A New Station for the W3USR University of Scranton Amateur Radio Club

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Introduction

The University of Scranton is a Jesuit Liberal Arts University of almost 5,000 students in North East Pennsylvania. The Physics and Engineering Department has truly taken off and it is growing at an accelerated rate. This rapid expansion of engineers at the University of Scranton has led to the formation of W3USR in 2020 and interest into radio communications and space physics all around the campus.

W3USR currently has only a few radios set up with receive-only antennas. Thanks to a generous grant from ARDC, with additional support from Mr. Ed Hayes N6XEM, Dr. Mary Lou West KC2NMC, DXEngineering, and the National Science Foundation, we are building a state-of-the art amateur radio station complete with support for HF, VHF, UHF, microwave, and V/U satellite operations. The station will be tied into building emergency power to support emergency communications.

Station design and installation is being done by Broadcast Sciences, LLC. Engineering work is by GPI. Electrical is by Mulrooney-Spoorer, Inc.
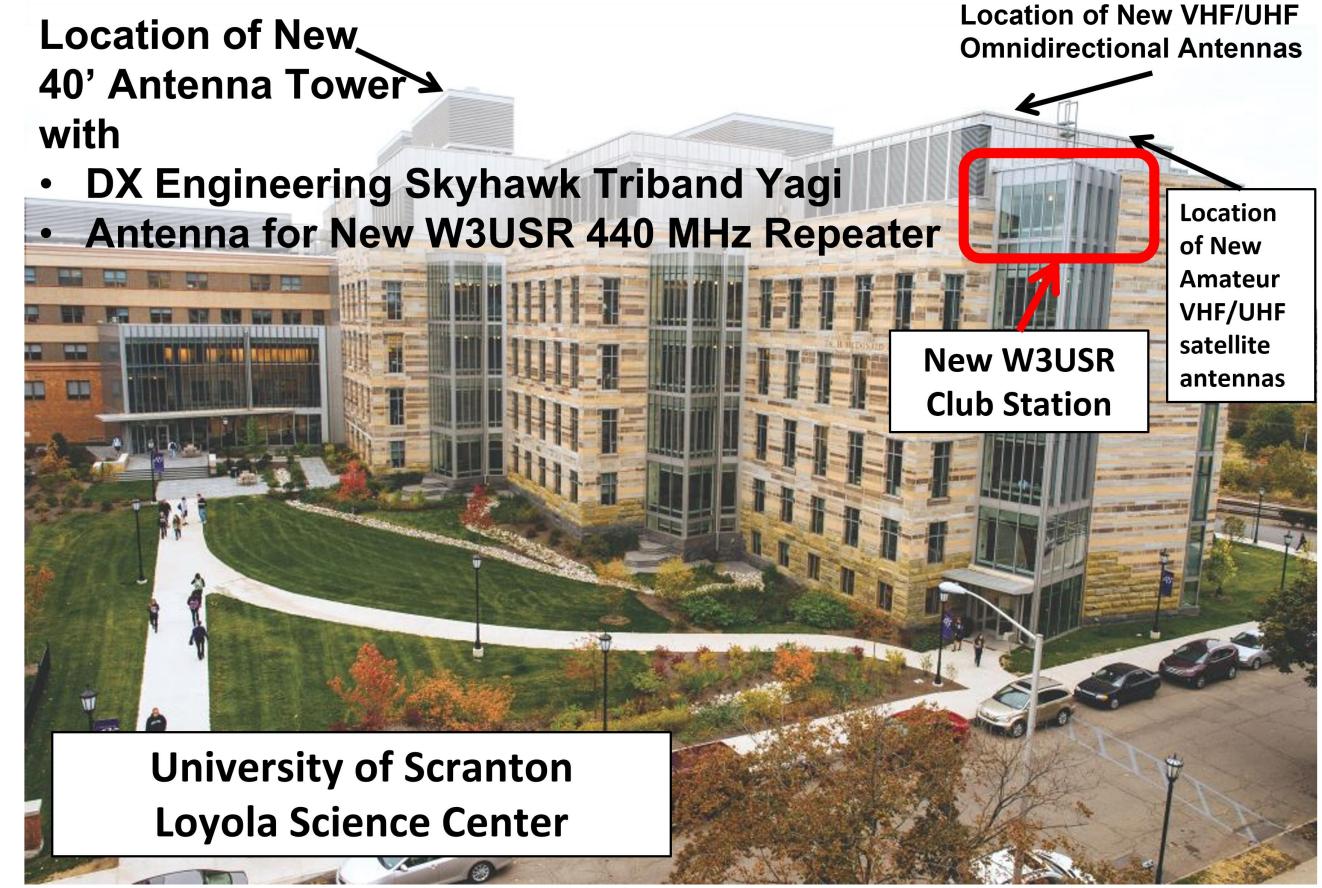

Who is W3USR?

W3USR is the University of Scranton Ham radio club. This club was founded in Spring 2020. The club has grown immensely over the last few years becoming the home of almost all the Ham radio and space physics enthusiasts at the University.
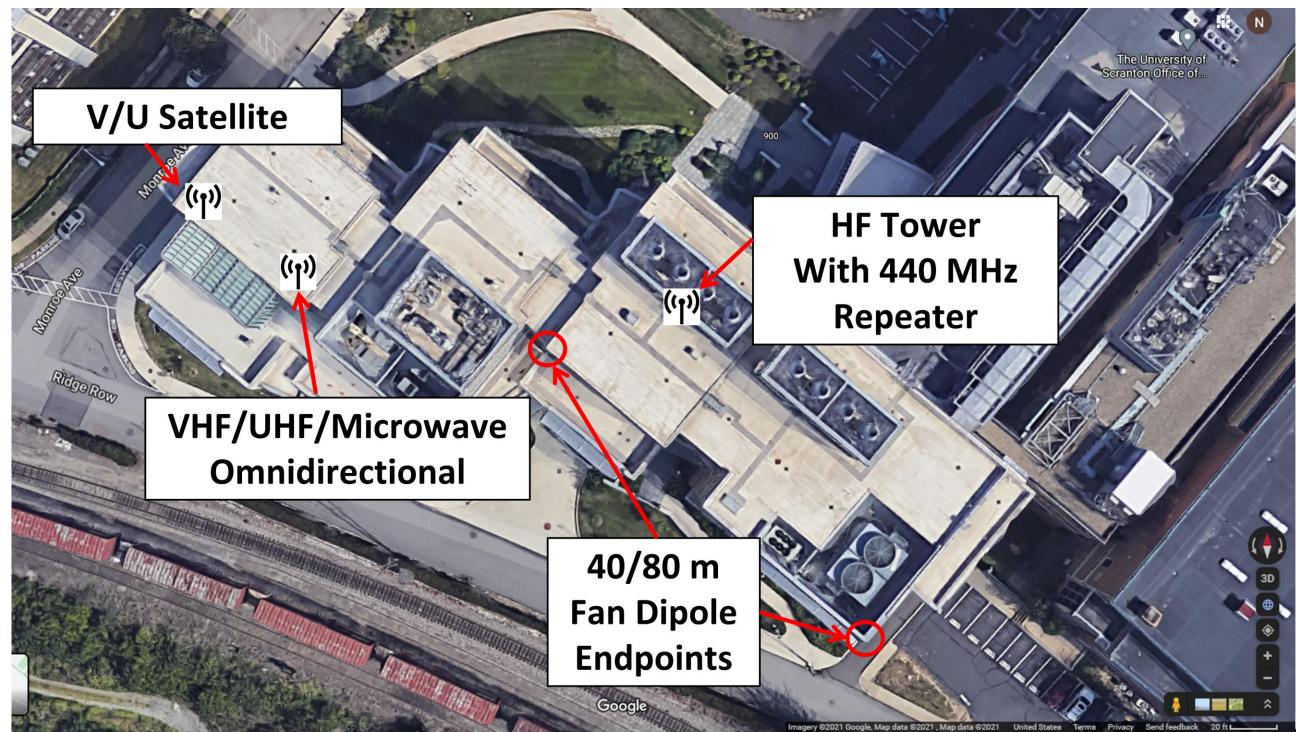
What is W3USR's mission?

W3USR team is working to educate students at the University of Scranton on the ionosphere and the importance of radio communication. They are also working to collect useful data in the upcoming solar events and even get community involvement with the club. In doing so this will ensure the students several useful skills and to further their education on the universe.
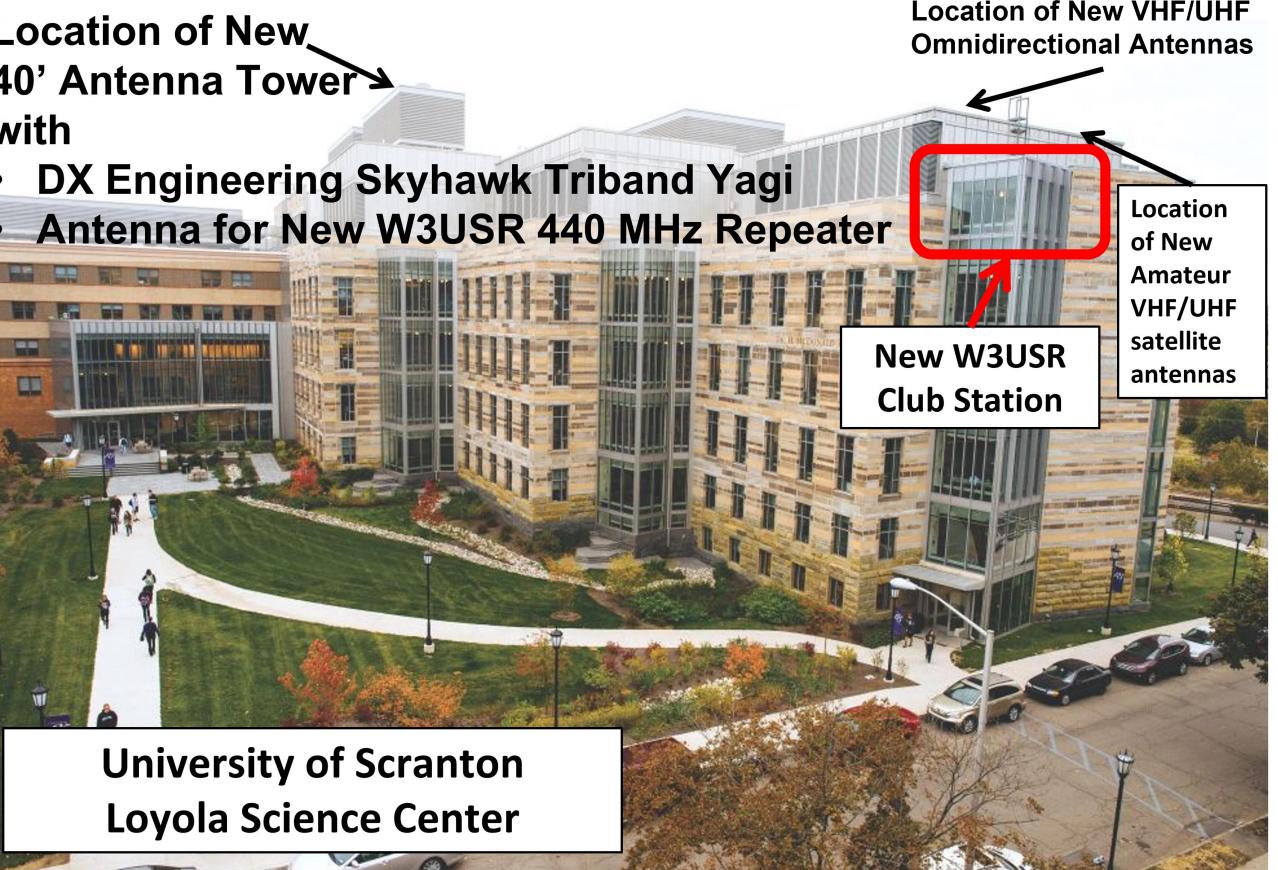
While the W3USR team is working day and night to archive the goal of educating students, brining people together, and sharing in the enthusiasm for ham radio and space physics there are some tools the team needs to achieve these goals.
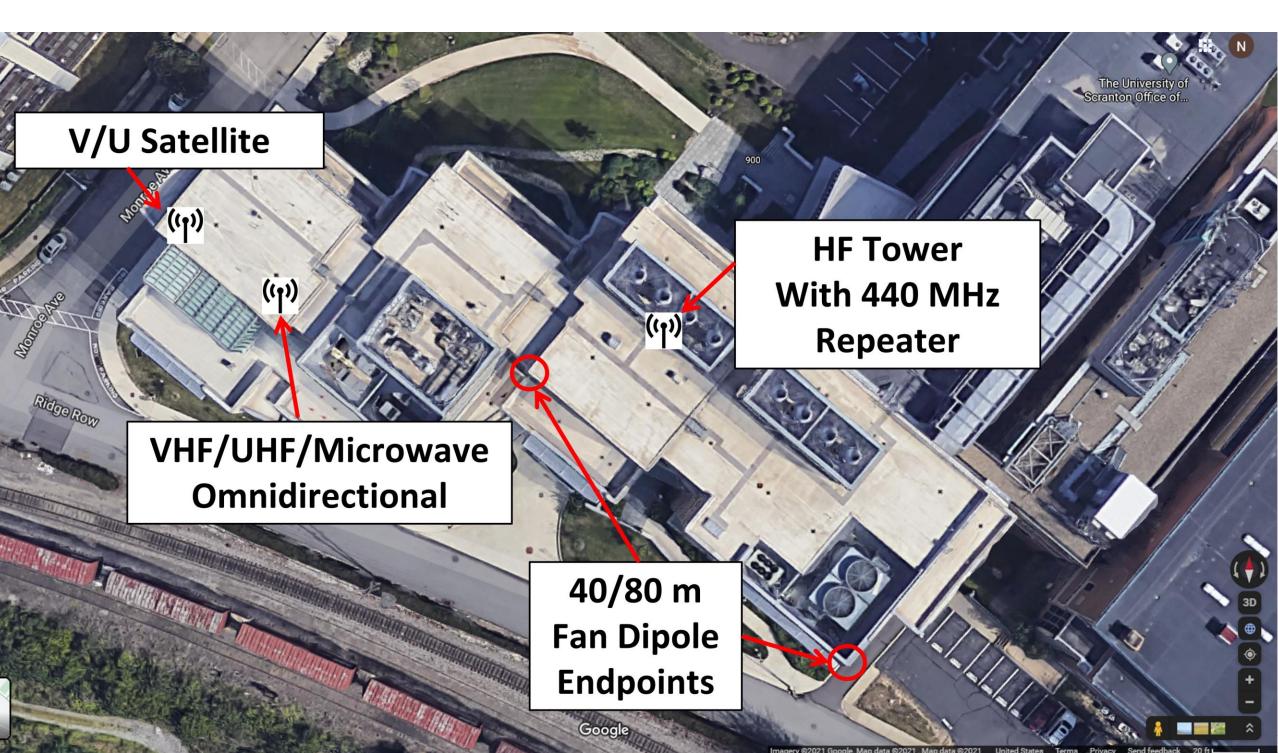
Antennas

Location of New 40' Antenna Tower with
- DX Engineering Skyhawk Triband Yagi
- Antenna for New W3USR 440 MHz Repeater

Location of New VHF/UHF Omnidirectional Antennas

New W3USR Club Station

Location of New Amateur VHF/UHF satellite antennas

University of Scranton Loyola Science Center

V/U Satellite

VHF/UHF/Microwave Omnidirectional

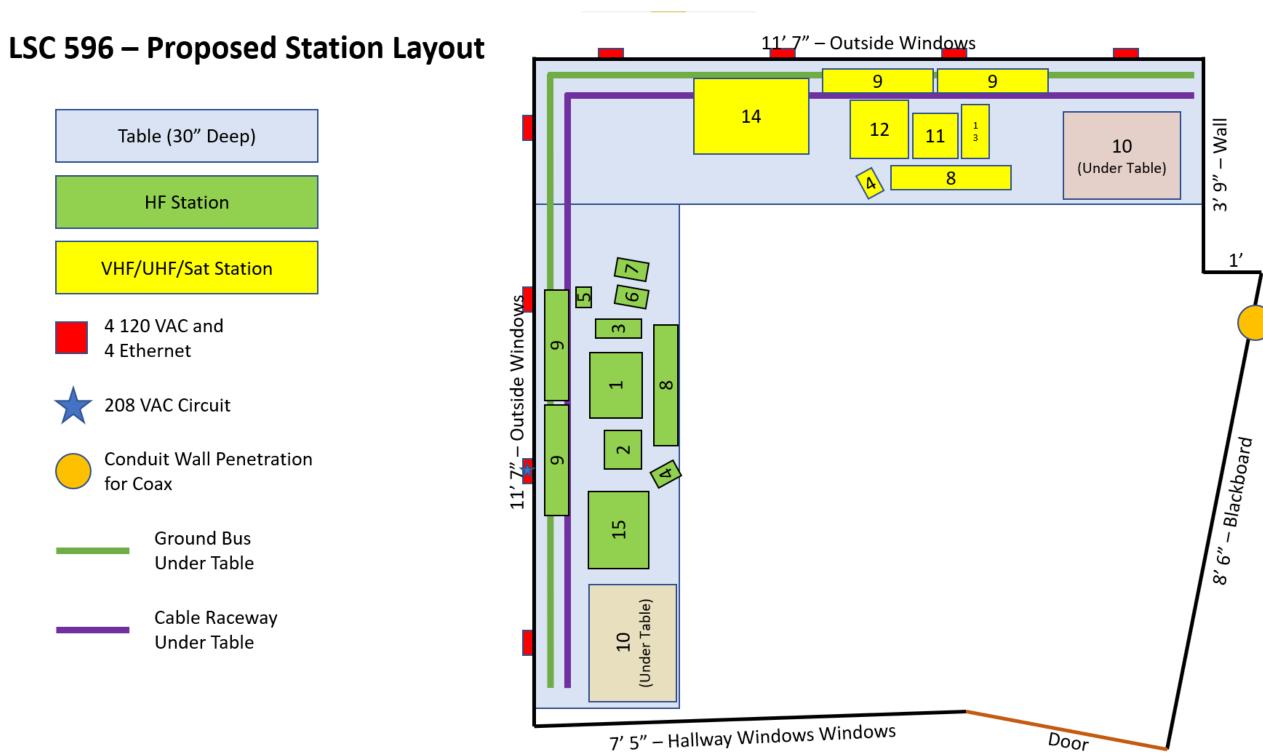HF Tower With 440 MHz Repeater

40/80 m Fan Dipole Endpoints

- 40-foot Tower on Loyola Science Center Roof
- DX Engineering DXE-3X10 "Skyhawk" Yagi for 10 / 15 / 20 m
- Custom Dipole for 40 and 80 m
- PAR Electronics OA-50 6 m Horizontal Antenna
- Kreco CP-40A 52 MHz omni antenna, 2.1 dB
- RFS BA1312 144-148 MHz omni antenna, 5.1 dBi
- Commander 1150-5N 440-450 MHz omni antenna, 7.1 dBi
- Newtronics HS10-12430 1.2 GHz antenna, 14.1 dBi
- Abracon AEAGMK148060-S1575 multiband GPS antenna
- 440 MHz Antenna for W3USR Repeater

W3USR Station

Inside of LSC 596 - Future Home of W3USR

LSC 596 – Proposed Station Layout

Table (30" Deep)
HF Station
VHF/UHF/Sat Station
4 120 VAC and 4 Ethernet
208 VAC Circuit
Conduit Wall Penetration for Coax
Ground Bus Under Table
Cable Raceway Under Table

Nr	QTY	Description	Width	Depth	Height
1	1	IC-7610 HF/50MHz All Mode Transceiver	13.400	10.900	4.600
2	1	Yaesu G-1000DXA Heavy-Duty Rotator Controller	7.874	7.598	5.118
3	1	ICOM SP-38 - ICOM Base Station Speakers	3.900	9.500	4.100
4	2	ICOM SM-50 Desktop Microphone	3.540	5.390	10.710
5	1	microHAM CW Keyer	4.050	3.350	1.730
6	1	Vibroplex Iambic Paddles	3.750	6.500	3.500
7	1	Vibroplex HK-STD Straight Key	3.600	6.500	3.500
8	2	Dell Keyboard & Mouse	25.000	5.000	1.000
9	4	Dell Monitor	23.000	5.000	18.000
10	2	Auray ERS-8U Rack for Power Supplies	19.700	18.100	20.500
11	1	Icom IC-9700 2m/70cm/23cm all-mode transceiver	9.400	9.400	3.700
12	1	Green Heron RT-21 azel Rotor Controller	12.000	12.000	8.000
13	1	ICOM SP-41 - ICOM Base Station Speakers	5.750	11.120	4.375
14	1	VHF/UHF Radio Shelf	23.750	15.750	6.250
15	1	ACOM 1010 HF Linear Amplifier	15.984	12.400	5.905

A coaxial cable patch panel will allow any antenna to be connected to an additional penthouse-level W3USR laboratory space.

Acknowledgments