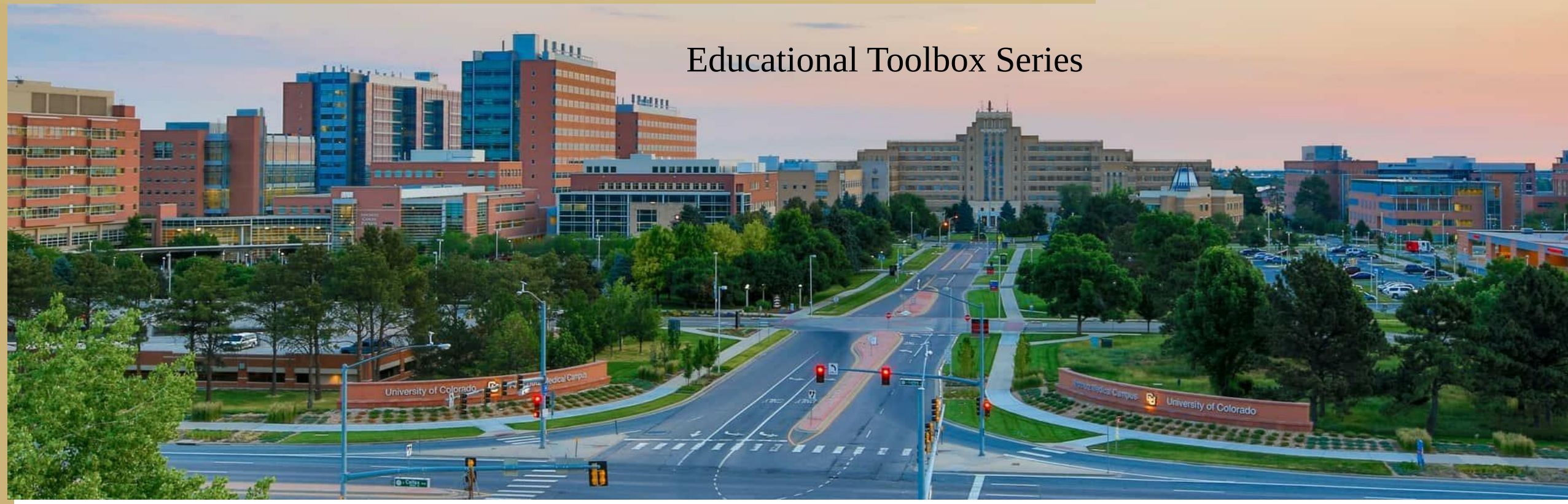
University of Colorado **Anschutz Medical Campus**

CPTED –
CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN

Educational Toolbox Series



Crime Prevention Through Environmental Design

Your University Police Department and Facilities Management & Planning Department collaborate utilizing the four principles of Crime Prevention Through Environmental Design to create safe physical environments for our University community, and we are also able to track the sustainability impacts from these efforts.

Your Speakers Today:

- Randy Repola – CU Anschutz Campus Chief of Police
- Jay Campbell – Associate Vice Chancellor of Facilities Management and Planning
- Udalio “Del” Quiel – Director of Facilities Support Services
- Gregory Gibson – Executive Director of Building Maintenance & Operations.

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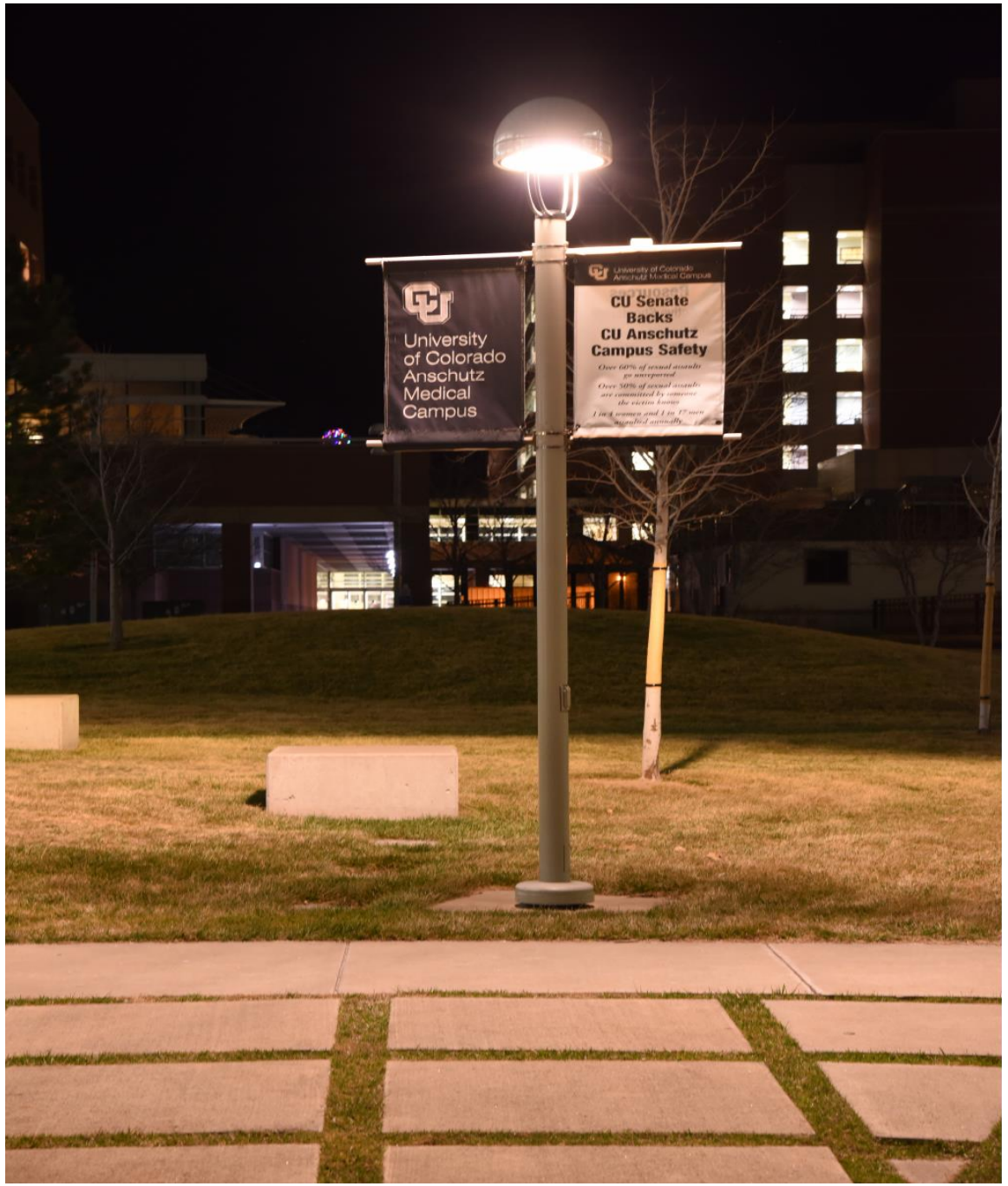

What are the Four Principles of CPTED?

- Control of access
- Provided opportunities to see and be seen
- Define ownership
- Encourage the maintenance of territory

University Police – Control of Access

Why we have Access Control protocols.

To enhance & preserve personal safety, secure physical property & protect the integrity of research (Campus Administrative Policy 3032A).

Open vs Controlled buildings.

How we perform Access Control -

Access Control Components

CU Anschutz personnel, affiliates, vendors, etc.

We are here for you!

Contacting the CU Anschutz Police Department.

How we reach you.

Facilities Management and Planning– Provide Opportunities to See/Be Seen

How we make the campus accessible

- Campus events (i.e. Commencement)
- Inclement weather situations
- General Campus Grounds

Impact of Landscaping

- Safe, identifiable walking pathways
- Sidewalk/Parking Lot Tripping Hazards

Additional Campus Support

- Pedestrian Crosswalks
- Traffic Management
- Parking Lot Improvement Projects

Additional Campus Support

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University Police/ Facilities Management and Planning– Define Ownership

University Police

- Ensuring general safety of campus community

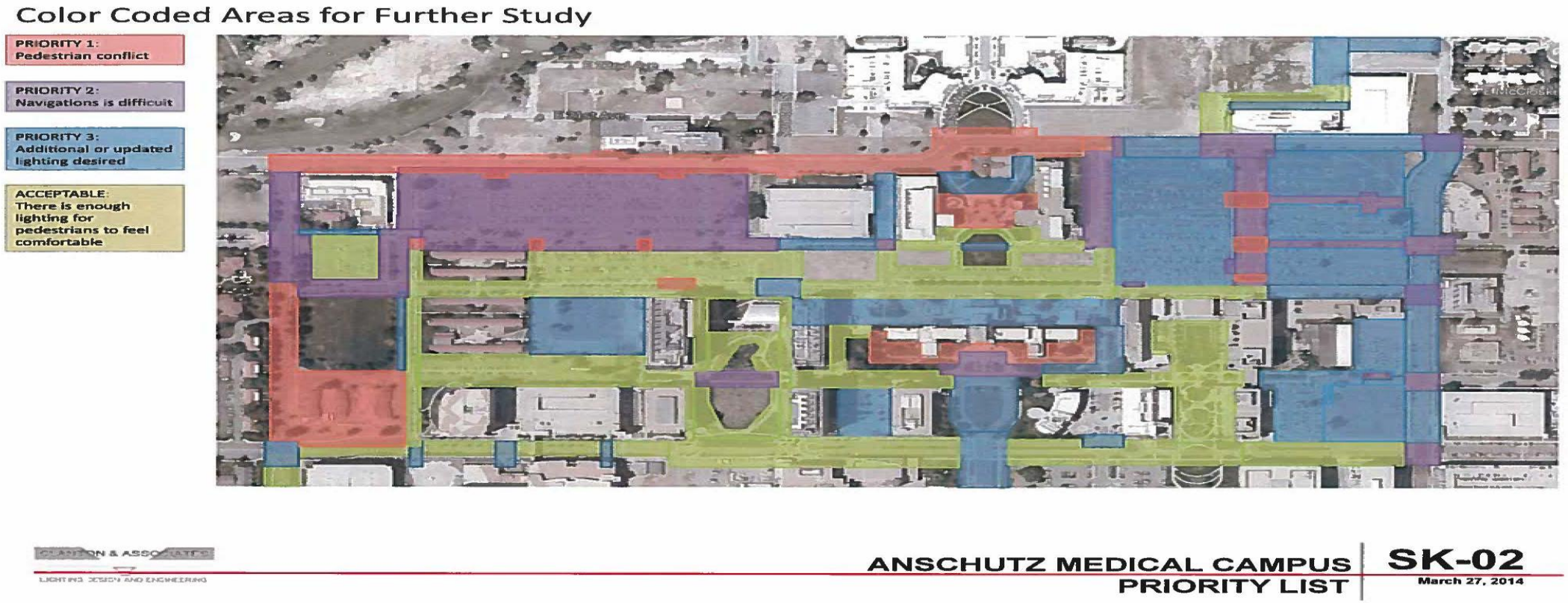
Facilities Management and Planning

- Services provided to be “invisible” to campus community

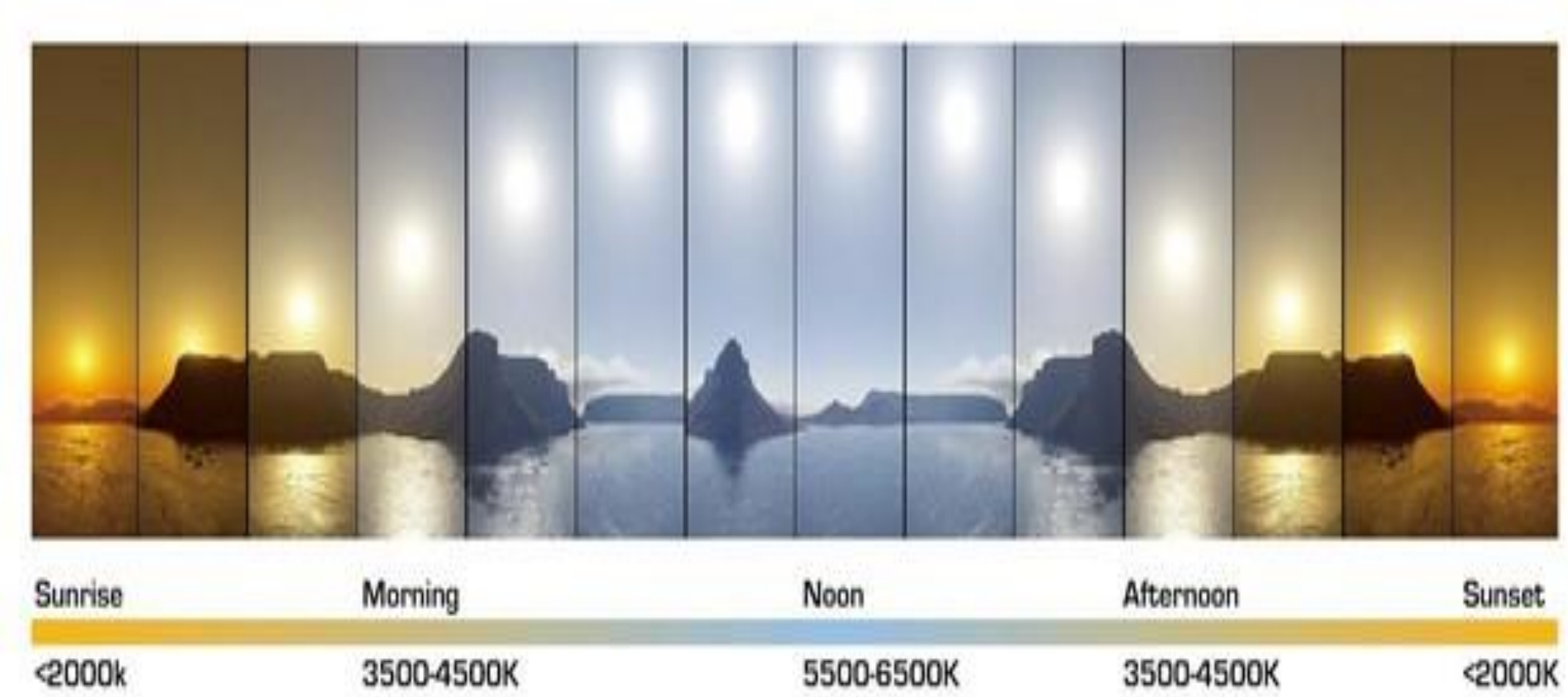
Development of the Campus Lighting Tour to engage the University Community

- How can we receive campus input on lighting issues and concerns?
- Needed input and engagement from University students/student groups, faculty and staff for areas of lighting concerns.
- First Lighting Tour - 2014

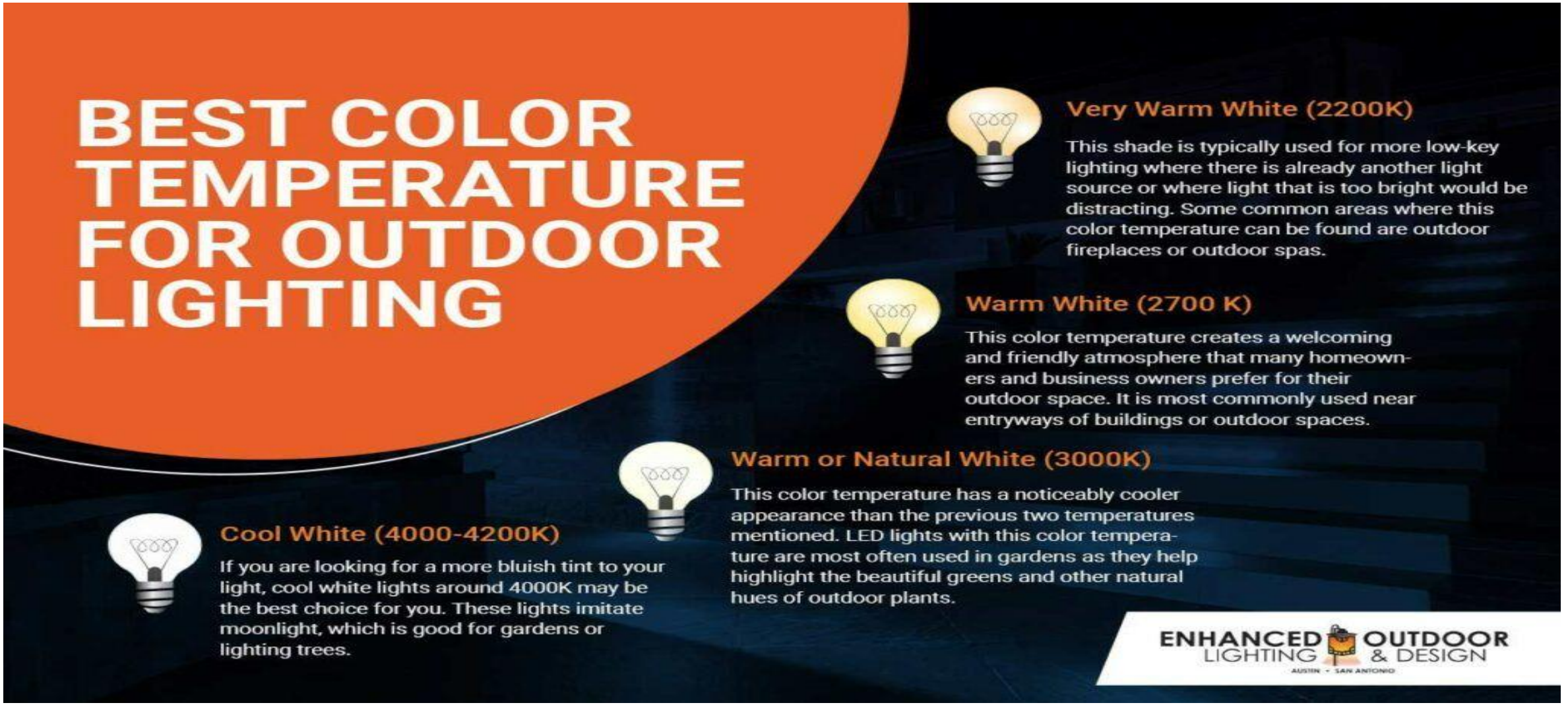
University Police/Facilities Management and Planning– Encourage the Maintenance of Territory



What is Lighting Color and How Is It Measured?

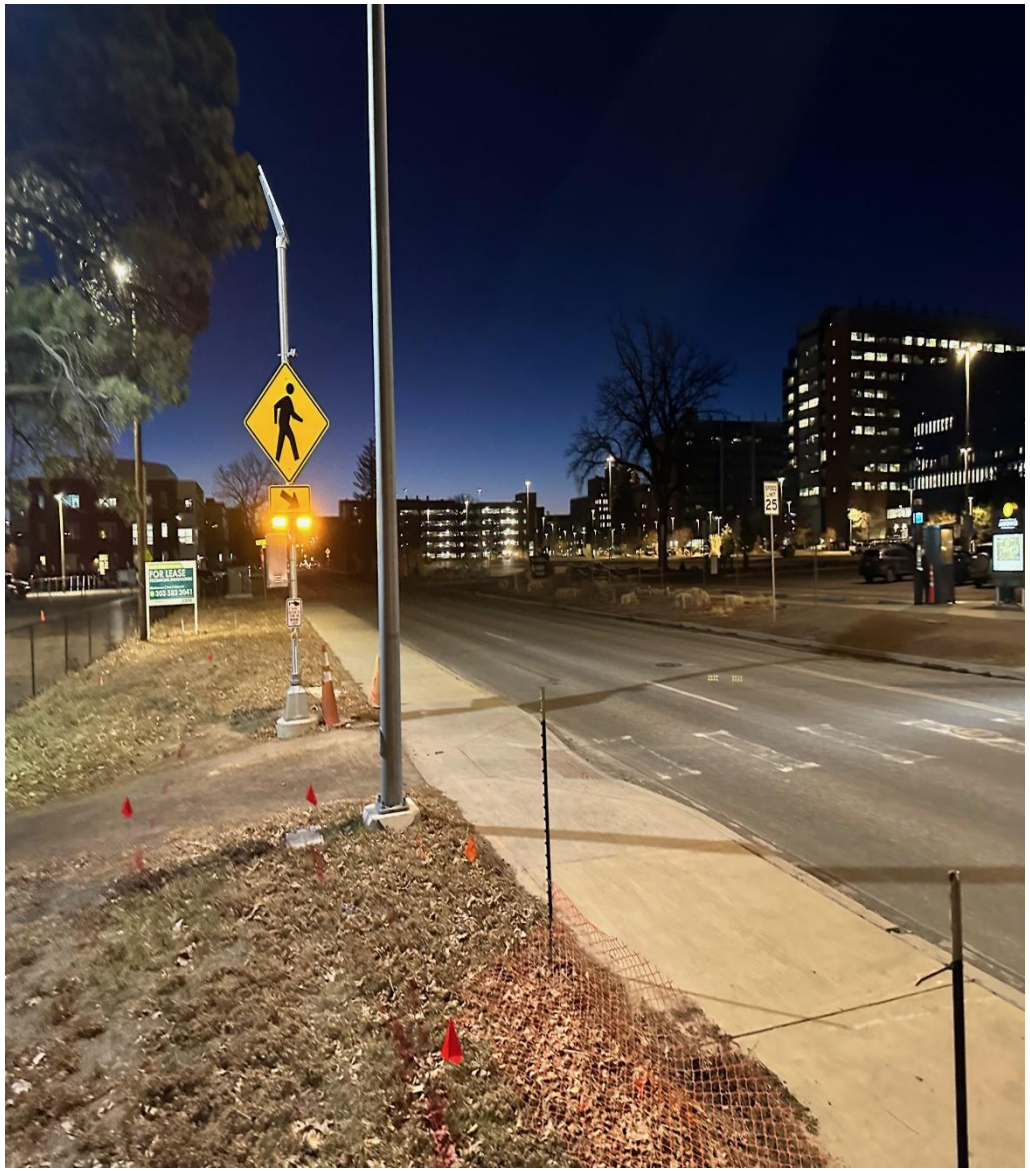


What is The Best Option for Outdoor Lighting Color?



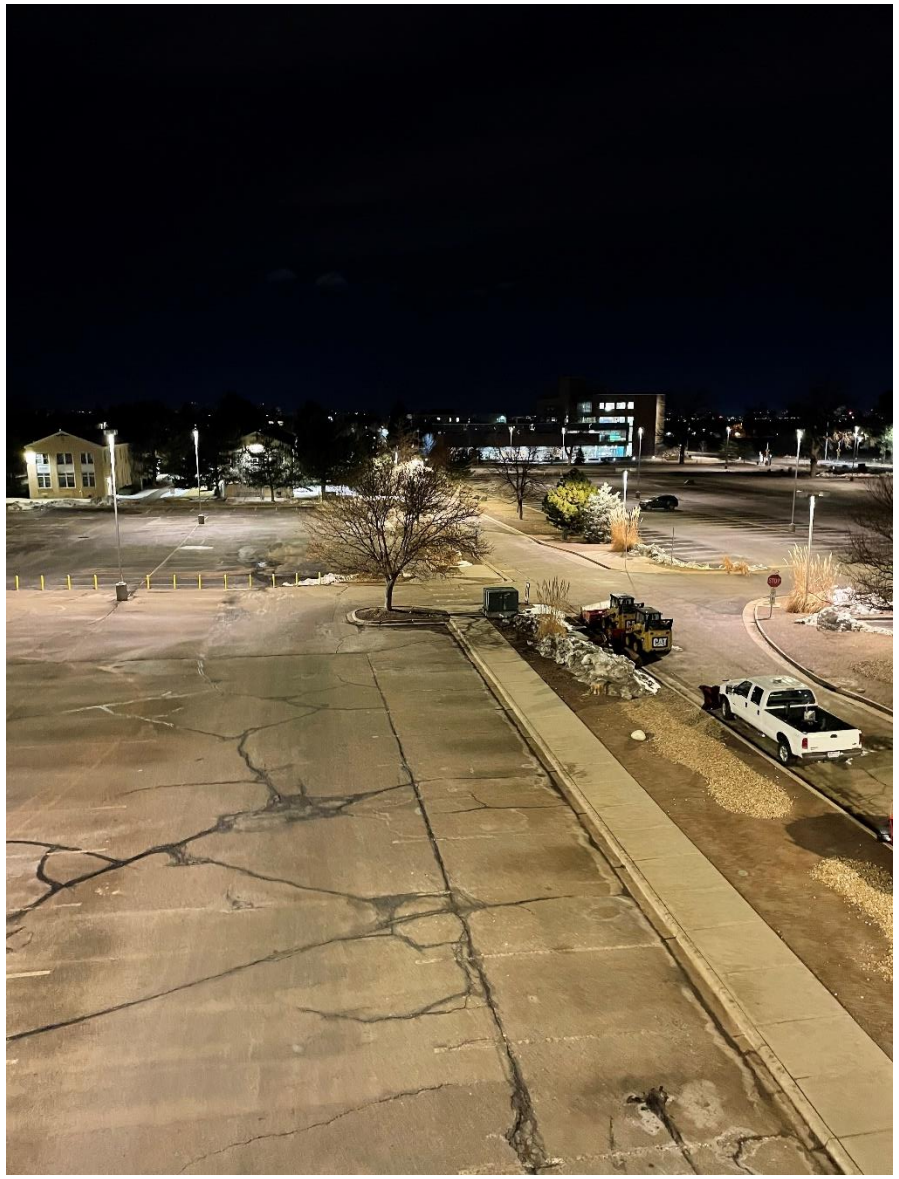
Lighting Repairs - Lighting Improvements – Lighting Upgrades

- Additional examples of Action Items from Campus Lighting Tours since 2020
  - **Loading Dock between RC-2 & AHSB** –
    - Issue: Loading dock area was dim.
    - Recommendations: Explore lighting solution.
    - Outcomes: Upgraded eight wall packs to LED.
  - **Building AK32-Perinatal Research Facility** –
    - Issue: Dark around the facility.
    - Recommendations: Install perimeter lighting.
    - Outcomes: Upgraded twelve single-fixture poles and all wall packs to LED
  - **Montview Street** –
    - Issue: Potential pedestrian crossing areas are not clearly demarcated.
    - Recommendations: Explore pedestrian crossing solutions.
    - Outcomes: Although not a University-owned street, Facilities Management has installed five pedestrian crossing units.
  - **Montview Street/Racine Street Intersection -**
    - Issue: This intersection is not well-lit.
    - Recommendations: Explore lighting solutions for this area.
    - Outcomes: Facilities Management has installed a light pole w/LED fixtures to improve visibility to the crosswalk.



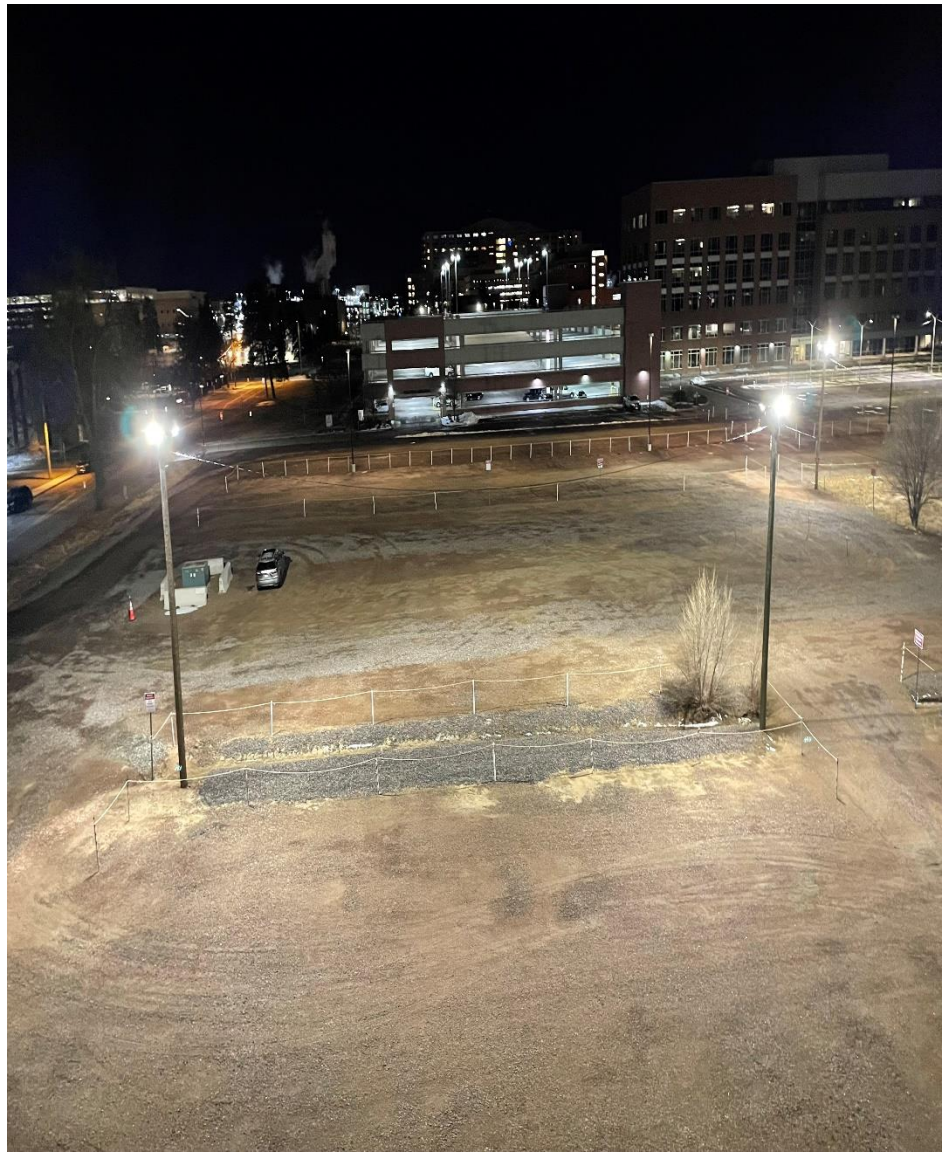
Lighting Repairs - Lighting Improvements – Lighting Upgrades

- Additional examples of Action Items from Campus Lighting Tours since 2020
  - **Vail and Breckinridge Parking Lots** –
    - **Issue:** Dark along the sidewalk pathway adjacent to these lots, and dark within these lots.
    - **Recommendations:** Facilities Management (BMO) will add one additional fixture to four existing poles, and convert these lights to an LED solution. This work will be performed by in-house staff.
    - **Outcomes:** The Facilities Management electrical team installed a new pole light on existing caisson, also changed light pole heads to LED to light up this area. New LED lighting has decreased 30% of light pollution from the metal halide fixtures. This new LED fixture has increased the lumens to target area, so the sidewalk area is significantly brighter.
  - **Along 19th Place, adjacent to the Aspen, Vail, and Breckenridge Parking Lots** –
    - **Issue:** Dark along the sidewalk pathway adjacent to these lots, and along the roadway.
    - **Recommendations:** Facilities Management (BMO) will add one additional fixture to three existing poles, and convert these lights to an LED solution. This work will be performed by in-house staff. Also, the Breckinridge Lot expansion project will improve lighting conditions for this area.
    - **Outcomes:** Converted and upgraded existing pole light to double headed LED east of Police Station, we also converted 4 pole light heads to LED and added one additional LED pole light head.



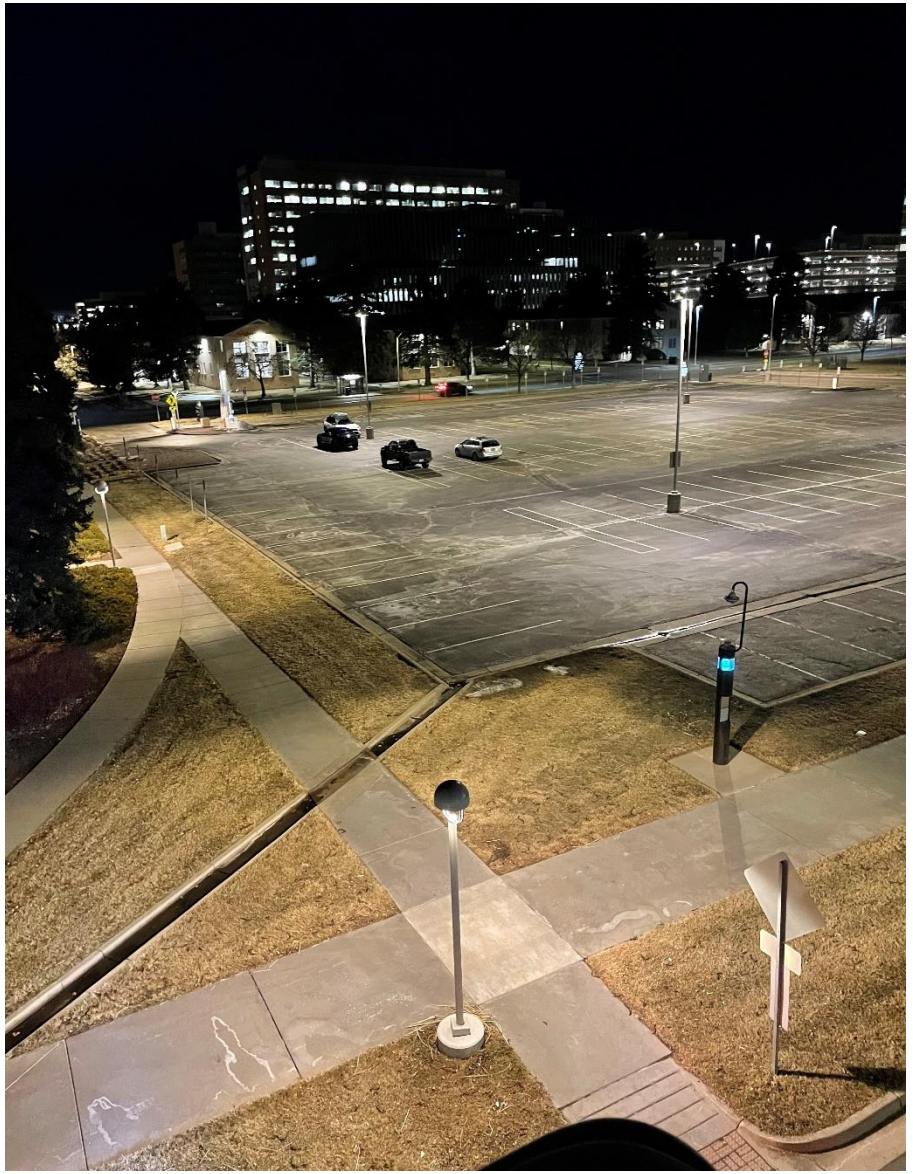
Lighting Repairs - Lighting Improvements – Lighting Upgrades

- **Action Items from Campus Lighting Tours since 2020**
  - **Rock Lot** –
    - **Issue:** The students spoke of their concern regarding dark areas adjacent at the entry to the Rock Lot, and within the Rock Lot. The students also spoke of their concern regarding the high growth of vegetation in several areas within this location. The students were also concerned that any lighting solution developed should have minimal impact on the adjacent rental property.
    - **Recommendations:** Facilities Management (Support Services) will address the trimming of the vegetation. Facilities Management (Support Services) will also engage a lighting consultant to prepare a recommendation to 1) increase the number of fixtures on existing light poles, 2) possibly increase the wattage/illumination for existing light poles, and 3) consider placement of new poles within this location.
    - **Outcomes:** Facilities Management has installed additional 2 pole lights to each pole for a total of 4 light pole heads at 50,000 lumens per pole of light output, and addressed a street light outage
  - **Along Henderson Drive** –
    - **Issue:** Dark along the sidewalk pathway, leading to/from Henderson Garage
    - **Recommendations:** Facilities Management (BMO) will add two pedestrian lights along this walking path. This work will be performed by in-house staff.
    - **Outcomes**: Three additional pedestrian pole lights were installed along this walking path. Also along Henderson Drive (at Laydown Yard), additional wall packs added in this area. There were new wall packs installed at AK-32 Building, new crosswalk lights added along Montview Road, a new pole light at intersection of Revere and Montview Road, and the replacement of a street light at Red Cross Monument.



Lighting Repairs - Lighting Improvements – Lighting Upgrades

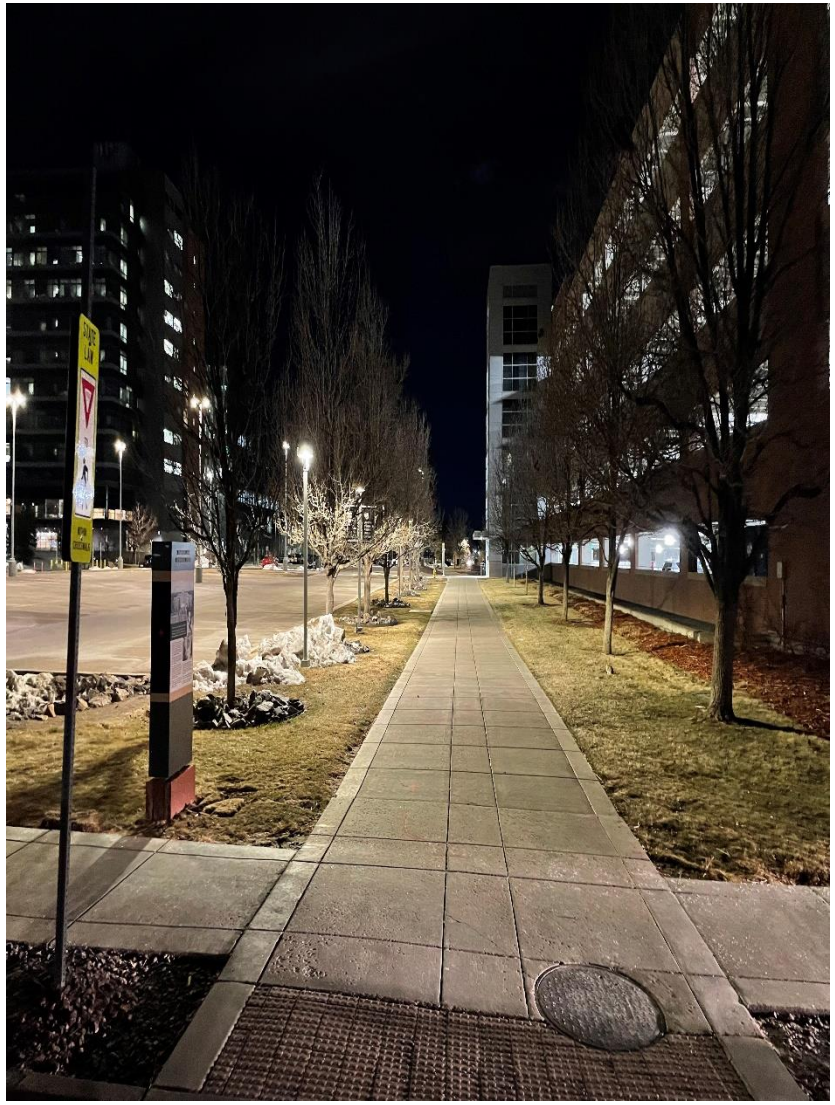
- Additional examples of Action Items from Campus Lighting Tours since 2020
  - **Monte Vista Parking Lot** –
    - **Issue:** Dark within this lot.
    - **Recommendations:** Facilities Management (BMO) will convert the four existing poles to dual-head fixtures with an LED solution. This work will be performed by in-house staff.
    - **Outcomes:** The four existing poles were converted to dual-head LED fixtures.
  - **Sidewalk between Wellness Center and the Commander's House, adjacent to Monte Vista Parking Lot** –
    - **Issue:** Dark along the sidewalk pathway adjacent to this lot.
    - **Recommendations:** Facilities Management (BMO) will add one pedestrian pole light, at the sidewalk entrance to the Fisher House. This work will be performed by in-house staff.
    - **Outcomes:** Three light poles were added to address the dark side walk areas.
  - **17th Place → Montview Blvd (on Quentin Street, adjacent to Monte Vista Parking Lot)** –
    - **Issue:** Dark along the sidewalk pathway from the bus shelter to Montview Boulevard.
    - **Recommendations:** Installation of numerous bollards or below tree canopy light poles to illuminate the pathway. This project will have to be engineered, and a funding solution will have to be identified.
    - **Outcomes:** Our Facilities projects team has taken over the review and design solution to address this area.

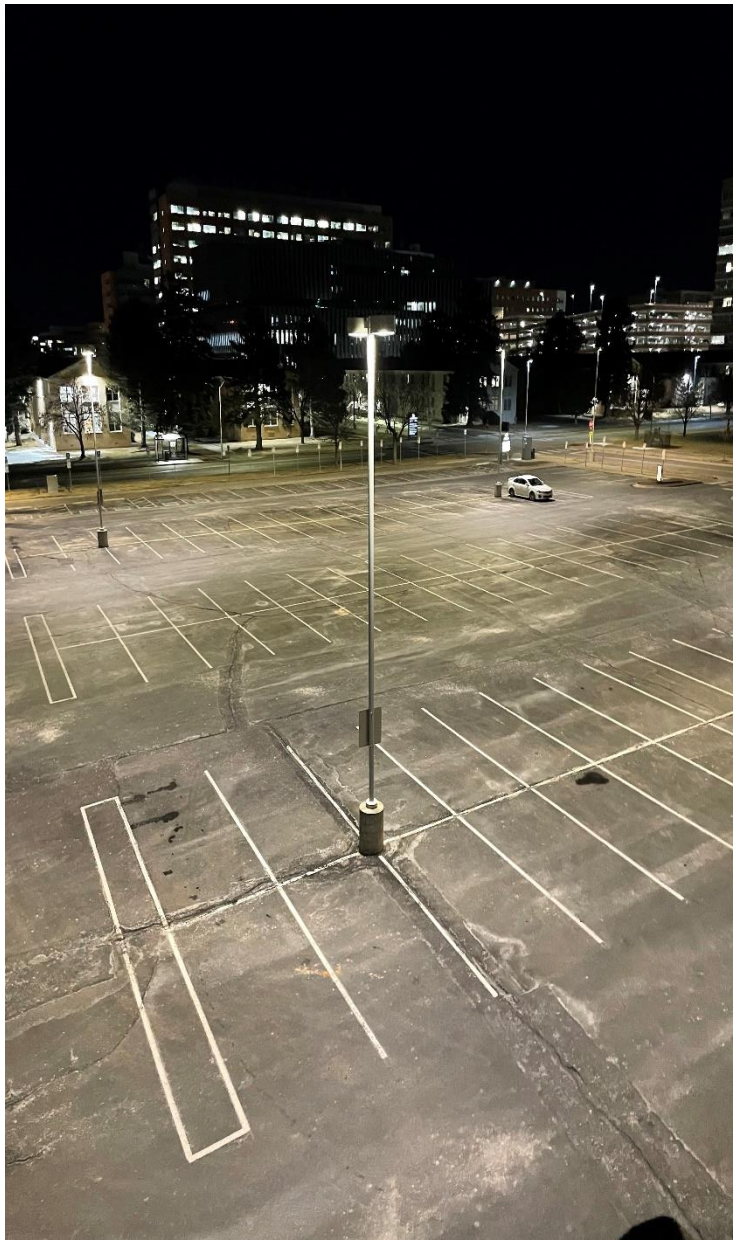


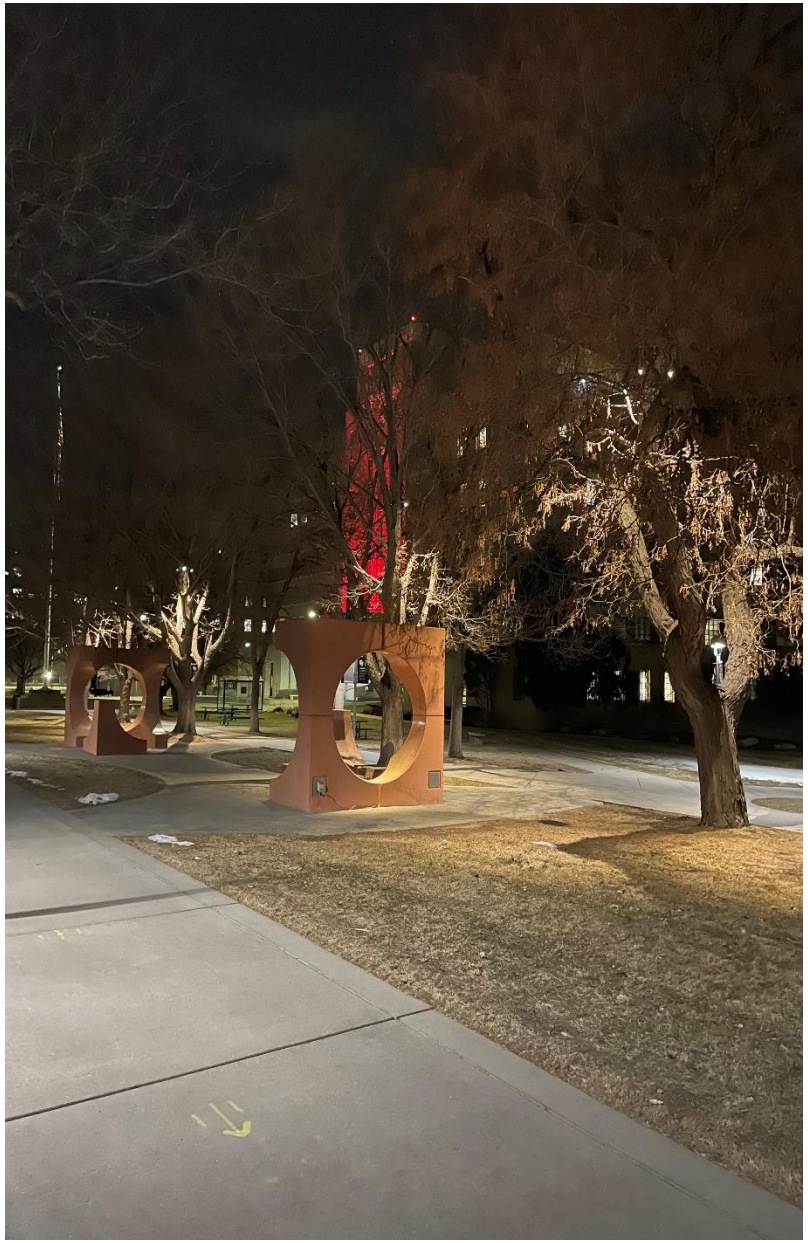
Lighting Repairs - Lighting Improvements – Lighting Upgrades

- Additional examples of Action Items from Campus Lighting Tours since 2020
  - **West Rock Lot;**
    - **Issue:** dark entry to the parking lot –
    - **Recommendations:** This entry had a light out during our walk and has since been repaired.
    - **Outcomes:** Lighting repair completed.
  - **Red Cross Memorial Dark Areas –**
    - **Issue:** Area is dark
    - **Recommendations:** Contacting the City of Aurora to address the two defective north street lights
    - **Outcome:** City of Aurora was notified to repair the street lights, repairs verified.
  - **Pharmacy and Library**
    - **Issue:** Dark Walkway Area –
    - **Recommendation:** Our lighting vender is exploring options to change out the existing lighting to brighten up this area, this will also be addressed on 12/1/22.
    - **Outcome:** Facilities Management has completed retrofit one side of the walkway to new LED lamps

Lighting Repairs - Lighting Improvements - Lighting Upgrades







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Future Improvements

- **V-17 Parking Garage**
  - Issue: There are blind spots are present when turning onto different levels
  - Recommendation: Install bubble mirrors so drivers can view oncoming traffic
  - Repair Update: Facilities Support Services is researching options to add the bubble mirrors at the ramps.
- **V-17 Parking Garage**
  - Issue: northwest walkways outside of parking garage are dark.
  - Recommendation: Install additional two wall packs on each sidewalk area exiting the building, for a total of 4 wall packs need to be added to this area.
    - Also, per the master plan, in the future that will be the entrance/exit of the garage and at that time a street and walkway will be in place.
  - Repair Update: Materials will be arriving for installation within the next four weeks.
- **Montview Road**
  - Issue: Vehicles observed speeding on Montview Road between Chapel and V-17 parking garage.
  - Recommendation: Campus Police to issue traffic enforcement at intersection
  - Repair Update: Campus Police will add more traffic enforcement at intersection per police chief
- **Ben Nighthorse Campbell/Barbara Davis Buildings**
  - Issue: Sidewalk area has darkness in some areas, on south side of Ben Night Horse and Barbara Davis buildings
  - Recommendation: University electrical team to upgrade street lighting to see if it will resolve the dark areas of the sidewalk.
  - Repair Update: FM will upgrade these fixtures 250 watt to 400-watt equivalent LED lighting, this will light up the sidewalk area. Materials will arrive within six weeks.

What Is The Sustainability Impact from Campus Lighting Enhancements?

LED Fixture Replacements – Henderson Parking Garage

- **430 Metal Halide fixtures replaced – Henderson Garage**
- Efficiency: Decrease of 8,600 Watts
  Operations: Next anticipated lighting retrofit- 10 years
- Safety: 3,500 Lumens to 9,200 Lumens per fixture - ***163% Increase***
- 16.3 MT-CO^2 avoided per year
  CO^2 emissions – 749 propane cylinders used for home barbeques
  CO^2 emissions – 18.95 tons of coal burned

LED Pole Fixture Replacements – Campus Parking Lots

- **37 Metal Halide pole fixtures replaced – Breckenridge/Monte Vista lots, and Roadway between Aspen/Breckenridge lots**
- Efficiency: Decrease of 5,000 Watts
- Operations: Next anticipated lighting retrofit- 10 years
- Safety: 5,000 Lumens to 15,000 Lumens per fixture – ***200% Increase***
- 9.5 MT-$C0^2$ avoided per year
  CO^2 emissions – 1.2M smartphones being charged
  CO^2 emissions – 5.32 tons of coal burned

LED Fixture Replacements – East Rock Lot

- **10 Metal Halide fixtures replaced 10 new LED fixtures installed**
- Efficiency: Decrease of 1,600 Watts
- Operations: Next anticipated lighting retrofit- 10 years
- Safety: 3300 Lumens to 9700 Lumens per fixture - ***194% Increase***
- 1.1 MT-CO^2 avoided per year
  CO^2 emissions – 112 gallons of gasoline consumed
  CO^2 emissions – .56 tons of coal burned

Continued incorporation of Crime Prevention Through Environmental Design

- Timely and Substantial Completion of Action Items from November Campus Lighting Tour
- Continued consideration and measurement of sustainability impact for all processes and materials incorporated into solutions.
- Ongoing exploration of technology to address the ongoing and evolving needs of the University and our Campus Community
  - Control of access
  - Provide opportunities to see and be seen
  - Define ownership
  - Encourage the maintenance of territory


THANK YOU!
Do you Have Any Questions?
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