



LITHIUM-ION BATTERY COLLECTION PROGRAMS:

NORTH CAROLINA STATE UNIVERSITY CASE STUDY

North Carolina's largest university has built a successful lithium-ion (Li-ion) battery collection program by prioritizing cross-campus coordination and communication. **Here's how the program works at NC State:**

1. Collection

Students and employees bring Li-ion batteries and battery-embedded devices to one of 175 electronics collection carts or directly to NC State's convenience site.



2. Sorting and Staging

NC State convenience site staff sort batteries by size, palletizing larger batteries and consolidating smaller ones into buckets before shrink-wrapping for shipment.



3. Delegating Across Campus Partners

[NC State recycling staff](#) manage the electronics collection carts and convenience site, handling loose batteries. Battery-embedded devices go to [NC State Surplus Property](#). [NC State Environmental Health and Safety \(EHS\)](#) must be notified of damaged batteries. These should not be taken to collection sites.



4. Working with External Vendors

Recycling staff sell loose batteries to a local metal recycler for consolidation and shipment to downstream recycling facilities. Surplus Property reassigns or sells working devices for reuse. Non-working devices are sent to a certified electronics recycler. Damaged batteries are managed as a hazardous waste by EHS.

Campus-Wide Collection Infrastructure

Collection sites are open to students and employees for campus-generated materials.

- 175 yellow electronics collection carts are located at academic, residential, dining, athletic, and research facilities—placed outside and away from buildings to reduce fire risk.
- Convenience site drop-off is available for larger batteries (e.g., vehicle batteries).
- Carts are checked weekly, with high-volume locations inspected 2–3 times per week.

Safe Handling

- Undamaged batteries: Staff tape Li-ion terminals and individually bag batteries before transport.
- Damaged batteries: Owners isolate batteries at the point of identification and store them separately in non-combustible containers with inert cushioning material (e.g., sand) pending disposal.
 - EHS coordinates disposal of damaged batteries, and building managers are notified when damaged batteries are found in collection carts.
 - Incidents are documented and reported through established campus procedures.

Targeted Education & Outreach

The recycling staff created a [Li-ion battery disposal guide](#) to educate the campus community. The guide:

- References [EHS procedures for handling damaged batteries](#).
- Is shared directly with high-volume generators (e.g. Engineering and IT Departments).
- Is circulated through the building liaison network for campus-wide dissemination.
- Is posted on the [Waste Reduction and Recycling website](#) for broad accessibility.

Key Takeaways for Other Institutions

While each campus has a unique recycling system, NC State's model shows the importance of:

- **Clear coordination** between recycling teams, EHS, campus surplus, and building managers.
- **Consistent communication** on safety and collection expectations across stakeholder groups.
- **Centralized sorting and staging** to streamline vendor shipments and reduce handling risks.
- **Strategic education and outreach** that targets large generators and leverages campus communication networks to distribute guidance effectively.

FOR MORE INFORMATION on setting up a collection program, procedures for safe storage and handling, or receiving outreach materials and grants, visit batterysafe.nc.gov or email recycleright@deq.nc.gov.



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