The Many Faces of Compost

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Rob Lenahan

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Facilities Management

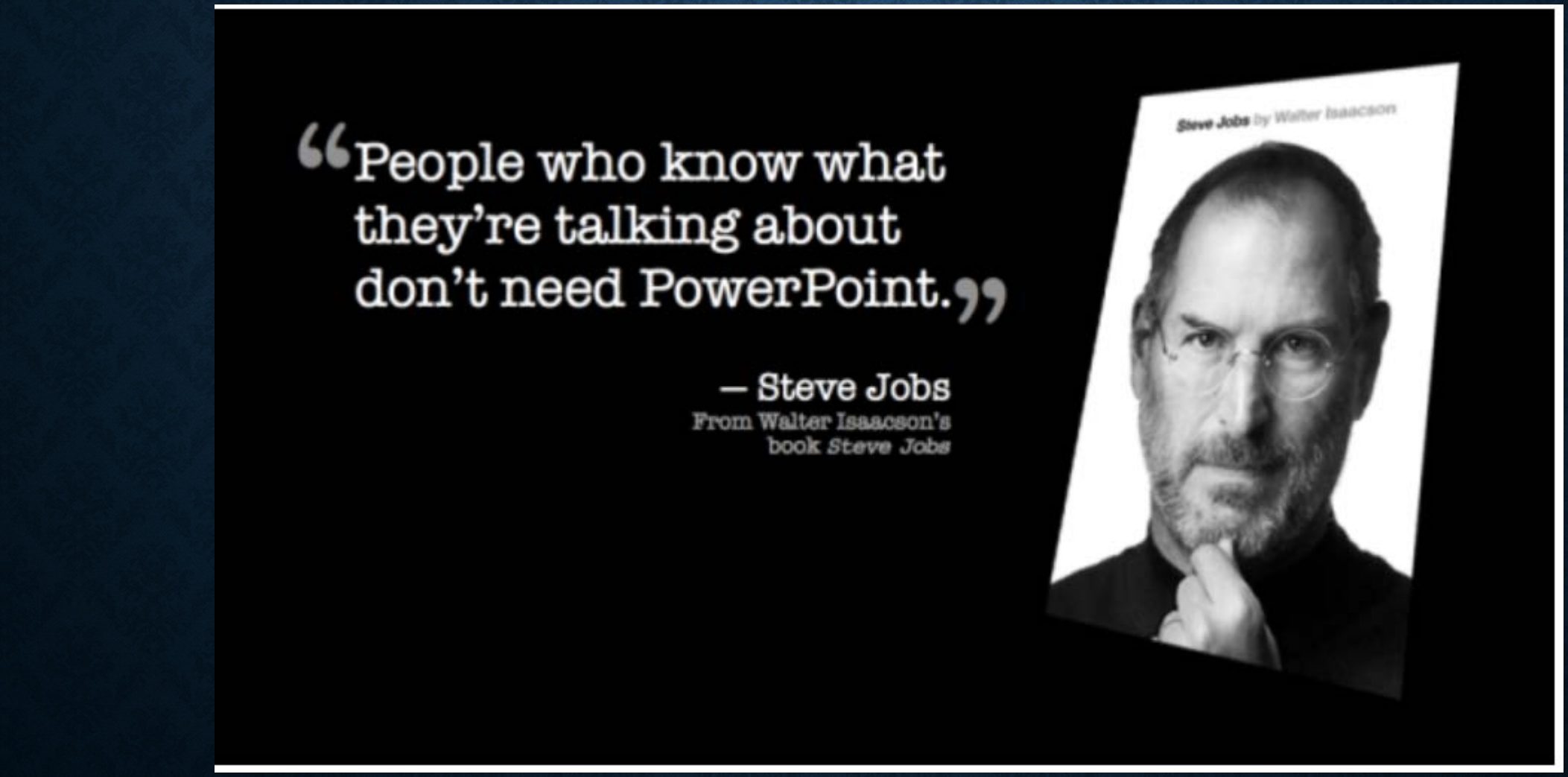
ROB LENAHAN

- Former occupation:
  - slug farmer
  - mermaid for hire (events)
  - Bermudan Navy veteran
- Likes:
  - long walks in his office
  - cozying up w/ a good book about liners
- Sports:
  - Night putting
  - Sheep tossing

JESS BRADLEY

- Former occupation
  - Recycling & Solid Waste Manager
    - Digging through trash as usual
    - Taking pictures of dumpsters/bins everywhere I g
  - CU student
    - Slinging food in dormitory
- Likes
  - Pretending I'm Spiderman
  - Finding my inner peace on bus
- Sports
  - Beer Pong
  - Darts (the pointy ones you throw up in the air and RUN!!)

First Of All….


"People who know what they're talking about don't need PowerPoint."
— Steve Jobs
From Walter Isaacson's book Steve Jobs
Steve Jobs by Walter Isaacson

IT TAKES A VILLAGE

Eco-Cycle

Hauls Campus Food Waste

Western Disposal

Hauls Campus Compost to A1 Organics

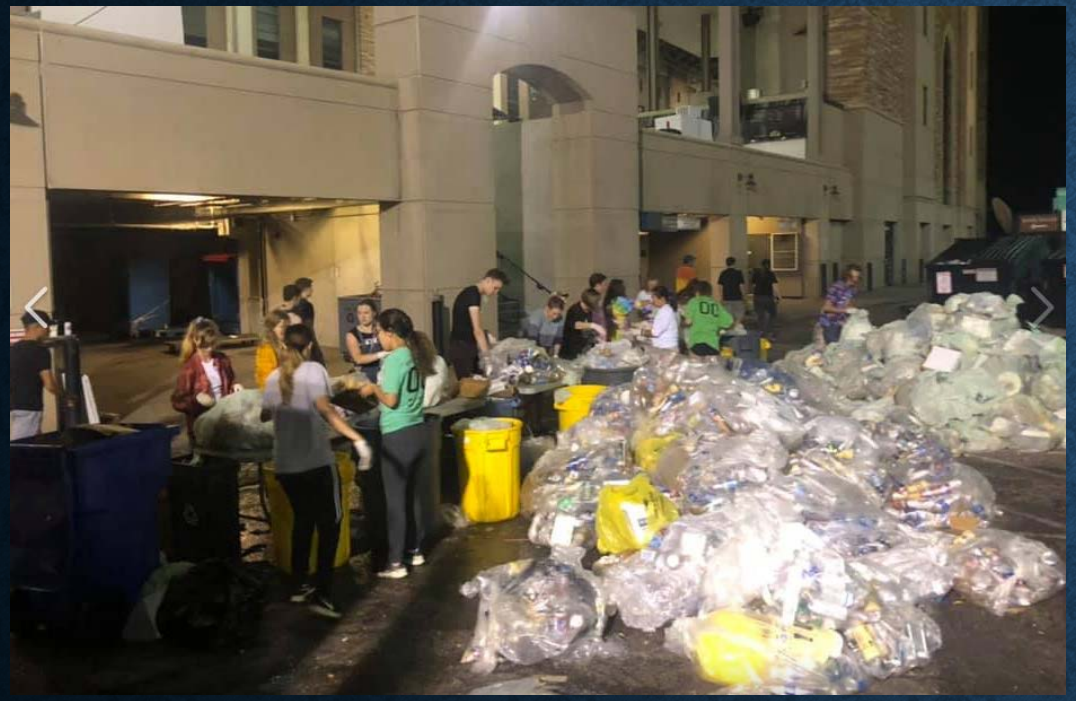
A1 Organics

Processes all Denver area Compost

HISTORY

- C.U Recycling established in 1976
- Student / Administrative partnership est. 1991
- 18 permanent staff
- 25-40 student staff
- 800 volunteer hrs. annually
- Strong student support & involvement

CU BOULDER SNAPSHOT



Challenges

- 8000 population turnover each year
- Large campus environment
- Decreasing State Funding → Limited budget

Total Student Population (2018):

34,510

- First Year Students: 7,922
- International Students: 9%
- In-State: 58%
- Living Off Campus 42%

Total Staff Population (2018):

9,615

- University Staff:: 3,397
- Classified Staff: 1,292
- Academic: 4,926

41% of incoming students indicate they chose CU, in part, based on its sustainability reputation.

GROUNDS & RECYCLING OPERATIONS CENTER

- New in 2015
- Facilities Management Owned
- Environmental Center Student Labor
- Campus Sorting Facility
- Remove contamination from material
- Generate higher revenue for sale of material

- Carts weighed in the GROC
- Cardboard 2914
- Co-Mingled 3378
- Compost 206
- Mixed Papers2041
- Office Pak285
- White Ledger290
- Total9114

WASTE STREAM MANAGEMENT

Consistent, Color Coded Signage

- Easy to understand, picture based reference.
  - Makes process easier for students with primary languages other than English.
- Easy tracking for staff as bags are also color coded.
  - This makes misplaced bags easy to spot.

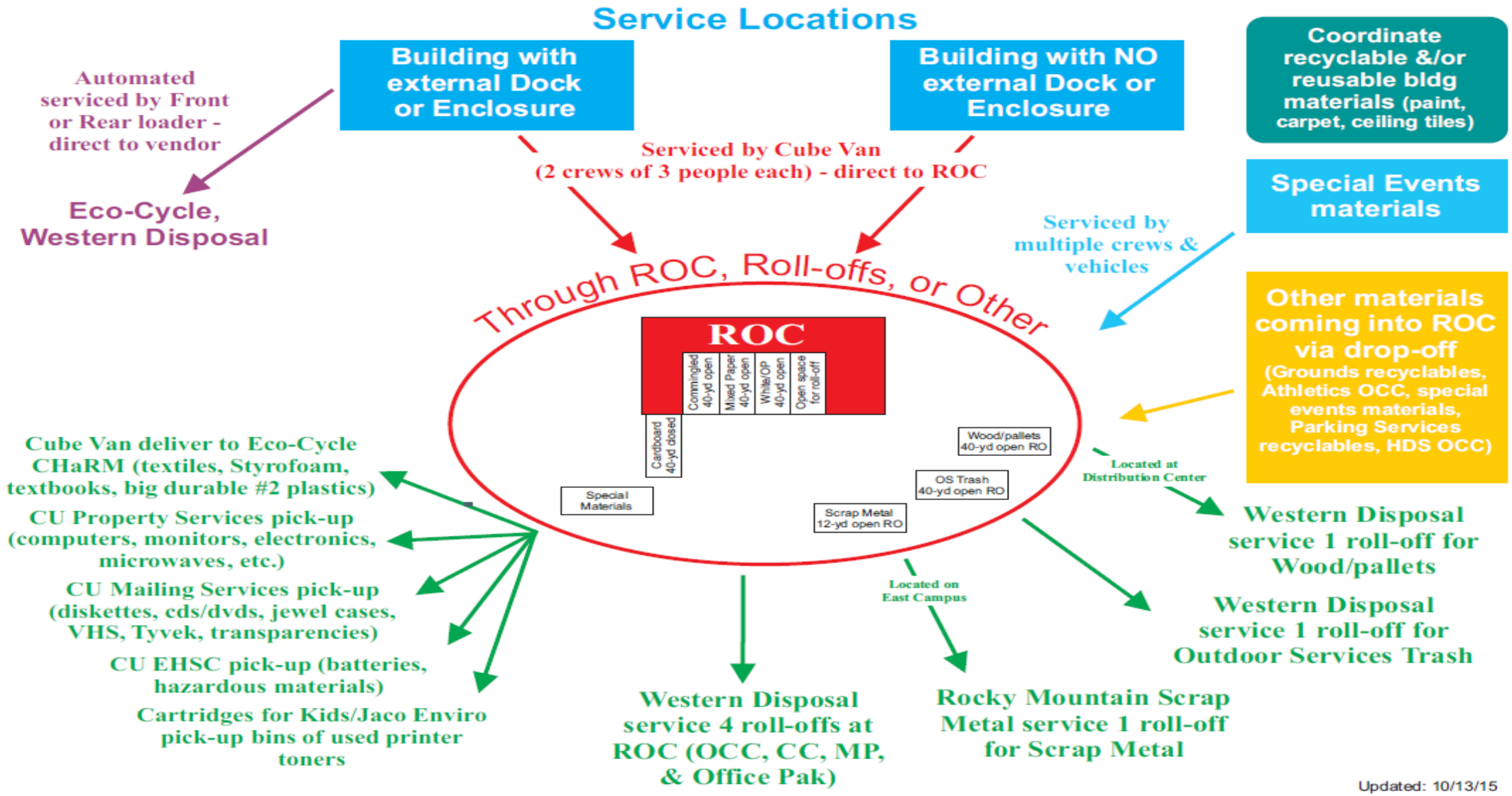
Can Parity

- Compost bins are accompanied by landfill & recycling when possible
  - Helps prevent contamination due to laziness or lack of a felt alternative.
  - Makes different streams readily apparent to students/staff.
  - Allows for best consistent education of accepted items.

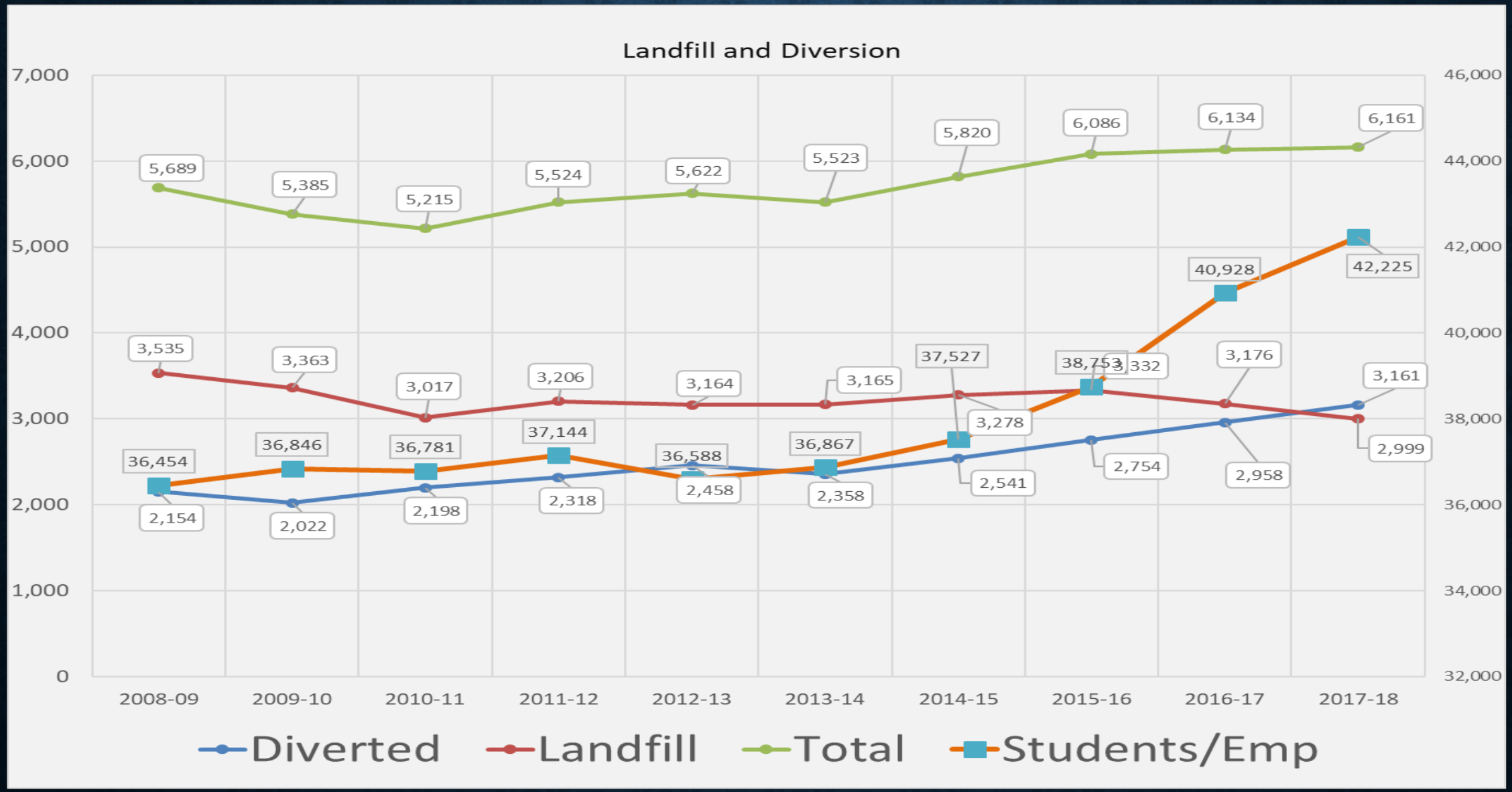
Building Specific Design

- Tailored bin designs to meet the individual needs of the space,
  - Work with building proctors to ensure satisfaction and adherence to building ascetics.
  - Many buildings employ a cabinet for waste collections, these vary by building.
  - Default bin is a Rubbermaid Slim Jim® bin in green.

CU Flow Chart of Collection Systems



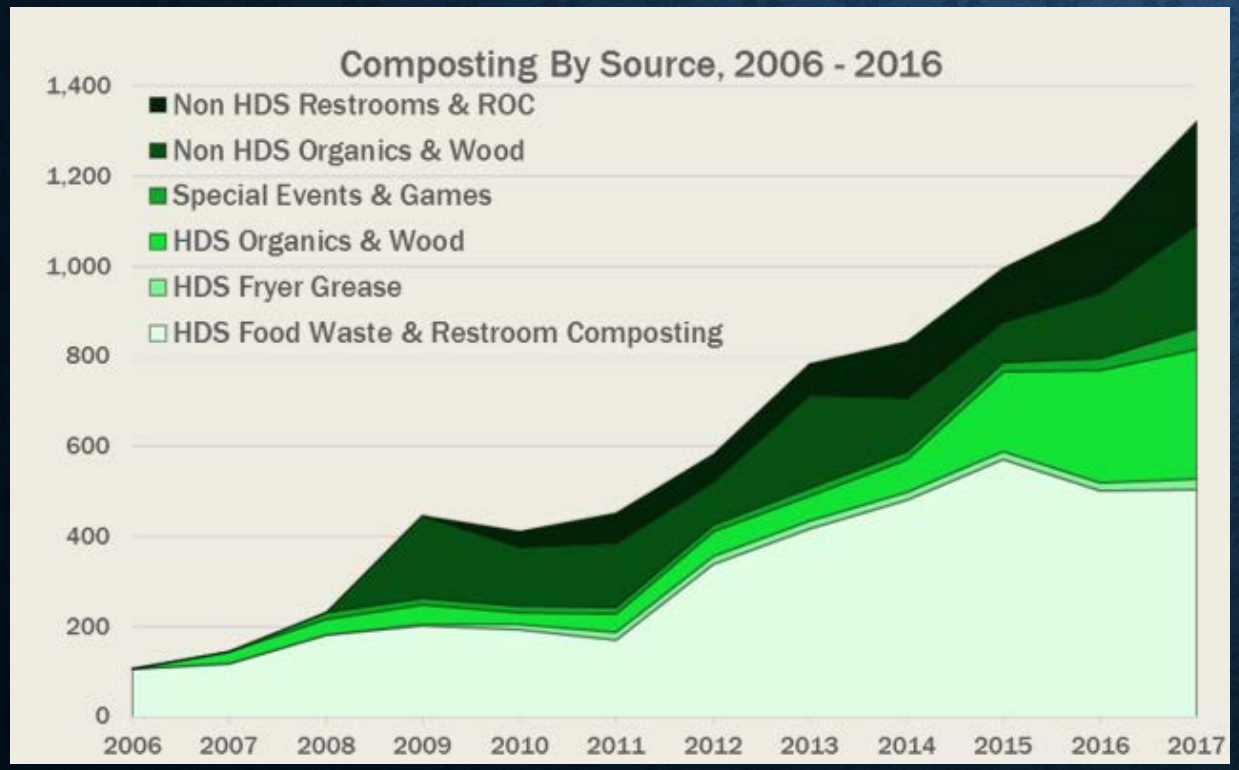
LANDFILL AND DIVERSION



WHY COMPOST

'13 Campus Waste Audit: Diversion Potential

- Food Waste: 28%
- Compostable Paper: 10%



Compost Timeline

- Academic Buildings: Start with the hardest!
- Residence Halls: Slow expansion, lots of outreach!
  - Started with a student run pilot – too difficult logistically

Composting Infrastructure

- Back of House at all sit-down dining facilities
- Restroom Composting serviced by ES Staff
  - 18 Academic Buildings
  - 5 Residence Halls
  - Children's Center: External Vendor provides environmental service support here, we provide collection point at dock.
- Dock collection points serviced by external vendor and taken to industrial compost site

COMPOST START

Why Restrooms?

1. Paper towels provide a direct need for compost.
2. Labor neutral expansion; already serviced daily.
3. Higher air exchanges/hour than other areas.
   Smells were a concern, but have not been an issue.
4. Floor finish is tile with a floor drain.
   Spills were a concern, also have not been an issue.
5. Everyone has to see it!
6. Sinks in case someone wants to rinse their mini bin or dishes after emptying food waste.

Funding

Funding for pilot expansions has come from our CU Sustainable Grants Program

- Student overseen grant funds.
- Initial costs have often been covered by these one time grants, with ongoing costs internalized by facilities services within Housing

Parts and Labor	Quantity	Cost Per Part	Subtotal
Composting Bins	40	$42.00	$1,680
Composting Bin Lids	40	$35.00	$1,400
Compostable Bags (case/ per year)	50	$82	$4,088
Educational Campaign (mostly signage)	1	$300	$300
TOTAL per building			**$7,468**

**set up costs associated with a ~400 bed residence hall*

INTERNAL SUPPORT

- Buy-in from staff – no extra tasks assigned
  - Landfill bin removed
  - Training
  - Appreciation gift – hat, mug, reusable water bottle
- Financial support at Assistant Vice Chancellor level for start up costs
- Zero Waste Champions/Advocates
- Mini Bins—operational shift from trash service

CUSTODIAL IMPACTS

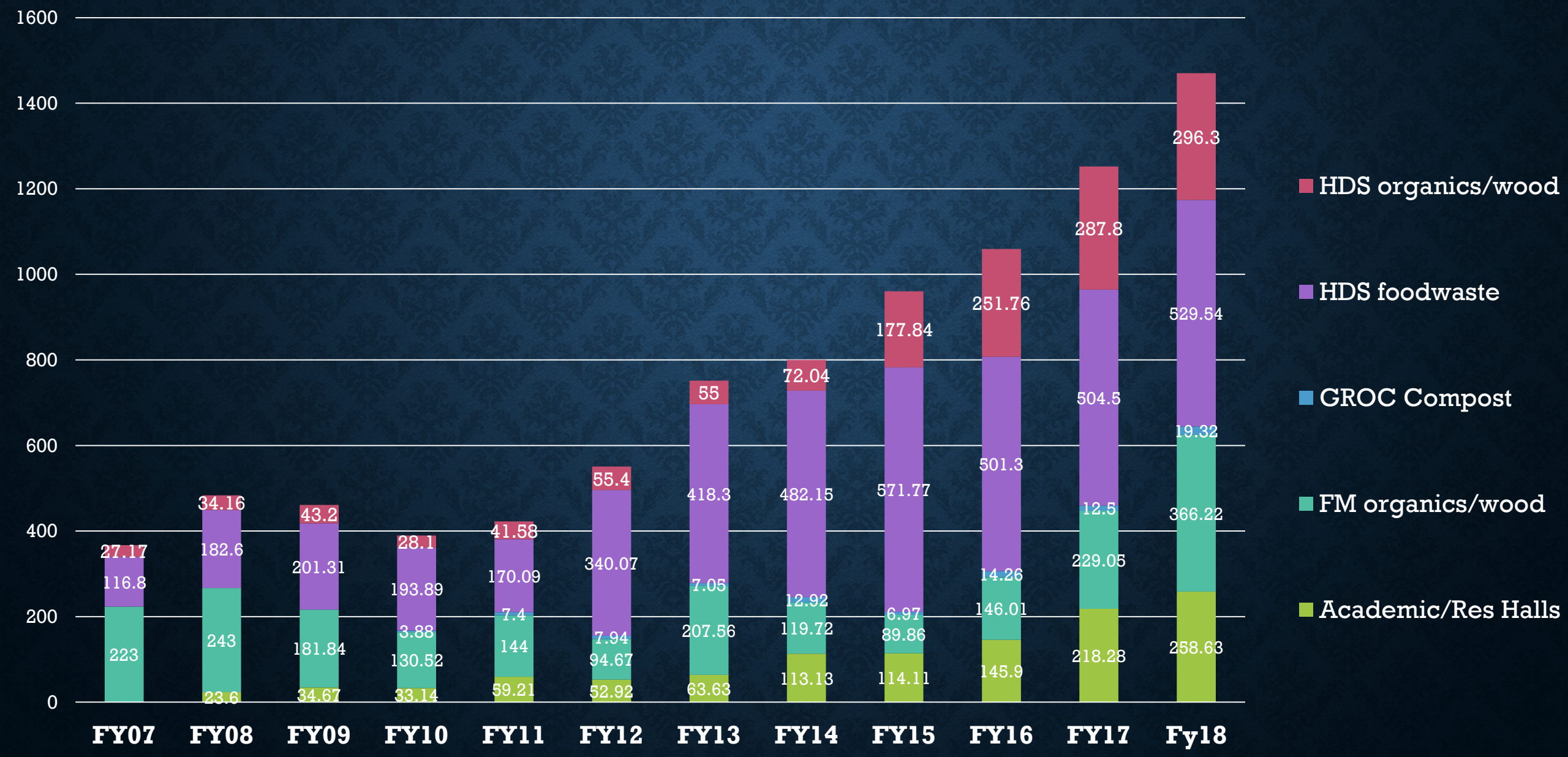
- Challenge - Finding the right spot for compost bins/dumpsters on dock
  - Must be close to trash dumpster for maximum participation from staff
- Pressure from building occupants to add compost bins in kitchens/breakrooms
- Cost of liners $.50 more than petroleum based liners
  - Emptied daily but staff consolidate
  - Reuse bag if possible

BUDGET IMPACTS

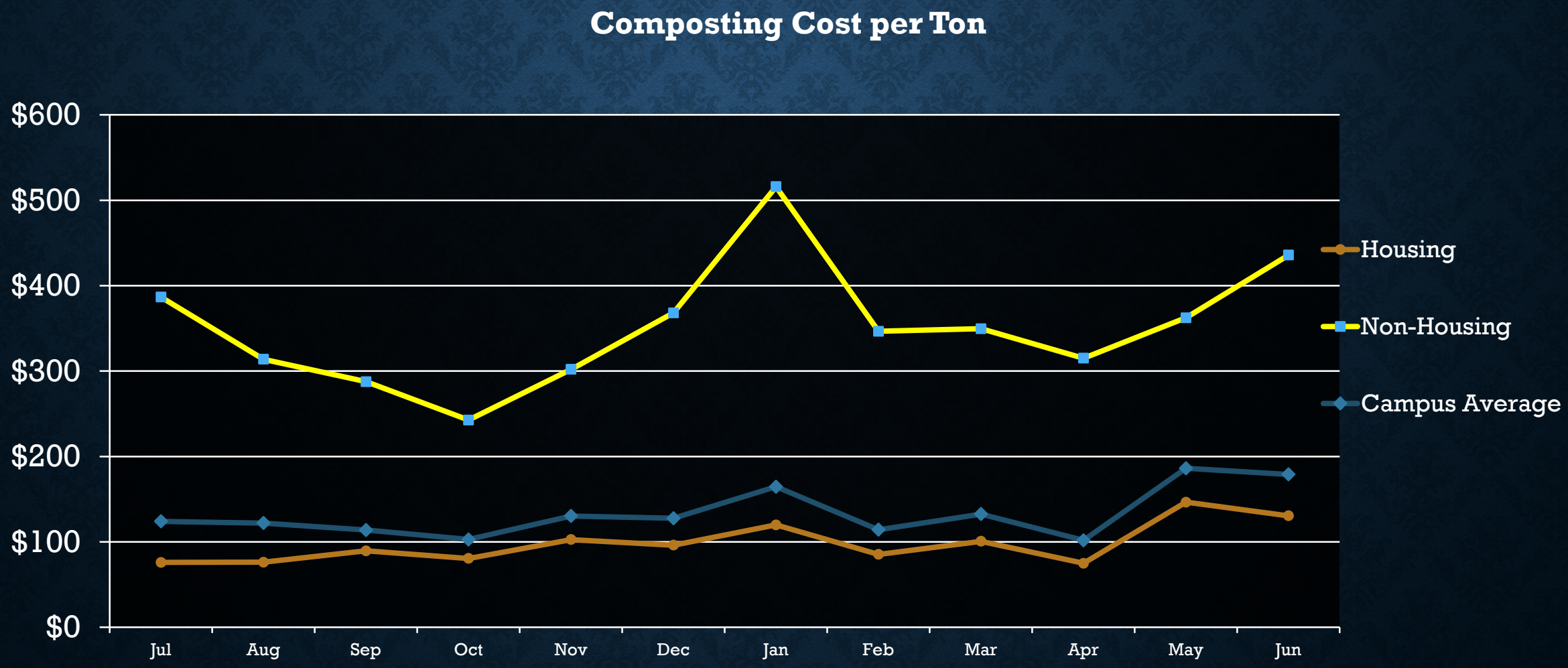
- Start-up costs for campus-wide over $300,000!
  - Dumpsters/bins
  - Hauling costs
  - Bins for restrooms
  - Mini bins
  - Signage
  - Liners
  - Outreach / Marketing

- Phase in buildings – 5 per year
  - Slowly built up equipment
  - Used salary savings in custodial
  - Grants
- 146 buildings…would take too long
  - Combining it with can parity was bogging down the process
  - 2018 - Made aggressive goal to expand compost in three years and focus on can parity later
  - Used existing bins in restrooms
    - Saved $100,000

COMPOST EXPANSION

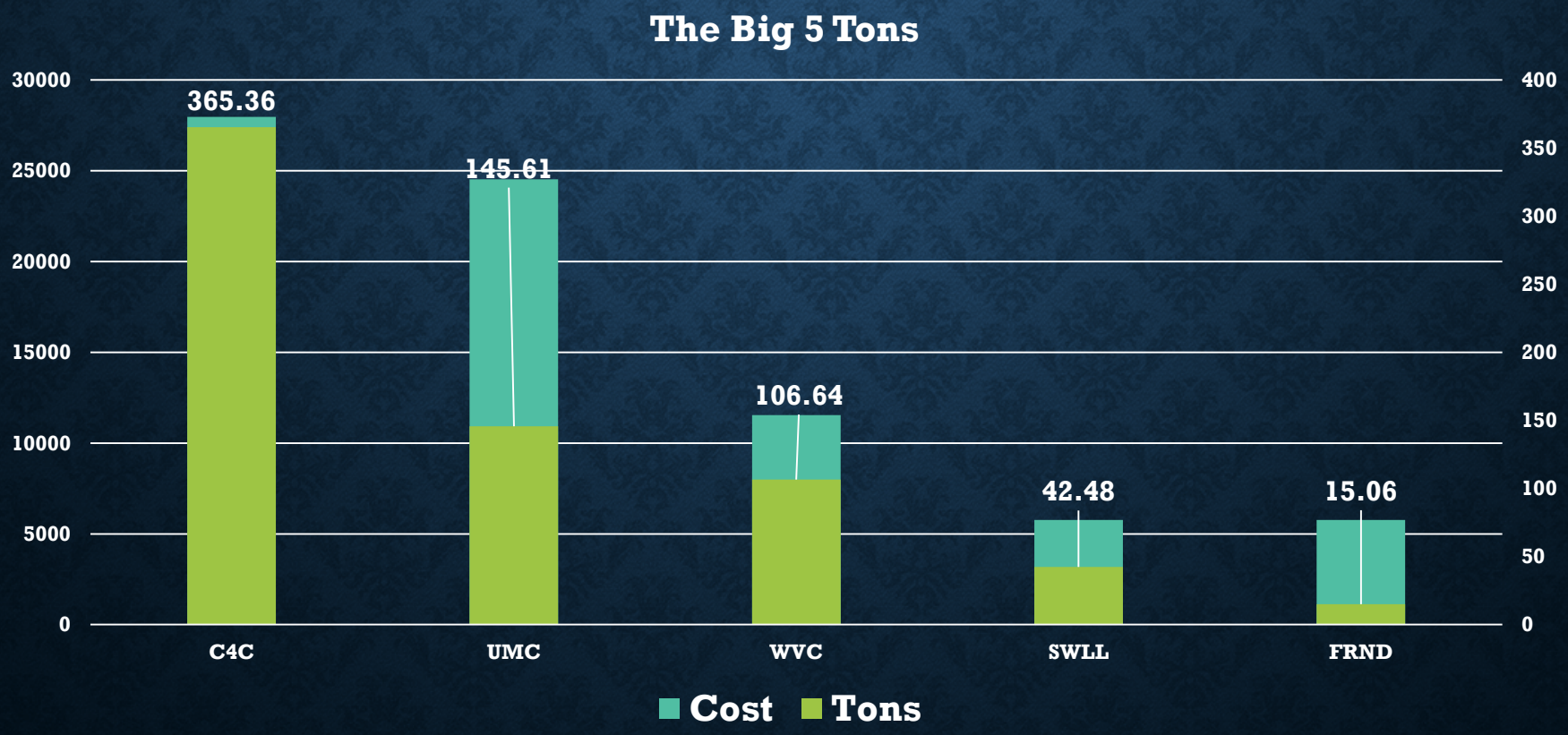


BUT…IT'S EXPENSIVE!



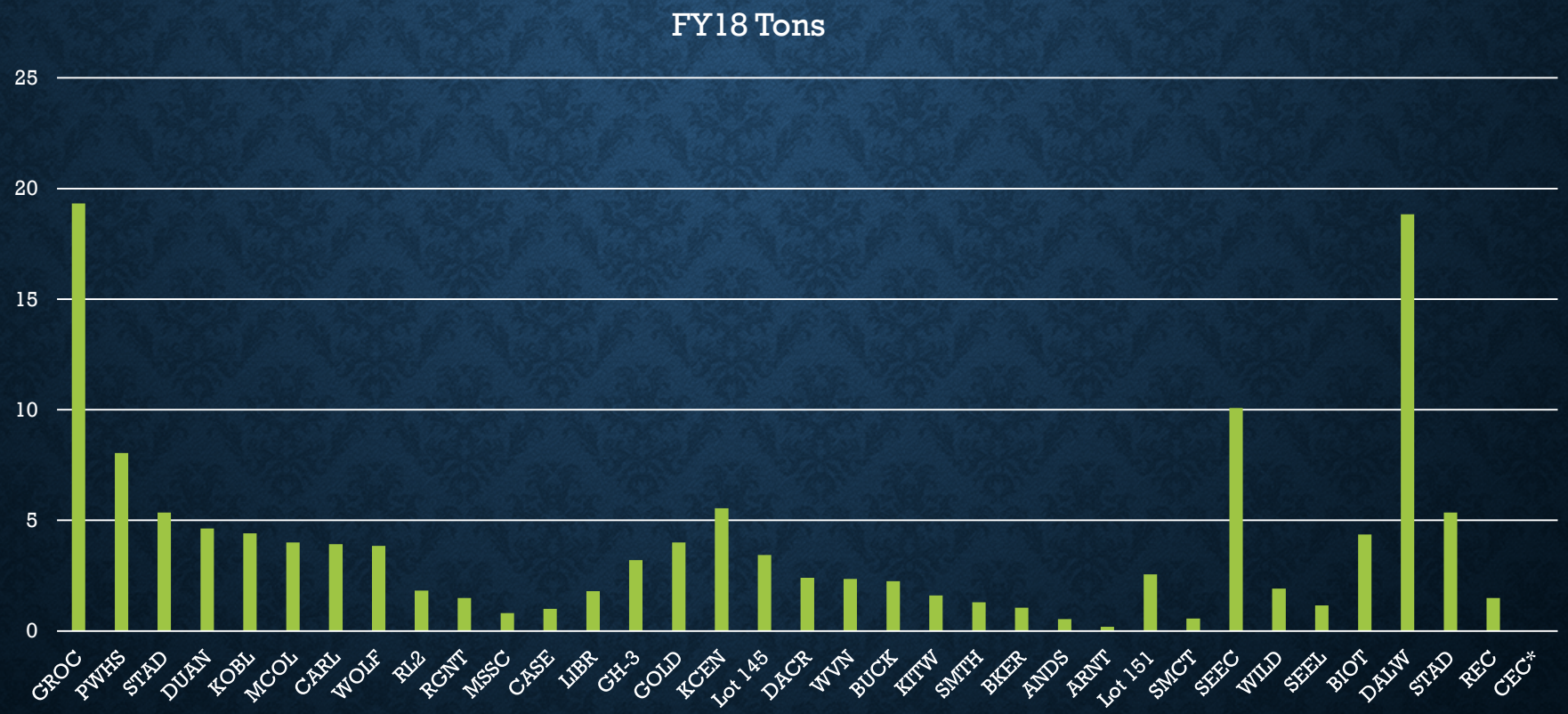
THE BIG 5—WE DON'T WANT THESE

- Service 3-6 days a week
- Cost Increase 29%
  - $70-80K per year



THE LITTLE 35 (AND NEW SITES) —WE CAN HANDLE THESE

- Service 1-2 TIMES A WEEK
- Avg 1 ton per day



INTERNAL KEYS—NO NEW VEHICLES!!

RALPHIE'S GREEN STAMPEDE

- NCAA First D1 Sustainable Athletics Program
- Zero Waste Program for ALL Venues
- 100% Recyclable/Compostable Inside Stadium Perimeters
- ZERO Trash Cans
- 4 LEED Platinum Facilities
- 2MW Solar PV Power

What kind of Buff will You be?

EVENT COMPOSTING

Event Composting

- Important educational precursor to expansion of composting.
  - Exposes all campus students and staff to composting procedure in a controlled environment with lots of signage
- Large events require an event form, easily amended for compost support provided by ZW outreach team.
  - Taste of CU, Graduations, Etc.
  - Eventually a Zero Waste Events Coordinator was hired.

- For smaller events, RPS provides it's units and buildings with event composting bins and bags.
- RPS also partnered with Dining to provide bulk compostable supply ordering for plates, cups, etc. for any event.

In 2016, RHA passed legislation requiring ALL Hall Council events to be ZW.

EVENT COMPOSTING

Implemented in Basketball and Football Stadiums.

All public food and beverage services in Football Stadium have converted to recyclable or compostable materials and containers.

Reached 88% Diversion over course of season!

There are no trash containers -- only recycle and compost containers -- throughout the outdoor public areas of Folsom Field.

Volunteers are heavily utilized to sort.

WHAT WILL THIS DO FOR DIVERSION?

- Once we add the entire campus, what will the diversion rate do?

2-3%

- Labor expansion
- Cost –Recharge vs General Fund
- Vehicle Wear/Tear

CHALLENGES AND LESSONS LEARNED

#1) Contamination is no joke

- Start with most controlled environment
- Develop feedback loops to identify problem areas and materials
- Feel comfortable saying “No!” to poorly controlled settings / events.
- Restroom Focused—Controlled Environment!

CHALLENGES AND LESSONS LEARNED

#2) Early & thorough engagement from ALL partners

- Procurement-LINERS!!
- Operational (facility managers, custodial supervisors and staff)
- Auxiliary operational staff (cafe managers—reiging them in….
- Customers (staff, faculty, students, event planners)

CHALLENGES AND LESSONS LEARNED

#3) Measure successes

- Pilots for different types of service / programs to estimate potential impact and ID challenges
- Keep track of where different levels of service are
- How many buildings?
- How many tons diverted from landfill?
- Impact reports from different buildings and events
- Waste Sort - where is there still opportunity?

TAKEAWAYS

Early Challenges

- Staff Training/Outreach
  - Early loads rejected due to contamination from improper staff sorting
- Setting Expectations
  - Compost will not magically solve existing problems
  - Compost will likely experience some contamination
  - EVERYONE is needed to make this successful
  - Established lines for communicating issues early
- What does success look like?
- All forms of waste disposal cost $
- Bldg. Standards
  - Growths pays its way

Successes

- Location and Can Parity!
- Events!
  - Engage Student Government!
- Collaboration!
  - Housing Facilities
  - Dining Services
  - Environmental Center
  - Athletics
- Change Management!
  - Work with staff to manage work load and take feedback early on

QUESTIONS