



Sustainability Mt. SAC Initiatives

Bill Scroggins

May 2017







Sustainability Tour

1 LEED Buildings 2 Sustainable Sourcing 3 Transportation Center
 4 Cogeneration Plant 5 Drought Tolerant Plants Water Bottle Station



Energy and Water Efficiency

- **Campus Interior Walkway Lighting**
 - **EV Charging**
 - **Expand Solar Capacity to 4 MW**
 - **Integrated Energy Management**
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- 

LED Campus Walkway Lighting

LED Advantages

- High efficacy and durability
- Superior life over other lamp sources
- Required maintenance greatly reduced
- Greater optical control: controllable source, dimming, instant on/off
- Reduced rate of lumen depreciation for long application life



Water Efficiency

CAMPUS WATER USE ZONE	% of Total	2002 – 2006 Avg. 598 AF per Year	% of Total	2007 – 2013 Avg. 412 AF per Year	Water Savings 187 AF per Year
Athletic Fields	22%	132 AF per year	23%	94 AF per year	38 AF per year
Wildlife Sanctuary	10%	59 AF per year	3%	14 AF per year	45 AF per year
Range and Pasture	18%	108 AF per year	18%	73 AF per year	35 AF per year
Campus Irrigation and Domestic Use	50%	299 AF per year	56%	231 AF per year	68 AF per year

Electric Vehicle Charging Stations

EV CHARGING LOCATIONS

10 stalls – Lot D

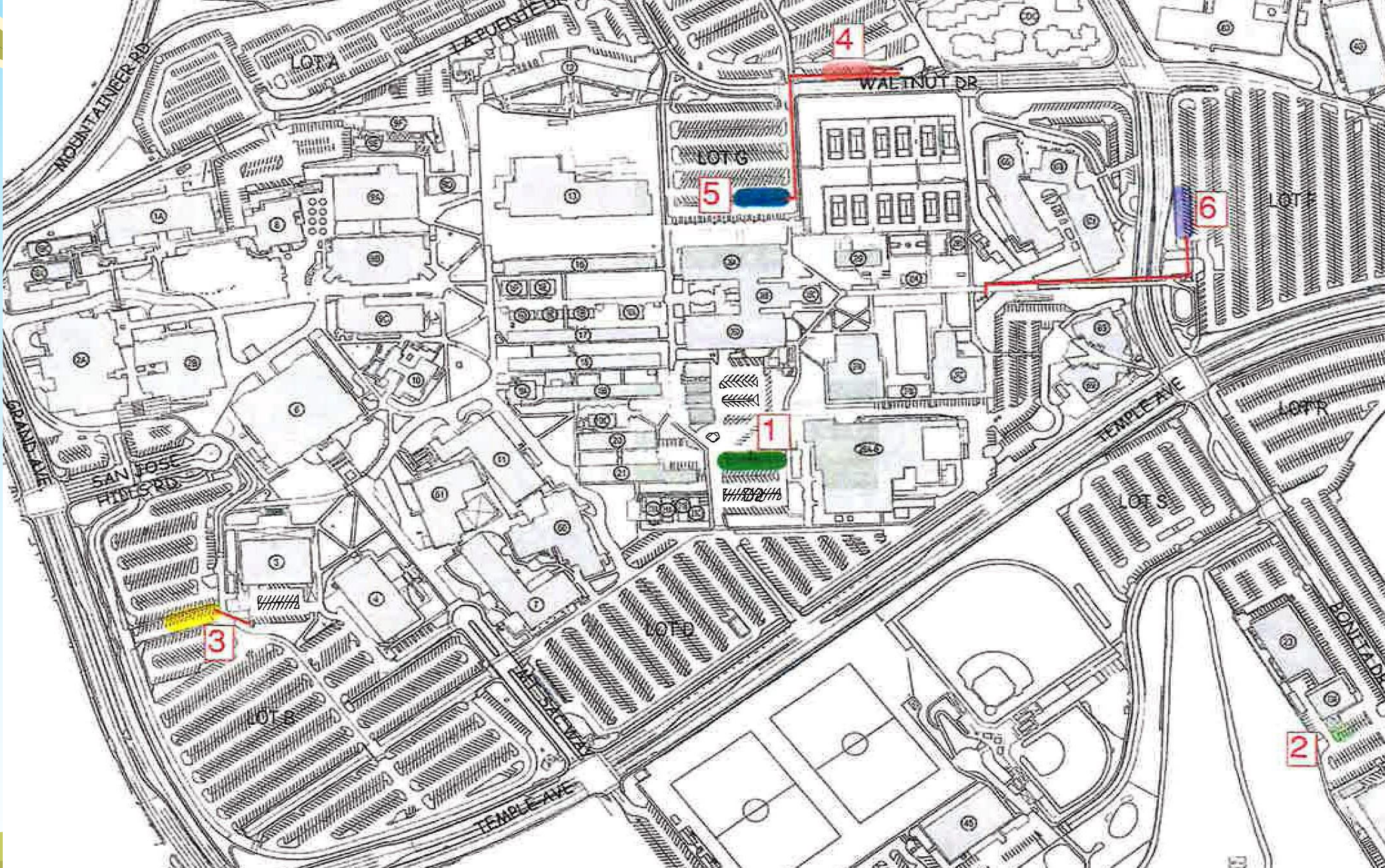
4 stalls – Bldg 23

10 stalls – Lot B

10 stalls – Lot G

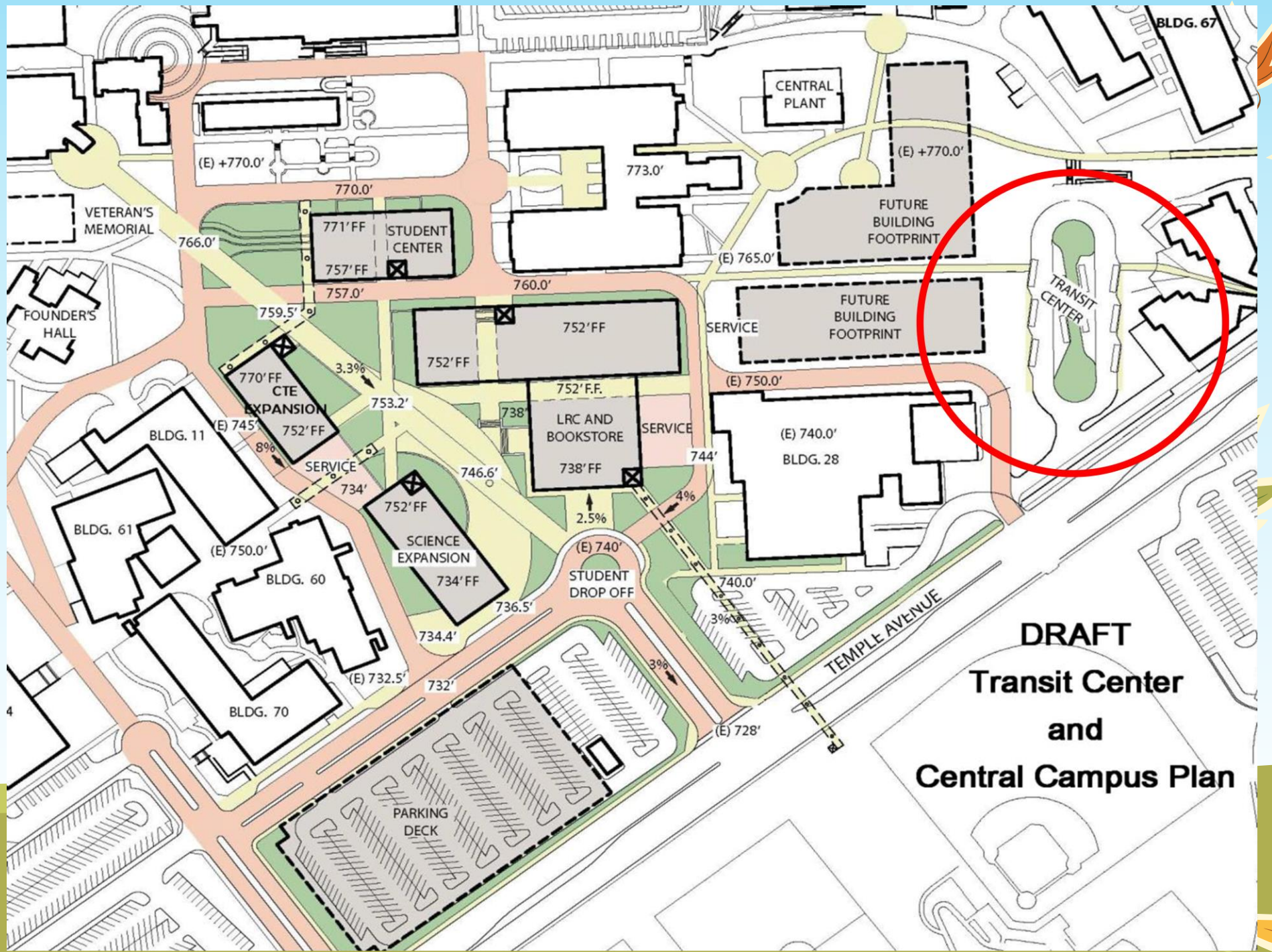
10 stalls – Lot H





EV Charging Stations: 10 Lot D; 4 Bldg 23; 10 Lot B; 10 Lot G; 10 Lot H

Foothill Transit Center



DRAFT
Transit Center
and
Central Campus Plan

Foothill Transit Mt. SAC Ridership

- 865,095 Mt. SAC student boardings using the Class Pass
- Year to date FY16 boardings data indicates 203,475 Mt. SAC student boardings

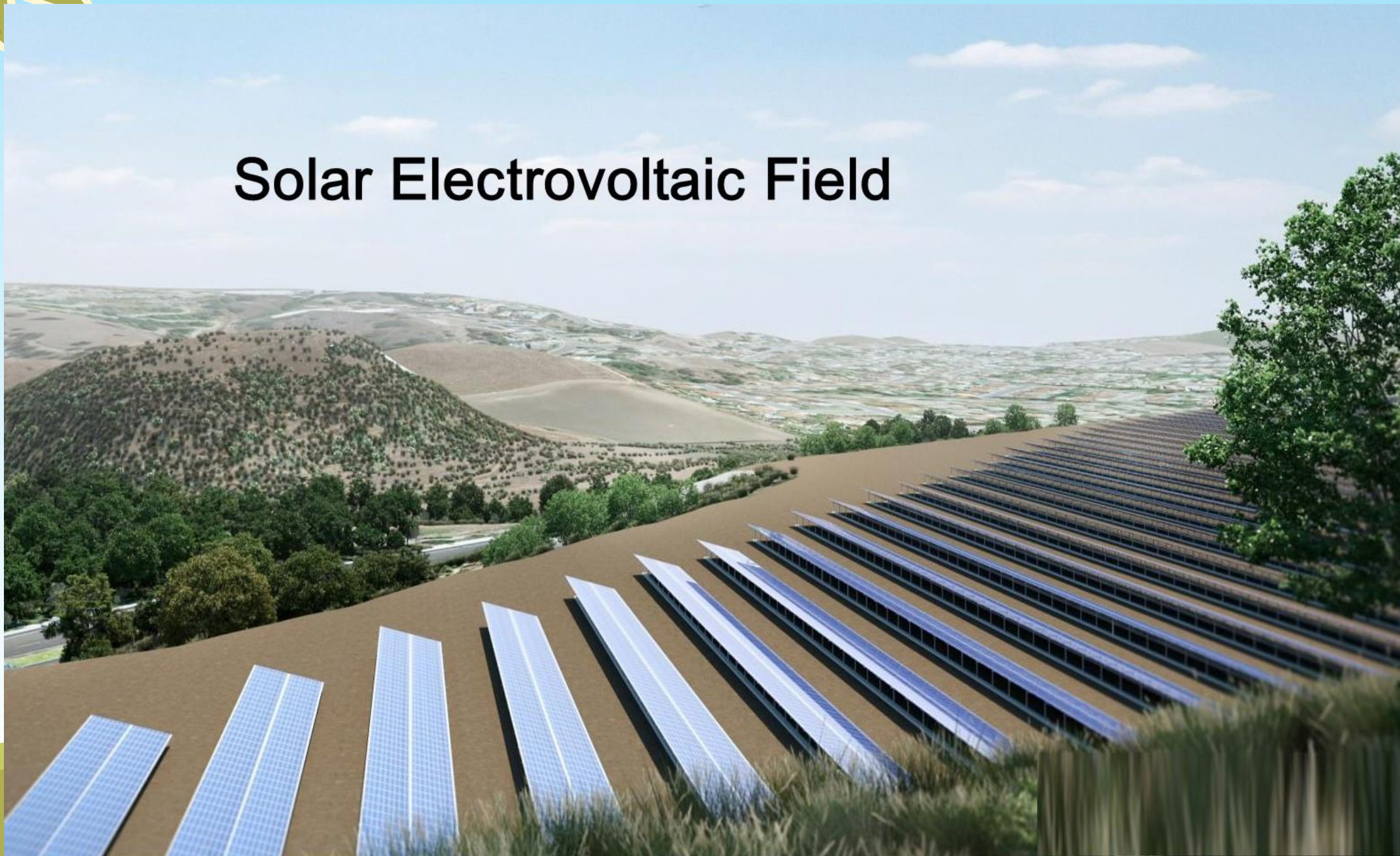


What is a Transit Center?

- A hub of transit options co-located in a single facility
- Transfer point to other routes or modes of transportation
- A Transit center simplifies route connectivity and enhances level of service
- Bus stop amenities like benches and shelters help protect passengers from weather



Solar Electrovoltaic Field





MT. SAN ANTONIO COLLEGE

2018 Educational and Facilities Master Plan

Sustainability Update

MAY 22, 2017 // COMMUNITY FACILITIES PLAN ADVISORY COMMITTEE MEETING

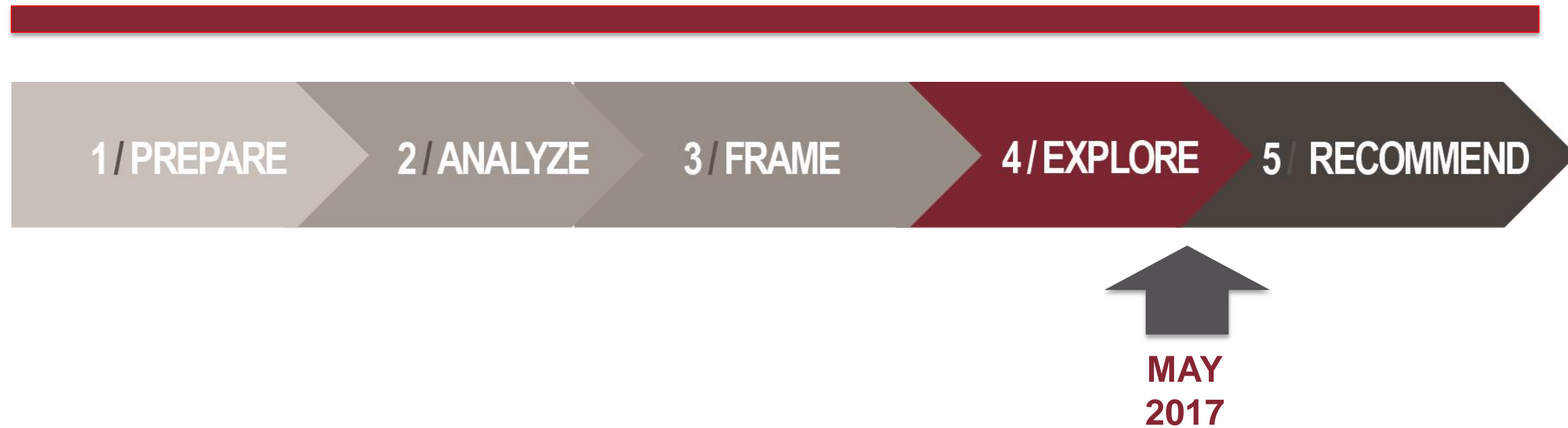
Agenda

- / SUSTAINABILITY OBJECTIVES REVIEW
- / MARCH ECO CHARRETTE REVIEW
- / MAY SUSTAINABILITY CONFERENCE UPDATE
- / NEXT STEPS OF CLIMATE ACTION PLAN (CAP)

Updates

SEPTEMBER
2016

DECEMBER
2017



Review: Sustainability Objectives

MT. SAC EFMP – SUSTAINABILITY OBJECTIVES

- / Minimize negative impacts to the environment, including, but not limited to, water pollution, air pollution, waste, energy use, water use, and the heat island effect.
- / Reduce hardscape areas that contribute to the heat island effect and stormwater pollution.
- / Promote sustainability awareness and education through interpretive design, programming, and research facilities.
- / Support opportunities for on-campus waste management strategies.
- / Provide alternatives to single-occupant vehicle travel.

Review:

Eco Charrette

EFMP ECO CHARRETTE REPORT

/ The Report identifies areas of interest for sustainable practices at Mt. SAC and opportunities identified by workshop participants

/ Draft Eco Charrette Workshop Report under review by workshop participants



EFMP ECO CHARRETTE - SUSTAINABILITY OPPORTUNITIES

Mt. SAC College EFMP EcoCharrette

07/07/2017

SUSTAINABILITY OPPORTUNITIES

RENE'S GROUP

- * Secure Bike Parking
- * Clearly Labeled Recycling Receptacles
- * A Sustainability Center
- * Increase Recycling
 - Cleaner Campus
 - More Permanent Trash Cans
 - w/ Eco Student Ambassadors
- * Reliable + Free WiFi @ Transit Center
 - To increase transit use

CHISA'S GROUP

- * Sustainability Center for Outreach
 - Online + Physical
- * Institute - ^{Research + Funding Opportunities} Academic Component
- * Waste Reduction Competitions, etc
- * Reduce Water Use
- * Minimize concrete parking to allow for groundwater infiltration
- * Mt. SAC sign... integrate solar tech/lighting
- * Showcase + Partner w/ community

MIKA'S GROUP

- * SUSTAINABILITY CENTER
 - ACCESSIBLE TO STUDENTS
 - VISIBLE FROM GRAND
- * GRAYWATER in BUILDINGS
- * A RECYCLING CENTER
 - Bins need LIDS
- * COMPOSTING
 - Healthy Snacks
- * Operable Windows w/ Sunshades
- * SITE LIGHTING
- * Alt. Transit
- * Permeable Paving
- * Secure Bike Parking

MICHAEL'S GROUP

- * A Nature Center w/ Raised Viewing
- * Electric Vehicle Recharging Station
- * Water Bottle Refill Stations
- * Light Pollution @ Night
- * Connected Comfortable Campus
- * Consistent Recycling + Bike Racks
- * Auto Flush Toilets + Faucets... don't always work
- * Carpool Parking
- * Wayfinding Signage
- * Redaimed water... difficult to work w/ grade, but possible to use



EERA

We'll integrate this into our overall CAMPUS MASTER PLAN which will carry our work into the FUTURE!

Update: Sustainability Conference

SUSTAINABILITY CONFERENCE – GRAPHIC NOTES

MTSAC Sustainability Conference

05/12/2017

CLIMATE ACTION PLAN Committee



EcoCharrette UPDATE

Report: A Living Document
SUSTAINABILITY SITE PLANS

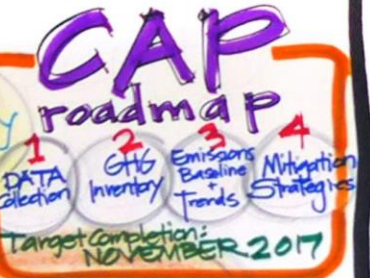
Sustainability is NOW. Regenerative is for the future too. This conversation is real... "CENTER FOR THE FUTURE!"

• SUSTAINABILITY CENTER IS DIFFERENT FROM NATURE CENTER

RATING SYSTEMS

- MTSAC has LEED Silver min. goals. Attainable w/ Cal Green + Energy Code Reqs
- Living Building Challenge is far more far reaching. Starts @ Net-Zero Energy + Water

CAMPUS ecology
National Wildlife Federation



E F M P

Educational + Facilities Master Plan



Microgrid BATTERY STORAGE
Consider, especially at demonstration projects
Thermal Energy... need to evaluate capacity for campus-wide.

Student Farmer's Market
...parking lot... green space... can move.

Operable Windows
...need to be automated
Users + energy impacts.

REUSE CENTER @ Facilities
Waste Management and Reduction. Requires Storage. Facilitate Reuse and Buy Nothing.

Farm Waste @ Farm!
Takes a lot of coordination
"Landfill Diversion Day!"

Water Conservation throughout site

CONSTRUCTION WASTE ZERO WASTE IS ATTAINABLE during construction it's about on-site control.

Site Infiltration

OIL RECYCLING @ Fueling/Garages and Aprons

Efficient + Low Flow Fixtures
Living Machine... might be viable for large campus. Be prepared to address ODOR concerns.

SOLAR HOT WATER @ POOL

SOLAR FARM
Show the facts... make the case.
At Santa Monica College, commitment to PVs @ all new buildings
CONSIDER PV @ EACH PROJECT + EVALUATE R.O.I.












TRANSIT CENTER
Advantage bus riders w/ access to information (like Hong Kong)

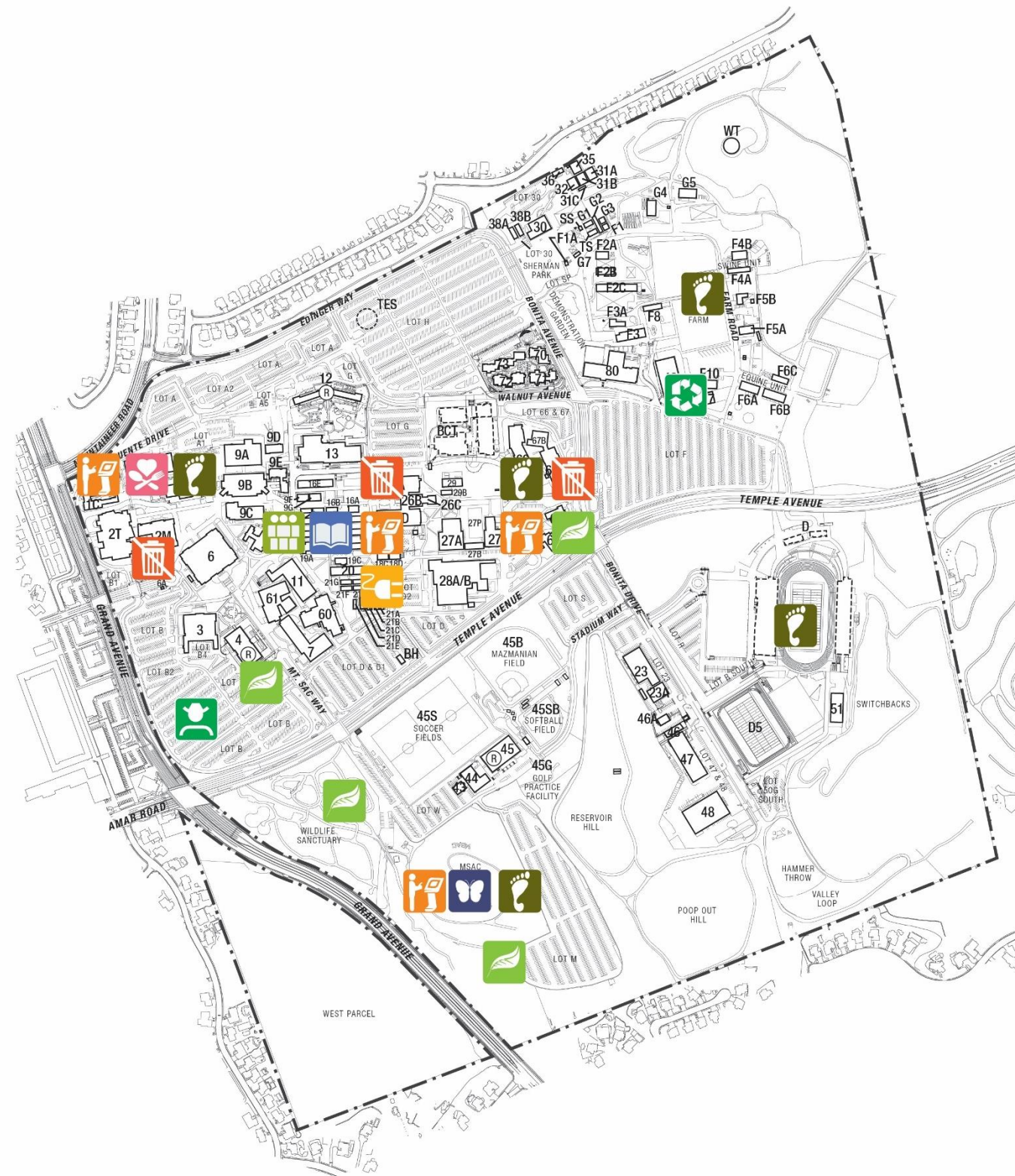
Electric Vehicle Charging Stations
Not in Parking Garages Has parking impacts
Infrastructure req'd by SCE
Plan for emerging tech
SCE incentive for public use.

Update: Sustainability Site Plans

CULTURE

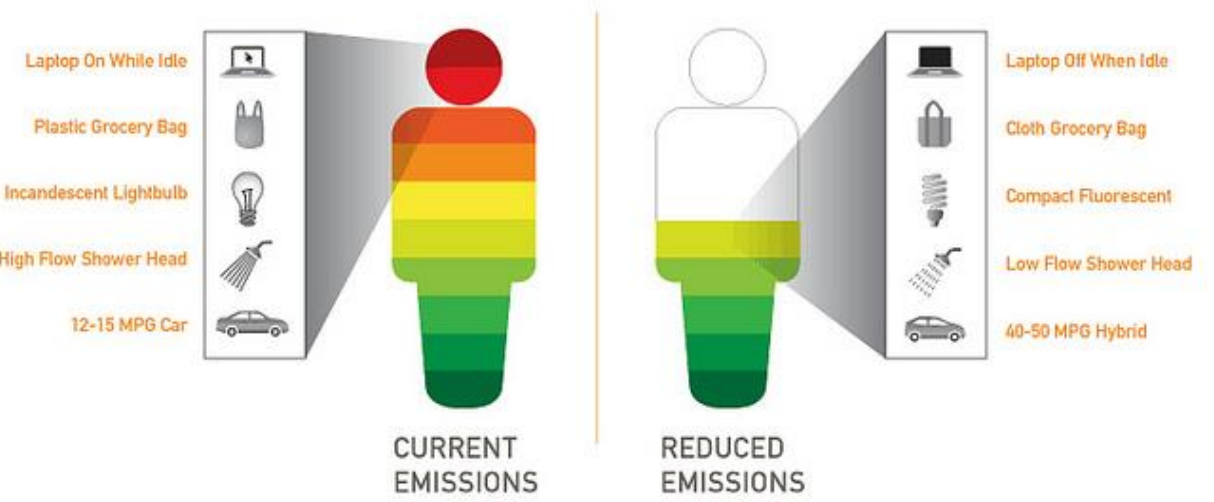
Culture

-  Eco Station (recycling center)
-  Sustainability Center
-  Sustainable Signage
-  Sustainability Institute
-  Nature Center
-  Healthy snacks
-  Walkability map
-  Campus power save
-  Waste reduction competition
-  Student farmer's market
-  Eco team










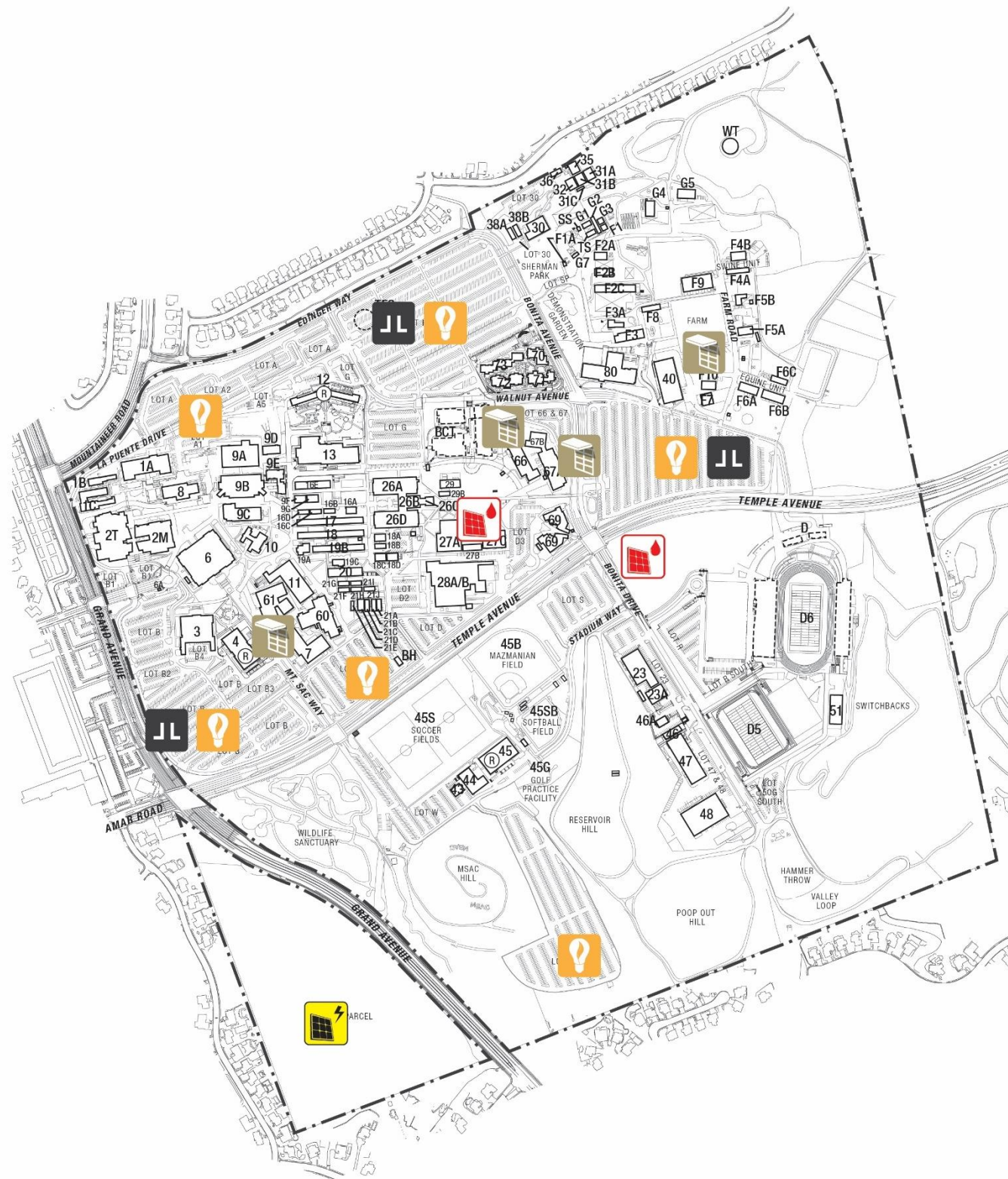
CONSERVATION OUTREACH: TEACHING THE CAMPUS TO SAVE ENERGY

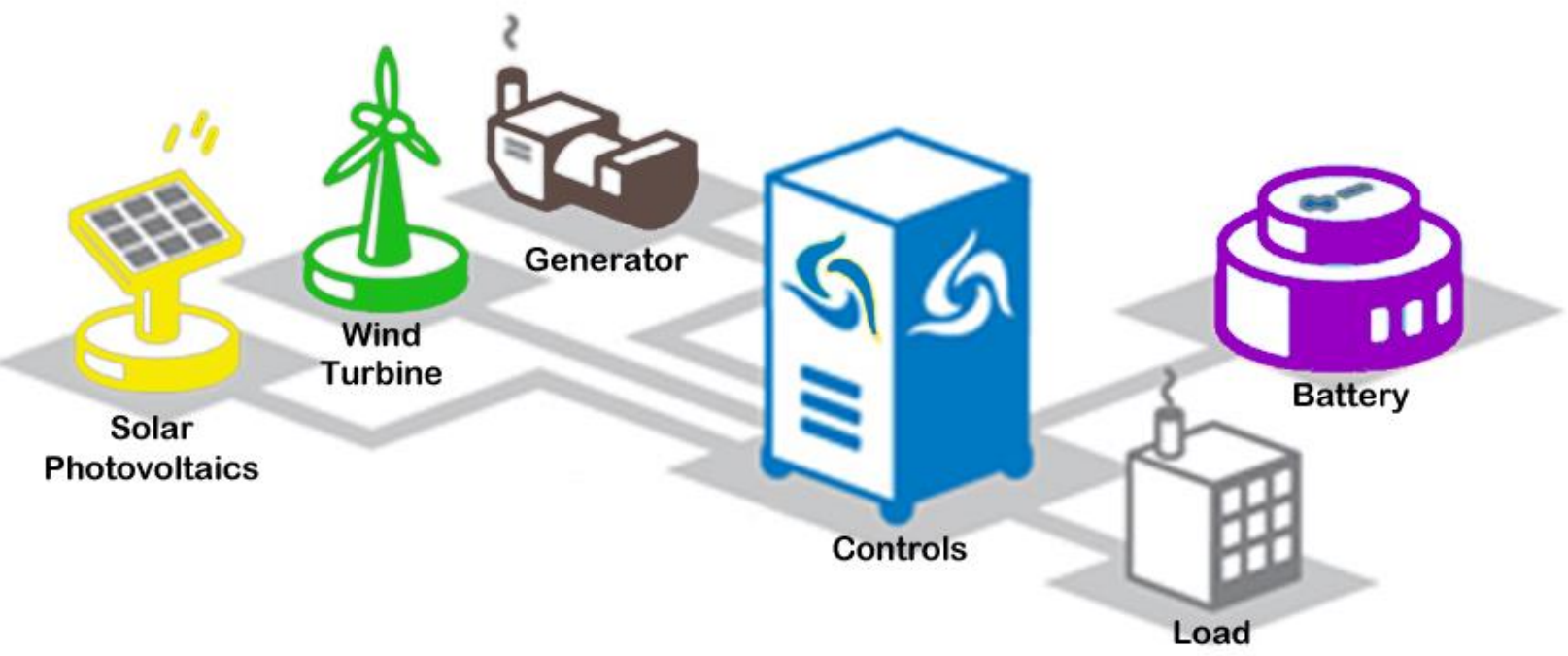


ENERGY

Energy

-  Solar Hot Water
-  Operable windows with solar shading
-  Efficient Site Lighting
-  Microgrid + battery storage
-  Renewable Energy--Solar Farm






WATER

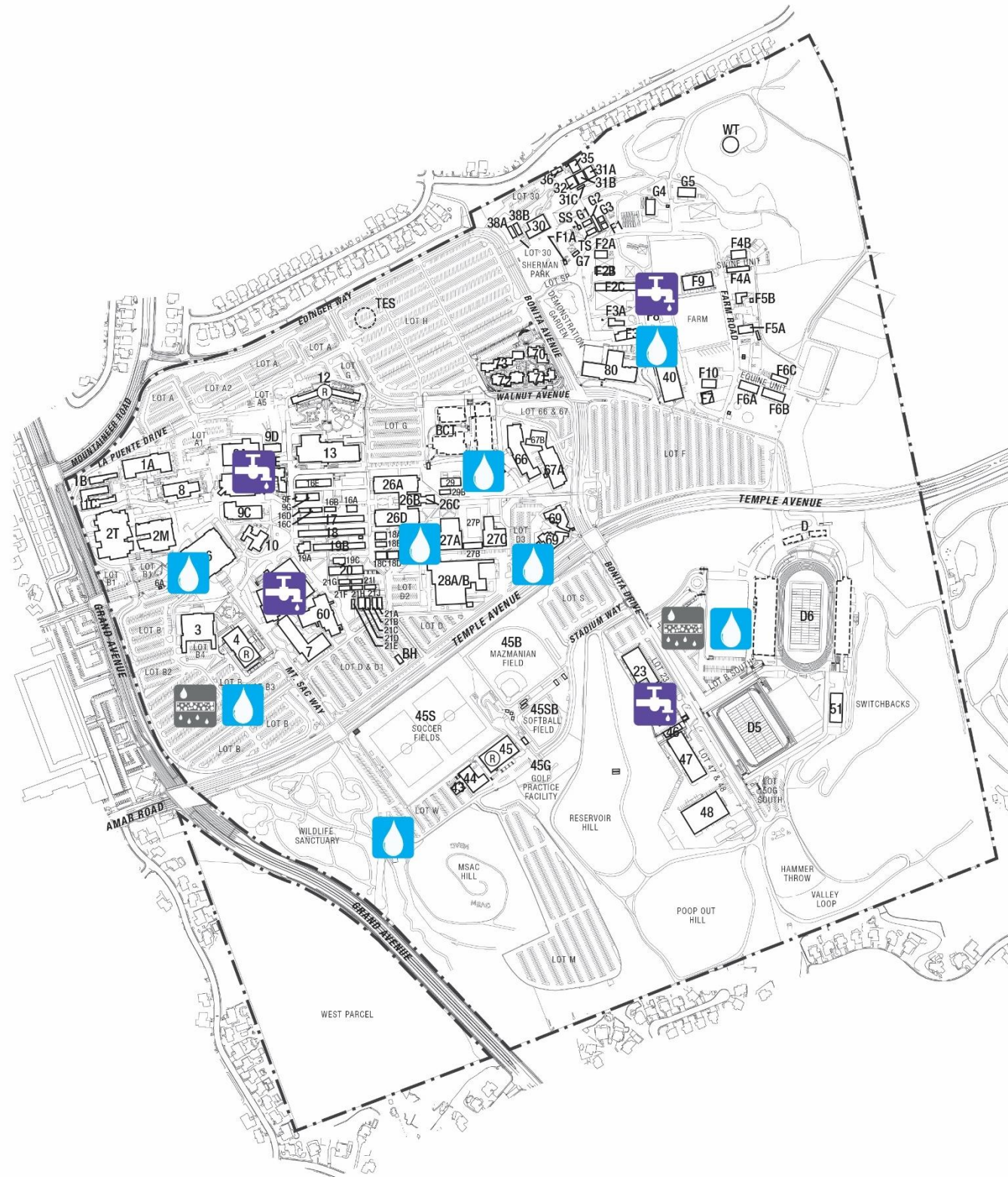
Water

 Outdoor water conservation

 Water capture and treatment

- Bioswales, rain gardens, permeable paving, Living machine

 Indoor Water Strategies
- Efficient, durable fixtures



WASTEWATER TREATMENT FOR REUSE

Living Machine Wetland Cells - Stage 1

Wastewater from Primary Treatment enters the Tidal Flow Wetlands. Energy-efficient pumps alternately fill and drain the cells, thereby drawing in atmospheric oxygen, promoting rapid oxidation of nutrients.

Primary Tank + Components

Untreated wastewater enters this baffled tank where coarse solids are retained and bacteria begin the treatment process. Wastewater is screened before entering the flow equalization chamber and then is pumped to Stage 1 Wetland Cells.

Tidal Module

Inside the tidal flow wetland cells contain automated valves, high efficiency pumps and water level sensors to create tidal cycles

Living Machine Wetland Cells - Stage 2

Partially treated wastewater from Stage 1 Wetland Cells is pumped here. Tidal cycles complete and nitrification and solids removal.



Polishing Module

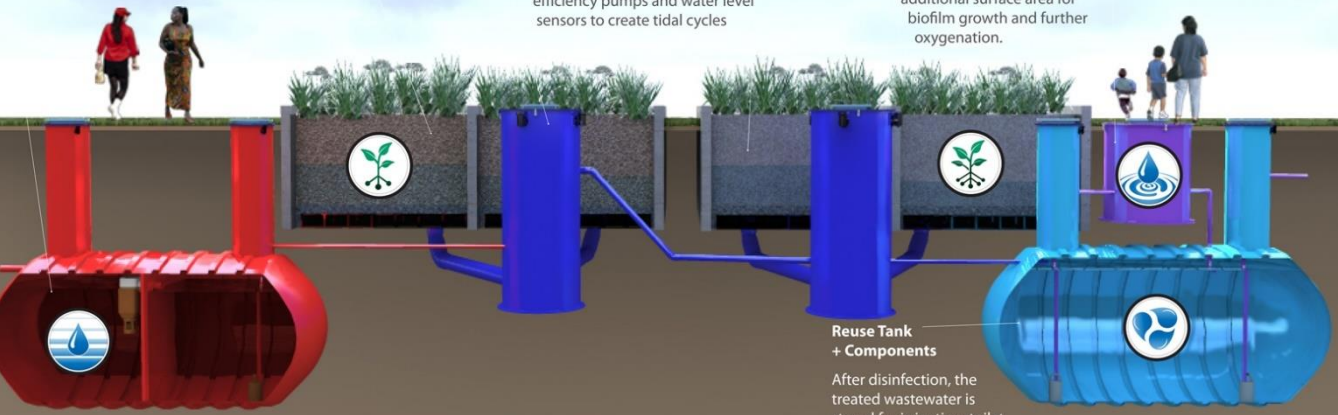
Treated wastewater is polished with dual-stage filtration and UV (ultraviolet) and/or chlorine disinfection.

Plants

A variety of native or ornamental species can be planted. Plant roots provide additional surface area for biofilm growth and further oxygenation.

Reuse Tank + Components

After disinfection, the treated wastewater is stored for irrigation, toilet flushing and other non-potable uses.








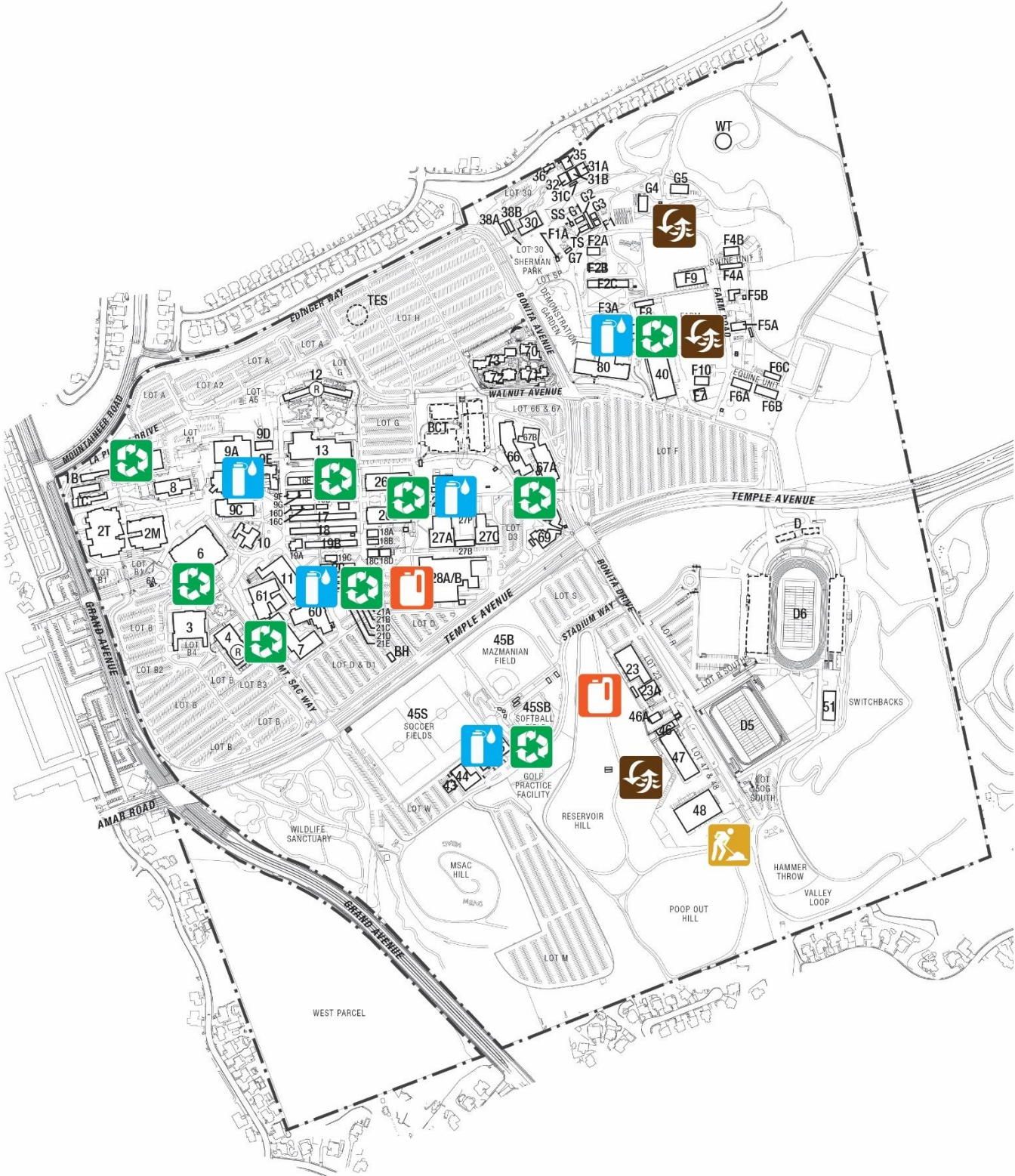
Living Machine Systems, L3C



WASTE

Waste





-  Permanent waste management/recycling receptacles
-  Water refilling stations
-  Construction waste management
-  Oil recycling
-  Mulch/yard waste/Composting

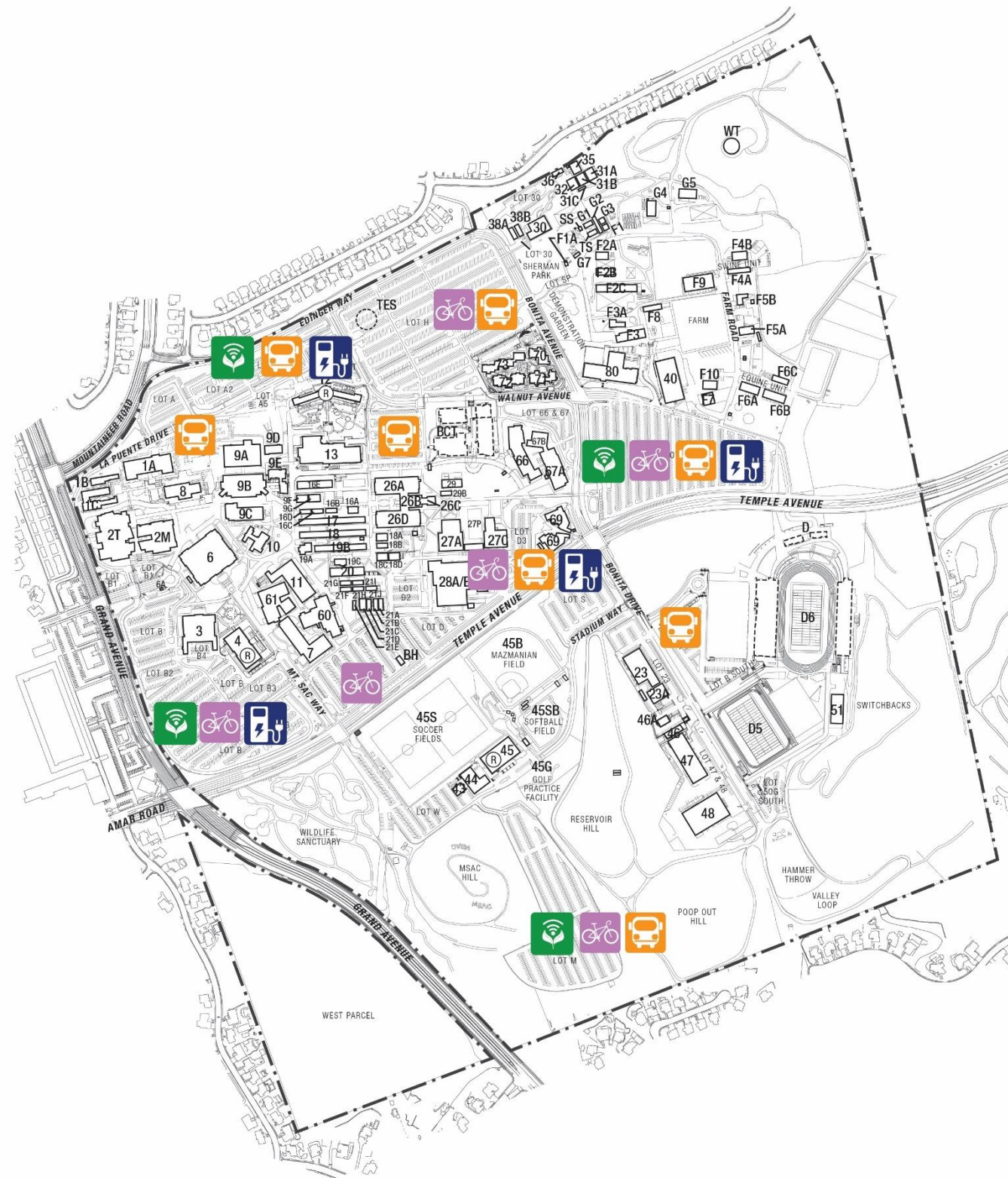




TRANSPORTATION

Transportation

-  Alternative Transportation (buses, free Shuttle Service)
-  Charging Stations/carpool parking
-  Secured bike parking
-  Reliable free Wifi (for AT)



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Next Steps: Climate Action Plan (CAP) Process

PRESIDENTS' CLIMATE LEADERSHIP COMMITMENTS

WHO: The Climate Leadership Network comprises more than 600 colleges and universities, **including Mt. SAC**, in every state and the District of Columbia who have committed to take action on climate and prepare students through research and education to solve the challenges of the 21st century.

These signatory institutions report on their yearly progress publicly sharing their climate action plans, greenhouse gas inventories and more.

WHAT: The Presidents' Climate Leadership Commitments include:

- /a **Carbon Commitment** (reducing greenhouse gas emissions).
- /a **Resilience Commitment** (climate adaptation and building community capacity).
- /a **Climate Commitment** that integrates both.

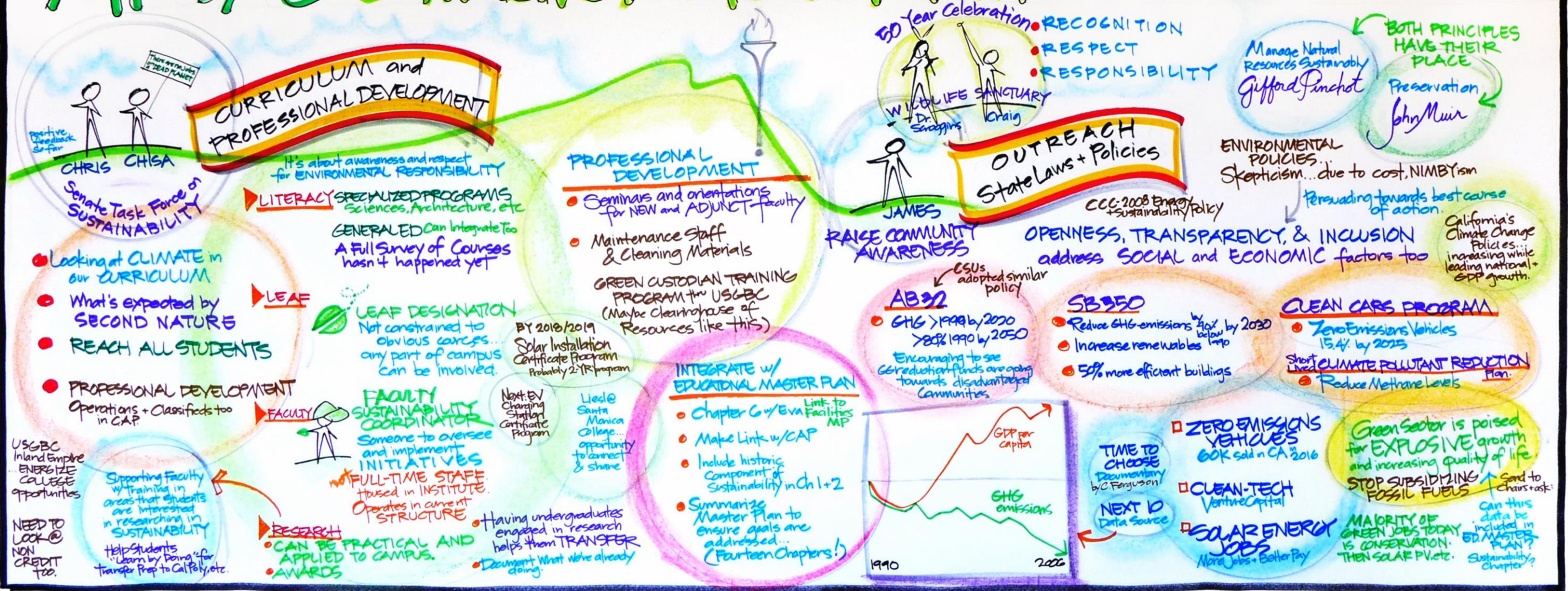
WHY: The mission is to proactively build a sustainable and positive global future through initiating bold commitments, scaling successful actions, and accelerating innovative solutions among leadership networks in higher education.



SUSTAINABILITY CONFERENCE – CLIMATE ACTION PLAN

MSAC Climate Action Plan

SUSTAINABILITY CONFERENCE 05/12/2017

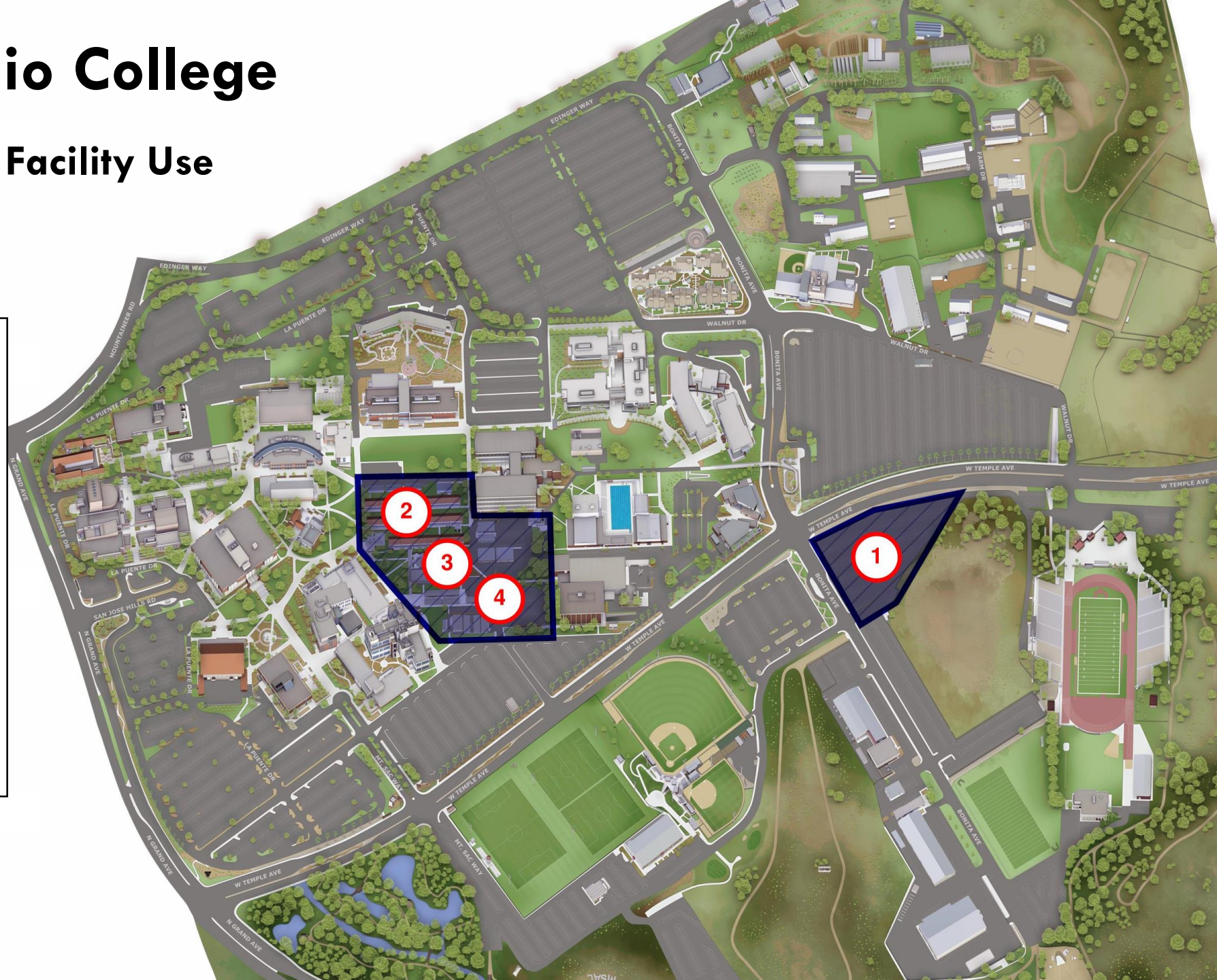


Mt. San Antonio College

Potential Community Facility Use

Building Projects Phase 1

1. Kinesiology and Wellness
Gymnasium
2. Student Center
3. Library
4. Science
Laboratories



Mt. San Antonio College

Potential Community Facility Use

- Building Projects
Phase 2**
- 1. Adult Basic Education
 - 2. Continuing Education
 - 3. Vocational Technology
 - 4. Assembly Hall**

