



DUPAGECOUNTRY

Environmental Committee Informational Presentation

Campus Tunnel Lighting Energy Efficiency Project

September 3, 2024



EECBG Summary

Recap of the Energy Efficiency and Conservation Block Grant (EECBG)

- **Department of Energy – Office of State and Community Energy Program**
 - Total = \$449,600
 - EV Charging at Judicial Office Facility = \$60,700
 - Solar Panel Installation on Administration Building = \$218,725.88
 - Workforce Gap Analysis & Training = \$100,000
 - Tunnel LED Lighting Retrofit = \$70,234.12
 - Final cost came in at \$55,657.98
- **Completed with in-house staff**
 - Kudos to Rob Quigley, DuPage's lead Wheaton-campus electrician and his team of Esteban Serna and Jake Moran
 - Several weeks in very hot, dusty, cramp and dark conditions!

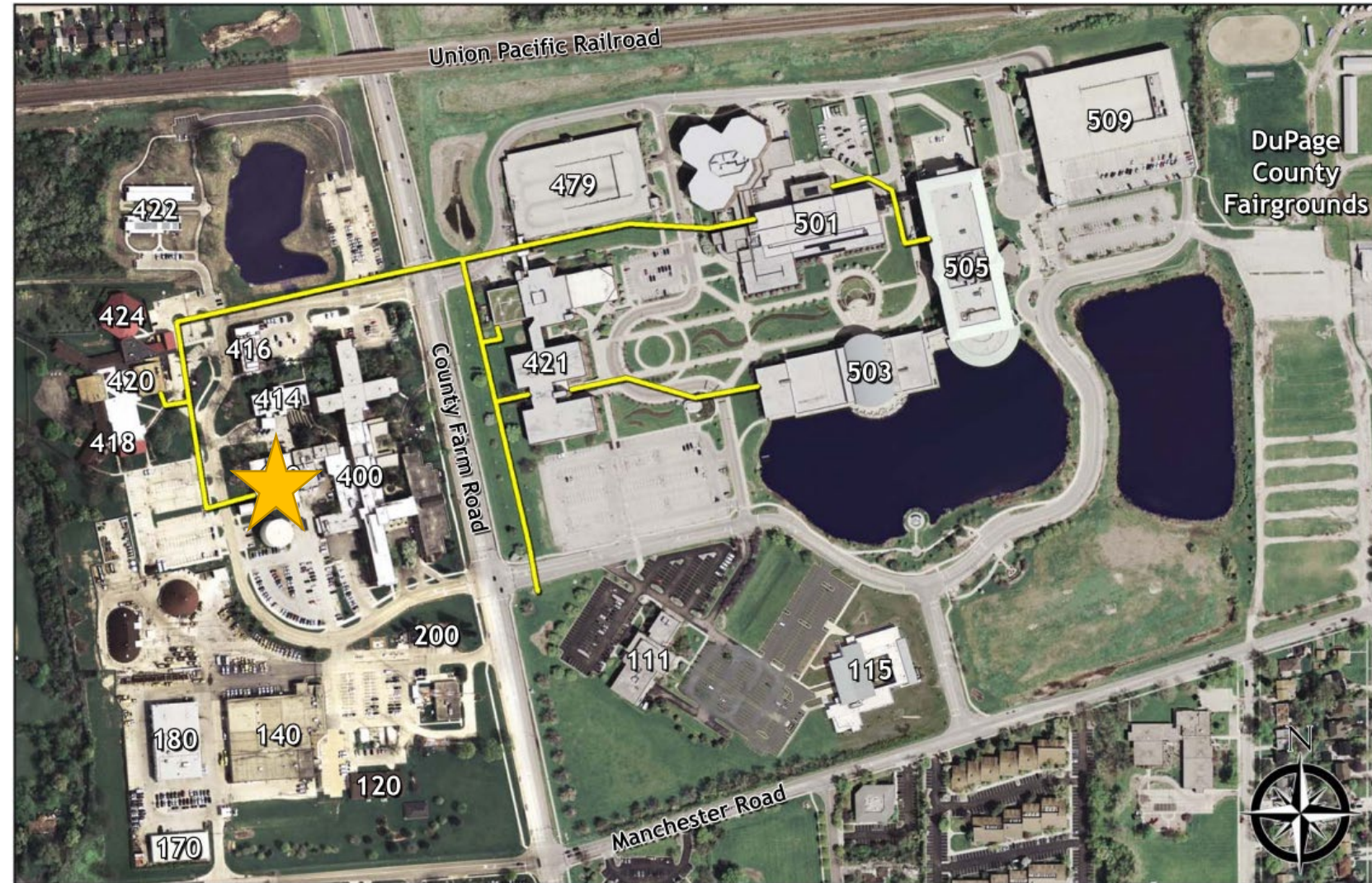




Tunnel System

Tunnel System Overview

- **Approximately 1 mile of tunnels that connect most of the campus**
- **High Temperature Hot Water and Chilled Water**
 - The campus “Power Plant” contains large chillers and boilers that supply hot and cold water throughout most of the campus (other buildings have individual HVAC)
 - Individual campus buildings use this hot and cold water to condition and heat their building’s air and water





Campus Heating

Heating System Overview

- **3 Boilers are used to heat ~1,718,883 sq. ft.**
 - Boiler 1: 45 mmbtu
 - Boiler 2: 45 mmbtu
 - Boiler 3: 30 mmbtu
 - Boilers 1 & 2 both have a similar heating capacity to burning almost 13,000 lbs of wood
- **Boiler 3 runs most of the time**
 - Boiler 3 switches off and Boilers 1 or 2 come on when outside temperatures hit ~35F or when sustained water supply drops below 375F
 - Boiler 3 switches back on at 20F temp.





Campus Cooling

Cooling System Overview

- **4 Chillers are used to cool ~1,718,883 sq. ft.**
 - Chiller 1-2: Duplex machine rated at 2000 tons (800 single-family homes)
 - Chiller 3: 1000 tons
 - Chiller 4: 1000 tons
 - Supplemental 1,250,000 chilled water thermal storage tank
 - Cooling tower that helps eject condenser heat being absorbed by chilled water

- **Aims to keep a sustained water supply of 38F**
 - Automated temperature supply and return system
 - ~25% of campus electricity usage in the summer





Building HVAC





Tunnel Lighting

Lighting System

- **Fluorescents and High-Pressure Sodium**
 - 191, 4', 32W Fluorescents lamps
 - 32, 95W High-Pressure Sodium lamps
 - Always on – Costing over \$7,000/year

- **New LEDs**
 - 68, 4', 18W LED
 - 80, 8' 53W LED
 - nLight AIR Sensor – Bluetooth + phone app allows wireless dimming features, timers, sunlight harvesting, and occupancy sensing
 - Reduces CO2 emissions by 80,180 lbs/year

