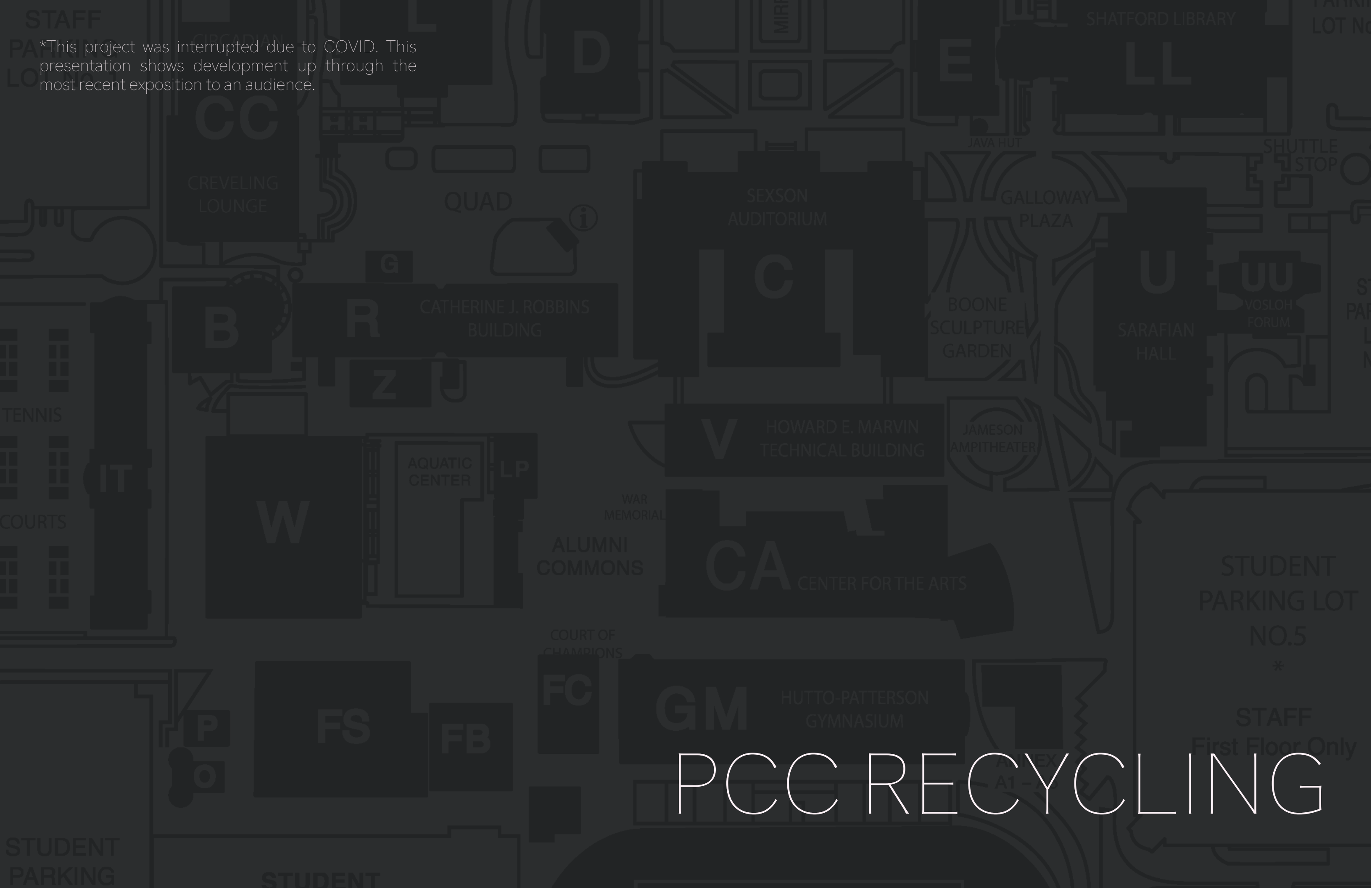


*This project was interrupted due to COVID. This presentation shows development up through the most recent exposition to an audience.



PCC RECYCLING

BACKGROUND

OVERVIEW

While Pasadena City College has made overtures towards sustainability in the past - with some notable successes - there may be problems with follow-through on some matters. The current vision is somewhat unclear.

The Measure P bond awarded to PCC roughly 20 years ago led to a dramatic overhaul of the campus - and funded the LEED-recognized Center for the Arts building - but going by recent budget reports, sustainability is not a major thematic pillar of its allocation.

While once there appears to have been more variety to the recycling system, the current system seems to lack support for some materials regularly discarded on campus.



PCC had at least some outdoors paper bins as recently as 2017



The LEED-recognized Center for the Arts building



OBSERVATION

Readily recyclable materials are thrown into trash bins with regularity. Some of these materials are poorly supported on campus, if at all. The behavior may be due to user ignorance, systemic deficiencies, or a combination of both.

APPROACH

RESEARCH

PCC SUSTAINABILITY
PASADENA RECYCLING
GENERAL WASTE SERVICES

INSTITUTIONAL WEBSITES
ARTICLES & VIDEOS
ENCYCLOPEDIA → SOURCES

ASSESS

DESIGN PARADIGM (FACILITIES)
BEHAVIORAL RESPONSE
USER (STUDENT) AWARENESS

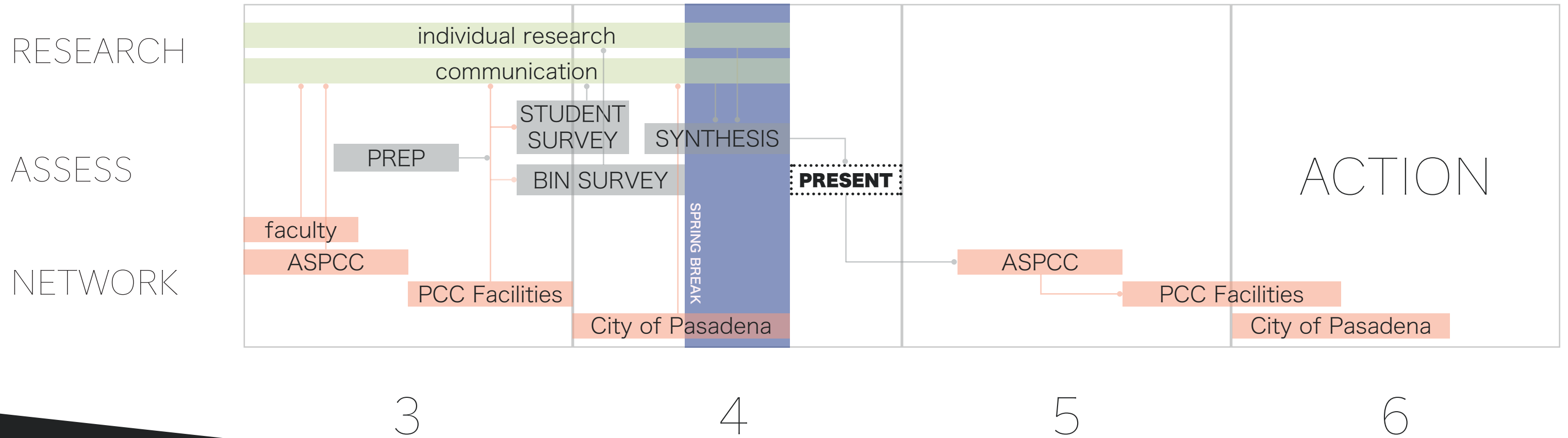
BIN DISTRIBUTION MAP
BIN CONTENT SAMPLING
STUDENT SURVEY

NETWORK

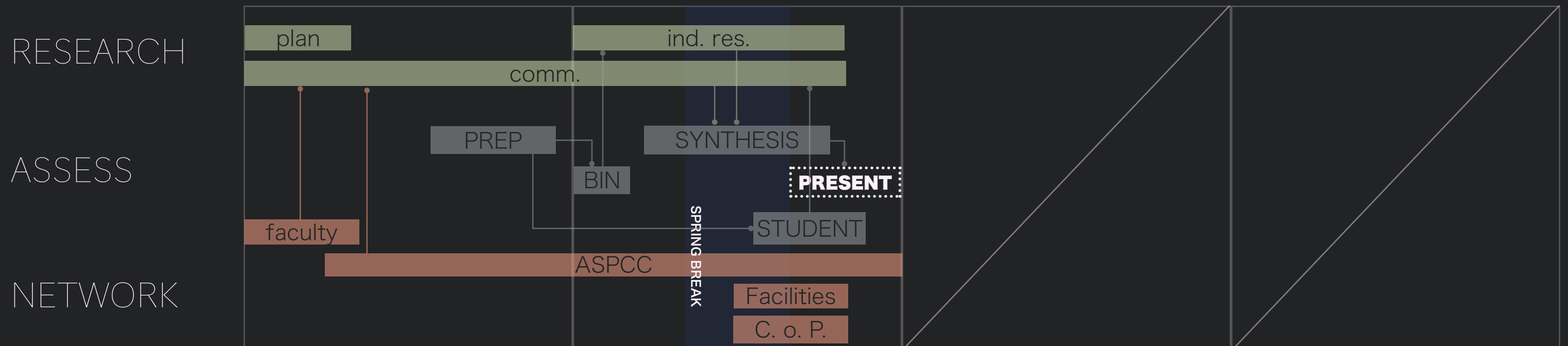
INSTITUTIONAL/MUNICIPAL
STUDENT/FACULTY
OUTSIDE DONORS

CITY OF PASADENA
PCC FACILITIES
PCC ASSOCIATED STUDENTS

IDEAL



ACTUAL



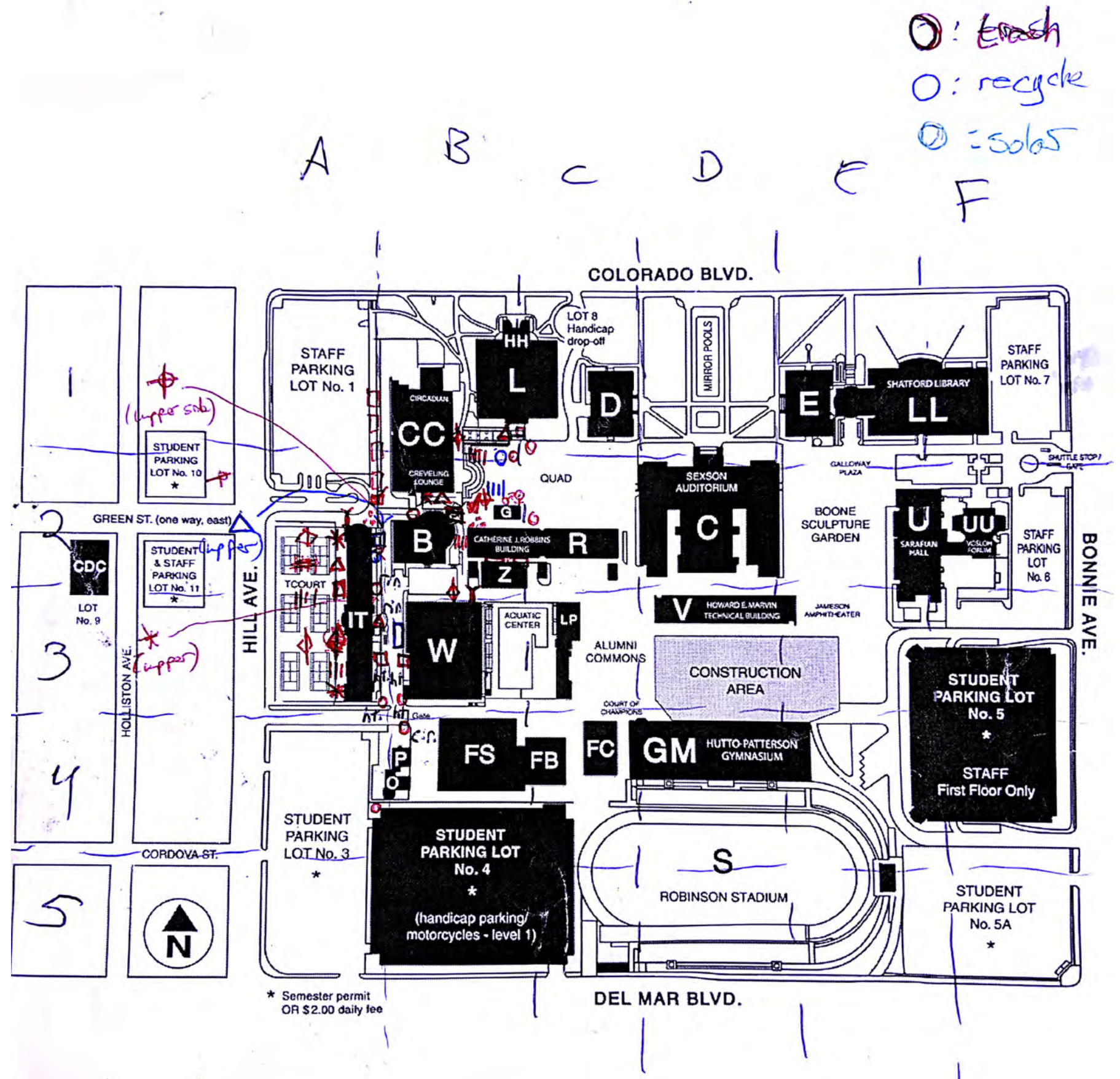
ASSESS

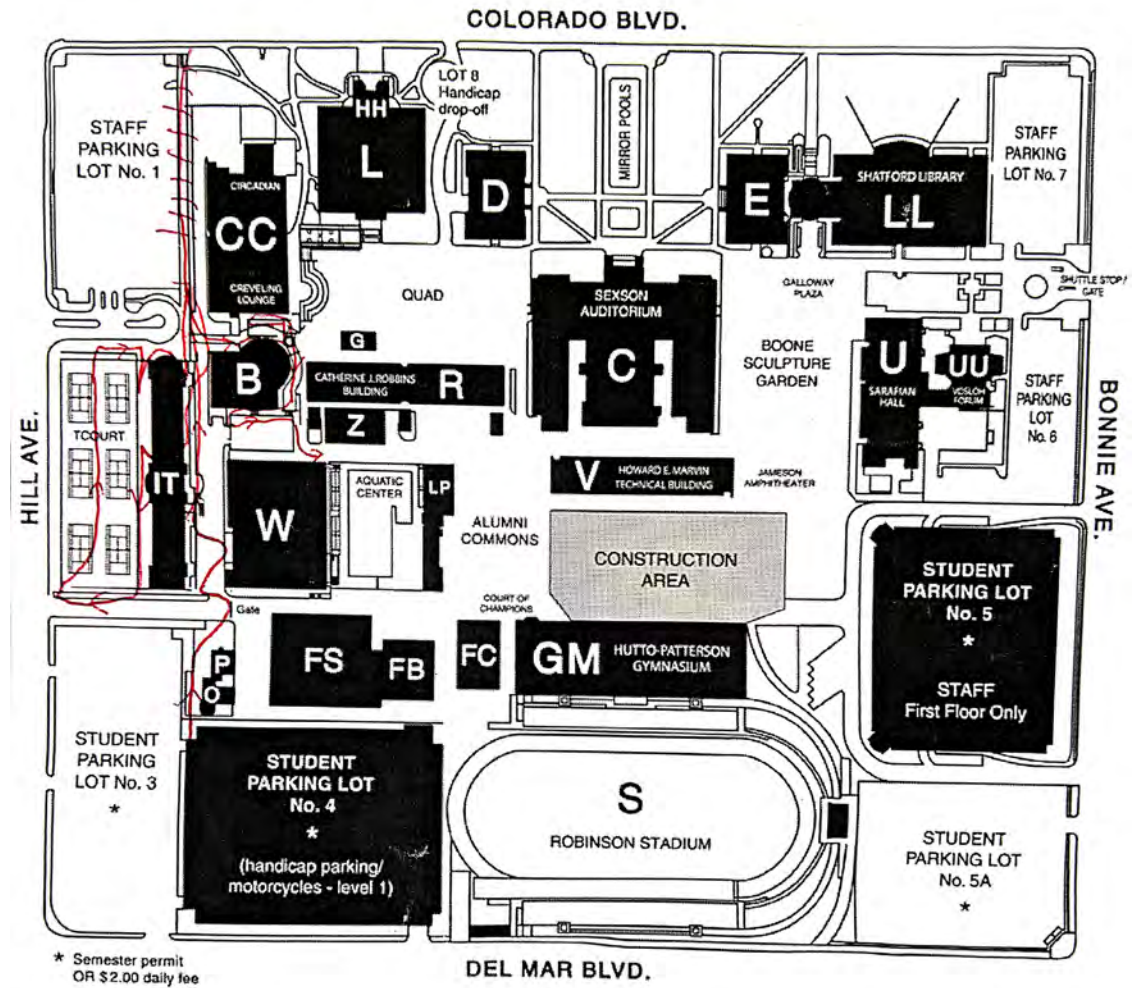
SURVEY DATE: APRIL 1st, 2019

This preliminary sampling of PCC bins provided a firsthand look into the state of trash and recycling on campus.

An improvisational approach informed the cataloguing scheme, under the assumption that distilling a formalized categorization method from the data collected and symbols used would result in superior comprehension.

First survey map with ad hoc notation. The map used was outdated, preceding completion of the Center for the Arts building.





* Semester permit
OR \$2.00 daily fee

TYPE

: dumpster
 : covered trash
 : skate-top
 : open-top
 : bin
 : fitted (bottle/can)

LEGEND

: trash
 : recycle
 : solar

INSTANCE OF TYPE

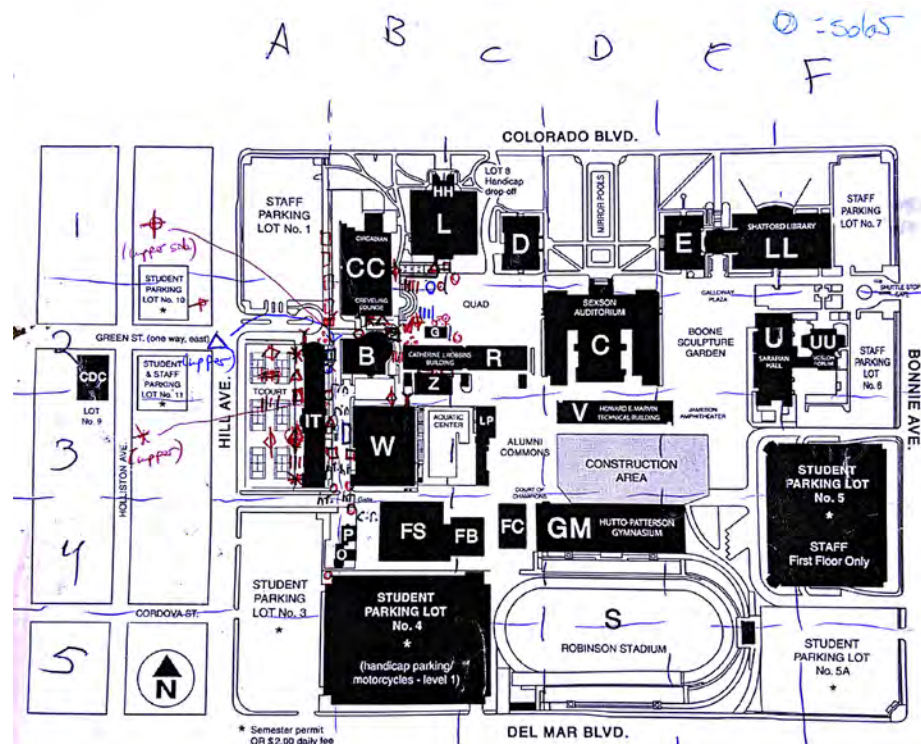
1st
 2nd
 3rd
 4th
 5th
 6th

Map recording route taken on initial sampling

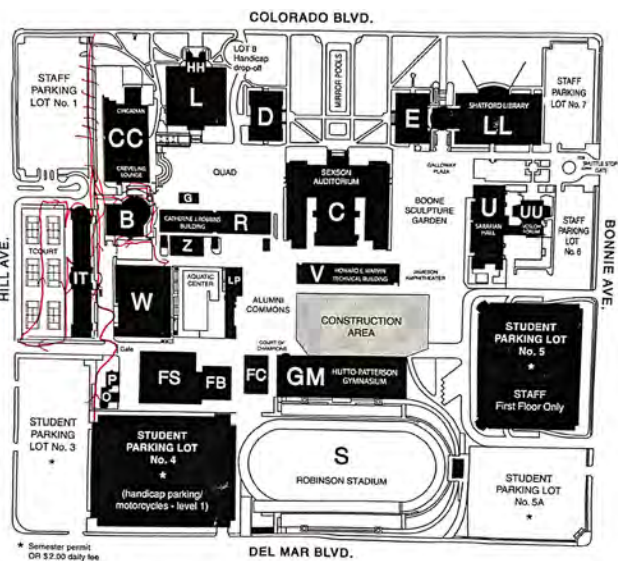


Photos of sampled bin contents

FORMALIZE

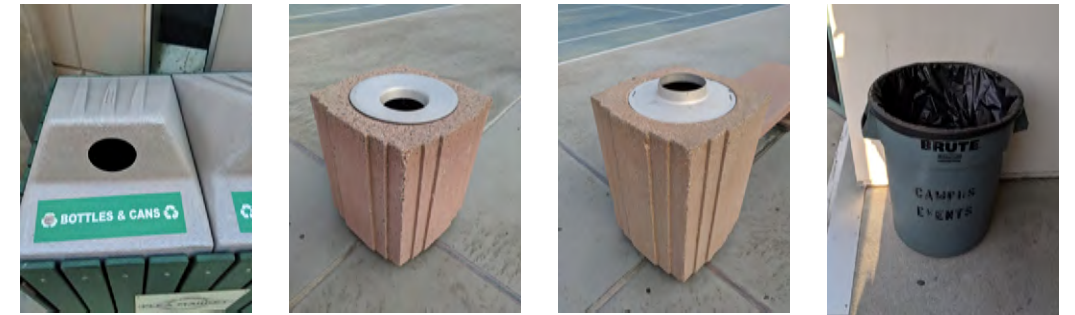


The original grid was split according to major planning lines



TYPE	LEGEND	INSTANCE OF TYPE
dumpster	π: covered trash	○ 1st
	∩: skate-top	□ 2nd
	○: open-top	△ 3rd
	∨: bin	* 4th
	⊔: filled (bottle/can)	5th
		⊕ 6th
		○: solar

A2: ○/□ too recycling bins not obviously being used for recycling. In a "dump zone" of trees, milk waste etc. contain mainly paper waste & plastics. G: glass. FC: food container. Bx: Box.
 F: full
 ME: mostly empty
 A3: * mostly empty (ME), PIB & PaC w/L (ca 1)
 A2: □ ↑ PaBx, G/B, P/B, P/FC
 A3: ⊕ ||| ME | PIB
 A3: * ↑ PaFC w/P/L, P/B, MC, P/C w/P/L, Pa^S
 A3: ⊕ P/B (29), PaFC, PaC
 A2: ||| ○ ME | P/B, P/C w/P/L, MC
 A2: ⊕ P/B (26)
 A2: * ↑ P/FC (23), PaC w/P/L, PaFC (23) w/P/L (1)
 note proximity to food strip to North
 A2: △ ↑ PaFC (22), P/C (22) [green face] [blue bin]
 A2: ∩ ↑ MC, P/B, P/FC, PaBx
 A2: ∩ ↑ G/B, PaC w/P/L (22), P/C (22)
 A2: △ FULL
 A2: ⊕ ME | PaC

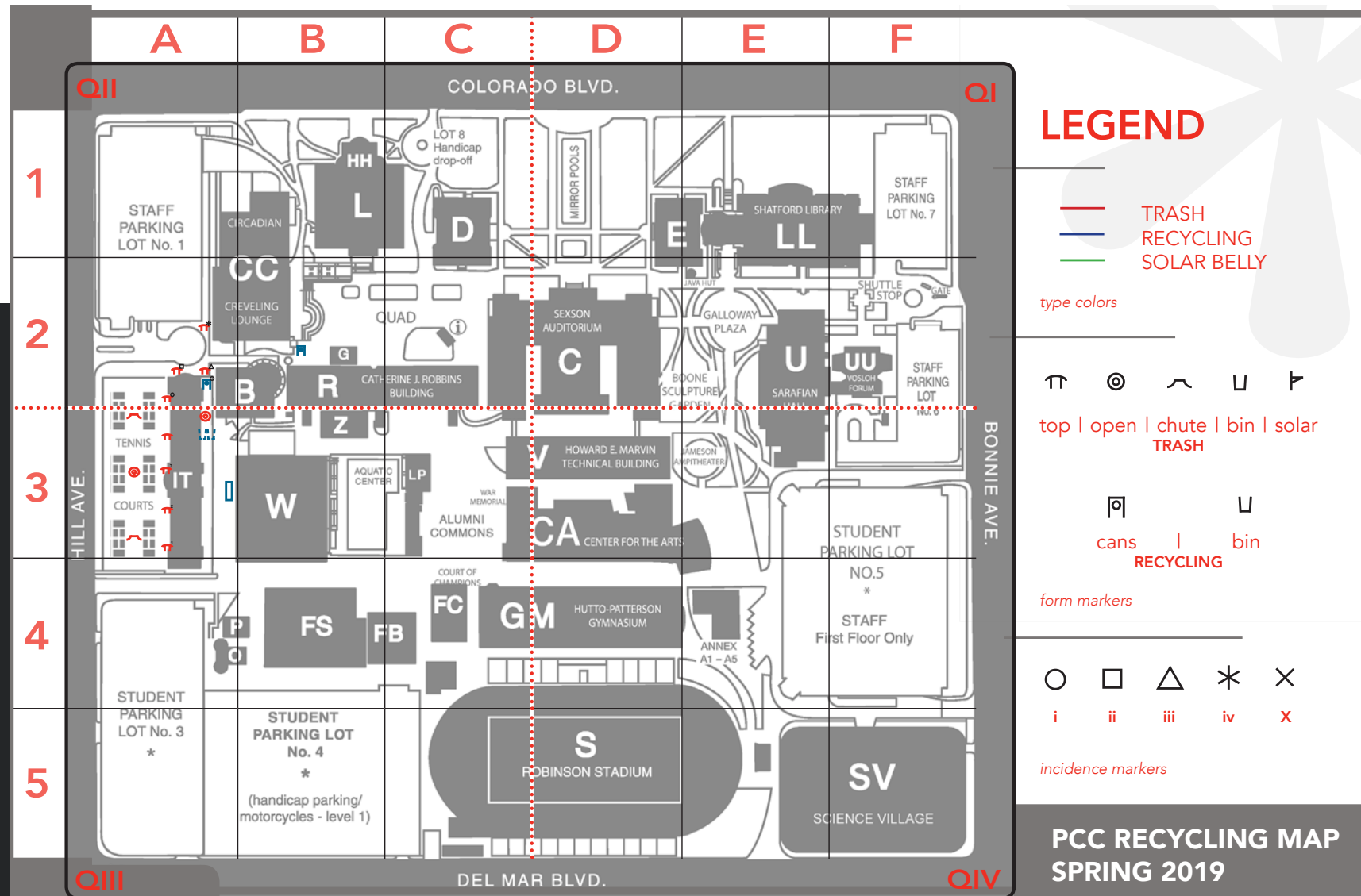


Bin form code examples

PI	Pa	M	O
PLASTIC	PAPER	METAL	OTHER
C	L	Bo	Bx
CUP	LID	BOTTLE	BOX

Material and product type code examples

Development of the legend in an ad-hoc fashion based on what was found in real-time



The blocks are of uniform area in the formalized map, by convention.

Instructions show how to catalog bin contents to keep records uniform.

PCC RECYCLING CHART

BLOCK

+Mark bins on the Map with a symbol and number.
 +The symbol records the bin shape. The number records how many of that shape you find.
 +Inspect the top layer contents and report what you see below, using the codes.
 +Only record items that should NOT be in that bin (recycling in trash and vice versa).
 +Specify material/type for "Other" in NOTES, along with other observations.
 +Take a picture of what you see.

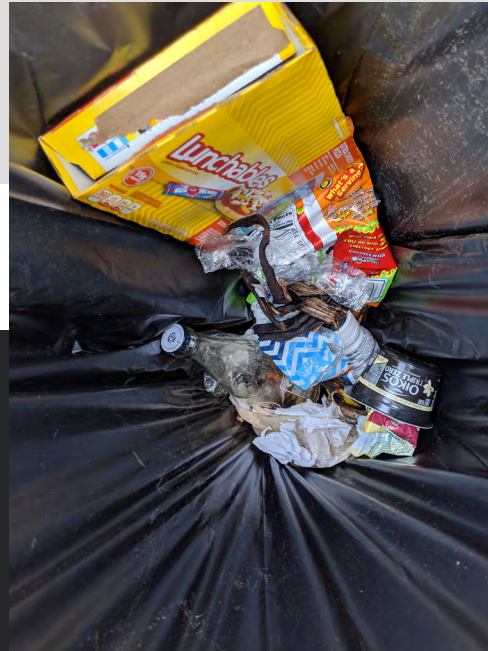
MATERIAL CODE	PAPER	PLASTIC	METAL	OTHER
	Pa	Pl	Me	O
CUP				
LID				
BOTTLE				
BOX				
CAN				
OTHER				

TYPE CODE	CUP	LID	BOTTLE	BOX	CAN	OTHER
	Cp	L	Bo	Bx	Ca	O
BIN FORM SYMBOL	⬆	⌒	⦿	U	⬆	☐

BIN		CONTENTS											
FORM	#	MATERIAL	TYPE	#	MATERIAL	TYPE	#	MATERIAL	TYPE	#	MATERIAL	TYPE	#
NOTES													
NOTES													
NOTES													
NOTES													
NOTES													

CASE STUDY

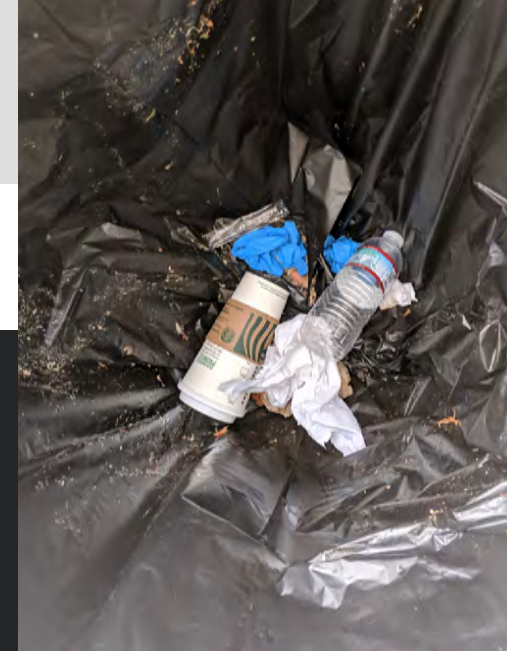
BLOCK A3 (SECTION)



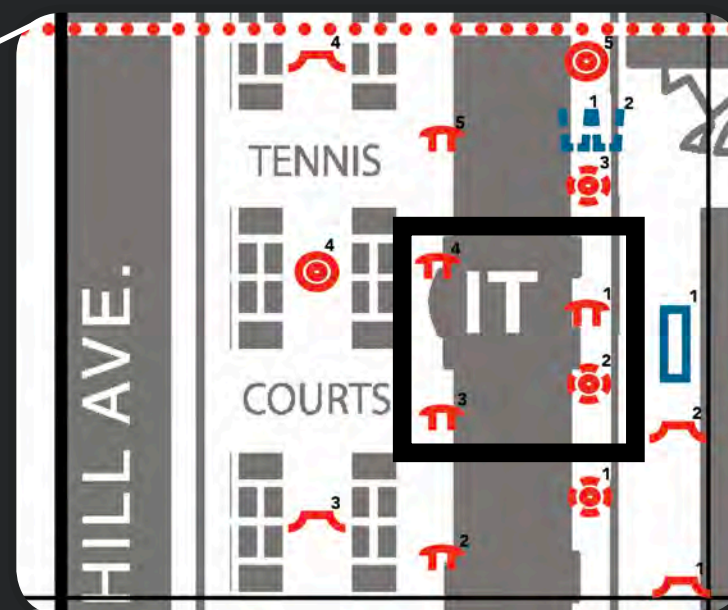
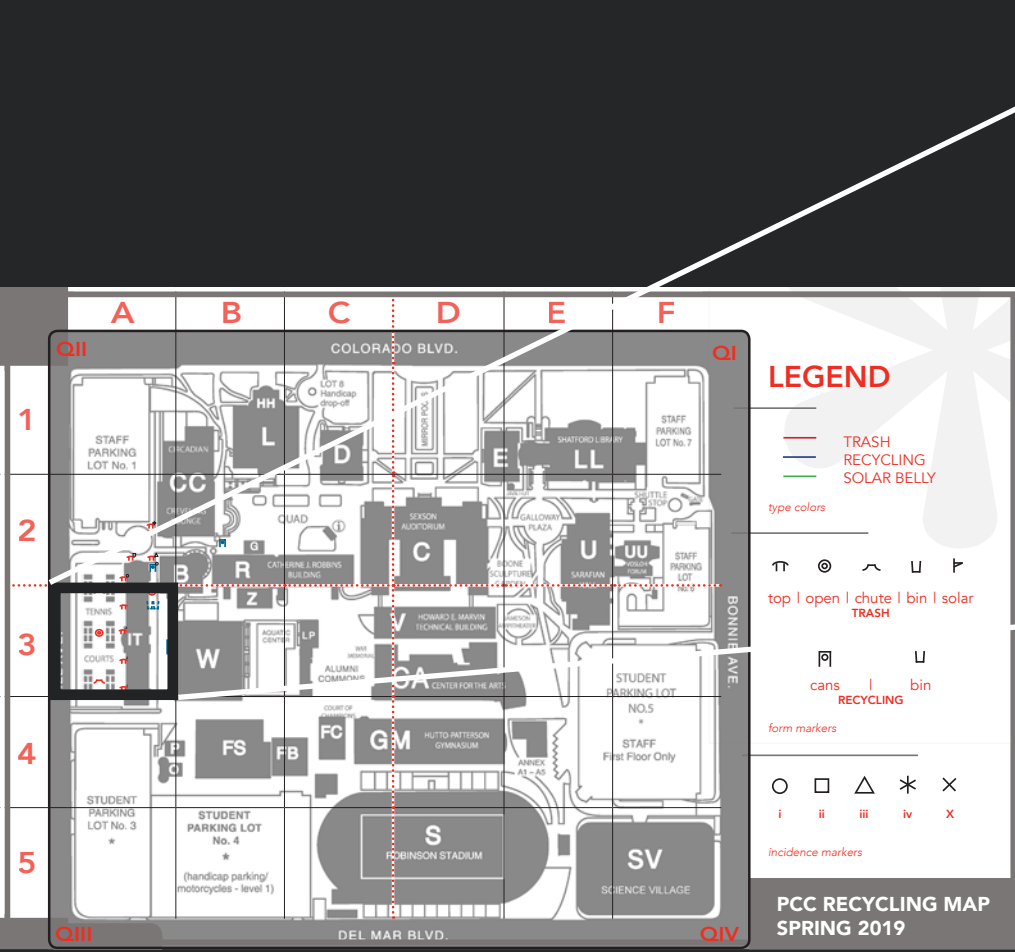
PaBx | GIBo | PIBo | PIBx



ME | PIBo



ME | PIBo | PaC | PIL



PaBx | PaC x2 | MeCn |
PIC | PILx2

NETWORK

For any research to translate into action - and to avoid wasting time collecting information that already existed - making contact with parties already involved in the current paradigm was critical.



Informal conversations with faculty revealed aspects of the “unwritten history” of sustainability efforts on campus, providing familiarity with the issue and aiding with strategy.



Sarah Jo, the Associated Students of PCC Vice President of Sustainability, was contacted by e-mail on 3.13.2019.

The exchange led to a collaboration with the AS Sustainability Committee, which is also concerned about this issue.

This approach increases legitimacy, creates intramural dialogue, and avoids redundancy.



The PCC Facilities office was contacted by e-mail on 4.18.2019 with questions regarding existing maps, budgets, future plans, etc. with regards to waste management at PCC.

Carl Sheaffer, the newly installed Manager of Facilities and Operations, replied on 4.22.2019 expressing willingness to help provide information.



Simone Blackwell, Recycling Coordinator for the City of Pasadena, was contacted by e-mail on 4.18.2019 with questions concerning the process and costs for obtaining additional institutional-scale recycling services (ongoing).

SURVEY

SURVEY DATE: APRIL 22nd, 2019

On April 22nd, 2019, the PCC Associated Students Sustainability Committee held an Earth Day event near the reflecting pool (block D1).

The student body at PCC is roughly 25,000 students. In order to conduct a statistical analysis with a 95% confidence interval and a +/-10% margin of error, the survey required a minimum sample size of n = 96 responses.

PCC RECYCLING SURVEY



We are collecting student opinions on the PCC trash and recycling system!

On a scale from ① for VERY POOR to ⑤ for VERY GOOD, please rank the following:

AVAILABILITY OF TRASH CANS

① ② ③ ④ ⑤
VERY POOR VERY GOOD NO OPINION



AVAILABILITY OF RECYCLING BINS (BOTTLES | CANS)

① ② ③ ④ ⑤
VERY POOR VERY GOOD NO OPINION



AVAILABILITY OF RECYCLING BINS (OTHER PLASTICS)

① ② ③ ④ ⑤
VERY POOR VERY GOOD NO OPINION



AVAILABILITY OF RECYCLING BINS (PAPER | CARDBOARD)

① ② ③ ④ ⑤
VERY POOR VERY GOOD NO OPINION



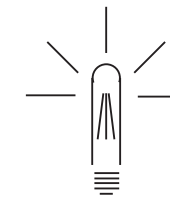
AVAILABILITY OF COMPOST BINS

① ② ③ ④ ⑤
VERY POOR VERY GOOD NO OPINION



WHICH BEST MATCHES YOUR VIEW?

- PCC is a leader in sustainability.
- PCC is above average with regards to sustainability.
- PCC is average with regards to sustainability.
- PCC is below average with regards to sustainability.
- PCC is far behind with regards to sustainability.
- Don't know/unsure



PLEASE CHOOSE ONE:

- Sustainability is of great importance to me.
- Sustainability is of some importance to me.
- I have no opinion/am unsure about sustainability.
- Sustainability is of little importance to me.
- I don't think sustainability is important at all.

FREE RESPONSE

Do you have any additional thoughts?
Have any particular concerns?
Please use the back side
of this paper to tell us!

THANK YOU for participating in our survey.

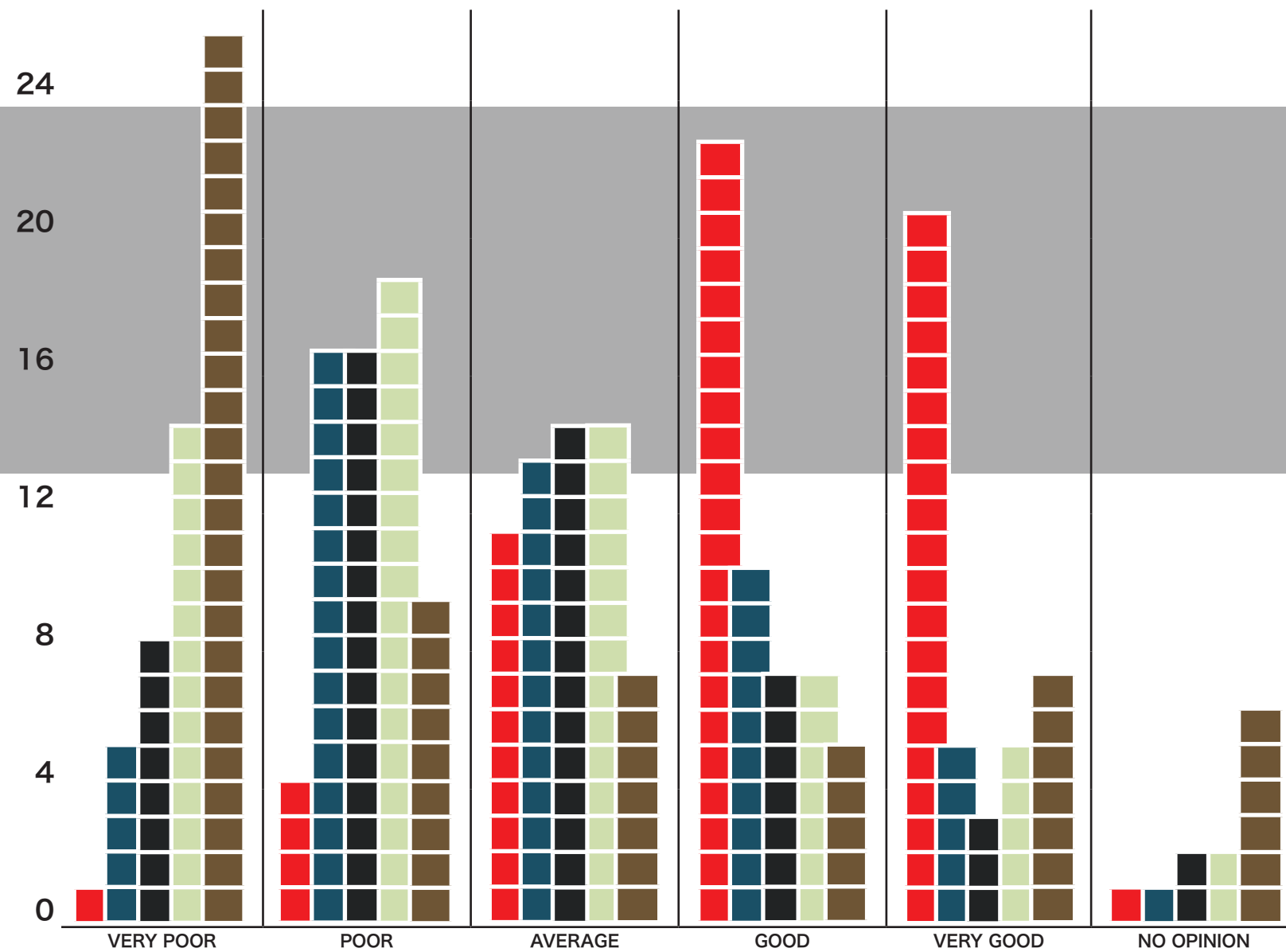
The survey used.

RESULTS

responses

ONLINE | 36
PAPER | 21

p | 25000
n | 57
CI | 95%
MoE | 12.9%



CAMPUS BIN AVAILABILITY

highest satisfaction
trash can availability
42 positive

lowest satisfaction
compost bin availability
34 negative

PCC SUSTAINABILITY

leader | 8
good | 17
average | 20
poor | 6
behind | 2
don't know | 4

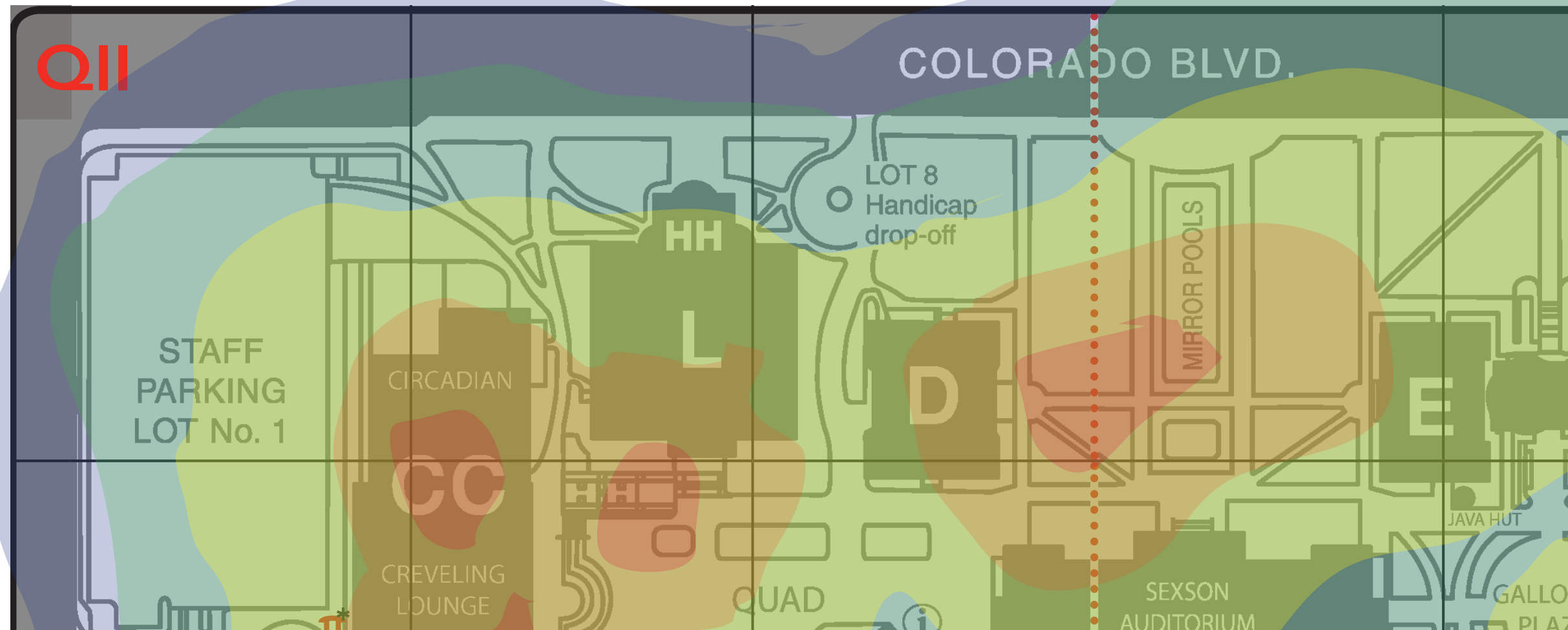
IMPORTANCE TO YOU

very important | 36
somewhat important | 16
unsure | 5
not very important | 0
not at all important | 0

Additional surveys to be conducted on Thursday, 4.25.2019. Because the event is an environmental documentary screening, there may be a self-selection bias to those results.

NEXT

- +Formal statistical analysis of survey
- +Review of materials from Facilities
- +Review of materials from City of Pasadena
- +Complete bin survey of campus, if necessary
- +Production of heat maps for most efficient placement of new bins
- +If warranted, discussion with Facilities and City of Pasadena on how to expand recycling at PCC



REFERENCES

<http://www.pcccourier.com/main-story/pccs-sustainability-seeks-a-step-up.html>

<https://pasadena.edu/measure-p/>

<http://www.pccpiano.com/student-events>

Conversations with faculty and ASPCC Sustainability Committee

unformatted. only those referenced in presentation
all resources accessed 3.15.19-4.22.19