

# CSULB Wireless Network Access Expansion & Upgrade Status - FY 2015/16

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## Executive Summary

This annual report describes improvements made to the CSULB wireless network service during FY 2015/16. It includes “heat maps” of wireless access capacity before and after expansion and upgrade work.

## Background

Since the first wireless access points (APs) were installed on campus more than a decade ago, the number of user connections to the CSULB wireless network has increased exponentially. In 2005, wireless network usage peaked at almost 7,000 user connections in one day. During the 2015-16 Academic Year, peak usage grew to more than 47,400 unique wireless network device-connections in a single day, and peak concurrent network device-usage exceeded 20,600 connections in a single day. Growth of wireless network usage is expected to persist as faculty, staff, and students use multiple mobile devices on campus.

## Scope

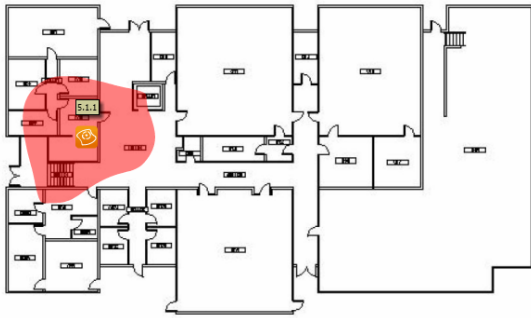
In FY 2015/16, campus wireless network improvement areas were identified based on priority requests from campus and college administrators and their technical coordinators. In addition, ITS campus network measurements identified spaces that needed to be improved. The scope of campus wireless network expansion and upgrades in 2015/16 included:

- Wireless network service improvements in 15 campus buildings. Campus-, college-, and student-identified priority improvement areas are specified in Appendix A of this document.
- 98 new wireless AP devices installed
- 69 new AP sites pre-cabled and wireless-device ready

The heat maps in this report illustrate CSULB wireless network coverage improvements in effect and anticipated for the buildings within the scope of the 2015/16 fiscal-year effort. Appendix B lists room-by-room details.

- Family & Consumer Sciences, lower level & 1<sup>st</sup> floor (Building 05)
- Liberal Arts 1, 2<sup>nd</sup> & 3<sup>rd</sup> floors (Building 14)
- Academic Services, Beach Hut convenience store & 2<sup>nd</sup> floor (Building 20)
- Microbiology, Lower Level, 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> floors (Building 41)
- Faculty Office 5, 1<sup>st</sup> & 2<sup>nd</sup> floors (Building 45)
- Social Science Public Affairs, 024 (Building 46)
- Kinesiology, 82, 121 & water polo locker rooms (Building 47)
- Vivian Engineering Center, 330 & 331 (Building 50)
- Engineering 3, 116 (Building 52)
- Human Services & Design, 117 (Building 55)
- University Music Center, Area A & adjacent outdoor areas (Building 71)
- Carpenter Performing Arts Center, S103 & S131 (Building 72)
- Engineering / Computer Science, 115, 302, & 415 (Building 83)
- College of Business Administration, 1<sup>st</sup> floor main lecture halls & 3<sup>rd</sup> floor (Building 85)
- Molecular & Life Science Center, 1<sup>st</sup>, 2<sup>nd</sup> & 3<sup>rd</sup> floors (Building 94)

# Family & Consumer Sciences, Lower Level & First Floor (Building 05)



**BEFORE**

**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Family & Consumer Sciences, Lower Level, Building 05



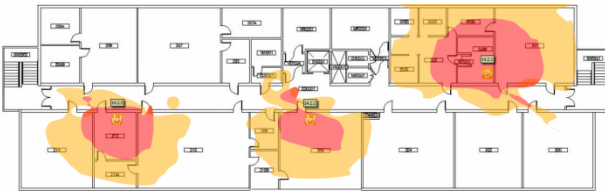
**BEFORE**

**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

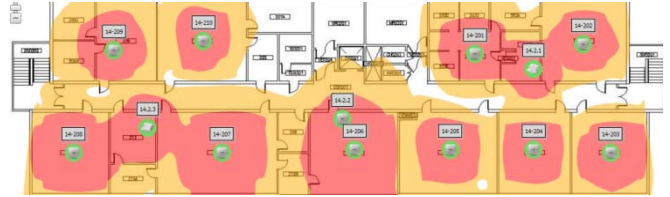
Family & Consumer Sciences, First Floor, Building 05

# Liberal Arts 1, Second & Third Floors (Building 14)



**BEFORE**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
 Liberal Arts, Second Floor, Building 14



**AFTER**



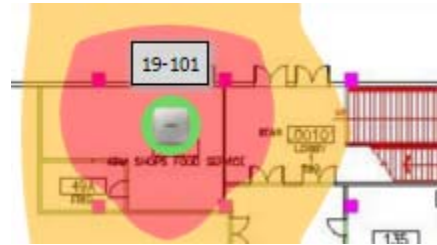
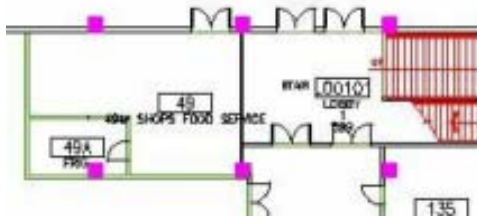
**BEFORE**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
 Liberal Arts, Third Floor, Building 14



**AFTER**

# Academic Services, First Floor Convenience Store & Second Floor (Building 20)



**BEFORE**

**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
 Academic Services, Beach Hut Convenience Store, Building 20

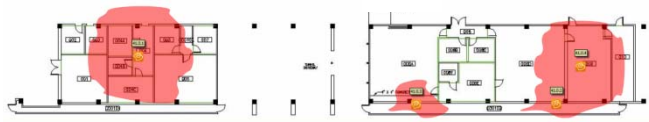


**CURRENT**

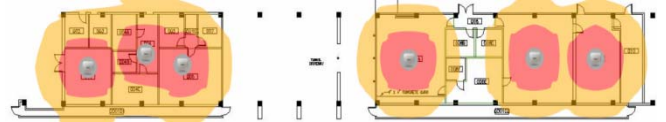
**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
 Academic Services, Second Floor, Building 20

# Microbiology, Lower Level, First, Second, & Third Floors (Building 41)



**CURRENT**

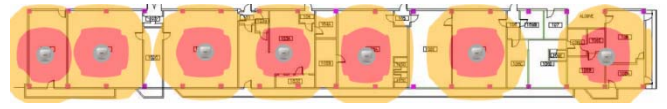


**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Microbiology Building, Lower Level, Building 41



**CURRENT**

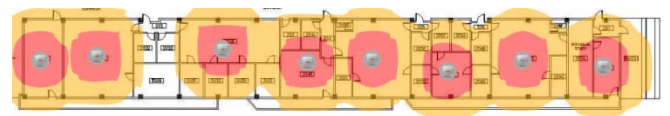


**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Microbiology Building, First Floor, Building 41

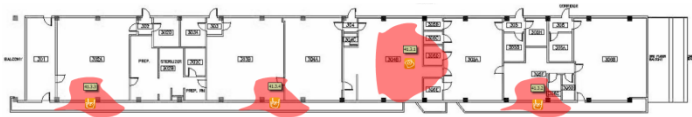


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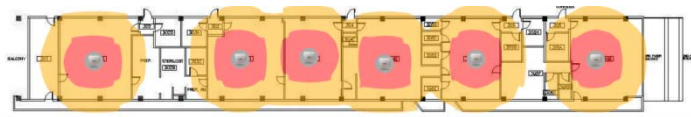


**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Microbiology Building, Second Floor, Building 41



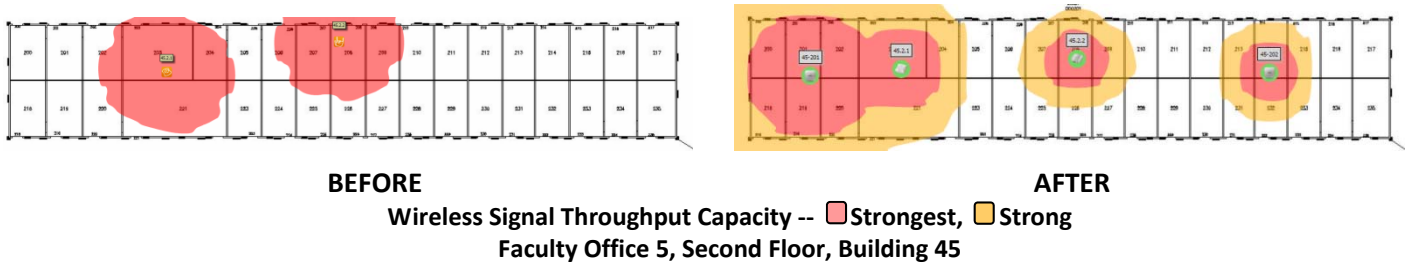
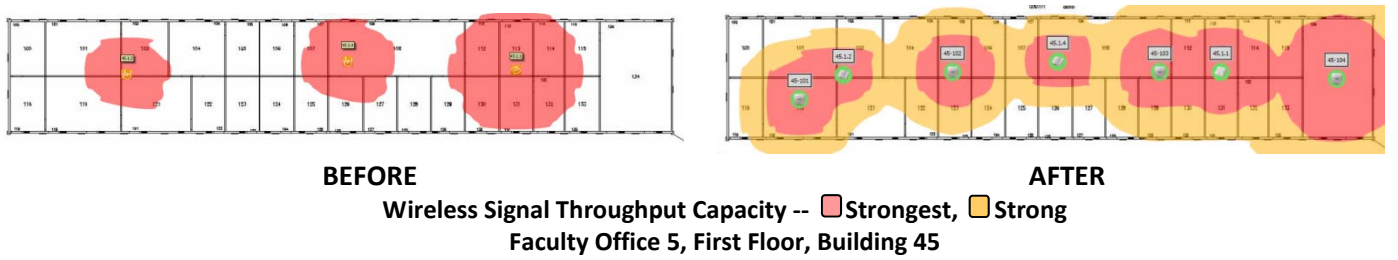
**CURRENT**



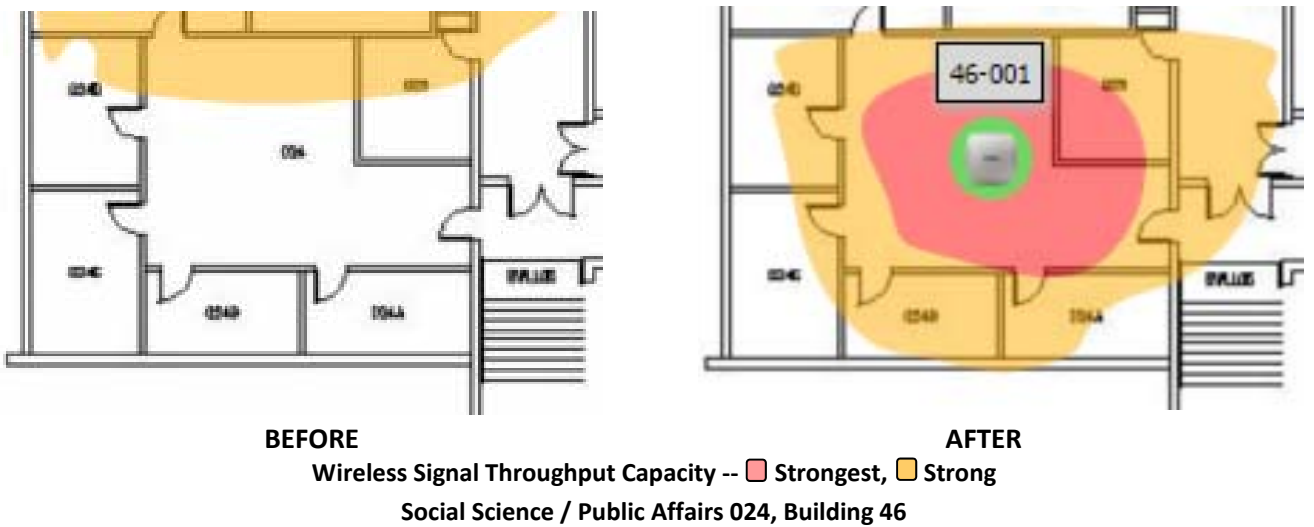
**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Microbiology Building, Third Floor, Building 41

## Faculty Office 5, First & Second Floors (Building 45)

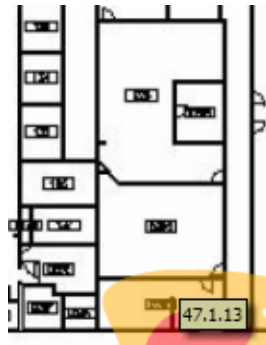


## Social Science / Public Affairs, Room 024 (Building 46)

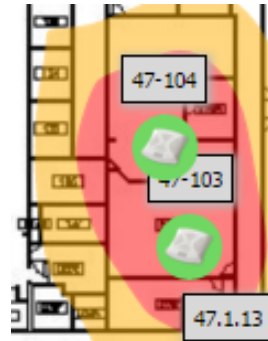




# Kinesiology, Locker Room, Rooms 82 & 121 (Building 47)



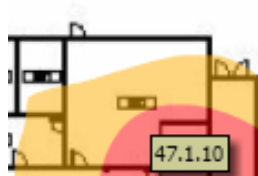
**BEFORE**



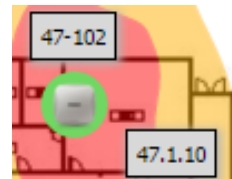
**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Kinesiology, Water Polo Locker Rooms, Building 47



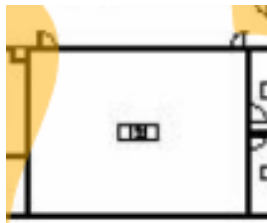
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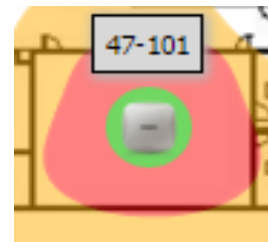
**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Kinesiology 82, Building 47



**BEFORE**

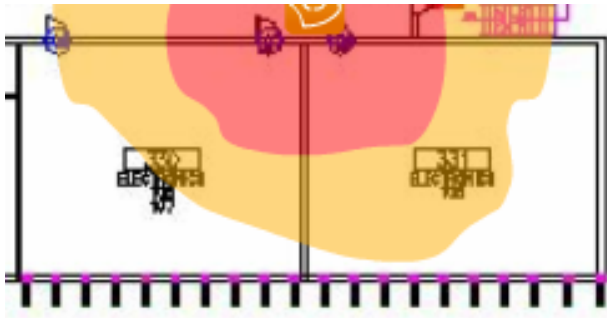


**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Kinesiology 121, Building 47

## Vivian Engineering Center 330-331 (Building 50)



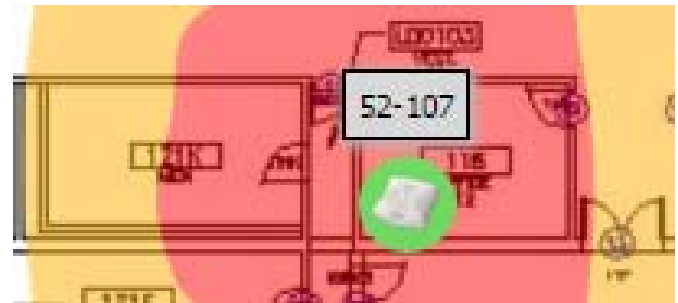
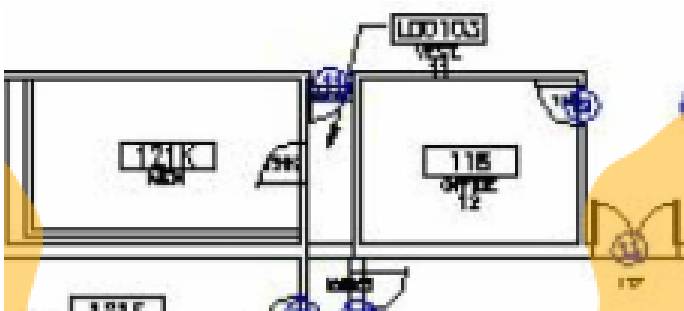
**BEFORE**

**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Vivian Engineering Center 330-331, Building 50

## Engineering 3-116 (Building 52)



**BEFORE**

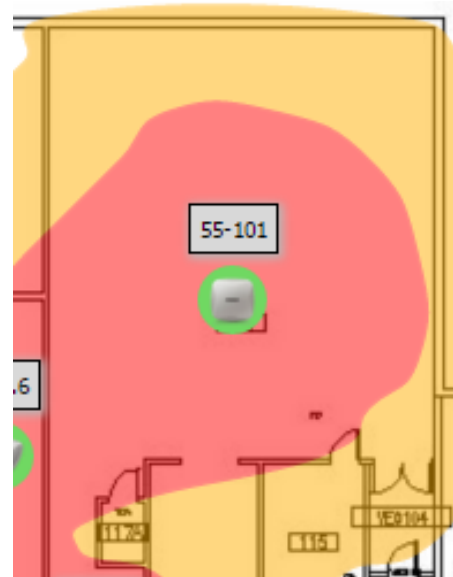
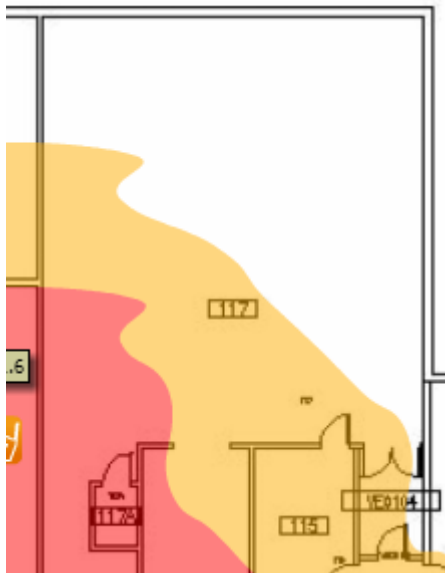
**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Engineering 3-116, Building 52

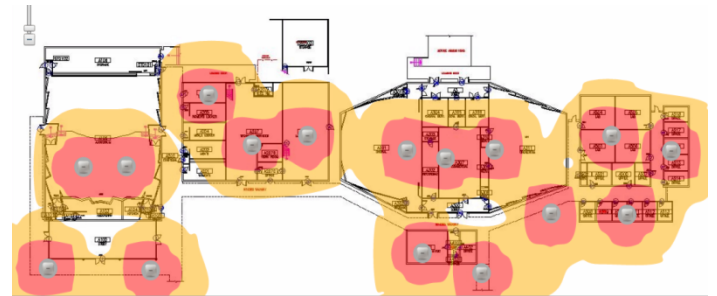
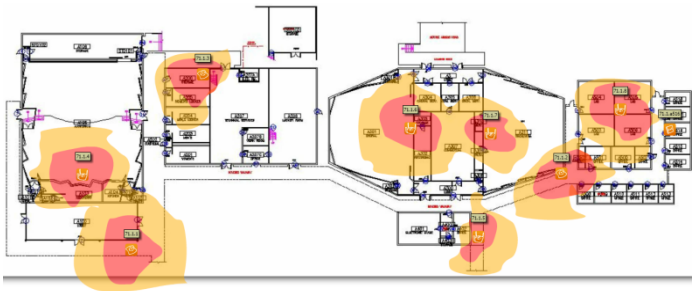


## Human Services & Design 117 (Building 55)



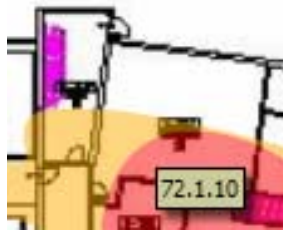
**BEFORE** **AFTER**  
 Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
 Human Services & Design 117, Building 55

## University Music Center, Area A (Building 71)

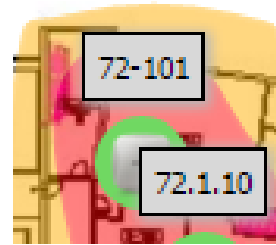


**BEFORE** **AFTER**  
 Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
 University Music Center, Area A & adjacent outdoor areas, Building 71

## Carpenter Performing Arts Center S103 & S131 (Building 72)

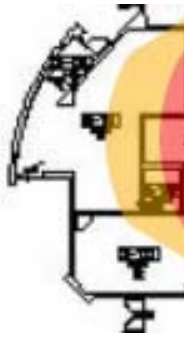


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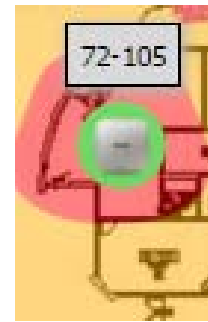


**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Carpenter Performing Arts Center S103, Building 72



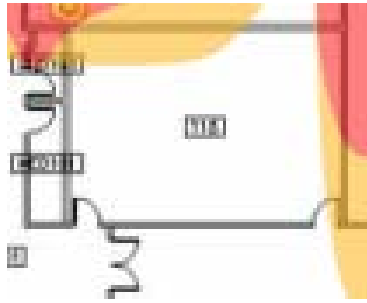
**BEFORE**



**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Carpenter Performing Arts Center S131, Building 72

**Engineering / Computer Science 115, 302 & 413 (Building 83)**

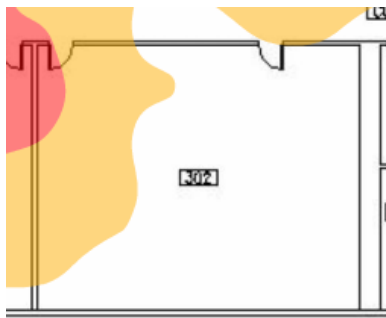


**BEFORE**



**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Engineering / Computer Science 115, Building 83

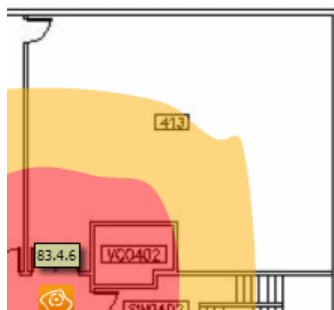


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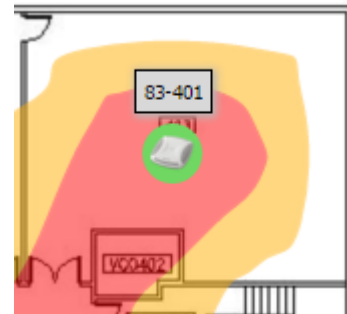


**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Engineering / Computer Science 302, Building 83



**BEFORE**



**AFTER**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
Engineering / Computer Science 413, Building 83

**College of Business Administration,  
First Floor Main Lecture Halls & Third Floor (Building 85)**

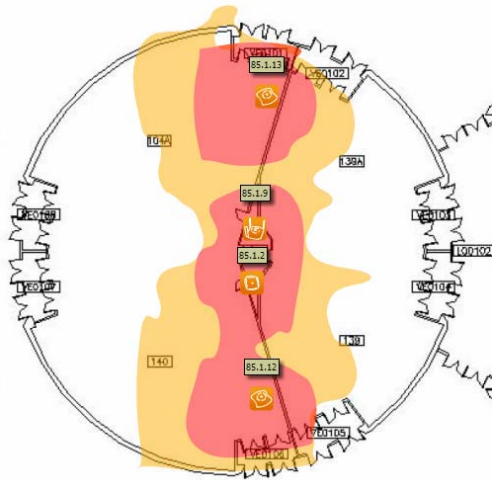


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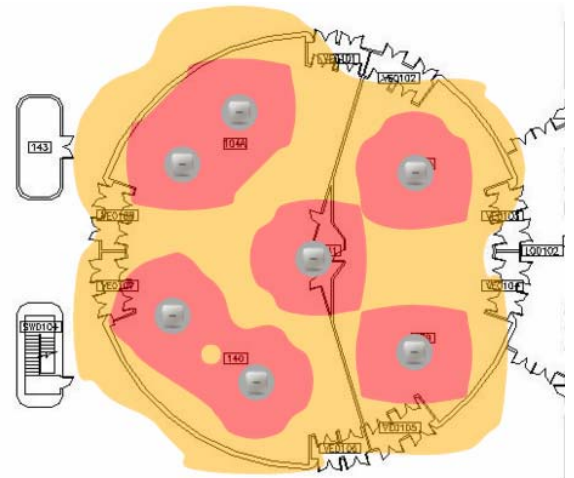


**AFTER**

**Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
College of Business Administration, Third Floor, Building 85**



**BEFORE**



**AFTER**

**Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong  
College of Business Administration, First Floor Main Lecture Halls, Building 85**

# Molecular & Life Science Center, First, Second, & Third Floors (Building 94)



**CURRENT**

**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Molecular & Life Science Center, First Floor, Building 94



**CURRENT**

**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Molecular & Life Science Center, Second Floor, Building 94



**CURRENT**

**ANTICIPATED FY16/17**

Wireless Signal Throughput Capacity -- ■ Strongest, ■ Strong

Molecular & Life Science Center, Third Floor, Building 94

## Appendix A – Campus/College/Student-Designated Priority Areas for Expansion

The following table lists FY15/16 campus areas designated for wireless network expansion based on priority requests from campus and college administrators and their technical coordinators as well as direct student requests submitted to the Technology Help Desk.

BUILDING	NETWORK-EXPANSION PRIORITY AREAS BASED ON CAMPUS/COLLEGE/DIRECT STUDENT REQUESTS
Family & Consumer Sciences (Building 05)	rooms 001, 008 126 121
Liberal Arts (Building 14)	rooms 301, 311
Academic Services, (Building 20)	Beach Hut convenience store & room 233
Microbiology (Building 41)	room 101 & numerous room requests throughout bldg.
Social Science Public Affairs, (Building 46)	room 024
Kinesiology (Building 47)	locker rooms, rooms 82 & 121
Vivian Engineering Center (Building 50)	room 330 & 331
Engineering 3 (Building 52)	room 116
Human Services & Design (Building 55)	room 117
University Music Center (Building 71)	rooms A207C, A208, A511 & A516
Carpenter Performing Arts Center (Building 72)	S103 & S131
Engineering / Computer Science (Building 83)	rooms 115, 302 & 413
College of Business Administration (Building 85)	3 <sup>rd</sup> floor
Molecular & Life Science Center (Building 94)	rooms 107, 109 & 241

## Appendix B – Wireless Network Access Points

### FAMILY & CONSUMER SCIENCES, BUILDING 05

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
FCS	COLL01	5-001	BDF	1
FCS	011	5-002	BDF	2
FCS	015	5-003	BDF	2
FCS	008	5-004	BDF	2
FCS	COLL02	5-005	BDF	1
FCS	006	5-006	BDF	1
FCS	136	5-101	BDF	2
FCS	127	5-102	BDF	2
FCS	126	5-103	BDF	2
FCS	123	5-104	BDF	2
FCS	122	5-105	BDF	2
FCS	120	5-106	BDF	2
FCS	112	5-107	BDF	2
FCS	108	5-108	BDF	2
FCS	106	5-109	BDF	2
FCS	CO0102	5-110	BDF	1

## LIBERAL ARTS, BUILDING 14

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
LA1	203	14-201	IDF2.1	1
LA1	201	14-202	IDF2.1	2
LA1	200	14-203	IDF2.1	1
LA1	202	14-204	IDF2.1	1
LA1	204	14-205	IDF2.1	2
LA1	206	14-206	IDF2.1	2
LA1	210	14-207	IDF2.1	2
LA1	214	14-208	IDF2.1	1
LA1	209	14-209	IDF2.1	1
LA1	207	14-210	IDF2.1	2
LA1	303	14-301	IDF2.1	2
LA1	301	14-302	IDF2.1	2
LA1	300	14-303	IDF2.1	2
LA1	302	14-304	IDF2.1	1
LA1	304	14-305	IDF2.1	1
LA1	306	14-306	IDF2.1	1
LA1	308	14-307	IDF2.1	2
LA1	310	14-308	IDF2.1	1
LA1	312	14-309	IDF2.1	1
LA1	314	14-310	IDF2.1	2
LA1	309	14-311	IDF2.1	2
LA1	307	14-312	IDF2.1	1
LA1	305	14-313	IDF2.1	1

## ACADEMIC SERVICES, BUILDING 20

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
AS	BeachHut	19-101	BDF	2
AS	CO207	19-202*	IDF2.3	1
AS	201	19-203*	IDF2.3	1
AS	238	19-204*	IDF2.3	1
AS	240	19-205*	IDF2.3	2
AS	242	19-206*	IDF2.3	2
AS	243	19-207*	IDF2.3	2
AS	233	19-208*	IDF2.3	2
AS	230	19-209*	IDF2.3	1

\* AP site pre-cabled and wireless device-ready; wireless AP installation planned FY16/17



## MICROBIOLOGY, BUILDING 41

Bldg	Room	AP Name*	Telecom	Cable Quantity, New / Replaced
MIC	001	41-001	IDF0.1	1
MIC	004	41-002	IDF0.1	1
MIC	006	41-003	IDF0.1	1
MIC	008A	41-004	IDF0.1	2
MIC	008D	41-005	IDF0.1	2
MIC	101	41-101	BDF1.0	2
MIC	102A	41-102	BDF1.0	2
MIC	102B	41-103	BDF1.0	2
MIC	103A	41-104	BDF1.0	2
MIC	105A	41-105	BDF1.0	2
MIC	106A	41-106	BDF1.0	2
MIC	108	41-107	BDF1.0	2
MIC	201	41-201	IDF2.0	2
MIC	202A	41-202	IDF2.0	2
MIC	202E	41-203	IDF2.0	2
MIC	204B	41-204	IDF2.0	2
MIC	205A	41-205	IDF2.0	2
MIC	206E	41-206	IDF2.0	2
MIC	206C	41-207	IDF2.0	2
MIC	207B	41-208	IDF2.0	2
MIC	302A	41-301	IDF3.1	2

\* AP site pre-cabled and wireless device-ready; wireless AP installation planned FY16/17

## FACULTY OFFICE 5, BUILDING 45

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
FO5	119	45-101	BDF	1
FO5	105	45-102	BDF	1
FO5	113	45-103	BDF	1
FO5	134	45-104	BDF	1
FO5	203	45-201	BDF	1
FO5	214	45-202	BDF	1

## SOCIAL SCIENCE PUBLIC AFFAIRS, BUILDING 46

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
SSPA	024	46-001	IDF0.1	1

## KINESIOLOGY, BUILDING 47

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
KIN	82	47-102	IDF1.3	1
KIN	121	47-101	BDFs	2
KIN	grlocker	47-103	BDF	1
KIN	bylocker	47-104	BDF	1

## VIVIAN ENGINEERING CENTER, BUILDING 50

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
VEC	330	50-301	IDF3.1	2
VEC	331	50-302	IDF3.1	2

## ENGINEERING 3, BUILDING 52

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
EN3	116	52-107	BDF	1

## HUMAN SERVICES & DESIGN, BUILDING 55

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
HSD	117	55-101	BDF	2

## UNIVERSITY MUSIC CENTER, BUILDING 71

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
UMC(A)	A106	71-101	BDF1	2
UMC(A)	A106	71-102	BDF1	2
UMC(A)	A106	71-103	BDF1	2
UMC(A)	outdoor	71-104	BDF1	2
UMC(A)	outdoor	71-105	BDF1	1
UMC(A)	A207	71-106	BDF1	1
UMC(A)	A208	71-107	BDF2	1
UMC(A)	A301	71-108	BDF2	2
UMC(A)	A401	71-109	BDF2	1
UMC(A)	outdoor	71-110	BDF2	1
UMC(A)	A311	71-111	BDF2	2

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
UMC(A)	outdoor	71-112	BDF2	2
UMC(A)	A511	71-113	BDF2	1
UMC(A)	A516	71-114	BDF2	1
UMC(A)	A307	71-115	BDF2	2

### CARPENTER PERFORMING ARTS CENTER, BUILDING 72

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
CPAC	S103	72-101	IDF1.4	2
CPAC	S131	72-105	IDF1.2	2

### ENGINEERING / COMPUTER SCIENCE, BUILDING 83

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
ECS	115	83-101	BDF	2
ECS	302	83-301	IDF3.1	2
ECS	413	83-401	IDF3.1	2

### COLLEGE OF BUSINESS ADMINISTRATION, BUILDING 85

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
CBA	140	85-101	IDF1.2	2
CBA	140	85-102	IDF1.2	2
CBA	140	85-103	IDF1.2	2
CBA	140A	85-104	IDF1.2	2
CBA	140A	85-105	IDF1.2	2
CBA	140A	85-106	IDF1.2	2
CBA	139A	85-107	IDF1.2	2
CBA	139A	85-108	IDF1.2	2
CBA	139	85-109	IDF1.2	2
CBA	139	85-110	IDF1.2	2
CBA	CO300	85-301	IDF2.1	1
CBA	CO300	85-302	IDF2.1	1
CBA	CO300	85-303	IDF2.1	1
CBA	CO300	85-304	IDF2.1	1
CBA	CO300	85-305	IDF2.1	1
CBA	CO300	85-306	IDF2.1	1
CBA	CO300	85-307	IDF2.1	1

Bldg	Room	AP Name	Telecom	Cable Quantity, New / Replaced
CBA	CO300	85-308	IDF2.1	1
CBA	CO300	85-309	IDF2.1	1
CBA	CO300	85-310	IDF2.1	1
CBA	CO300	85-311	IDF2.1	1
CBA	CO300	85-312	IDF2.1	1
CBA	363	85-313	IDF2.1	1

## MOLECULAR & LIFE SCIENCE CENTER, BUILDING 94

Bldg	Room	AP Name*	Telecom	Cable Quantity New / Replaced
MLSC	CO0103	94-101	BDF	1
MLSC	CO0104	94-102	BDF	1
MLSC	133	94-103	BDF	2
MLSC	134	94-104	BDF	2
MLSC	130	94-105	BDF	2
MLSC	LO0101	94-106	BDF	1
MLSC	100	94-107	IDF1.2	2
MLSC	102	94-108	IDF1.2	2
MLSC	107	94-109	IDF1.2	2
MLSC	109	94-110	IDF1.2	2
MLSC	110	94-111	IDF1.2	2
MLSC	CO0108	94-112	IDF1.2	1
MLSC	CO0109	94-113	IDF1.2	1
MLSC	CO0203	94-201	IDF2.1	1
MLSC	CO0204	94-202	IDF2.1	1
MLSC	242/244	94-203	IDF2.1	2
MLSC	241/243	94-204	IDF2.1	2
MLSC	236/238	94-205	IDF2.1	2
MLSC	237	94-206	IDF2.1	2
MLSC	CO0205	94-207	IDF2.1	1
MLSC	229	94-208	IDF2.1	1
MLSC	CO0206	94-209	IDF2.2	1
MLSC	210/212	94-210	IDF2.2	2
MLSC	209/211	94-211	IDF2.2	2
MLSC	215/217	94-212	IDF2.2	2
MLSC	CO0209	94-213	IDF2.2	1
MLSC	CO0210	94-214	IDF2.2	1
MLSC	CO0303	94-301	IDF3.1	1
MLSC	CO0304	94-303	IDF3.1	1
MLSC	330/332	94-304	IDF3.1	2
MLSC	331/333	94-305	IDF3.1	2

<b>Bldg</b>	<b>Room</b>	<b>AP Name*</b>	<b>Telecom</b>	<b>Cable Quantity New / Replaced</b>
MLSC	324/326	94-306	IDF3.1	2
MLSC	325/327	94-307	IDF3.1	2
MLSC	CO0305	94-308	IDF3.1	1
MLSC	304	94-309	IDF3.2	2
MLSC	305	94-310	IDF3.2	2
MLSC	306	94-311	IDF3.2	2
MLSC	307	94-312	IDF3.2	2
MLSC	311	94-313	IDF3.2	2
MLSC	314	94-314	IDF3.2	2

*\*AP site pre-cabled and wireless device-ready; wireless AP installation planned FY16/17*