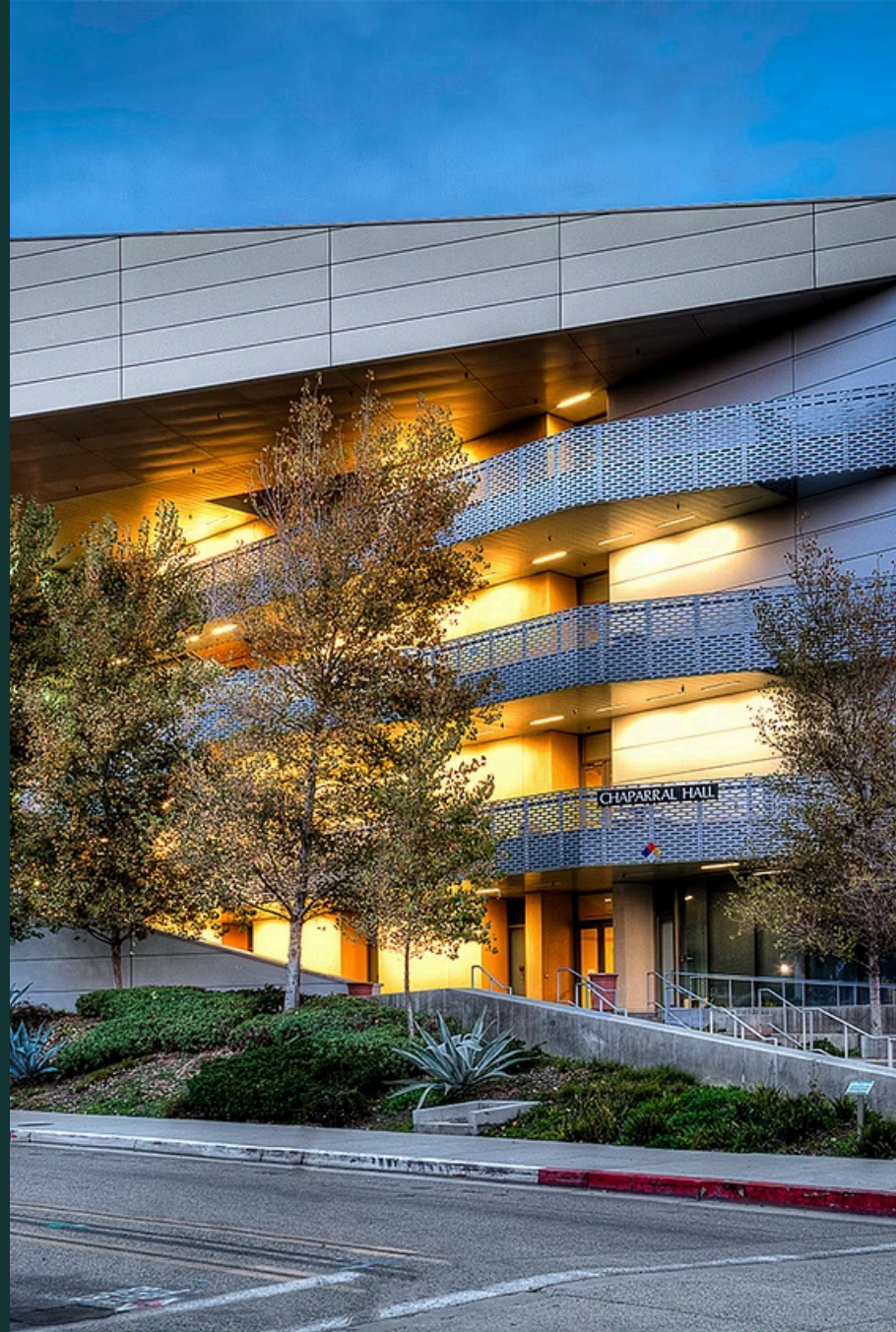
CSUN Green Labs Initiative

Transforming CSUN labs one step at a time

Rachel Singleton and Aspen Coty



CSUN “city within a city”

- San Fernando Valley - suburb of Los Angeles
- 356 acre campus (3rd largest in the system)
- 4000 trees with 200 different species
- Established in 1958
- Public University
- 35,000 students
- 2,200 faculty
- 1,900 staff
- 7,552,068 building SF
- 68% of students are minorities

Who We Are: CSUN Sustainability; unique structure

Rachel Singleton Energy and Innovation Engineer

Aspen Coty Zero Waste and Sustainability Coordinator

FPDC Energy & Sustainability: Facilities

- Resource efficiency
- Utility tracking
- Infrastructure upgrades
- Facility operations

Institute for Sustainability: Academics

- Grants and research
- Faculty partnerships
- Community Engagement
- Experiential Learning

AS Sustainability: Programming

- Farmers Market
- Sustainable Fashion Expo
- Earth Month
- Refill & Repair events

Labs at CSUN

- Magnolia Hall, Organic Chemistry
- Citrus Hall, Biochemistry
- Eucalyptus Hall, General Chemistry labs
- Chaparral Hall, Geological Science

Stats:

- 36 Fume Hoods
- 40 Refrigerators
- 5 Monitored Ultra-low Temp Freezers

Building a Culture of Sustainability in Our Labs

Our philosophy is simple: **start small, build relationships, and scale sustainably**. By collaborating closely with faculty and staff, we're creating lasting change that goes beyond surface-level improvements.

Relationship Building

Fostering partnerships with faculty and staff

Sustainable Practice

Implementing eco-friendly operations

Strategic Focus

Targeting high-impact areas first

Our Core Focus Areas

Smart Procurement

Shifting from single-use plastics to reusable glass materials

- Leveraging new Environmentally Preferred Purchasing Policy
- Reducing plastic waste at the source

Energy Efficiency

Optimizing building systems and equipment usage

- Calibrating fume hoods for auto-shutoff
- Monitoring Energy Use Index metrics

Waste Management

Implementing targeted reduction strategies

- Bin-specific waste measurement systems
- Promoting reusable alternatives

The Plastic Problem: A Simple Solution

The Current State

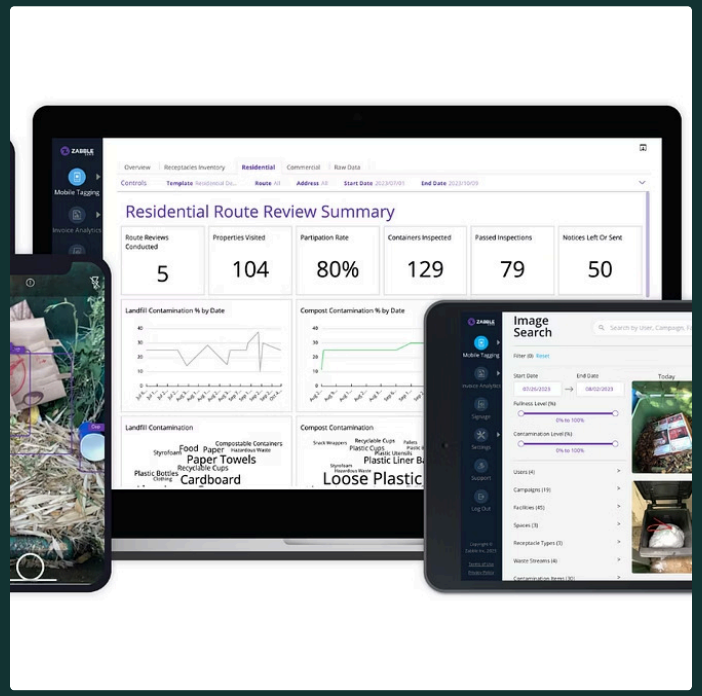
- Unnecessary waste
- Ongoing procurement costs

The Opportunity

- Switch to glass
- Take advantage of dishwashers
- Recycle
- Culture shifts

Waste Reduction Through Measurement

What gets measured gets managed. Our approach to waste reduction focuses on creating visibility and accountability through targeted measurement systems that make sustainable choices easier and more intuitive.

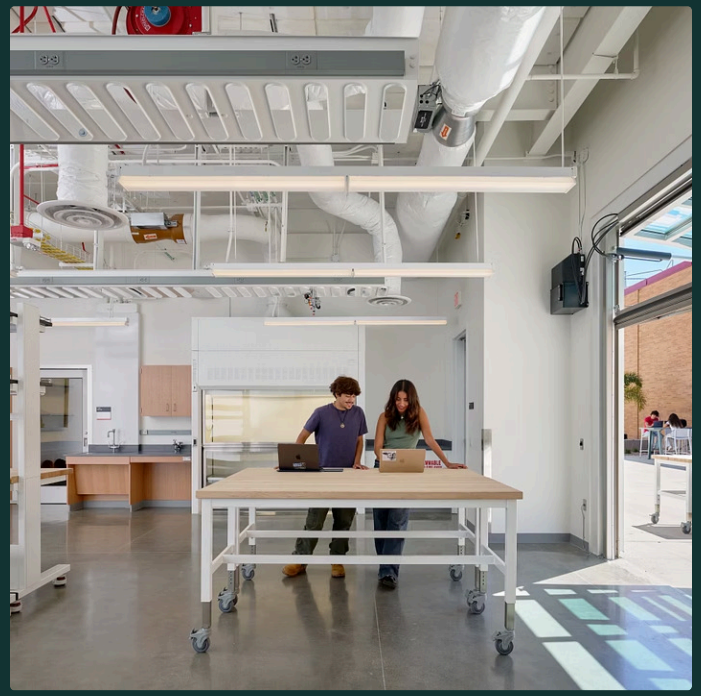


Bin-Specific Tracking

Utilizing technology to gather real time data inside science buildings all the way to the dumpsters outside.

Reusable Alternatives

Exploring glass containers and reusable equipment wherever practical, leveraging our existing dishwashing infrastructure.



Data-Driven Decisions

Using waste metrics to inform procurement, identify high-impact changes, and track progress toward our sustainability goals.

The Freezer Challenge: A Simple Start

The Current State

- ULTs set to –80 °C by default
- Frosted seals; temperature drift
- Inefficient models adding heat load and maintenance

The Opportunity

- Move to –75 °C (when allowed)
- Routine defrost + gasket checks
- Inventory + consolidate; retire extras

The Impact

- Lower energy + cooling load
- Better sample protection
- Longer equipment life; fewer emergencies

Energy Reduction Through Measurement

Software-only AI overlay on CSUN's existing BMS (BACnet). Leverages current occupancy sensors and a campus VM to optimize HVAC without new hardware.

Light-Lift Integration

- BACnet point mapping + secure VM hosting
- Uses existing networked lighting occupancy sensors
- No construction or hardware changes

Measured Impact

- Electricity ↓ ~15% (~14,900 kWh)
- Natural gas ↓ ~36% (~2,080 therms)
- ~$7,000/year utility savings

Repeatable Playbook

- Temp-normalized pre/post M&V with scatter analysis
- Dashboards flag rogue schedules & sensor drift
- Scaling criteria: BACnet + sensor-ready

Education and Engagement: The Human Element

Innovation

Our new Autodesk Technology Engagement Center brings science and outreach into one space

Building a Sustainable Community

Technology and systems can only take us so far. The real transformation happens when people understand, embrace, and champion sustainable practices in their daily work.

We're actively collaborating with professors and students to educate the campus community about these initiatives. Through workshops, one-on-one conversations, and clear communication, we're fostering a culture where sustainability becomes second nature.

Faculty Partnerships

Working directly with professors to integrate sustainable practices into lab protocols and course curricula

Student Engagement

Empowering the next generation of scientists to prioritize environmental stewardship in their research

Impact and Future Vision

The Green Labs initiative demonstrates that environmental responsibility and scientific excellence are not competing priorities—they're complementary goals that strengthen both our research mission and our commitment to the community.

3	100%	1
Core Focus Areas	Department Coverage	Model Program
Procurement, energy, and waste management working together	Every biology lab touched by sustainability initiatives	Setting the standard for other departments and institutions

> "Our success in the biology department creates a roadmap for campus-wide sustainability transformation. When other departments see what's possible, they'll want to join the movement."

Questions?