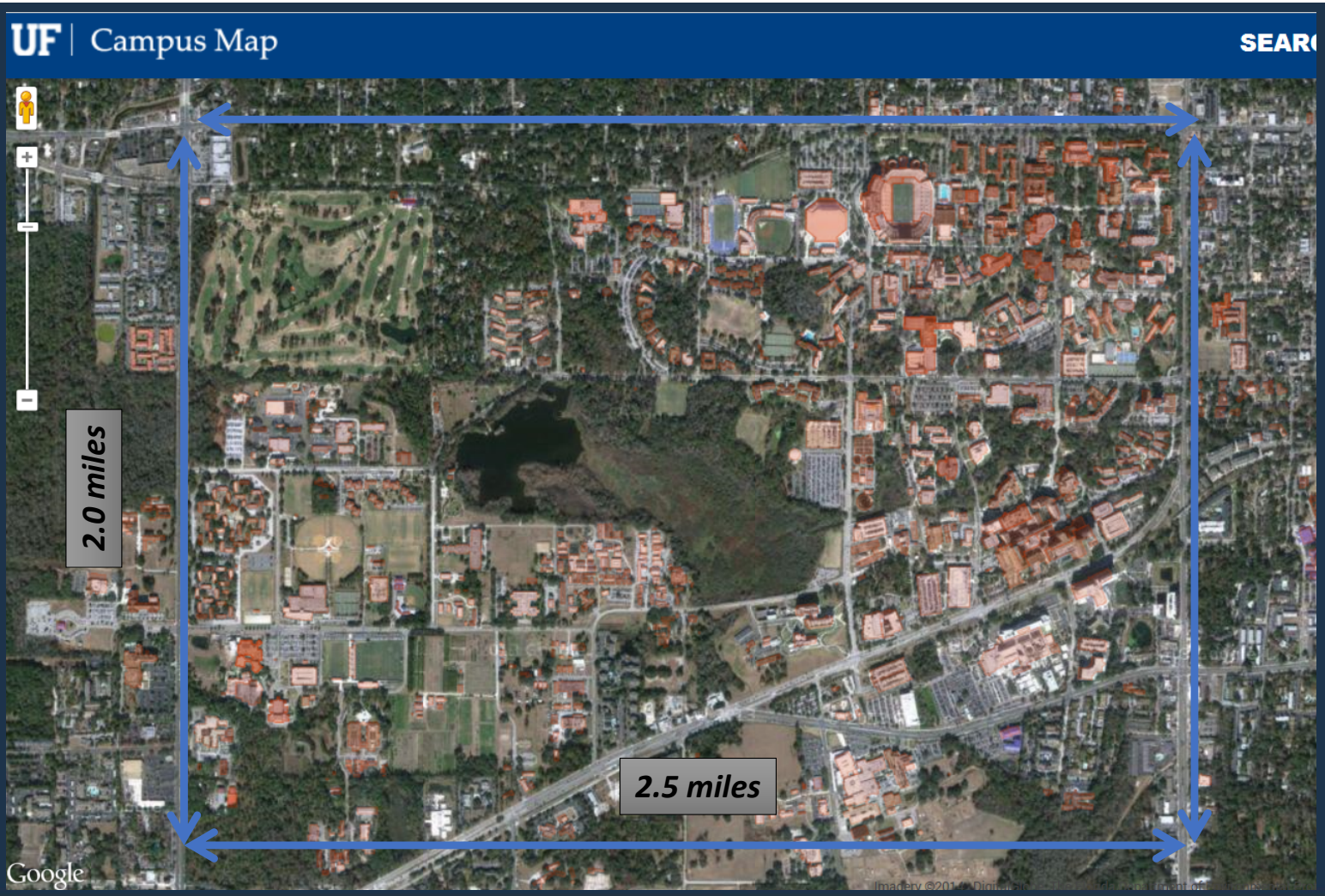
GATE
6

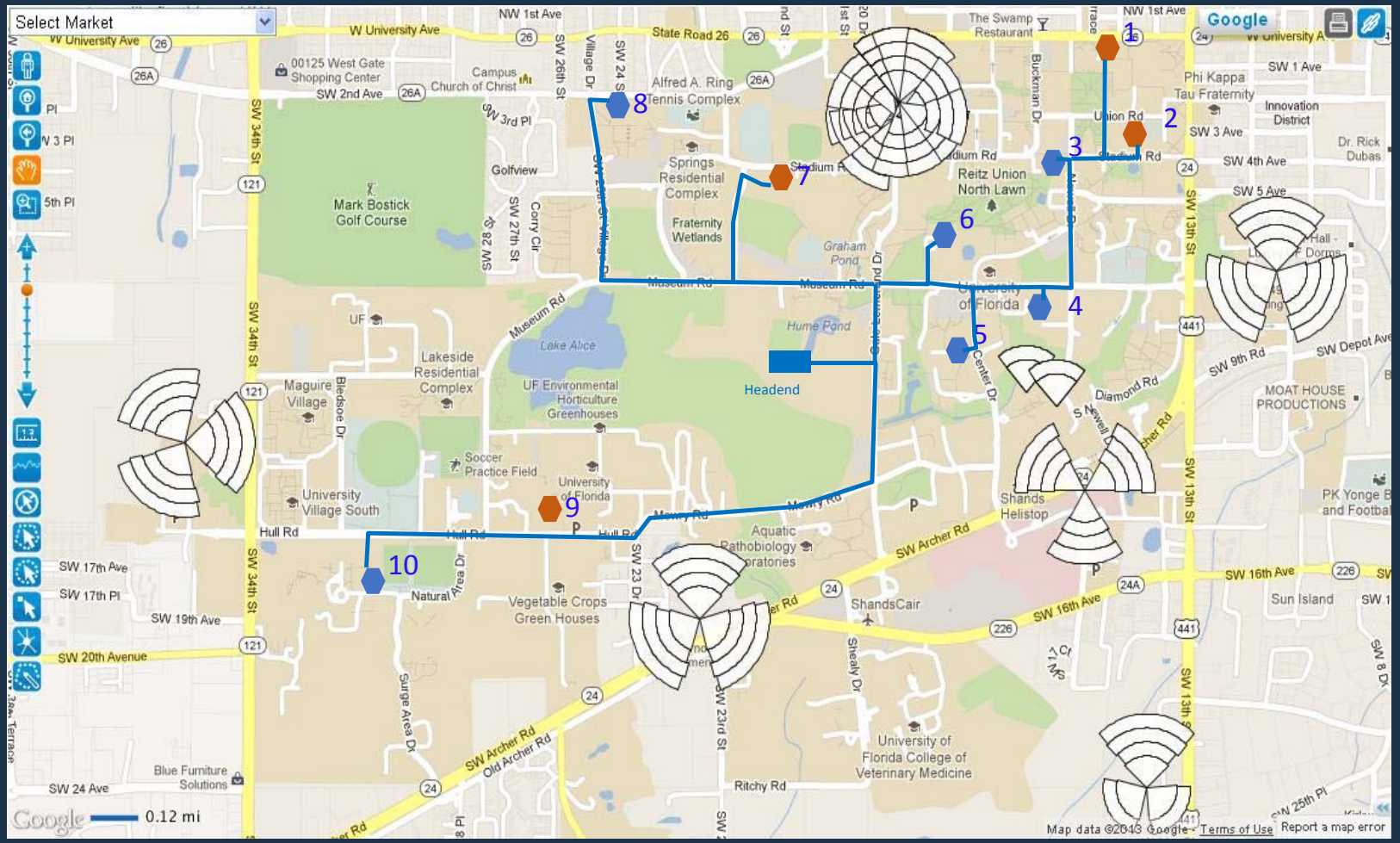
IT'S GREAT TO BE A
FLORIDA GATOR

What's been done….Campus ODAS Build

- Building Nodes
  - Stealthing
  - Power and more power
  - Antenna Placement
  - All on-air
- Fiber
  - Lots of it
  - Angle polished connectors
- ODAS Building
  - Did I mention power?


Switch Office
Fibers
(multiple10Gbps
Circuits)
Router(OSP Demarc)
Fiber (multiple 10 Gbps Circuits)
SIAD Switch
Fiber (multiple 200 Mbps Circuits)
Headend Power Plant
Base
Transceiver
Station
(BTS) Radios
Fiber Data
Combined
with RF Signal
DAS System
Controller
DAS Interface
Signal Can Be
Attenuated
Coax Cable
Radio Interface Unit (RIU 12)
Coax Cable
oDAS Headend
DAS Optical
Central Host Unit (OCH)
Fiber
Remote Building
GX Remote
Andrew Antenna
Remote Power Plant

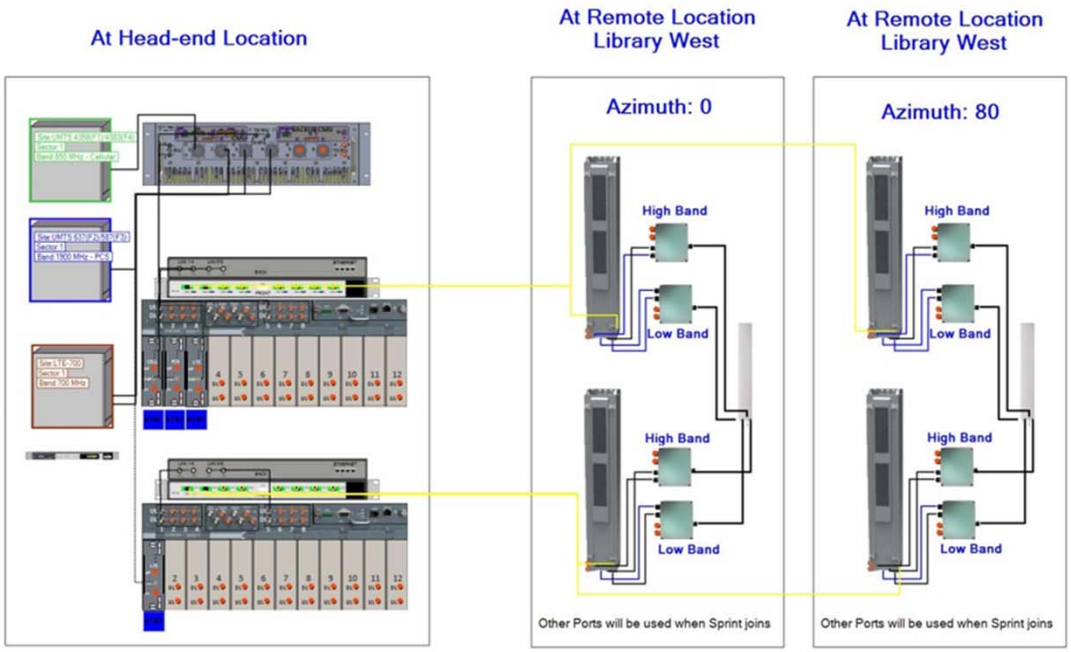

UF | Campus Map
SEARC
2.0 miles
2.5 miles
Google


Select Market
Google
1
2
3
4
5
6
7
8
9
10
Headend
W University Ave
State Road 26
NW 1st Ave
SW 2nd Ave
SW 3rd Pl
SW 34th St
SW 26th St
Village Dr
SW 24 St
Alfred A. Ring Tennis Complex
Springs Residential Complex
Fraternity Wetlands
Golfview
Mark Bostick Golf Course
Museum Rd
Lake Alice
Hume Pond
Graham Pond
Reitz Union North Lawn
University of Florida
Union Rd
Stadium Rd
Buckman Dr
The Swamp Restaurant
Phi Kappa Tau Fraternity
Innovation District
SW 1 Ave
SW 3 Ave
SW 4th Ave
SW 5 Ave
SW 13th St
SW 9th Rd
SW Depot Ave
MOAT HOUSE PRODUCTIONS
Diamond Rd
Center Dr
Lakeside Residential Complex
Maguire Village
Bledsoe Dr
UF Environmental Horticulture Greenhouses
Soccer Practice Field
University of Florida
University Village South
Hull Rd
Mowry Rd
Aquatic Pathobiology Laboratories
SW Archer Rd
Shands Helistop
SW 16th Ave
Sun Island
PK Yonge B and Footbal
SW 17th Ave
SW 17th Pl
SW 19th Ave
SW 20th Avenue
Natural Area Dr
Vegetable Crops Green Houses
SW 23 Dr
SW 23rd St
ShandsCair
Shealy Dr
University of Florida College of Veterinary Medicine
Ritchy Rd
Surge Area Dr
Old Archer Rd
SW 24 Ave
Blue Furniture Solutions
0.12 mi
Map data ©2013 Google
Terms of Use
Report a map error

Campus ODAS Design

Type	#	Building Name	Abbreviation	Bldg#	Address	Remarks
oDAS	1	Holland Law Center	HOL	757	309 Village Dr	
oDAS	2	Computer Sciences/Eng'g	CSE	723	432 Newell Dr	
oDAS	3	Little Hall	LIT	655	1400 Stadium Road	Replacement for ARCH & Tigert
oDAS	4	Carr/Bartram Hall	CRR	748/747	882 Newell Dr	
oDAS	5	Chemical Engineering	CHE	723	1006 Center Drive	Replacement for Cancer Genetics Bldg
oDAS	6	Reitz Student Union	REI	686	655 Reitz Union Dr	
oDAS	7	Parking Garage 11	--	1166	3163 Hull Rd	Replacement for PHILLIPS Center for the Performing Arts (PCPA)
oDAS	8	Library West	LBW	689	1545 W University Ave	
oDAS	9	Flavet Light Pole	-	-	Flavet Field	

Library West (LBW-689) - Sector 1



ODAS Antenna installation

ODAS Antenna installation

Little Hall

Chemical Engineering

What are these?

From: "Reynolds,Curtis A" <[redacted]>
Date: January 15, 2016 at 12:05:56 PM EST
To: "Eldayrie,Elias G" <[redacted]>
Cc: "Lane,Charles Eugene" <[redacted]>, "Dougnac,Carlos" <[redacted]>
Subject: FW: What are these???

Elias,
Please note the email below and the attached pictures with expressions of concern regarding the structures being placed on campus buildings. The architectural integrity of the campus shouldn't be compromised...questions are being raised from campus Deans and other Committees. Is it possible, we can meet at your earliest to discuss options and gain an understanding of the overall plan.

Why are they so big?

2016

2017

Stealth installation

LIBRARY WEST BEFORE

Stealth installation

LIBRARY WEST PROPOSED CONCEPTUAL VIEW

LIBRARY WEST ACTUAL

Stealth installation

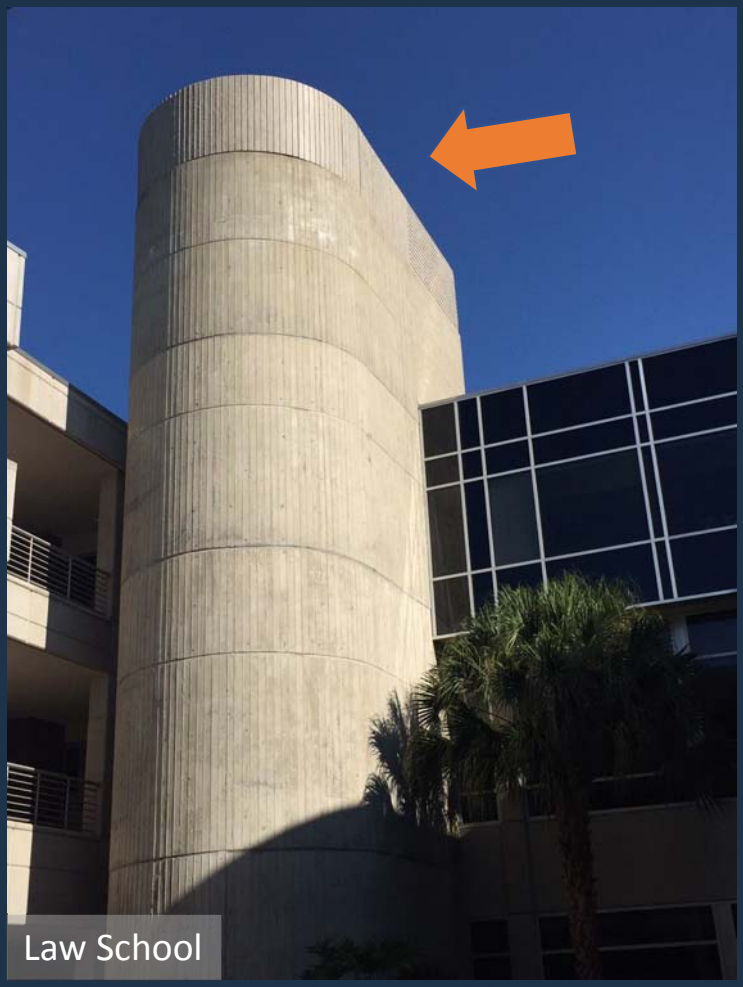
Little Hall

Little Hall

Parking Garage 11

Parking Garage 11

Law School

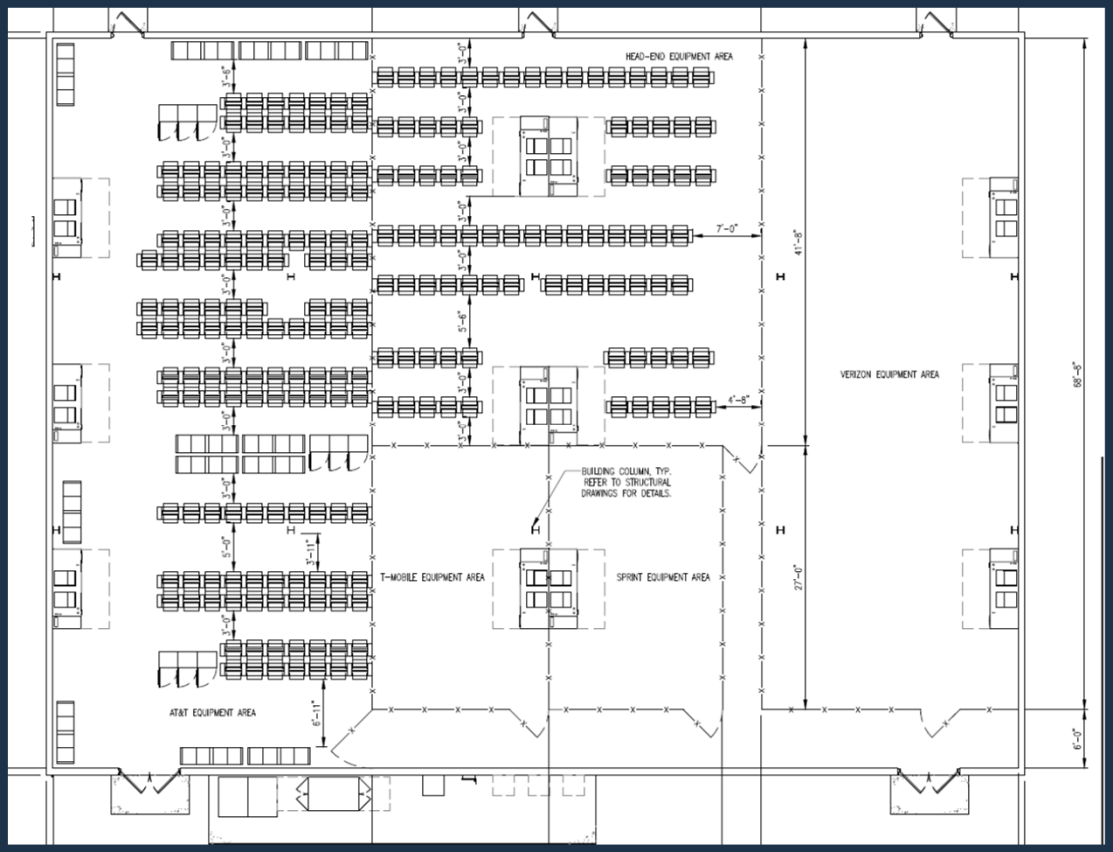


Law School

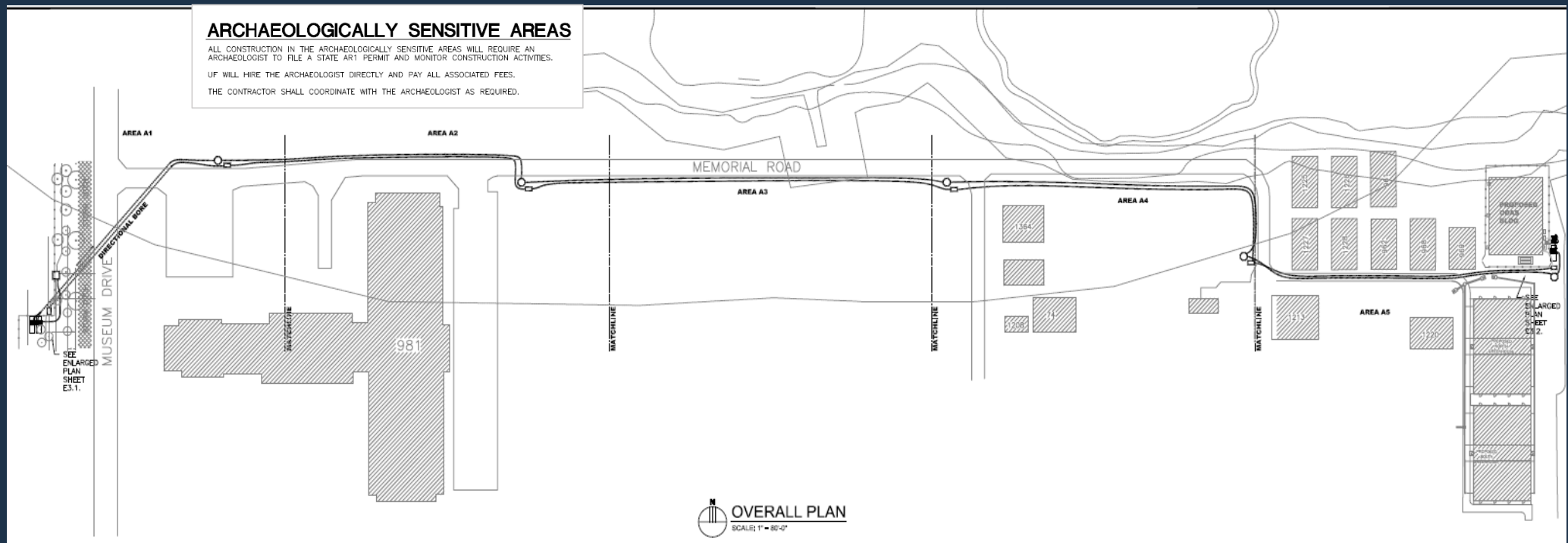
ODAS Headend Equipment Building

Challenges Included:

- Location: Site Changed
- Power: Lots – None there, provided by UF – who pays?
- Time: Approvals / Permits / Restroom?



ODAS Headend Power



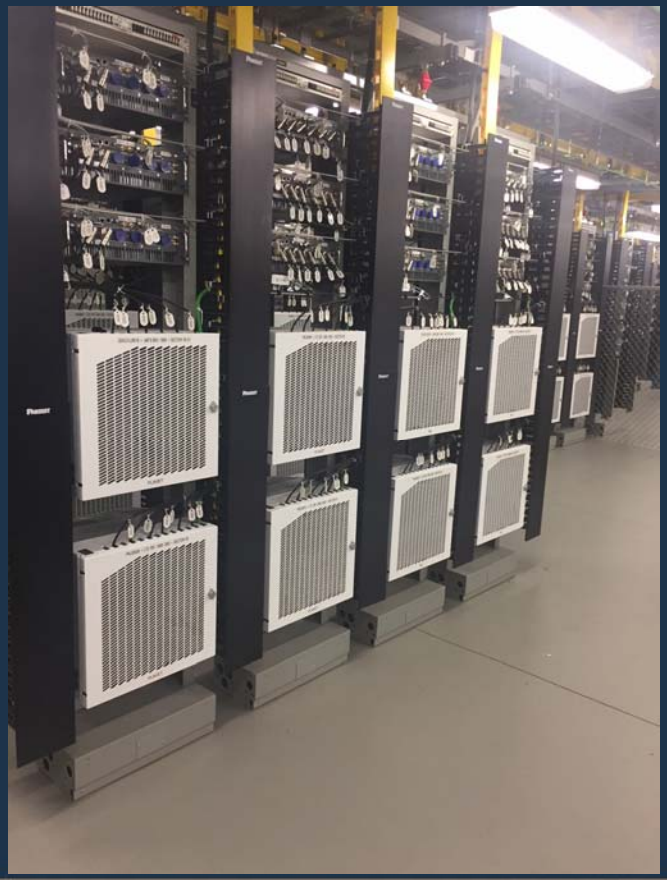
Power: $1.5M funded by UFIT (reimbursed by DAS Project); New underground duct banks; 15KV Switches (Transformers) – Two Circuits, Compressed Schedule

Archaeological Sensitive Area: Possible Indian Burial Mound

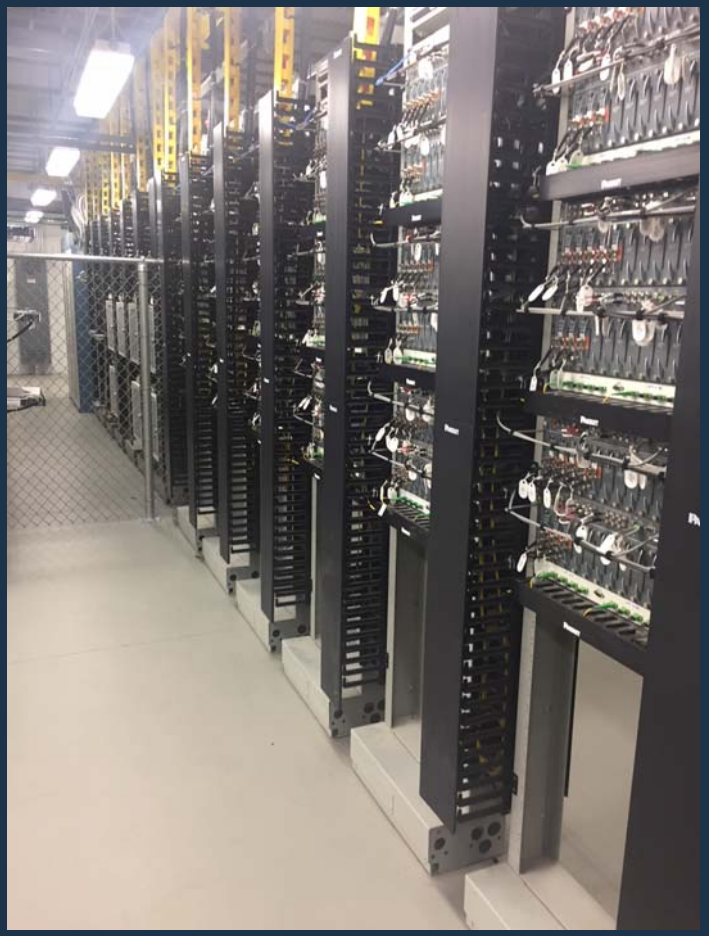
ODAS Headend Building Construction

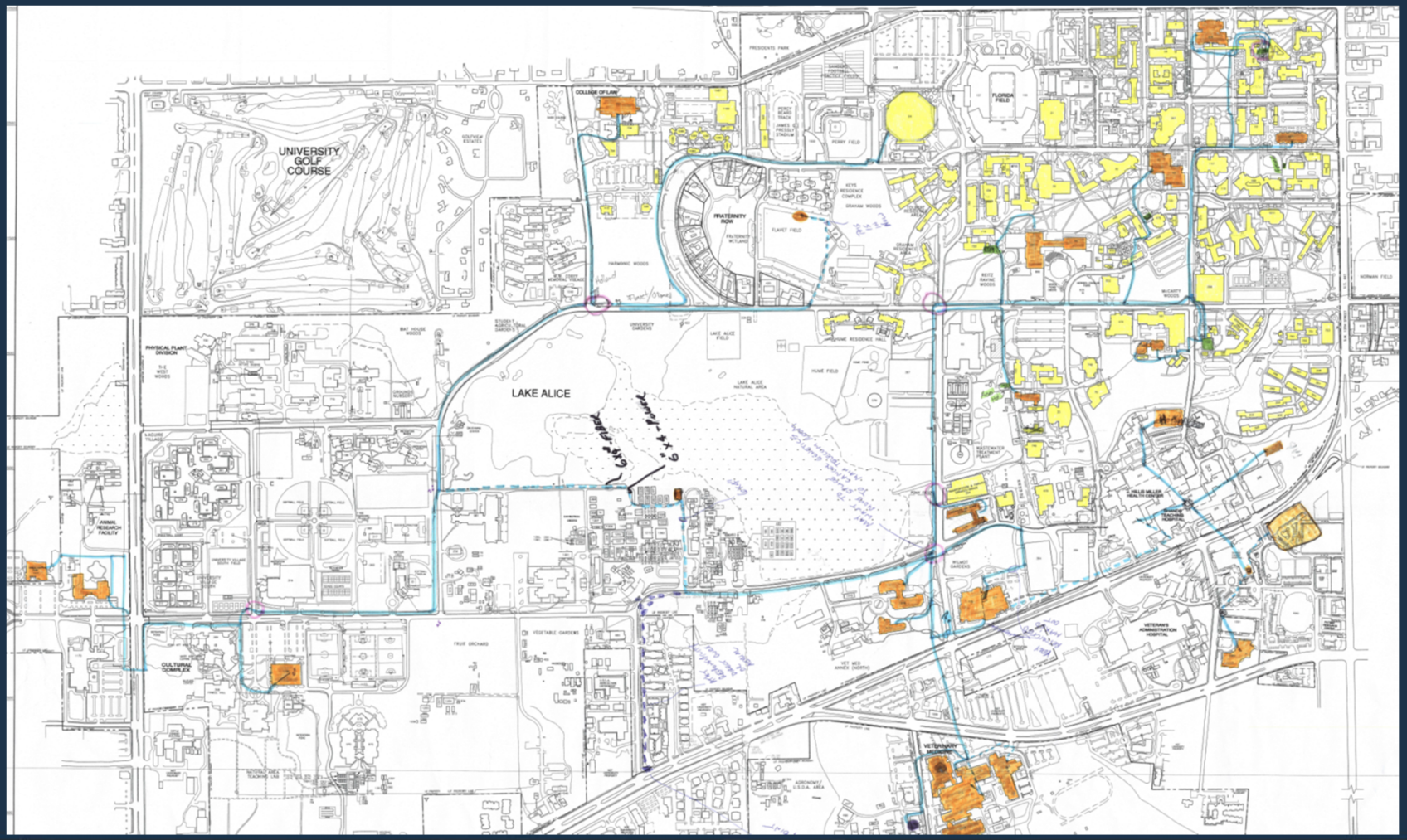
ODAS Headend Building

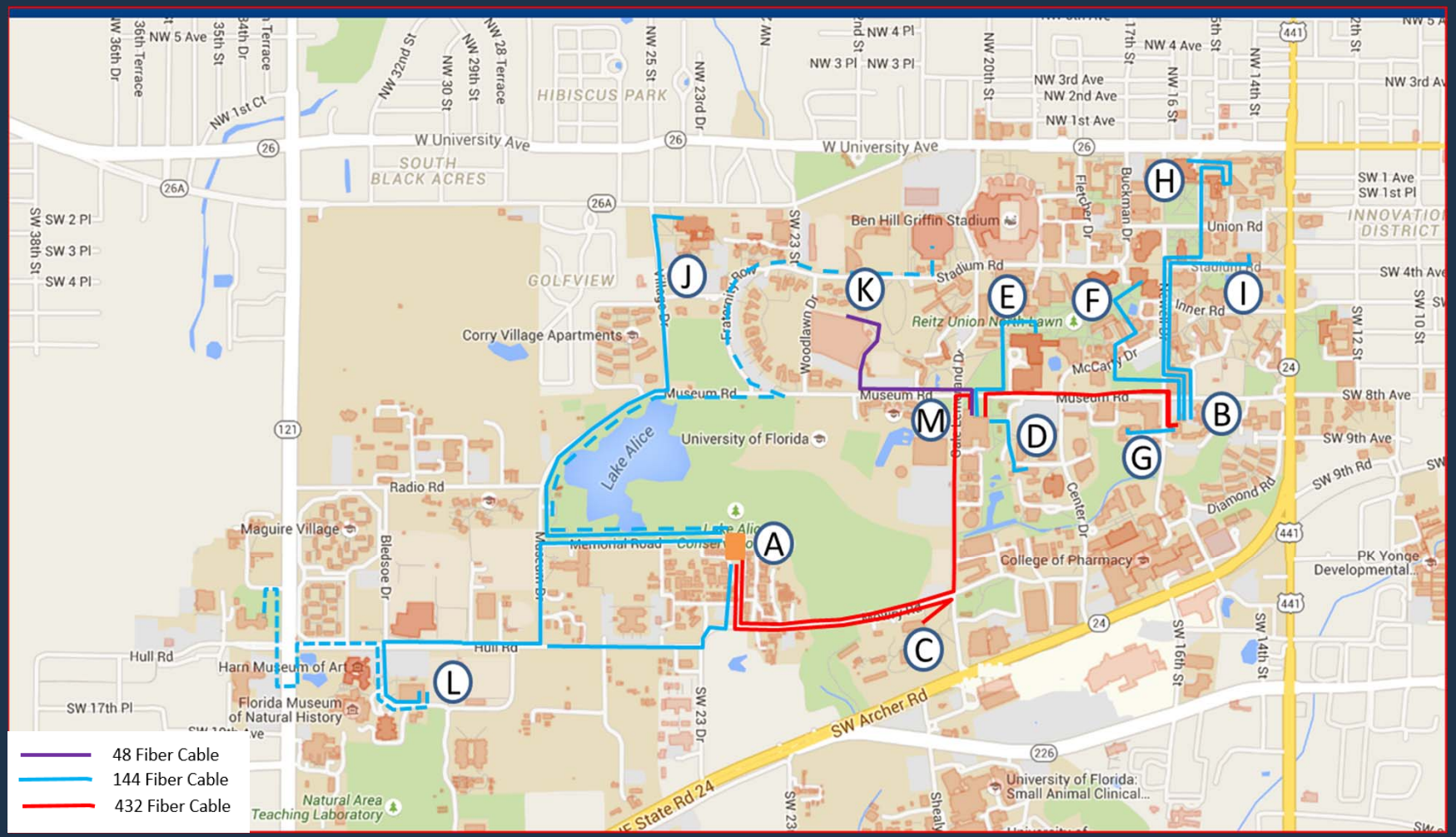
ODAS Headend Building

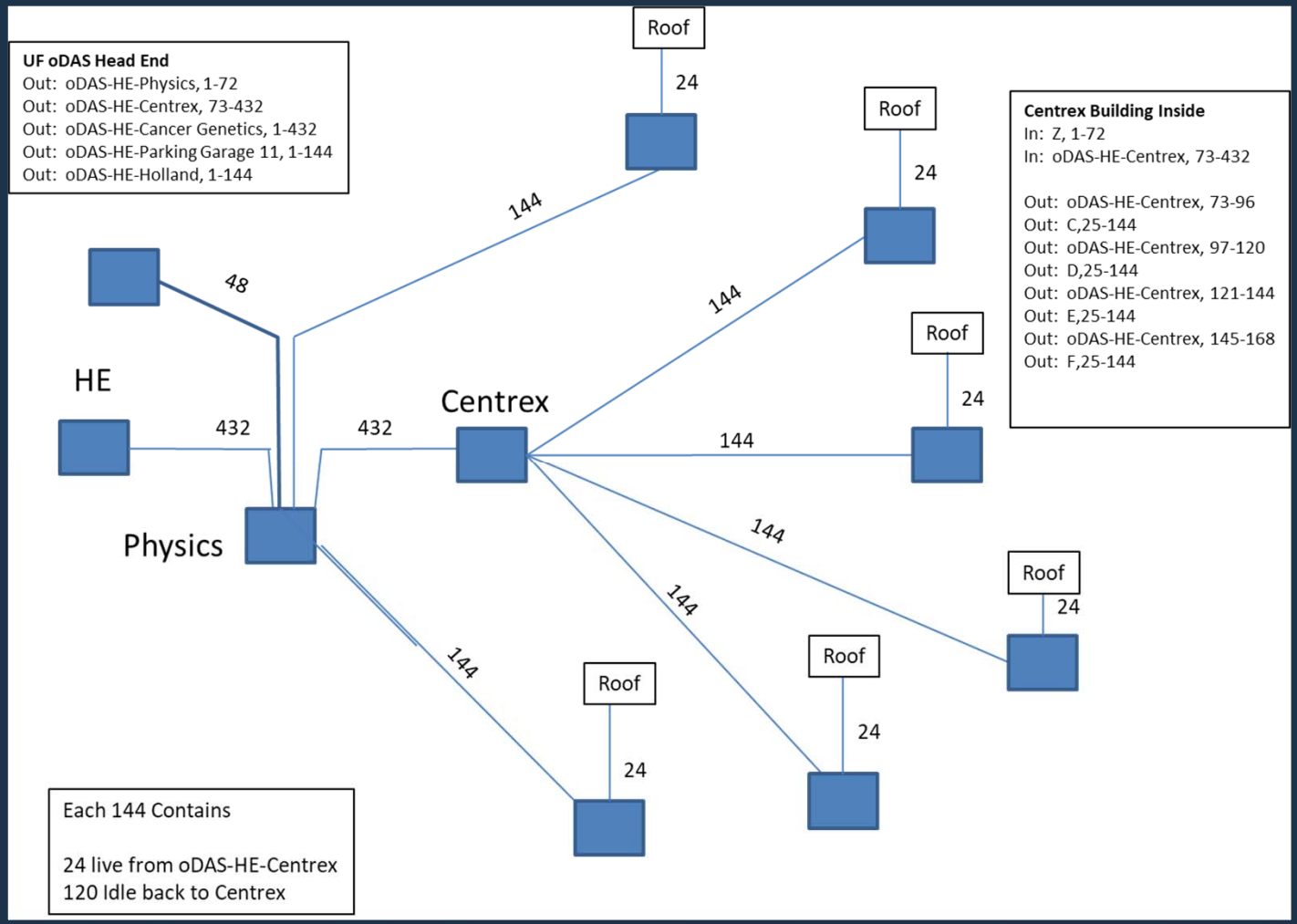


ODAS Headend Building




UNIVERSITY GOLF COURSE
LAKE ALICE
PHYSICAL PLANT DIVISION
FRATERNITY ROW
FLORIDA FIELD
VETERANS ADMINISTRATION HOSPITAL


48 Fiber Cable
144 Fiber Cable
432 Fiber Cable
A
B
C
D
E
F
G
H
I
J
K
L
M
W University Ave
SOUTH BLACK ACRES
HIBISCUS PARK
GOLFVIEW
Corry Village Apartments
Ben Hill Griffin Stadium
Reitz Union North Lawn
University of Florida
Lake Alice
Radio Rd
Maguire Village
Memorial Road
Museum Rd
Hull Rd
Harn Museum of Art
Florida Museum of Natural History
Natural Area Teaching Laboratory
College of Pharmacy
University of Florida: Small Animal Clinical...
PK Yonge Developmental...
SW Archer Rd
Union Rd
Stadium Rd
Inner Rd
McCarty Dr
Diamond Rd
Center Dr
Woodlawn Dr
Bledsoe Dr
Fraternity Row
Village Dr
Buckman Dr
Fletcher Dr
Newell Dr
Sale Lemmond Dr
Shealy
NW 5 Ave
NW 1st Ct
NW 4 Pl
NW 3 Pl
NW 3rd Ave
NW 2nd Ave
NW 1st Ave
NW 4 Ave
SW 1 Ave
SW 1st Pl
SW 4th Ave
SW 8th Ave
SW 9th Ave
SW 9th Rd
SW 2 Pl
SW 3 Pl
SW 4 Pl
SW 17th Pl
SW 23 Dr
SW 23 St
SW 16th St
SW 14th St
SW 12 St
SW 10 St
NW 36th Dr
36th Terrace
35th St
34th Dr
NW 32nd St
NW 30 St
NW 29th St
NW 28 Terrace
NW 25 St
NW 23rd Dr
NW 20th St
NW 16 St
NW 14th St
26
26A
121
24
441
226


UF oDAS Head End
Out: oDAS-HE-Physics, 1-72
Out: oDAS-HE-Centrex, 73-432
Out: oDAS-HE-Cancer Genetics, 1-432
Out: oDAS-HE-Parking Garage 11, 1-144
Out: oDAS-HE-Holland, 1-144
Centrex Building Inside
In: Z, 1-72
In: oDAS-HE-Centrex, 73-432
Out: oDAS-HE-Centrex, 73-96
Out: C,25-144
Out: oDAS-HE-Centrex, 97-120
Out: D,25-144
Out: oDAS-HE-Centrex, 121-144
Out: E,25-144
Out: oDAS-HE-Centrex, 145-168
Out: F,25-144
HE
Physics
Centrex
48
432
432
144
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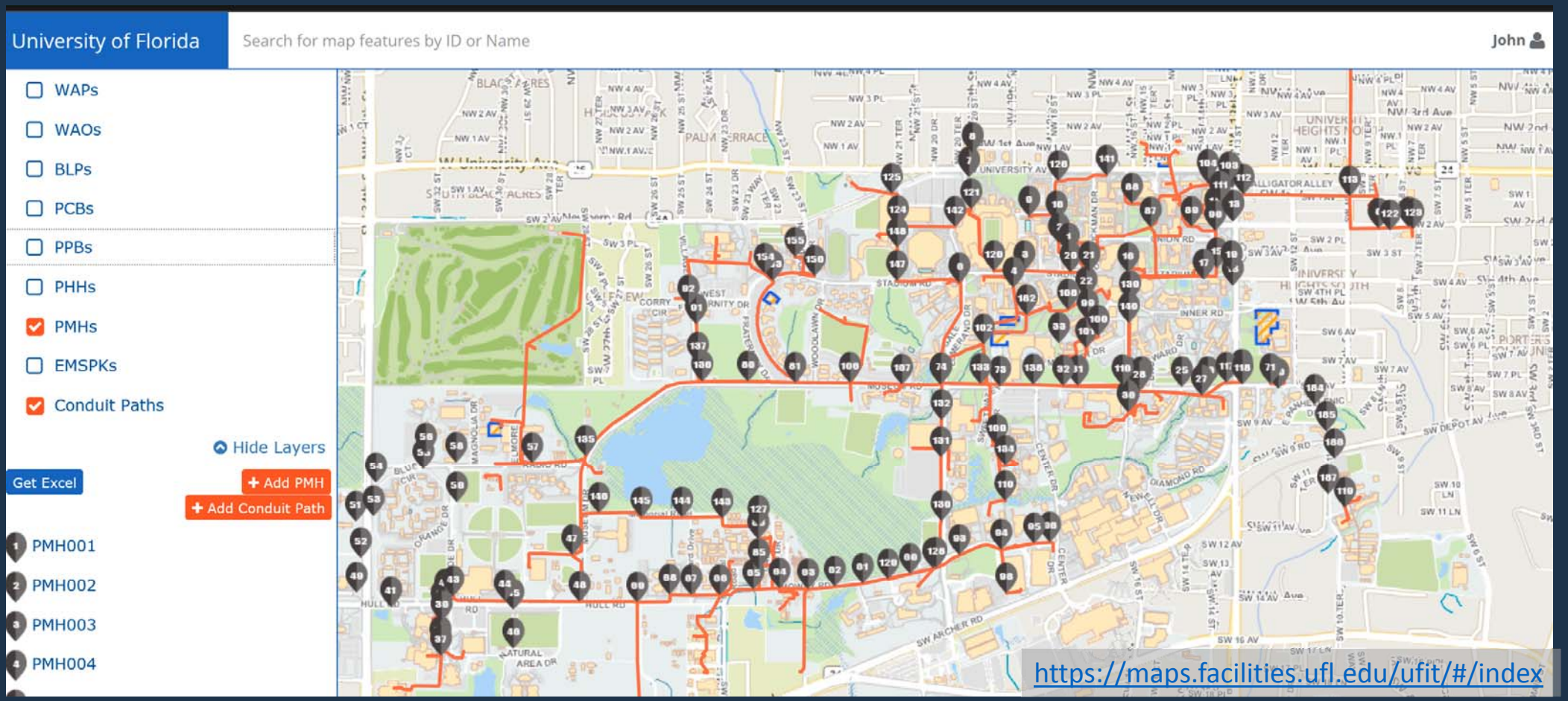
Each 144 Contains
24 live from oDAS-HE-Centrex
120 Idle back to Centrex

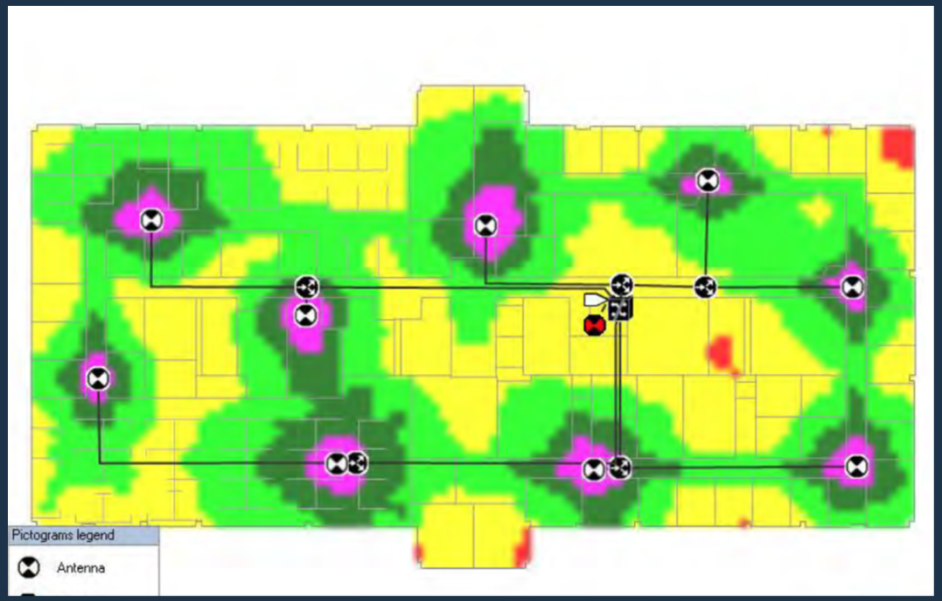

University of Florida
Search for map features by ID or Name
John
WAPs
WAOs
BLPs
PCBs
PPBs
PHHs
PMHs
EMSPKs
Conduit Paths
Hide Layers
Get Excel
+ Add PMH
+ Add Conduit Path
PMH001
PMH002
PMH003
PMH004
https://maps.facilities.ufl.edu/ufit/#/index

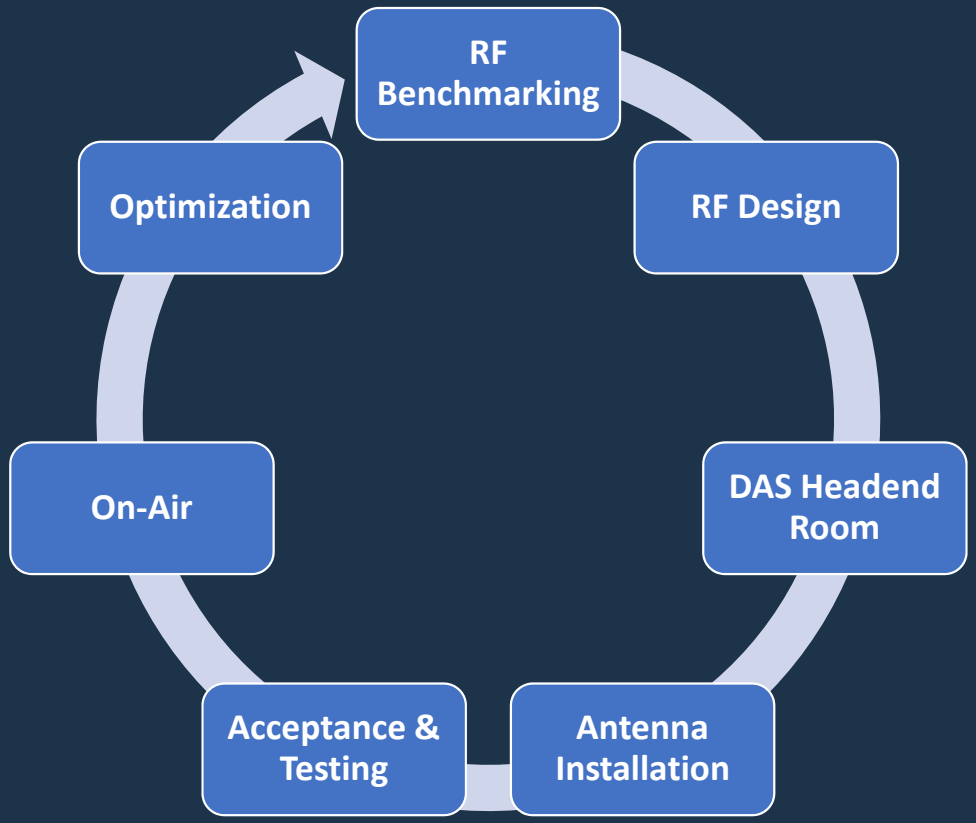
ODAS Backfill

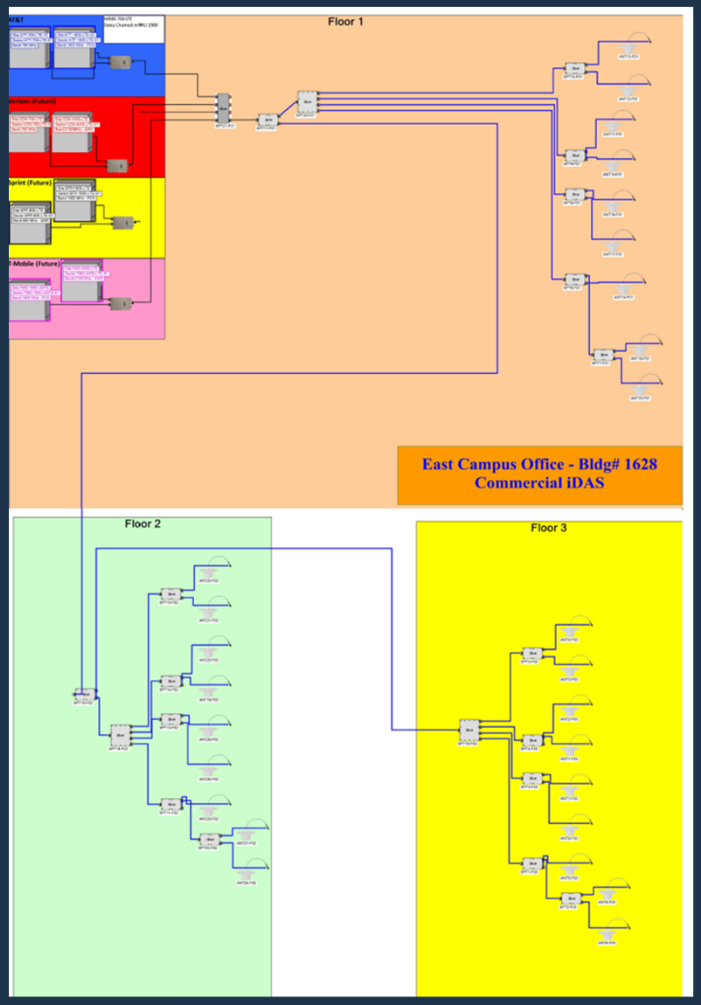
- Reitz Union Ground Floors
- Physics Building Ground Floors
- Ayers Technology Plaza = OK
- Innovation Hub Buildings = OK

What's been done……East Campus Office Building

- 84,000 square feet
- 3 Story




RF Benchmarking
RF Design
DAS Headend Room
Antenna Installation
Acceptance & Testing
On-Air
Optimization

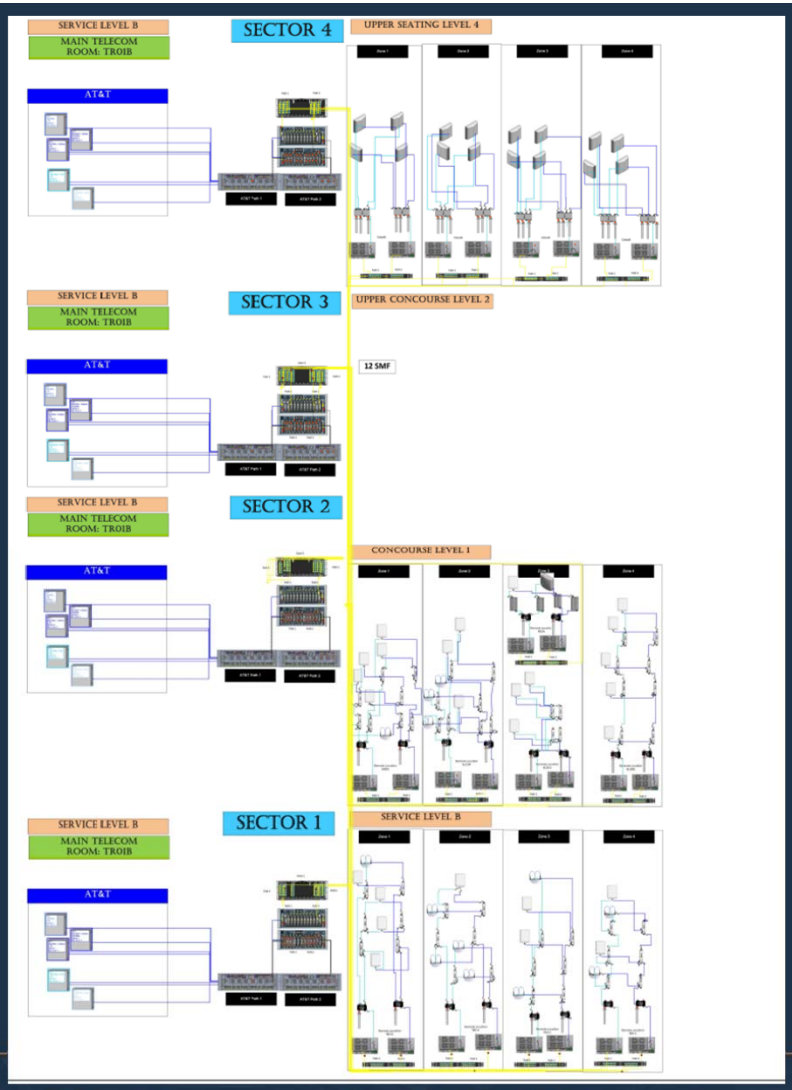

Floor 1
East Campus Office - Bldg# 1628
Commercial iDAS
Floor 2
Floor 3

What's been done …..O'Connell Center DAS

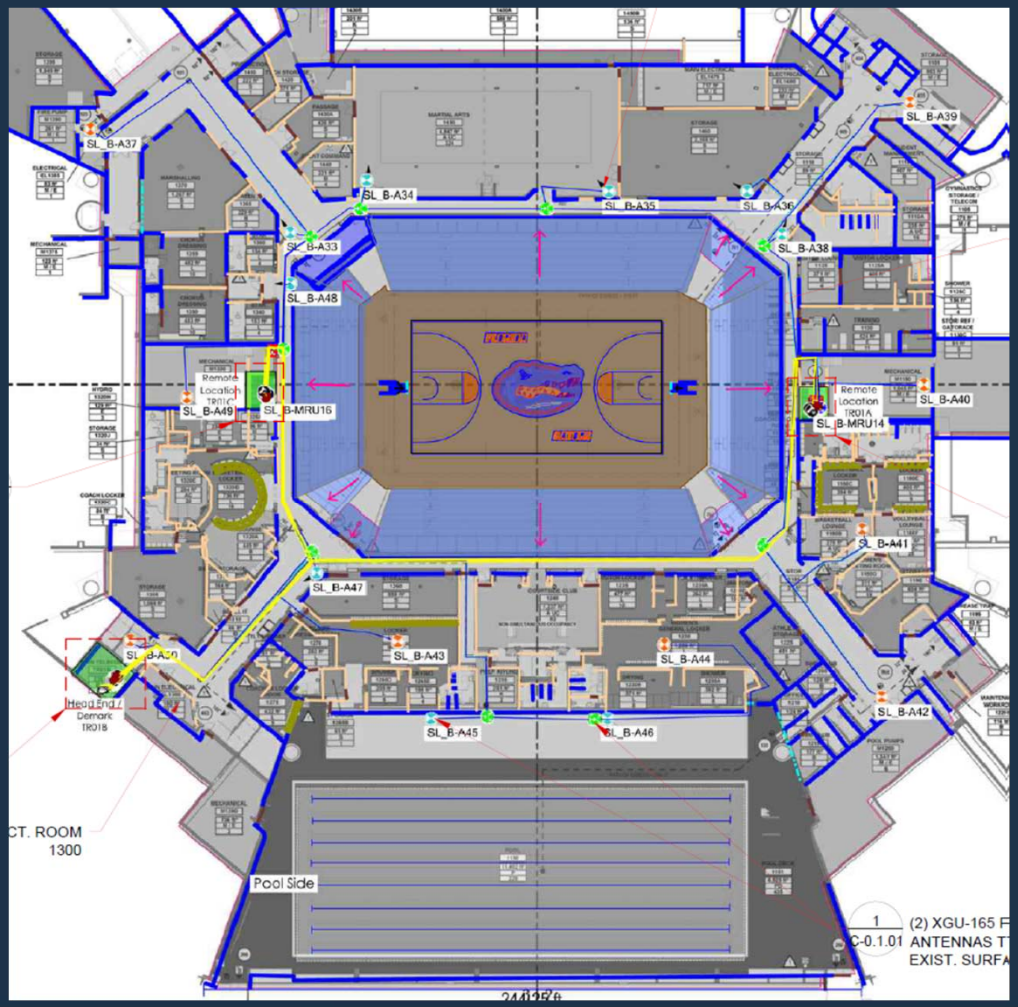
O’Connell Center DAS

- 10,00 Seat Arena
- Multipurpose Facility
  - Gymnastics
  - Volleyball
  - Swimming / Diving
  - Concert / Events
  - Graduation
- Wireless provided by UFIT

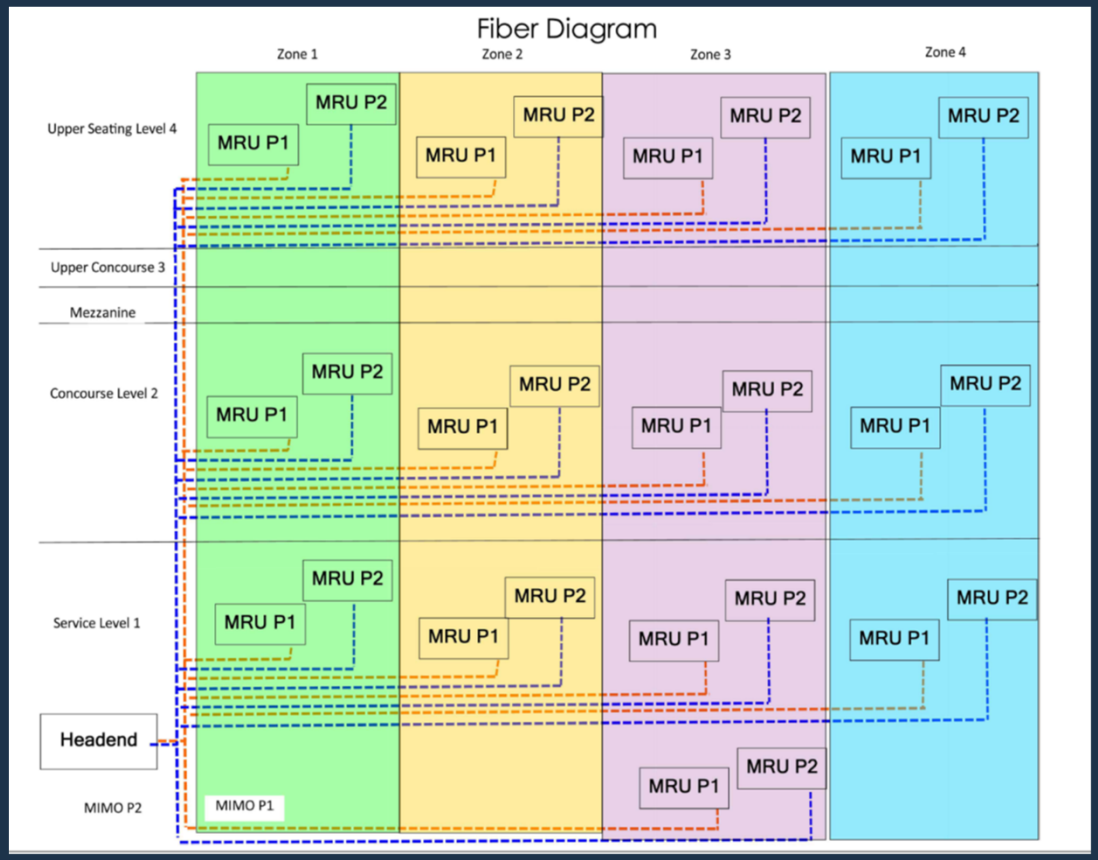
Odome DAS Design



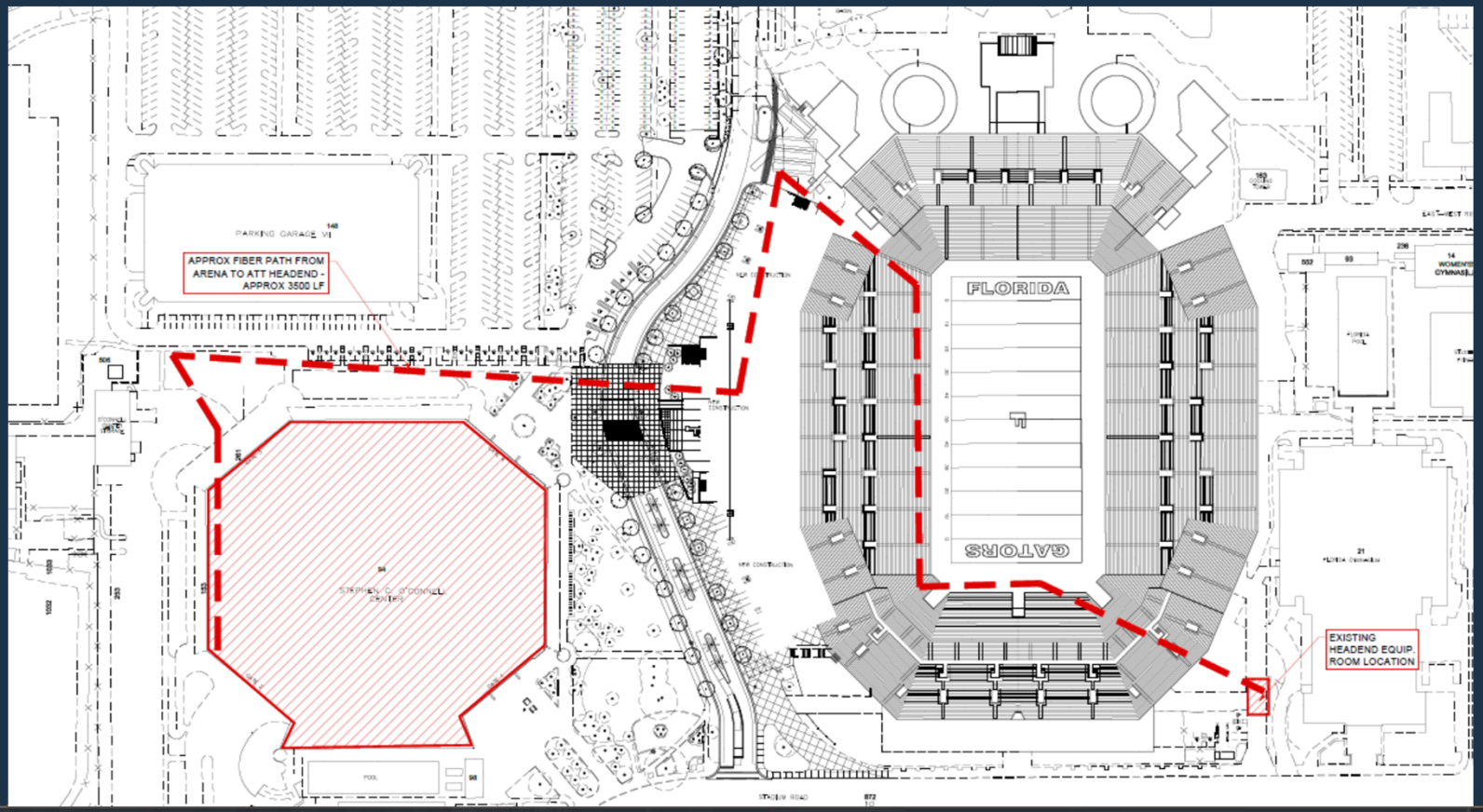
Odome DAS


SL_B-A37
SL_B-A34
SL_B-A35
SL_B-A36
SL_B-A39
SL_B-A33
SL_B-A38
SL_B-A48
Remote Location TR01C
SL_B-A49
SL_B-MRU16
Remote Location TR01A
SL_B-MRU14
SL_B-A40
SL_B-A41
SL_B-A47
SL_B-A43
SL_B-A44
SL_B-A42
Head End / Demark TR01B
SL_B-A45
SL_B-A46
CT. ROOM 1300
Pool Side
(2) XGU-165 F
ANTENNAS T
EXIST. SURFA

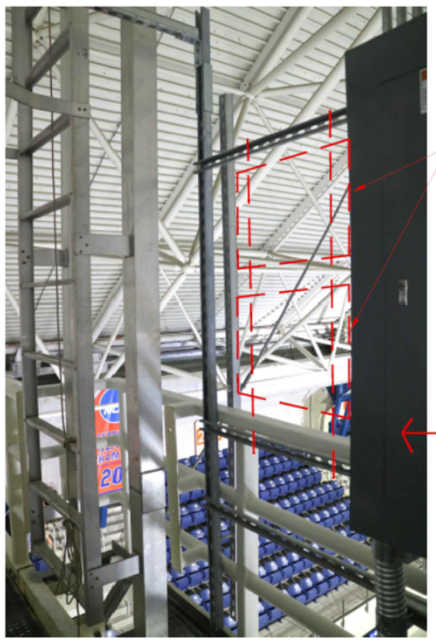
Odome DAS Design



O’Connell Center DAS Design



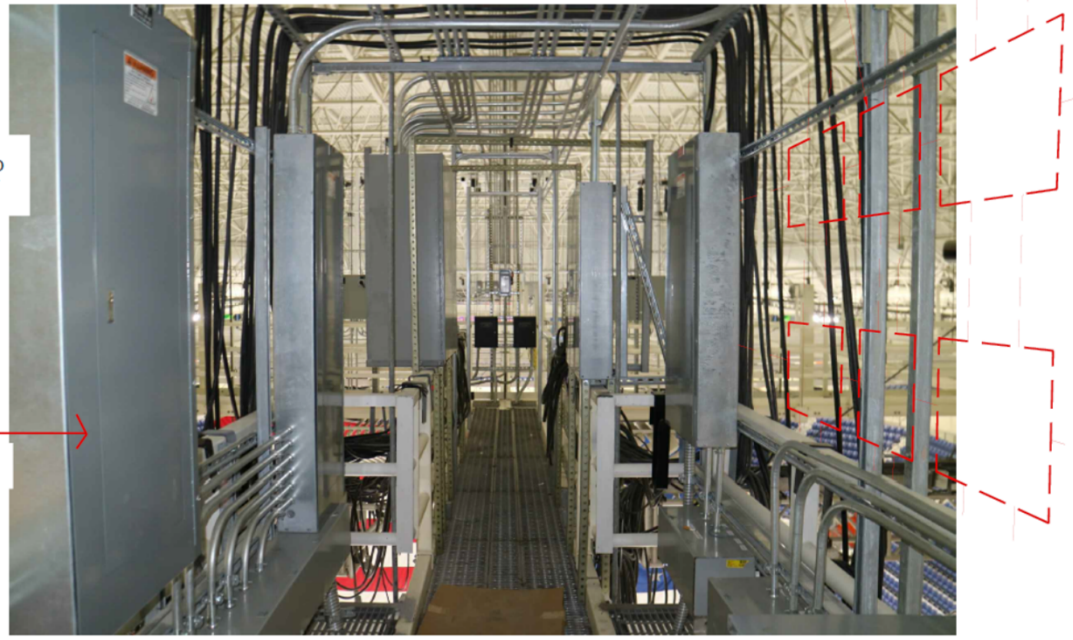
O’Connell Center DAS Design



(2) PROPOSED REMOTES MOUNTED ON PROP UNISTRUT FRAMING

(THIS IS THE SAME PANEL)

(6) PROPOSED REMOTES MOUNTED ON PROP UNISTRUT FRAMING



REMOTE MOUNT

LEFT SIDE OF CATWALK

REMOTE MOUNT

RIGHT SIDE OF CATWALK

What's Next…..

- Keep Feeding the Wireless Beast….
  - More UFHealth Buildings
- Odome DAS Installation
- Wireless / WIFI in Stadium
- I-DAS: In building DAS going forward
  - On our own so to speak
  - Vet Med
- Public Safety Coverage

Questions?

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