

# Facilities Department New Employee Indoctrination

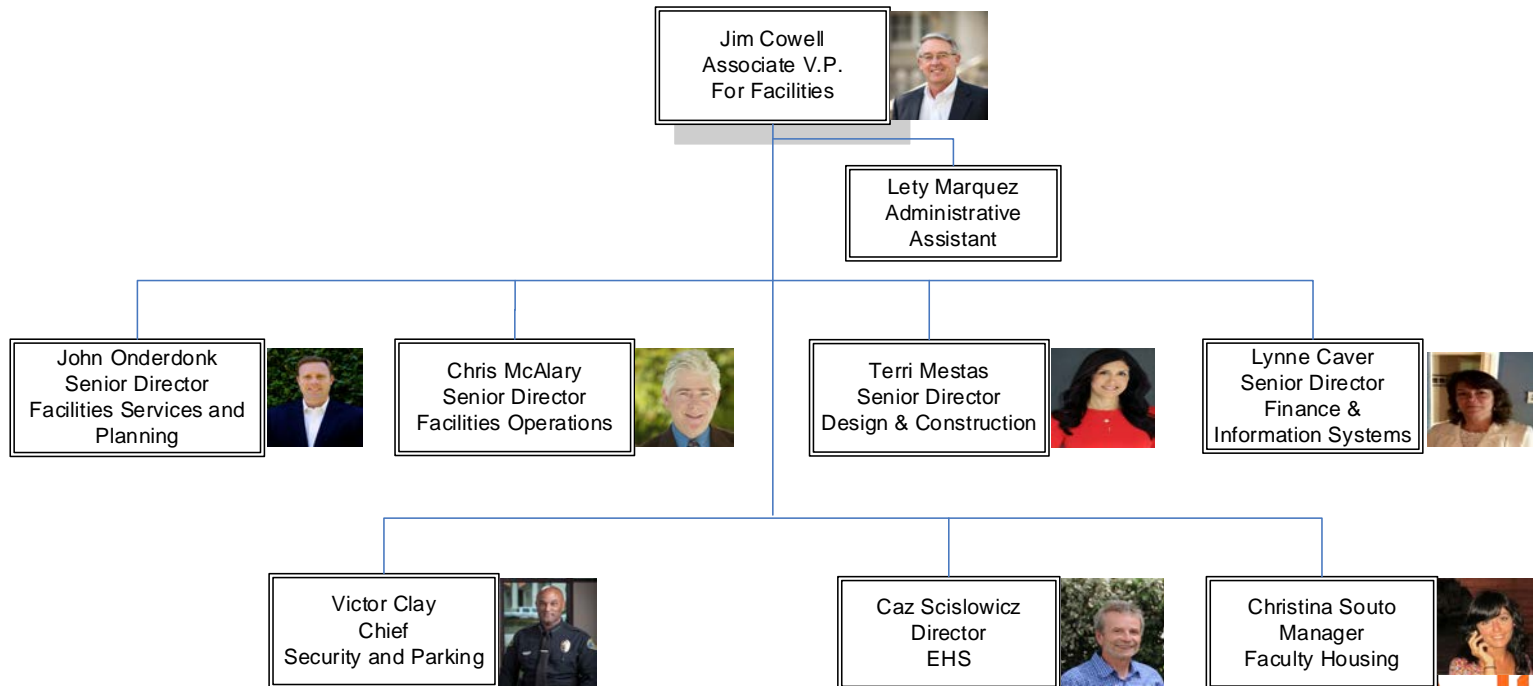


California Institute of Technology

# Facilities Organization

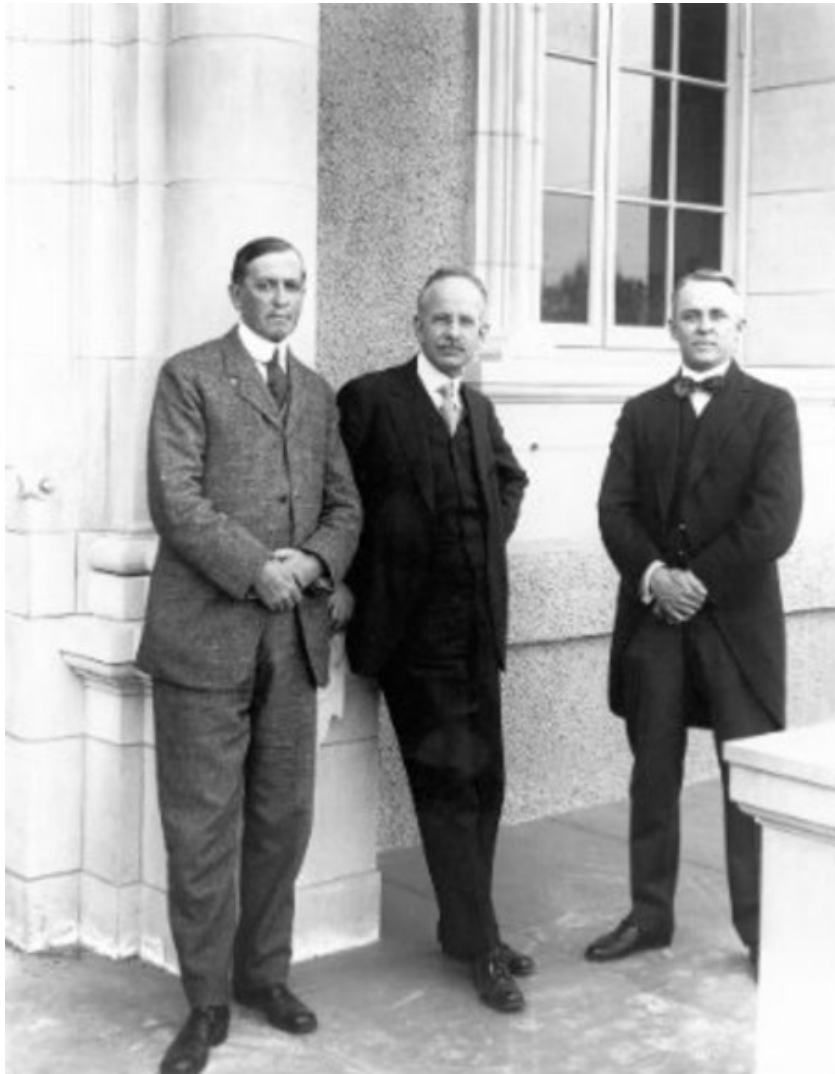


"The work we do each day impacts everyone on this campus."  
-Jim Cowell at Caltech Facilities quarterly "Coffee Talk"





# Caltech – Hale Model



Amos Noyes  
caltech.educhemist

George Hale  
astronomer

Robert Millikan  
physicist

Biology and Biological Engineering



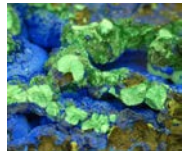
Chemistry and Chemical Engineering



Engineering and Applied Science



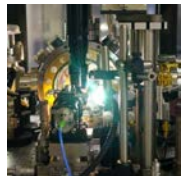
Geological and Planetary Sciences



Humanities and Social Sciences



Physics, Math and Astronomy



**Caltech**

August 19, 2020

We provide the place for research  
to happen





# Facilities Guide Posts

- Meet our commitments to our customers
- Focus on the Main Thing:
  - Time: Deliver when promised
  - Dime: At best possible price
  - Shine: With features and benefits expected
- Respect the dignity and self-worth of all who work here
- Do our work **safely**

## Caltech Facilities Department Safety Statement

Safety is the responsibility of every member of the Facilities Department and is an integral part of our job every day. We will not compromise the safety or health of our employees or members of the Caltech community in the accomplishment of our work.

Together, we will establish a culture of safety excellence following these guiding principles:

- Supervisors will establish and maintain safe practices in their workplaces and relate the practices to their employees.
- Everyone will comply with all applicable health and safety laws, regulations, and standards.
- Everyone is empowered to bring safety concerns to the attention of their supervisor. Supervisors will take appropriate action as needed.
- Anyone may question a practice or express a concern when they believe an unsafe action is occurring or about to occur.
- Everyone will ensure contractors and other vendors perform Caltech work in a manner that protects the Institute from health and safety risks.
- Everyone will report incidents; we will analyze them for lessons to prevent recurrence.
- Leaders will establish systems and set goals that promote continuous improvement.

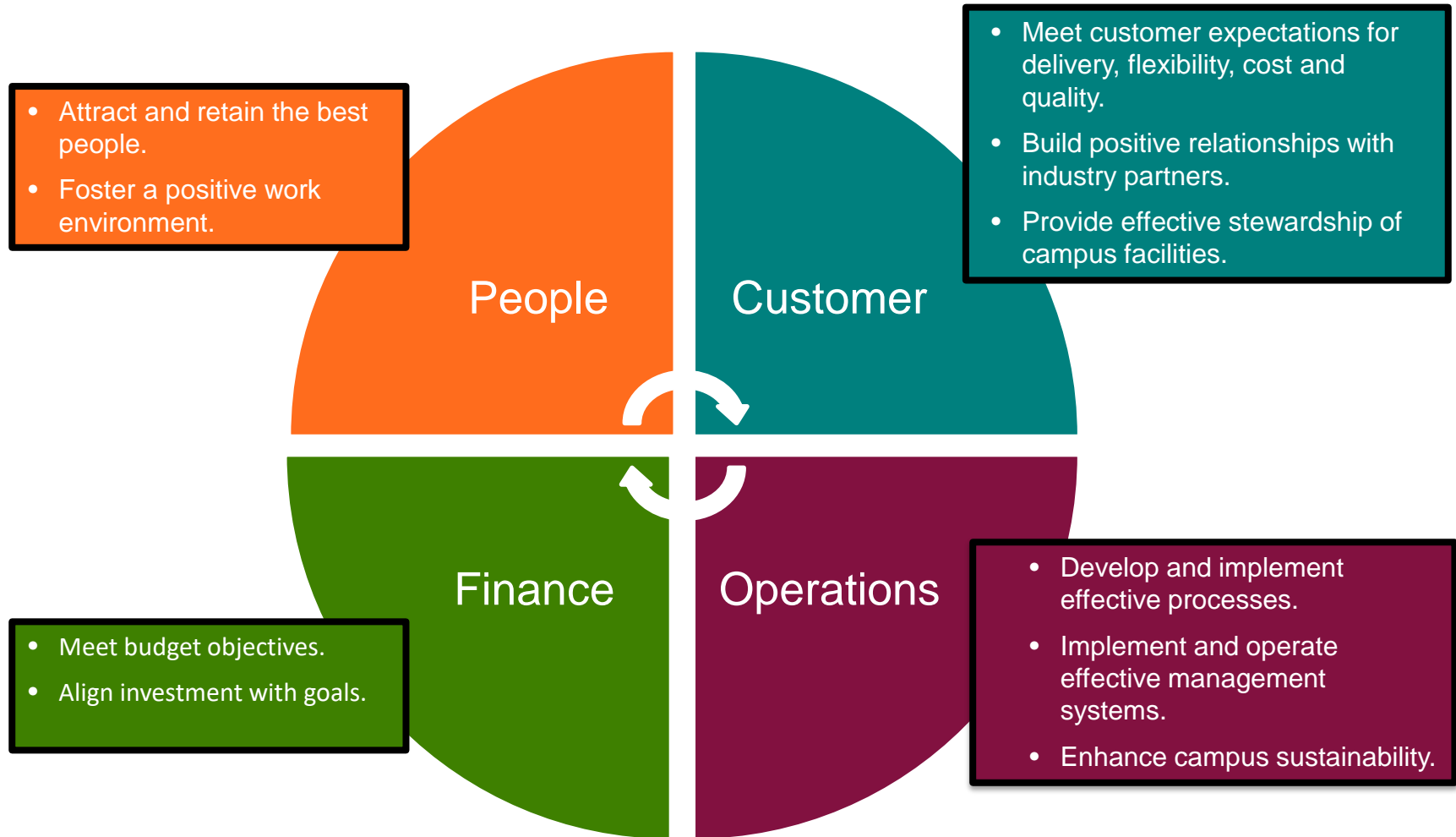


Jim Cowell, AVP for Facilities

19 DEC 2016  
Date


# Facilities Balanced Score Card

## Strategic Focus Areas





# Facilities Department Expectations

- 
- Ownership and Accountability
  - Outgoing Communications
  - Visitors and Snapshots
  - Communicate
  - Loyalty
  - Honesty
  - Teamwork
  - Safety

August 19, 2020



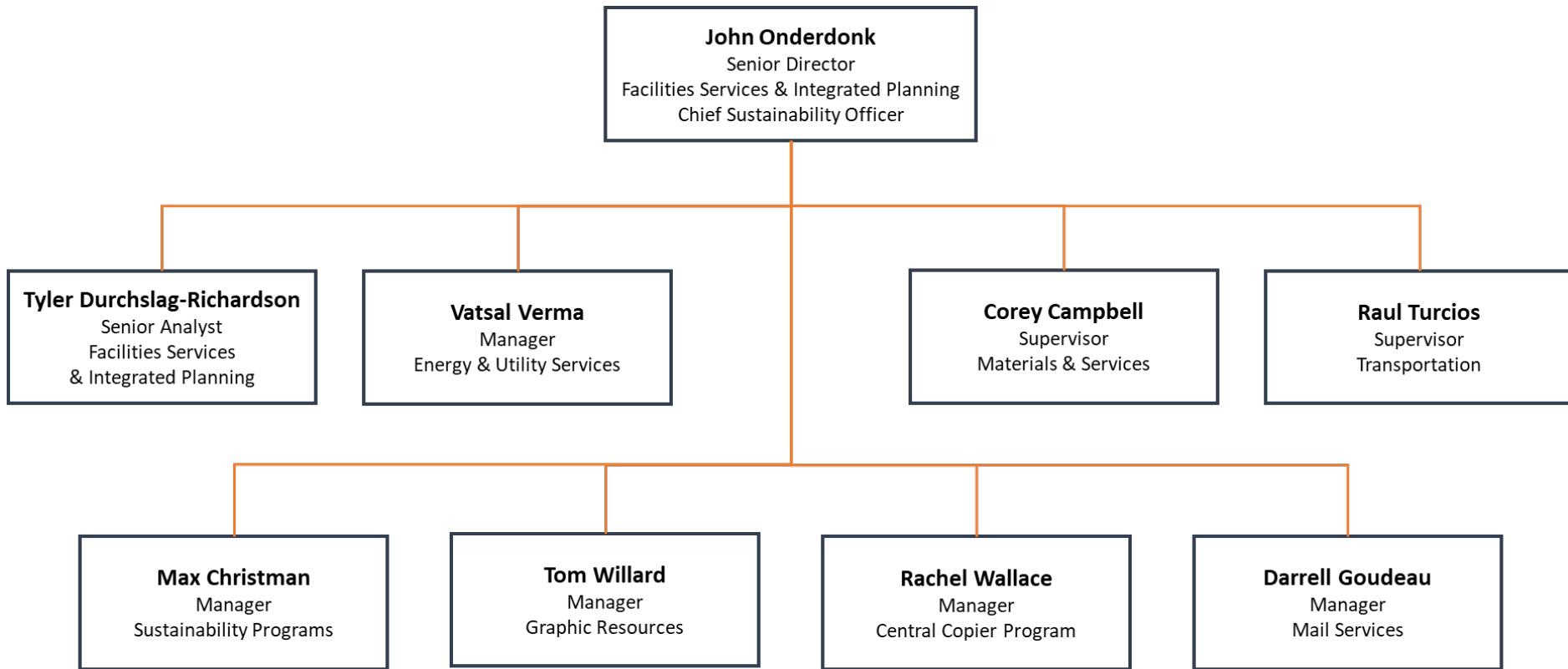
# Caltech Facilities

## Facilities Services & Integrated Planning



John Onderdonk  
Senior Director

# Facilities Services & Integrated Planning Organization



**40** employees support Facilities Services & Integrated Planning



# Facilities Services & Integrated Planning

## Energy & Utility Services

- Utilities services:
  - electricity
  - natural gas
  - domestic water
  - chilled water
  - steam
- Caltech Energy Conservation Investment Program
- Commissioning



# Facilities Services & Integrated Planning

## Transportation

- Motor pool
- Chauffeur
- Courier services
- Shipping and Receiving
- Research gases
- Surplus furniture



# Facilities Services & Integrated Planning

## Materials & Supplies

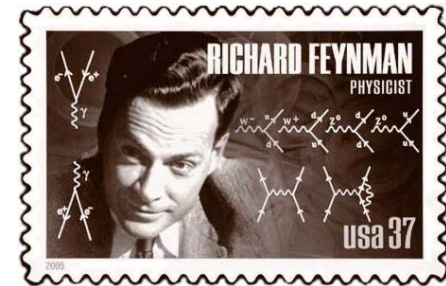
- Purchasing
- Stock room
- Central warehouse
- UPS shipping



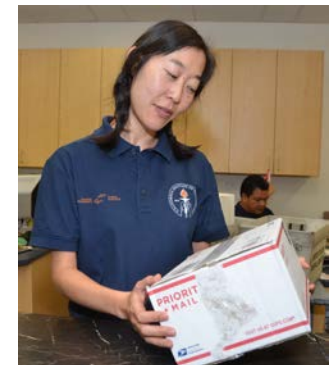


# Facilities Services & Integrated Planning

## Graphic Resources & Mail Services



- Feynman Station Post Office
- Tech Express
- Reprographic services:
  - campus copier program
- Photo services:
  - research posters
  - passport photos

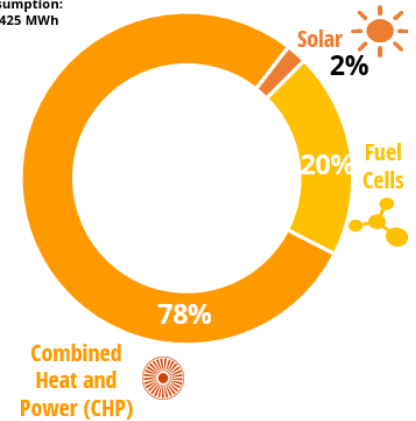
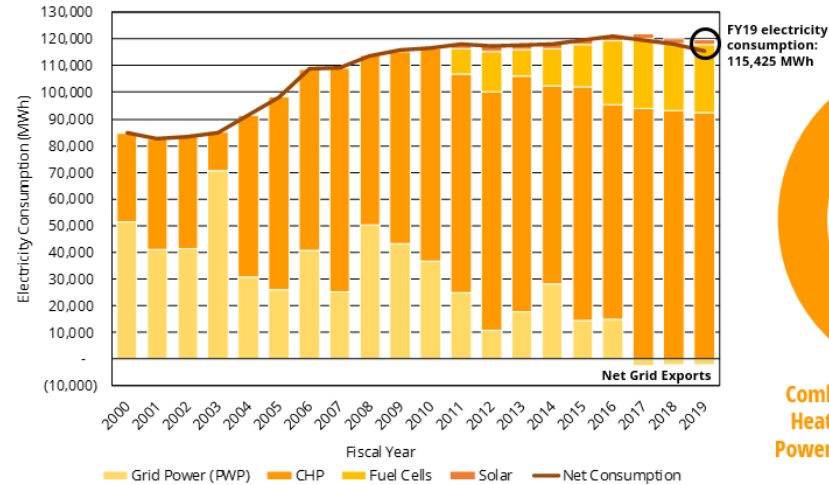


# Facilities Services & Integrated Planning

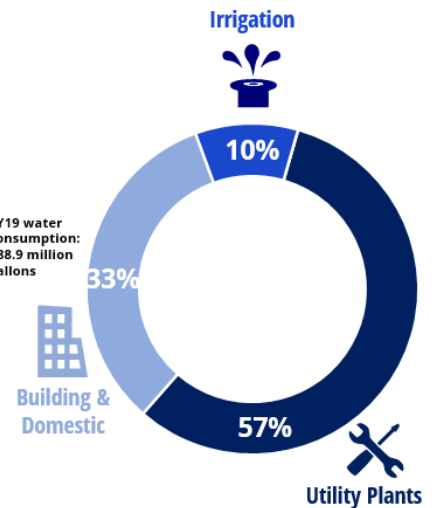
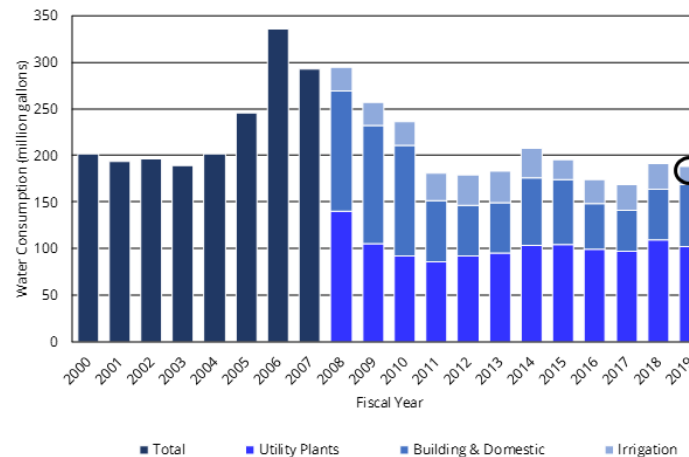
## Sustainability

- Energy
- Water
- Materials
- Built environment
- Emissions, Effluent and Waste
- Mobility Services

### Historical Campus Electricity Consumption



### Historical Campus Water Consumption



# Facilities Services & Integrated Planning

## Sustainability – Mobility Services

- Carpool/vanpool
- Public transportation incentives

– free Metro pass



- Bike/walk program
- 20% discount - fuel efficient vehicles
- Zipcar
- EV charging

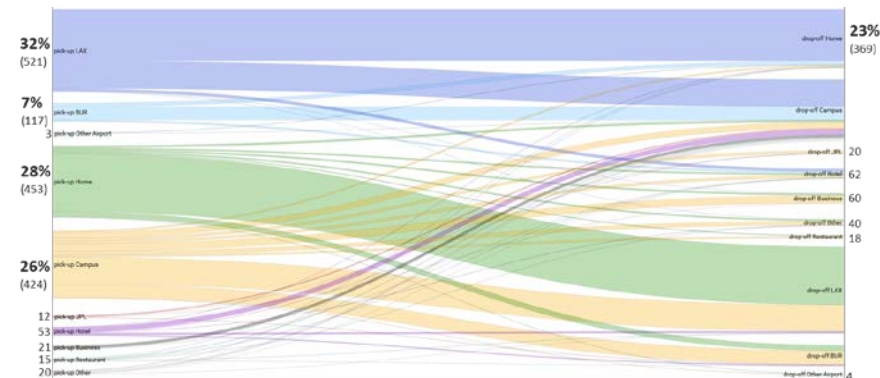
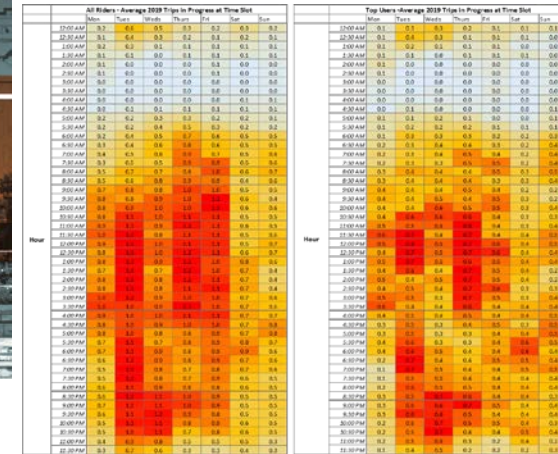
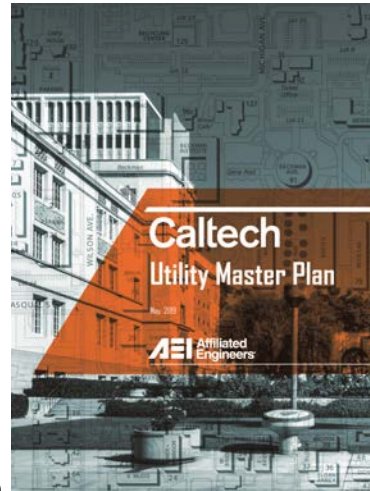




# Facilities Services & Integrated Planning

## Integrated Planning

- Infrastructure planning
- Internal coordination
  - Facilities Operations
  - Design & Construction
  - Strategy Implementation
  - Government Relations
- External coordination
  - City of Pasadena
  - Pasadena Water & Power



# Campus Security & Parking Services



Chief Victor Clay

# Mission Statement

Our mission is to **safeguard** the lives and property of **the community we serve**. We are committed to **working in partnership** with our diverse community **to improve their quality of life**.



# Core Values

Accountability

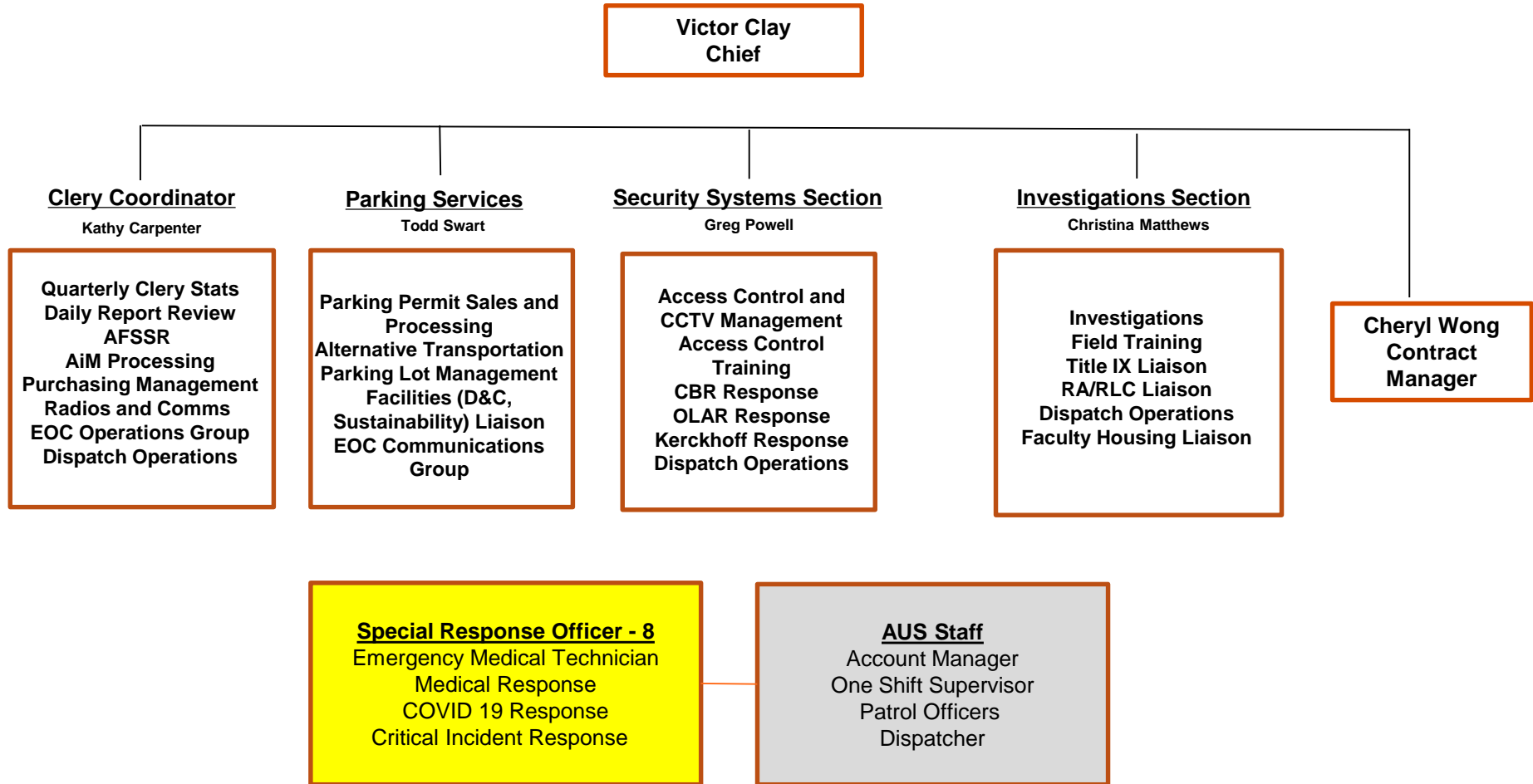
Commitment

Honesty

Kindness

Transparency

# Security and Parking Services Organization



## Special Response Team (SRT)



Hailey



Kevin



Rogelio



Camille



Jacob



Richard



Khunnara



Brianna



# Services Provided

- Safety Escorts
- 24-Hour Patrol
- Building Lockouts
- Jump Starts
- Incident Reporting
- Emergency Medical Response
- COVID 19 Response
- Special Event Security
- Dignitary Protection



# Keeping Caltech Safe



# Formal Security and Law Enforcement Training

- Bureau of Security and Investigative Services
- California POST
- American Red Cross
- Northwestern University Center for Public Safety
- Los Angeles County Sheriff's Department



**American  
Red Cross**



*Los Angeles County*  
**Sheriff's Department**





# Specialized Training

- **MEDICAL**

- All Trained in First Aid/CPR
- Emergency Medical Technician
- Urban Search and Rescue
- AED
- COVID 19 Response



- **HAZMAT**

- Chemical
- Biological
- Radiation



- **ASHER**

- *Active Shooter/Hostile Event*

# Training Offered to Staff & Students

## Active Threat Response Discussion



## Personal Safety



# Technology and Law Enforcement Software





# Everbridge

## Mobile App

Everbridge's mobile app, "Everbridge ContactBridge," will give you the ability to communicate via text and to send photographs of suspicious persons/events directly to Security Dispatch.

You can download the app now by clicking on the appropriate icon below. Please download ["Emergency Communications and Everbridge App Instructions" \(PDF\)](#) for instructions on how to log into the app.



# Partnerships with Local, State, and Federal Agencies



Pasadena Police Department  
Pasadena Fire Department  
Federal Bureau of Investigation  
Department of Homeland Security

# Security Systems

- New Technology
- Cost Effective and Efficient



Card Access – HID cards and readers

Over 300 CCTV & Security Cameras



Contact Greg Powell at ext. 4708



# Parking



- Types of Parking on Campus
  - Commuter
  - Carpool
  - Reserved
- Registration done annually
- Call Ext: 8877
- Email: [parking@caltech.edu](mailto:parking@caltech.edu)
- Todd Swart



# FAQs

- How do I get in contact with an officer?
  - Call 626 395 4701 or 626 395 5000
  - Email: [security.supervisor@Caltech.edu](mailto:security.supervisor@Caltech.edu)
- Where are you located?
  - Dispatch: 370 S. Holliston Ave (Parking Structure)
  - Administrative Operations: 515 S. Wilson Ave (Above the Credit Union)
- How much is a parking ticket?
  - Parking citation fines are determined by the City of Pasadena. Fee information is available on the back of the citation.
- Do you patrol off campus?
  - Yes. We have a defined jurisdiction that extends into the City of Pasadena. Generally, we patrol the campus and its perimeter, but we also patrol many residences and other properties owned and controlled by Caltech.
- Do you enforce the COVID19 mask requirements?
  - We highly encourage everyone on campus to wear a face covering. If you **“NEED A MASK, JUST ASK!”**

# Campus Security & Parking Services

Administrative Office (HQ)

515 S. Wilson Ave.  
Pasadena, California 90025

Dispatch

370 S. Holliston  
Pasadena, California 90025

**626 395 4701 Dispatch**

**626 395 5000 (emergency)**



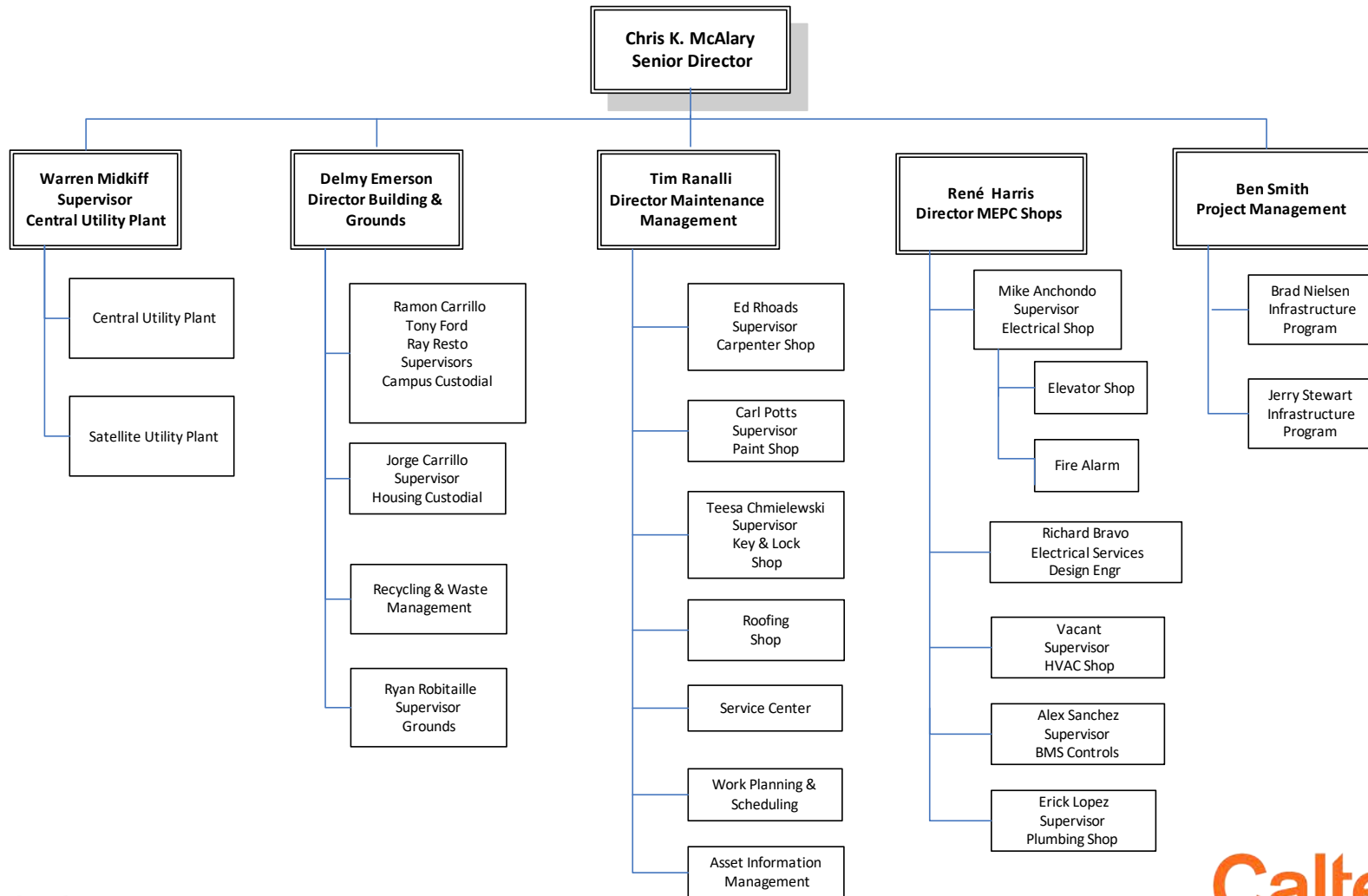
# Facilities Operations



**Chris K. McAlary**  
Senior Director  
Facilities Operations

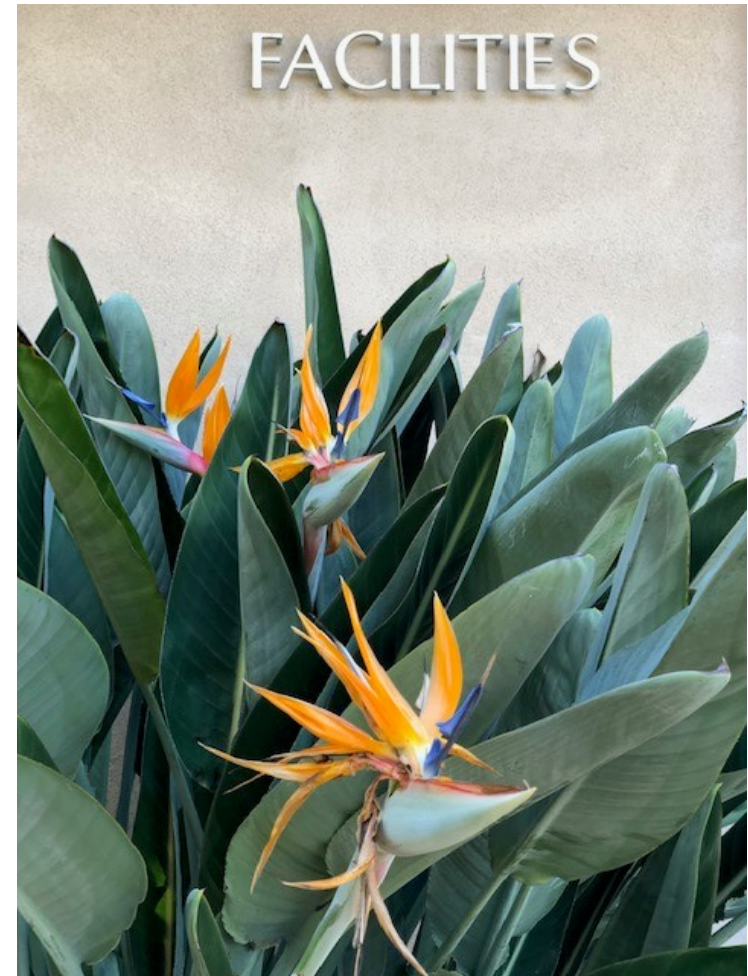


# FACILITIES OPERATIONS ORGANIZATION



# VISION

“Exceeding expectations by  
Providing world-class  
Stewardship”





# Responsibilities

- \$15M operating budget
- Maintenance, repair, custodial services for 4.5M square feet of buildings
- Landscaping for 130 acres
- Generate power, chilled water and steam for 90+ buildings





# Scope and Complexity



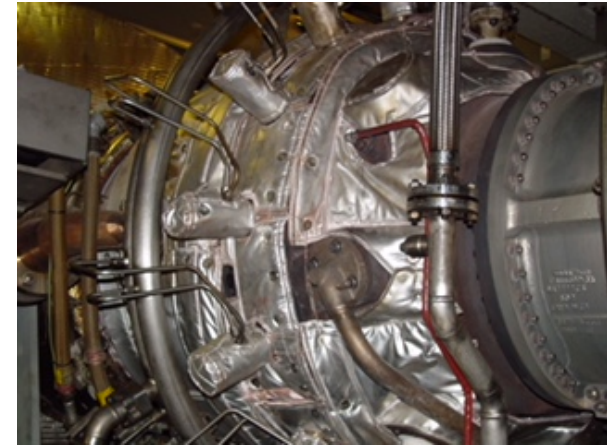
**2.0MW**

**solar energy at  
ten roof-top sites**



**4MW**

**renewable energy from  
24 Bloom Energy fuel cells**



**12MW**

**combined cycle  
cogeneration plant**

# Scope and Complexity



**\$8-10M**

**spent annually in  
infrastructure projects**



**> 1200**

**campus events supported**



**36%**

**recycled through campus  
waste diversion program**

# Shops and Trades

HVAC  
Controls  
Electrical  
Lock & Key  
Carpentry  
Paint  
Plumbing  
Utility Plant  
Custodial  
Grounds





# Maintenance Management

THE EPICENTER OF FACILITIES OPERATIONS



CUSTOMER SERVICE



PREVENTIVE  
MAINTENANCE



ASSET  
MANAGEMENT



PROJECT  
COORDINATION



BUSINESS  
INTELLIGENCE

**100K**

tasks triaged by the  
Service Center annually

**61%**

of facilities work is  
preventive maintenance

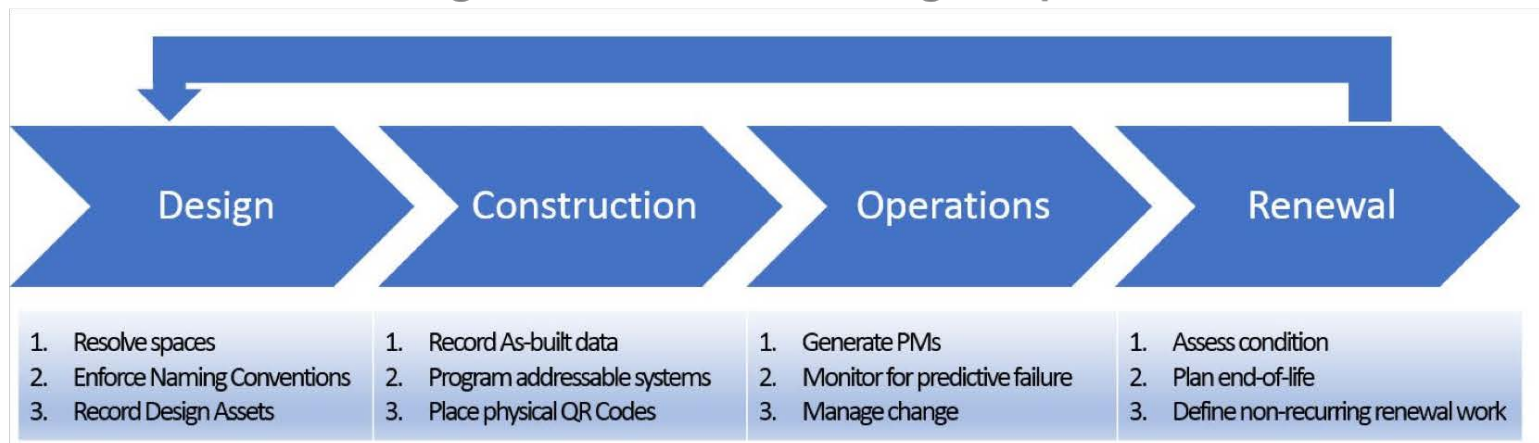
**>24K**

Campus assets  
managed in AiM



# Asset Management

Assets align the functional groups in



**198**  
equipment  
keywords

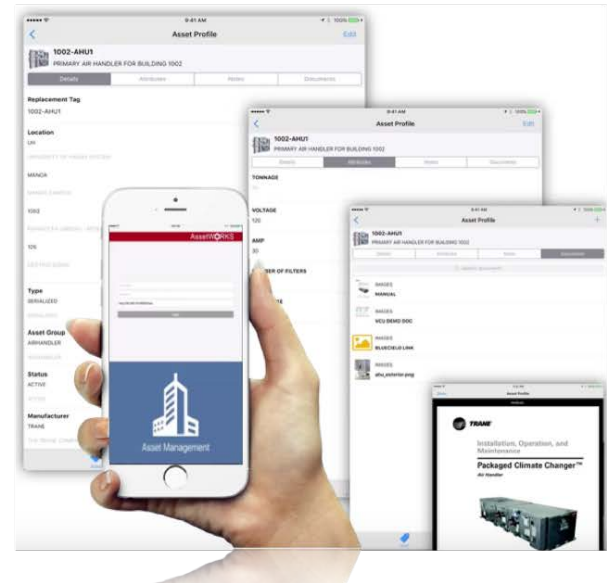
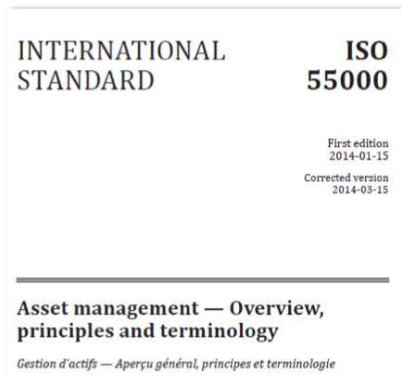
**>24K**  
campus assets  
managed in AiM

**100**  
AiM mobility  
devices deployed

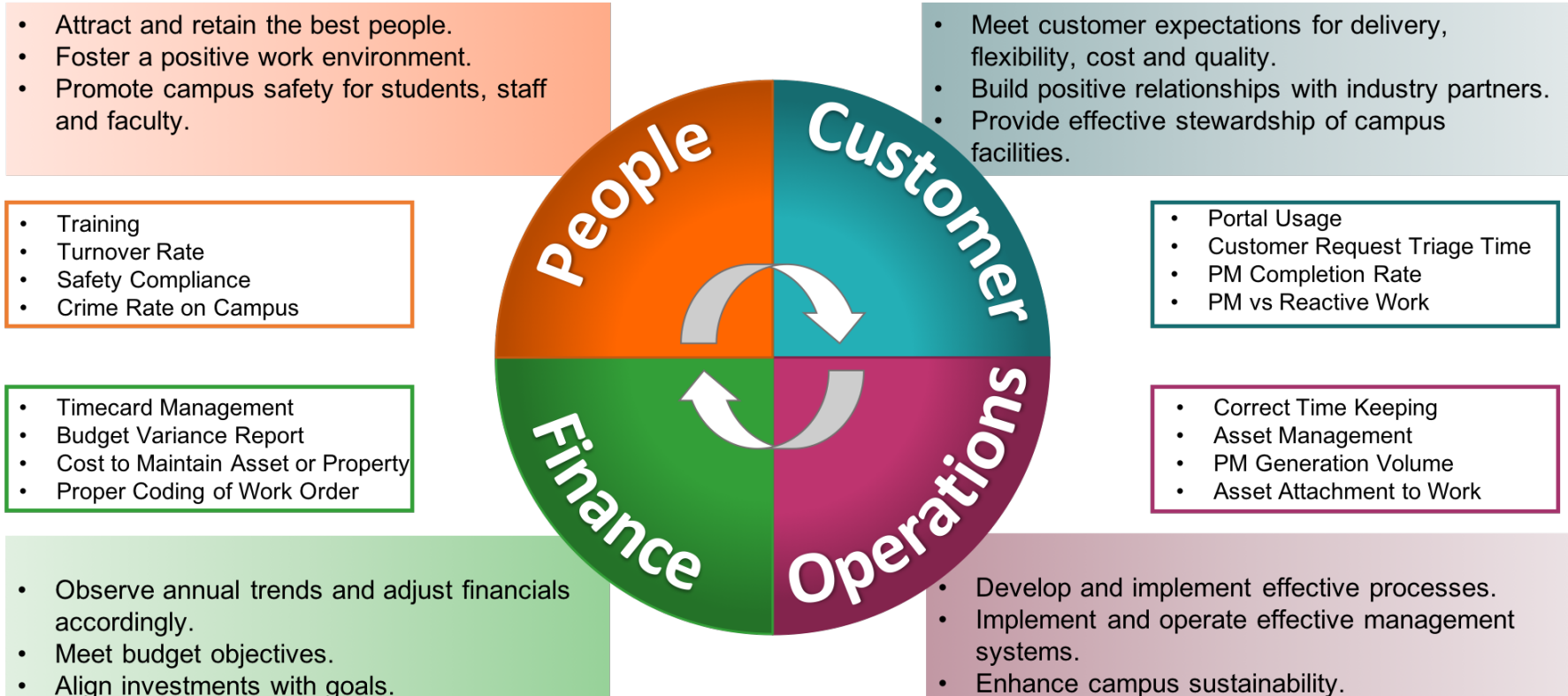
**+1,000,000**  
Asset data points collected in AiM

# Asset Management

- Assets are attached to work orders to give us equipment history
- Over 100 handheld devices deployed
- Scan QR code to access information
- Program aligns to international standards



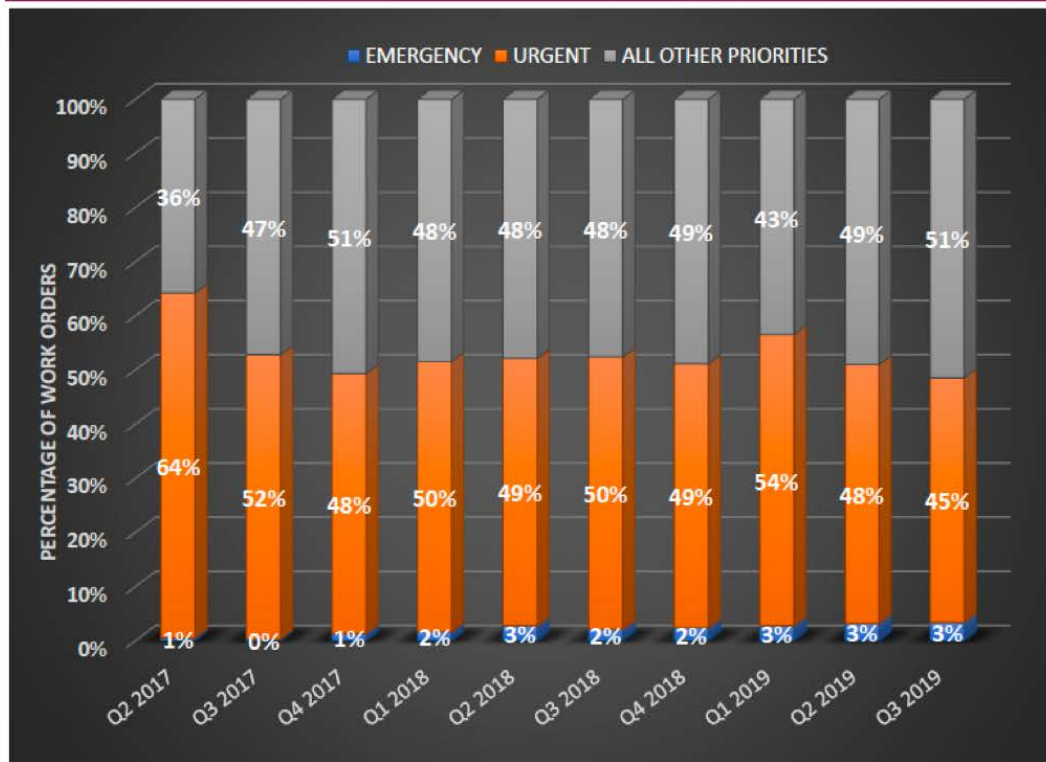
# Balanced Scorecard



# Metrics

## Maintenance Management

### Unplanned Work Order Count vs % Emergency & Urgent– Quarterly



**Goal:** to maintain 'Emergency' priority Work Orders under 5%. Data is currently trending at 3%.

#### Detail:

As part of maintaining shop scheduling efficiency and technician availability, it is important to observe the number of work orders generated under job priority of 'Emergency'. Among the category of *Unplanned Reactive* work orders, emergency priority work orders should be few in comparison to ones under priority of 'Urgent'.

#### Measure Intent:

Count of 'Emergency' priority work orders is one of the best indicators of potential scheduling conflicts. High number of emergency work orders indicate technicians being taken off regular schedule and a possible delay in 'Urgent' work completion. Emergency work orders relevant to assets are indirectly related to Preventive Maintenance work.

#### Long Term Objective:

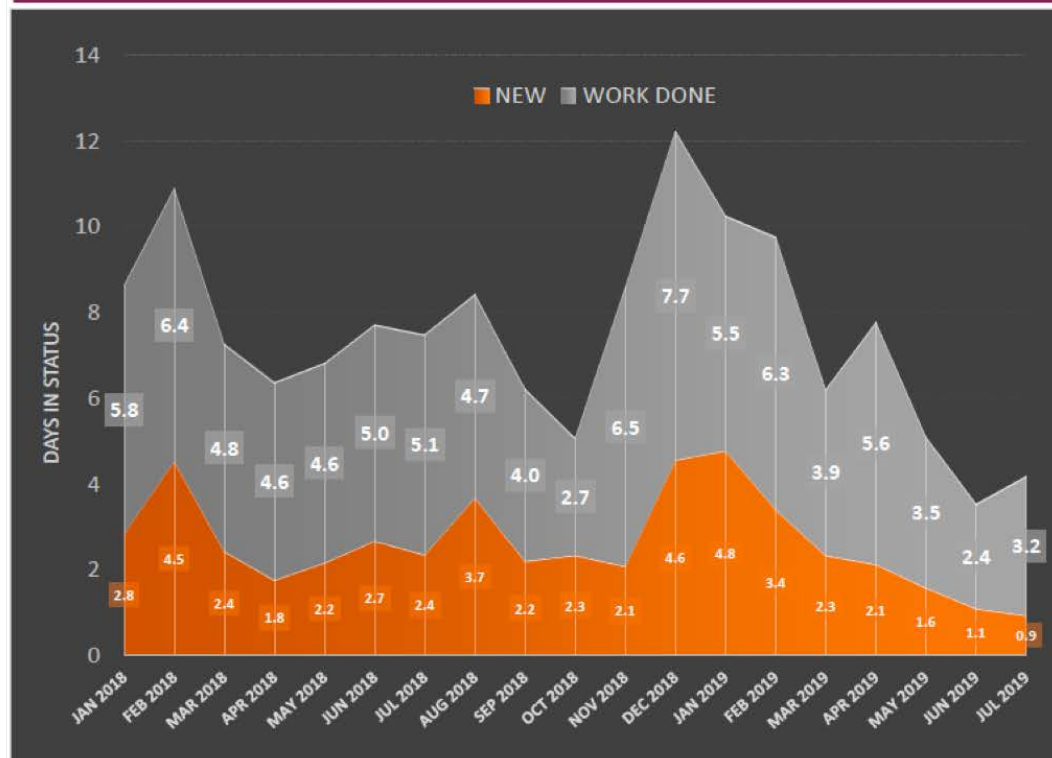
Long term objective is to increase preventive maintenance and observe an inverse relationship against 'Emergency' priority work orders.



# Metrics

## Maintenance Management

Stacked Average Days in Phase Status 'New' & 'Work Done' – Monthly Comparison



**Goal:** maintain a 1-day turnaround for scheduling new work and a 1-day turnaround reviewing completed work. Data is trending at 0.9 days in 'New' and 3.2 days in 'Work Done' (total 4.1; trending positive).

### Detail:

Maintaining a quick turnaround on both Support and Reactive work ensures good maintenance of a backlog. While we can estimate and schedule wrench time per technician, 'In Progress' status varies due to complexity of the request. Time spent in 'New' and 'Work Done' statuses, however, should be managed according to our 1-day turnaround policy. Ensuring that these two statuses contribute no more than 2 days (per phase) to the duration of the work order, we can reliably calculate the backlog.

### Measure Intent:

The measure of number of days that a phase stays in 'New' and 'Work Done' statuses indicates how quickly management reviews new and completed WOs.

### Long Term Objective:

The long-term goal is to monitor improvement and response time to normalize our backlog estimates.

# Employee Development and Engagement

- “MY LEARN” at Caltech is your portal to employee growth and empowerment
- Technical and Non-technical training will be offered.



**400**  
courses  
can be offered at  
the click of a button



# Fiscal Wisdom







# FED Council 5 Pillars

1. Recruiting Skilled Trades Talent from a Shrinking Labor Pool
2. Growing Our Own Talent to Meet Demand for Skilled Labor
3. Engaging and Retaining Frontline Service Staff
4. Improving the Effectiveness of Frontline Supervisor Ranks
5. Safety

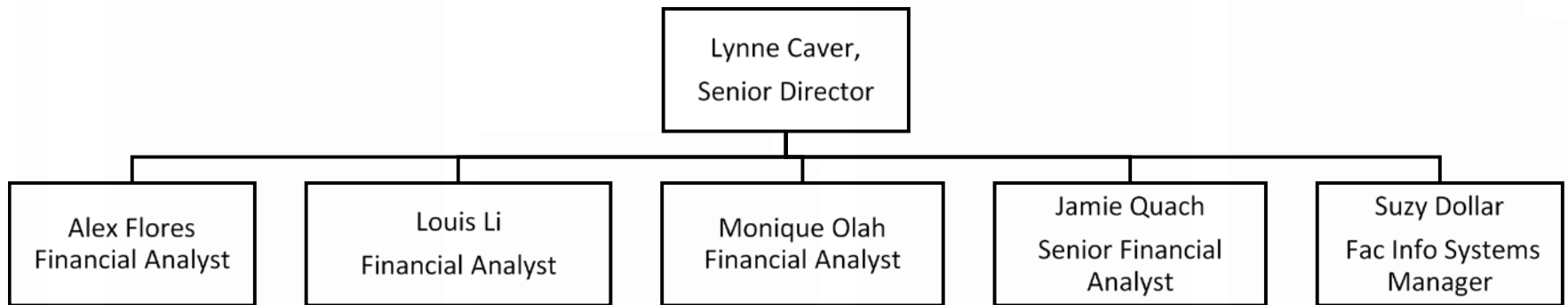
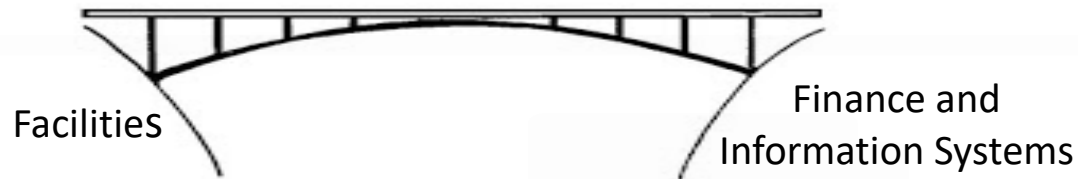


# Facilities Finance and Information Systems

Lynne Caver  
Senior Director



# Facilities Finance and Information Systems Organization



# Function and Roles - Finance



- Bridge between Facilities and Finance
- **Operations/General Budget:**
  - \$39M costs less \$11M recharge/revenue, net \$28M
  - Mostly payroll (80%)
  - About 5% of Caltech budget
- **Projects:** Support all capital programs – D&C, FO, Energy
- Reporting: for General Budget (GB) and projects
- We work with Caltech's Central Finance department, and divisions and departments

# Function and Roles - Information Systems

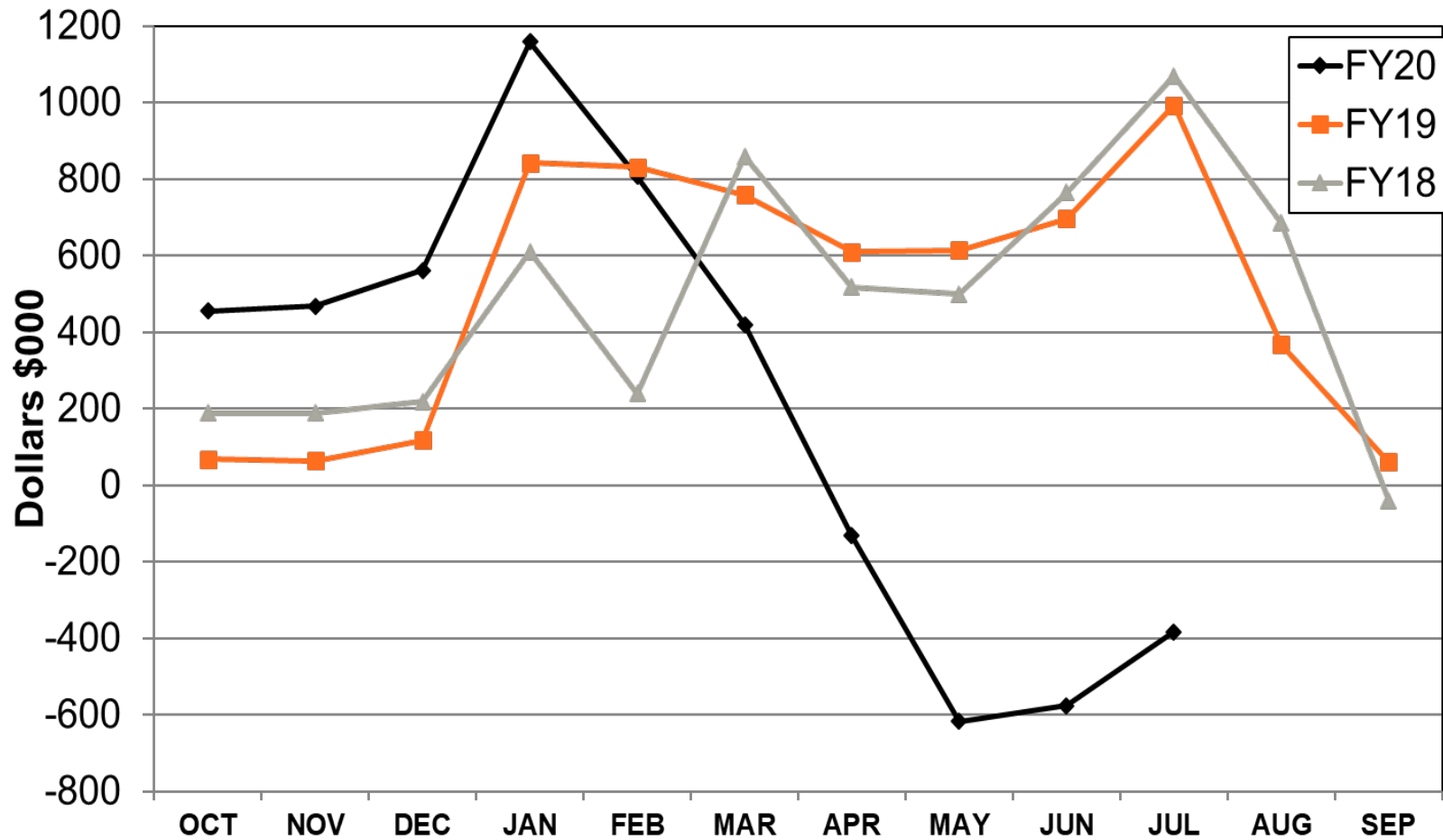
- Bridge between Facilities and IMSS
- **AiM** – Integrated Work Management System – used for O&M and capital project management CPPM
- Enhance and improve our systems
- Work with IMSS on our system infrastructure and security (systems, devices, servers, firewalls)
- Facilities technical resource for interfaces with other Caltech systems (Oracle, TechMart, CardQuest, OBI, Cognos, Meridian) and AiM Portal – working with IMSS
- Provide training to our Facilities staff, including online training





# Facilities Summary

## Budget Variance- GB operations



# Faculty Housing



Christina Souto  
Faculty Housing Manager

# Our Mission

We provide a world-class relocation and housing experience to in support of the academic mission of Caltech.

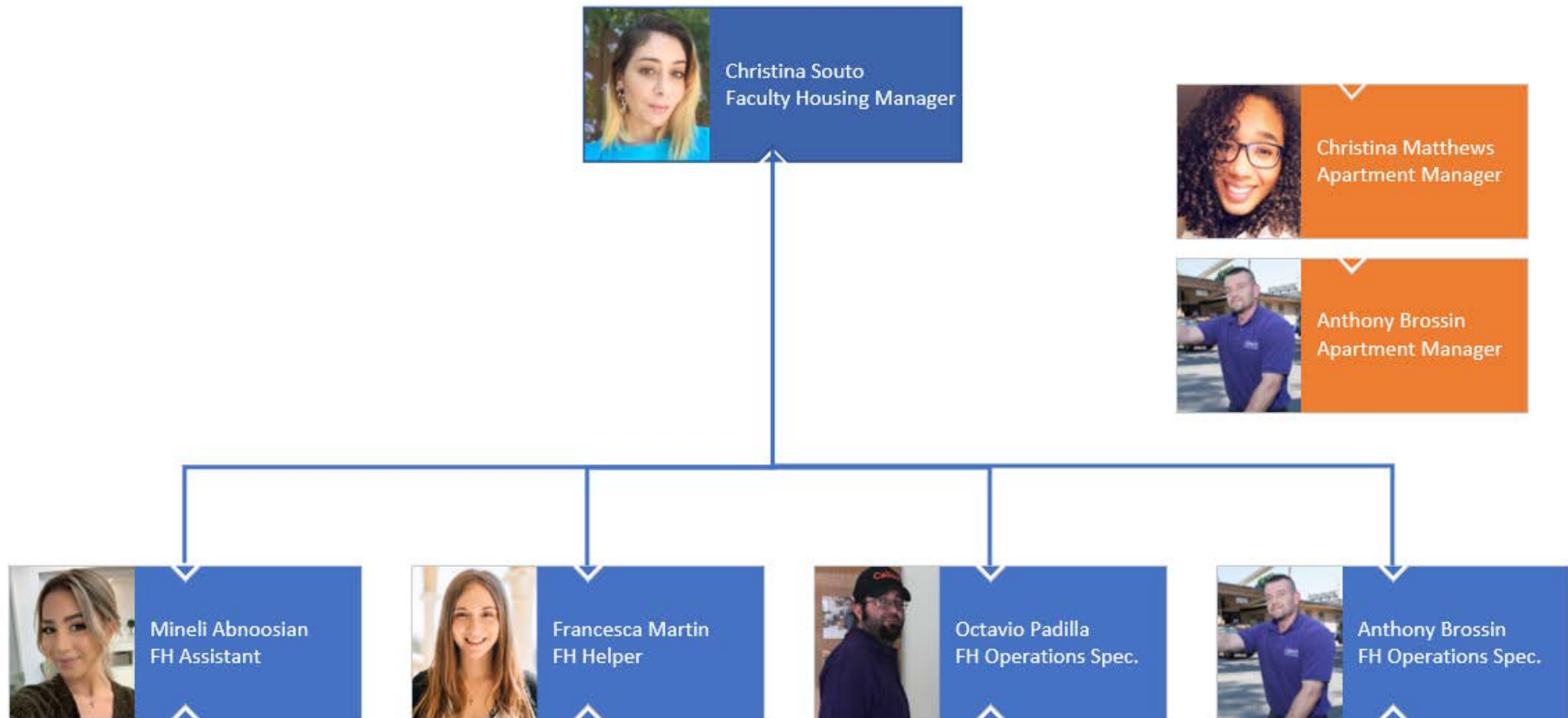


# Services

- Transitional Housing
- Residential Relocation
- Laboratory Relocation
- Conference Room Reservations

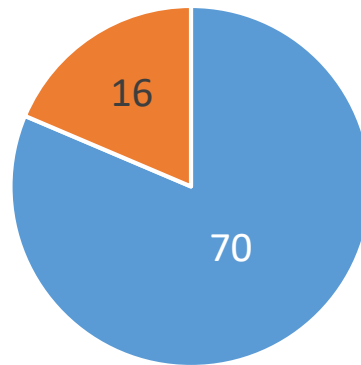


# Our Team



# Our Properties

- We own 86 multifamily units and single family homes ranging from 1 bedroom to 6 bedrooms
- Most locations are furnished with all housewares, internet, Smart TV, and utilities
- All properties are located within walking distance to Campus.



■ Multifamily    ■ Single Family Homes

# Multifamily Properties





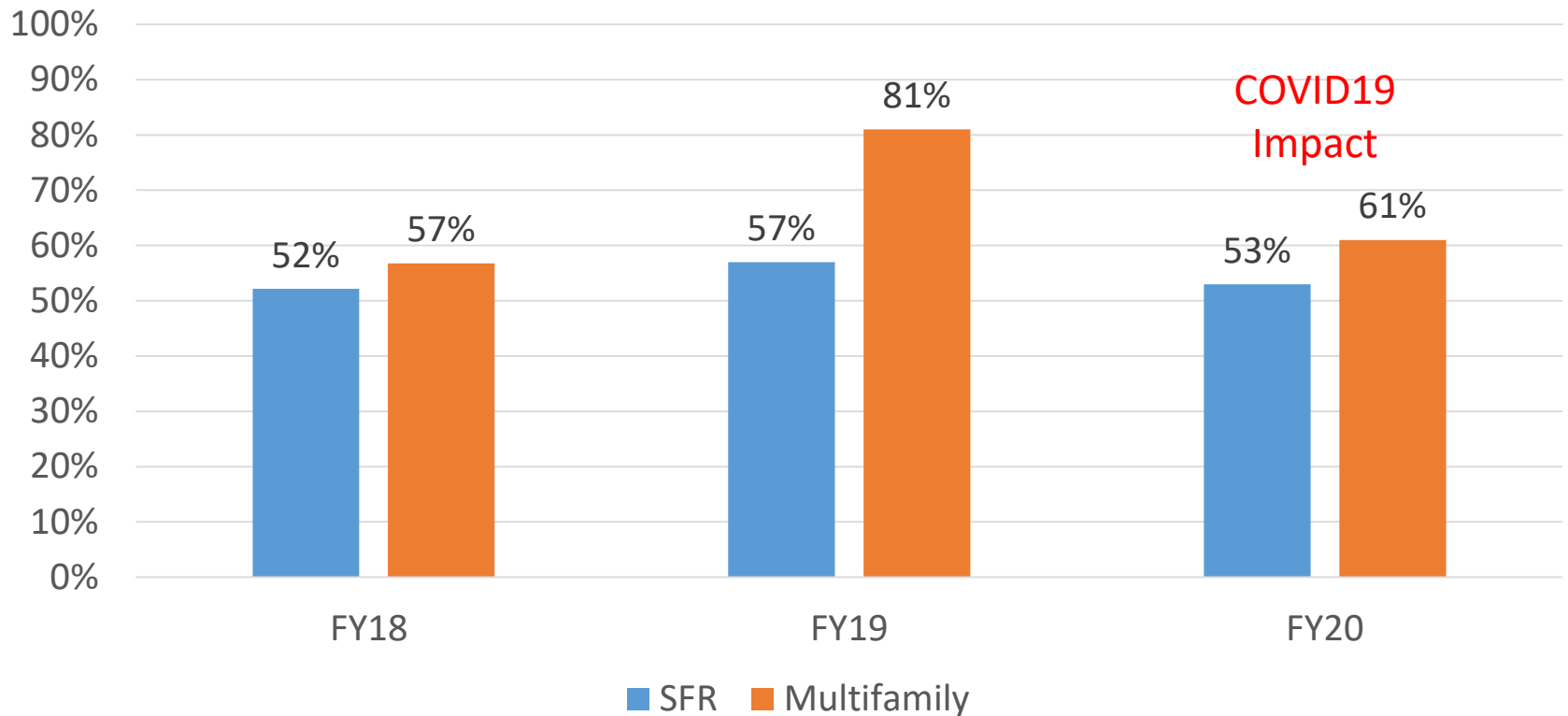
# Single Family Homes





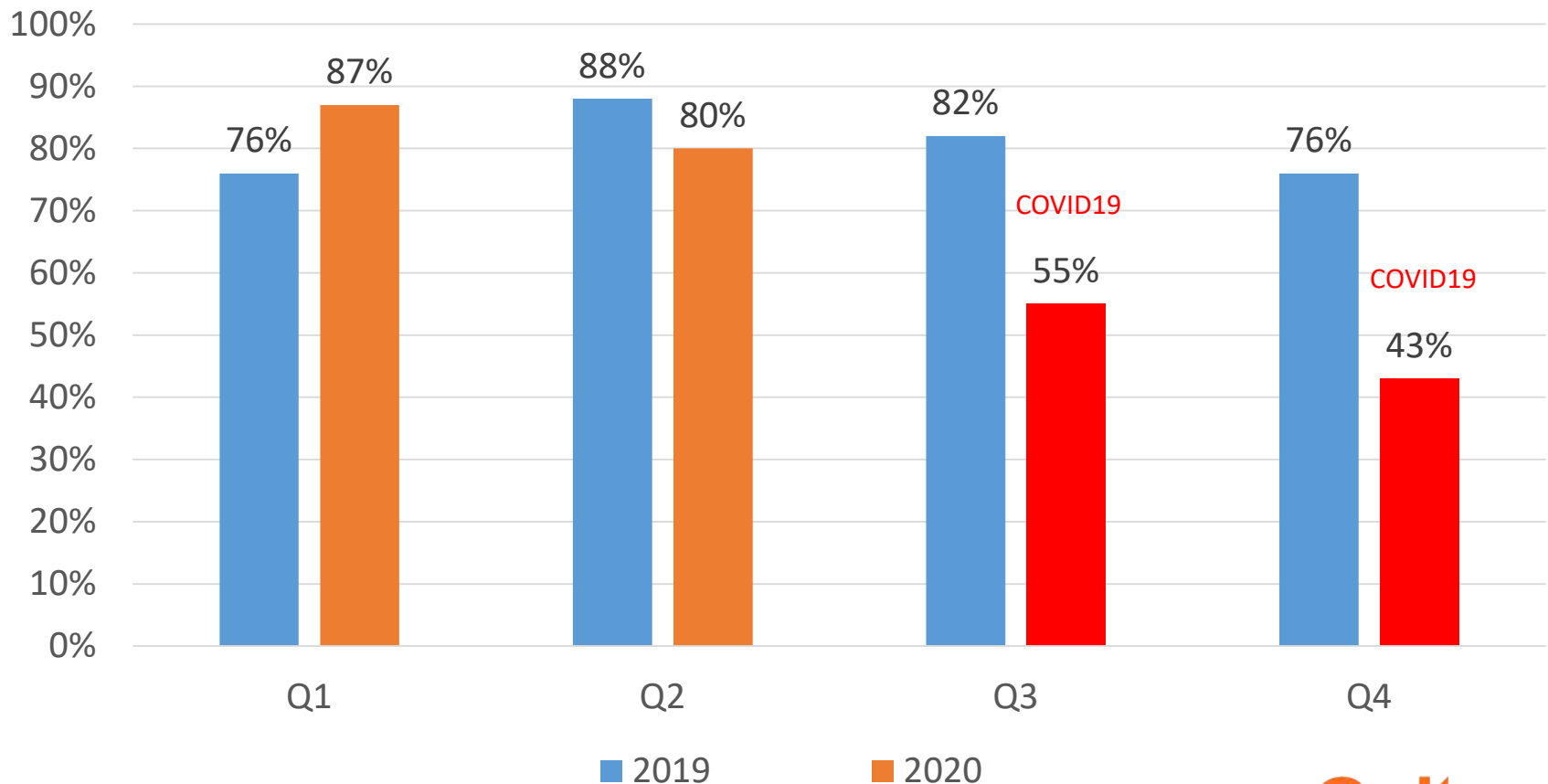
# Annual Occupancy

## Single Family and Multifamily Annual Occupancy

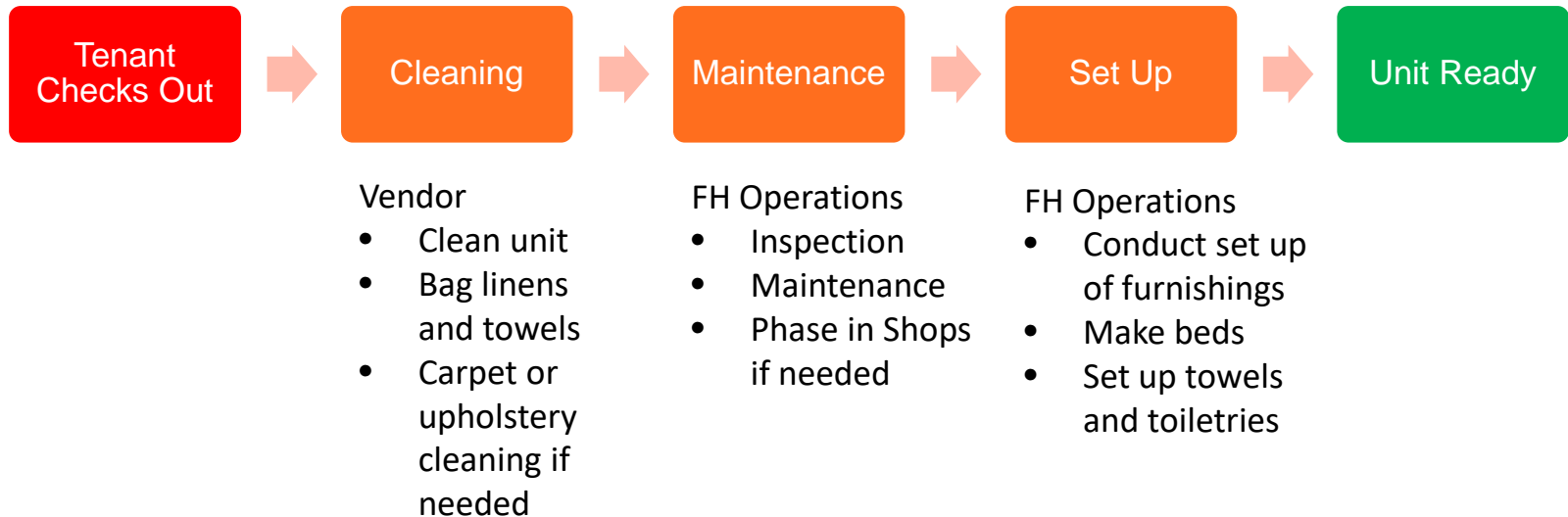


# Quarterly Occupancy

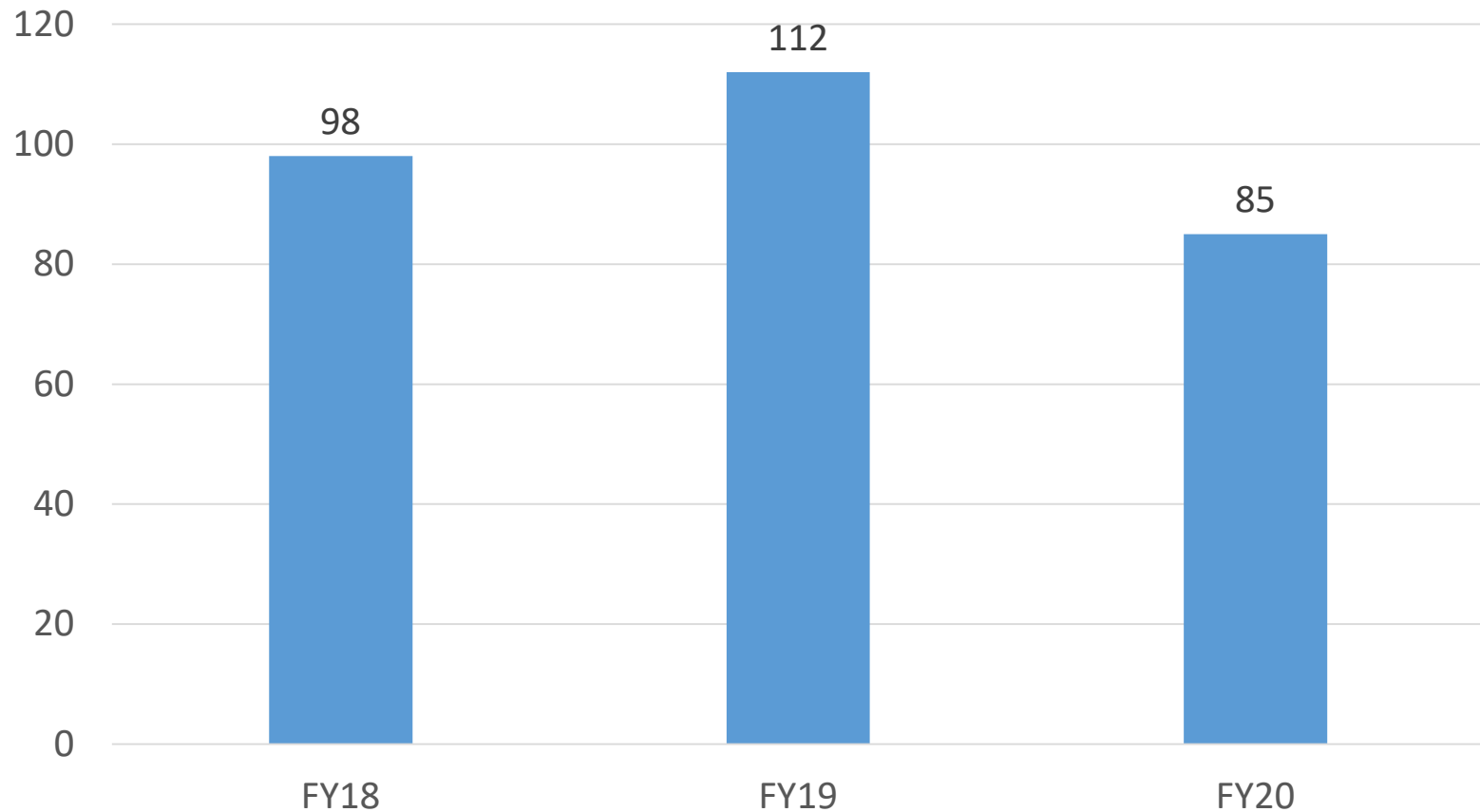
Our goal is to maintain an 80% occupancy in our multifamily units.



# Turnover Process



# Turnovers Per Year





# Residential Relocation

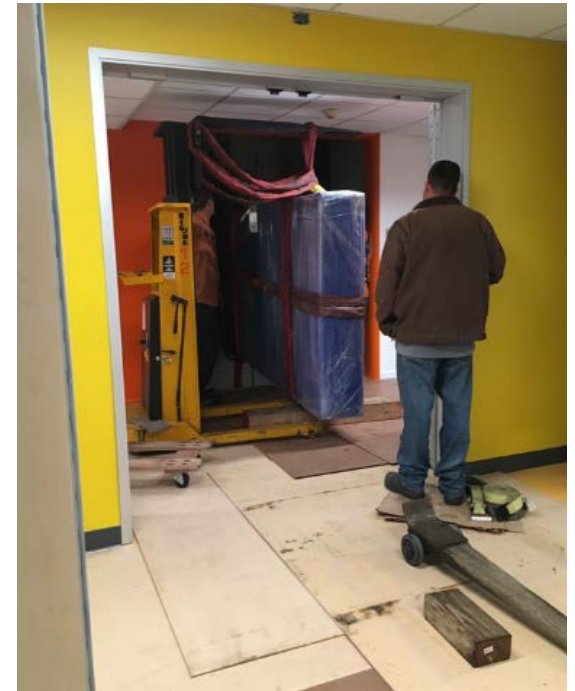
We partner with Odyssey Relocation to provide a seamless relocation process for our new Faculty, their family, their home, and their laboratory.

## Residential Relocation

- Airfare or Mileage
- Temporary Housing
- Household Goods Move and Storage
- Vehicle Transport
- Pet Transport

# Laboratory Relocation

We partner with Odyssey Relocation and Design and Construction to move laboratory equipment into newly constructed laboratory spaces.



# Conference Rooms



Keck Center



383 Hill Annex

# Design & Construction

## Facilities Department

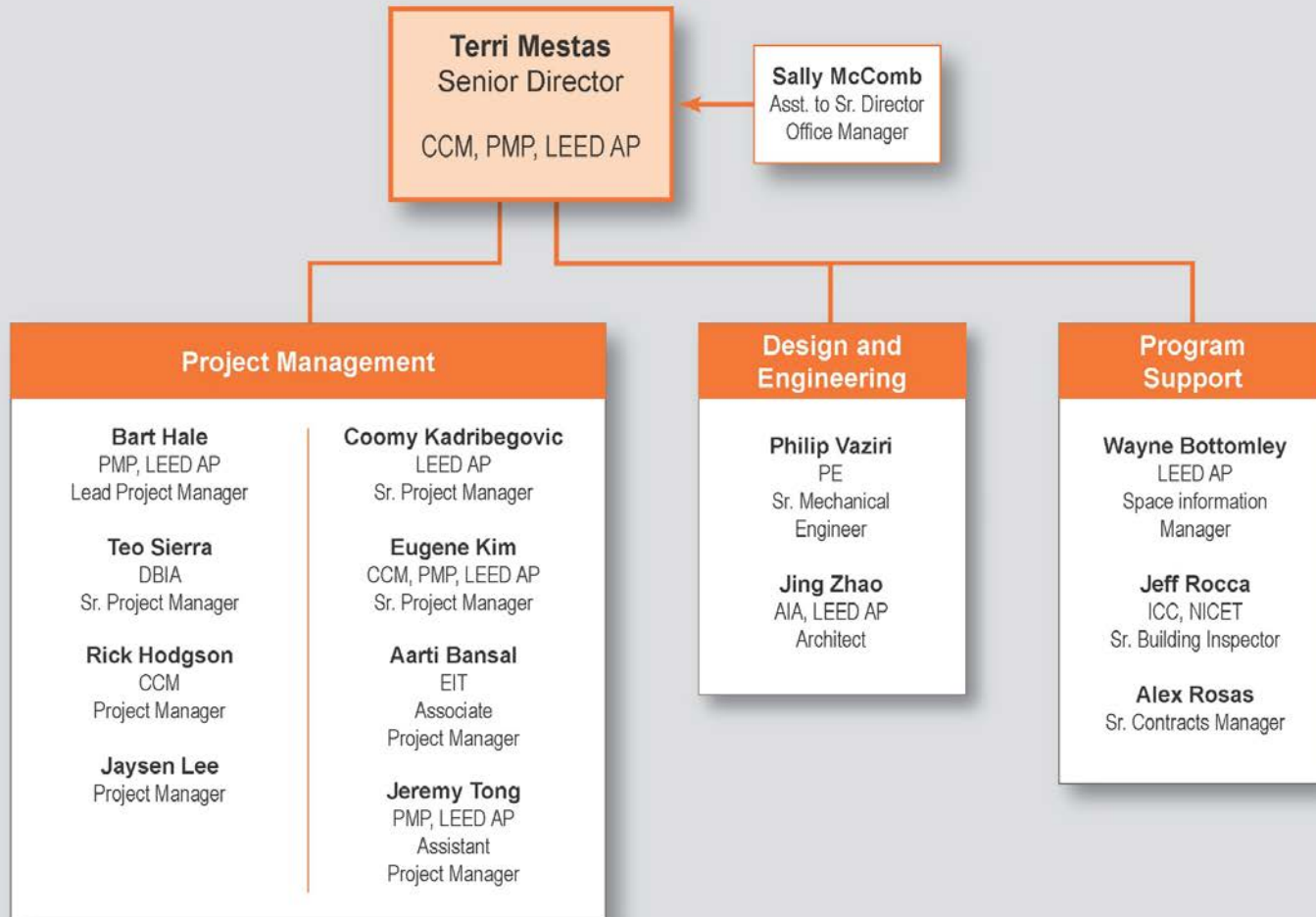
Terri Mestas  
Senior Director





# Caltech

## Facilities Design and Construction



# Design & Construction Functions

- Mission: To provide world class planning, design and construction services to Caltech to support continued campus improvements & Caltech's mission of research integrated with education
- Projects:
  - Small to large projects
  - Site and Utility Improvements
  - New Labs, interior and exterior improvements
  - New Buildings and Building Renovations
  - Award winning Projects
- Accelerated schedules
- Varying Funding Sources
- Design Guidelines - NEW
- Document Control - Meridian
- In house Inspector



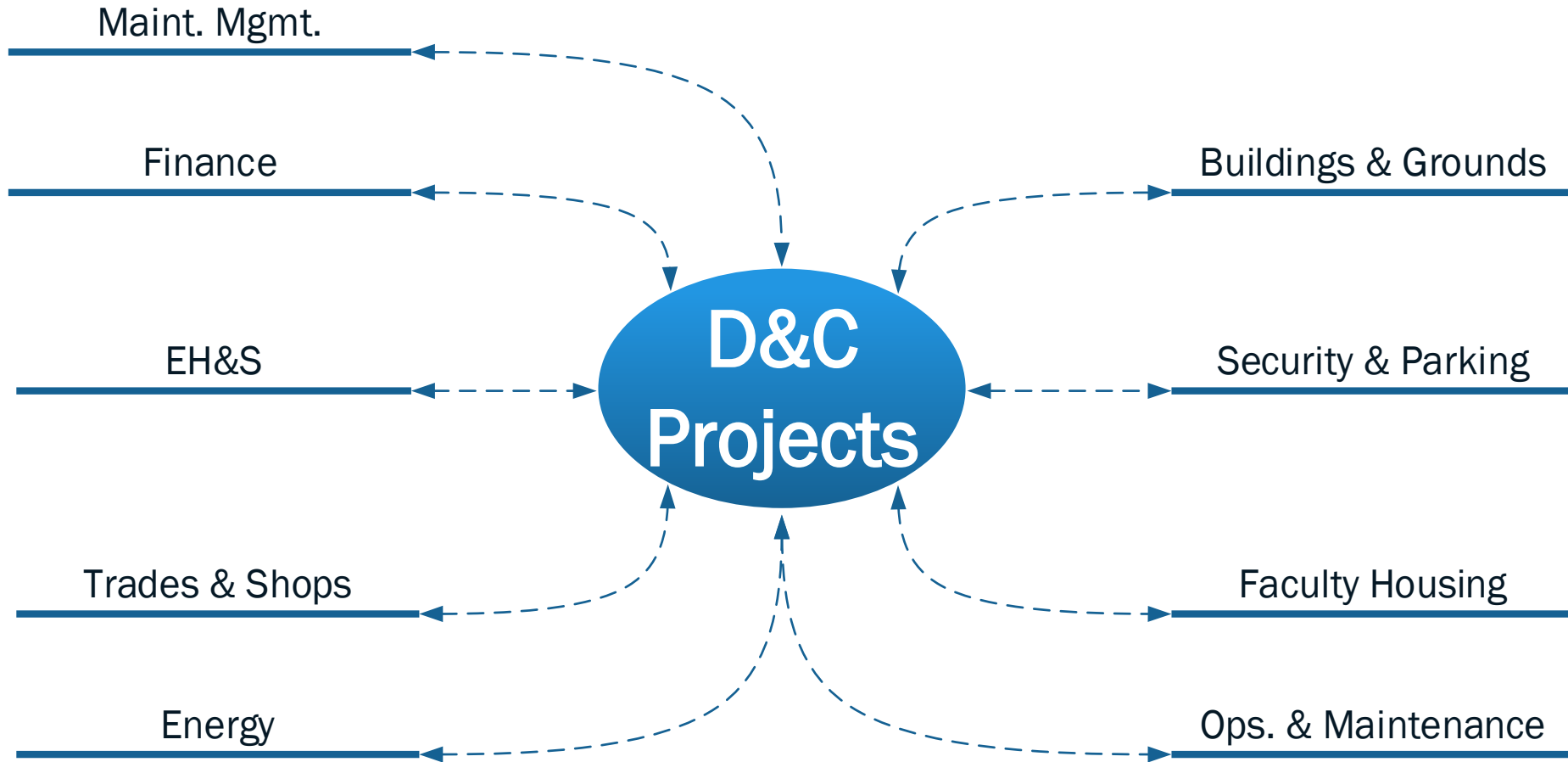
# Design & Construction - Project Support

- Planning:
  - Campus Master Plan
  - Division Strategic Plans
  - Project Specific Planning
- Design:
  - Studies
  - In house Design Capability
  - External Architects/Engineers
  - Determine project requirements
  - Cost and Schedule Development
  - Allocate funding for internal support
  - Facilitate internal design review
- Construction:
  - External Contractors
  - In house construction
  - Design Build
  - High amount of Renovations
  - Maintainability/total cost of ownership
  - Historic Buildings



# Facilities Department Interfaces

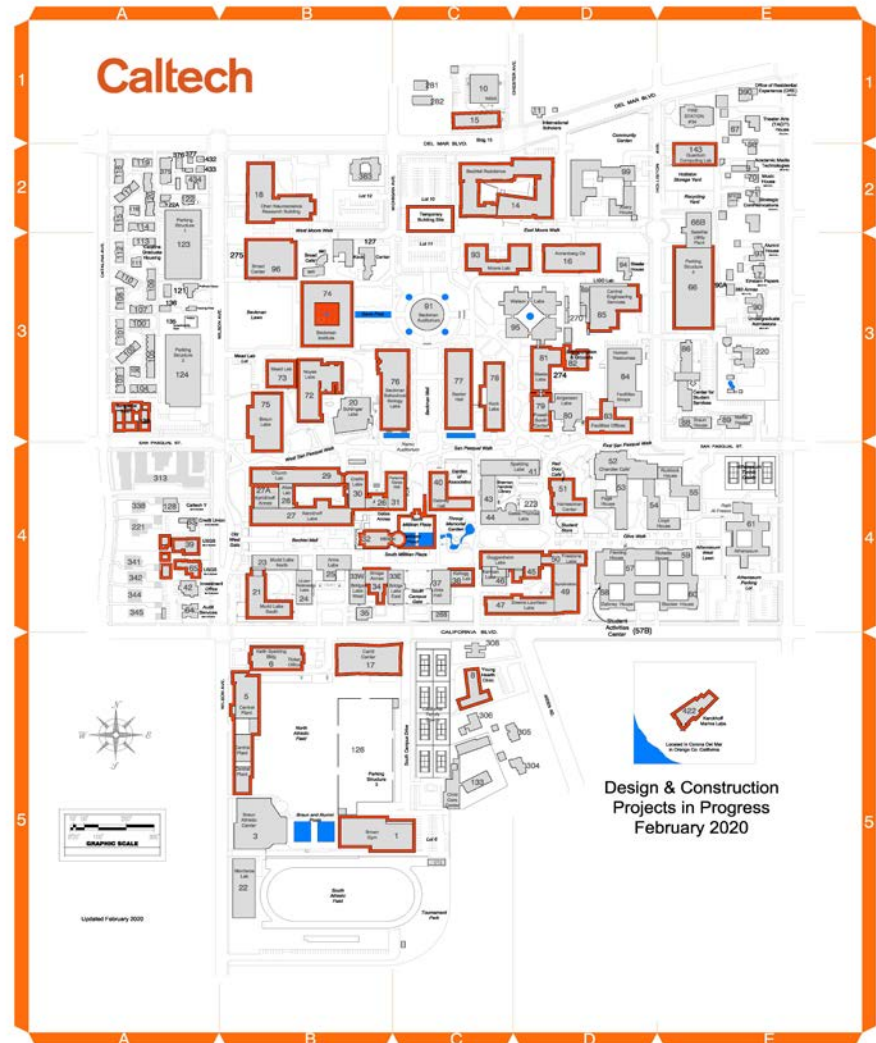
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# D&C Current & Upcoming Projects

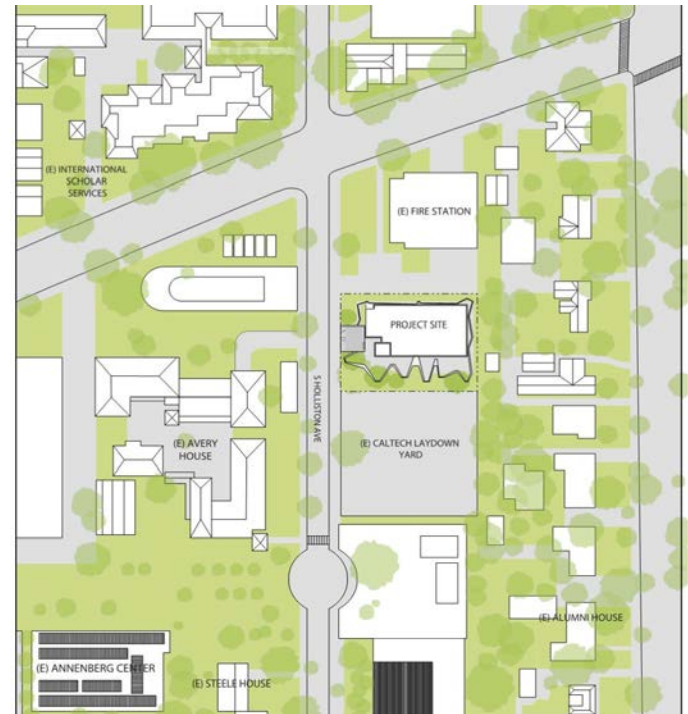
- Current and Upcoming Projects
  - Over 50+ open projects
  - Chen Neuroscience Research Bldg
  - Resnick Sustainability Resource Center
  - Quantum Computing Center
  - Semlow Lab
  - Patke Lab
  - Dabiri Lab
  - Falson Lab
  - Emami Lab
  - Mirhosseini Lab
  - Painter Lab
  - Dabney Basement Remodel
  - OLAR Master Plan
  - Kellogg Building Study
  - Kerkhoff Building Study
  - Brown Gym
  - Millikan Pond
  - Brain Imaging Center



# AMAZON WEB SERVICES QUANTUM COMPUTING LAB

*Provide a Quantum Computing Lab which will be used for scientific research and development in collaboration with Amazon Web Services (AWS).*

- Project Scope
  - 21,000 SF
  - 2 Stories
- Construction started July 2020
- Construction completion anticipated in spring 2021
- Relocation of recycling operations is complete
- 60 Building Occupants







# CHEN NEUROSCIENCE RESEARCH BUILDING

## PROJECT OVERVIEW

- 150,000 Gross Square Feet
- Research Space for 16 PIs
- 150 Seat Lecture Hall
- Bungalow Court Relocation
- Access Tunnel to Broad Center
- Utility Tunnel
- Pre-construction Costs
- Targeting LEED Silver
- \$211M Budget
- August 2020: Occupancy
- Nov 2020: Moves Begin
- March 2021: Moves Complete





# CHEN NEUROSCIENCE RESEARCH BUILDING

## EAST ELEVATION AND GARDEN





# CHEN NEUROSCIENCE RESEARCH BUILDING INTERIOR



2<sup>nd</sup> and 3<sup>rd</sup> Level Nucleus



B1 Long Cai Lab

# Renewal Program Schedule Performance



# Completed Renewal Projects Concept Budget vs Actual Cost





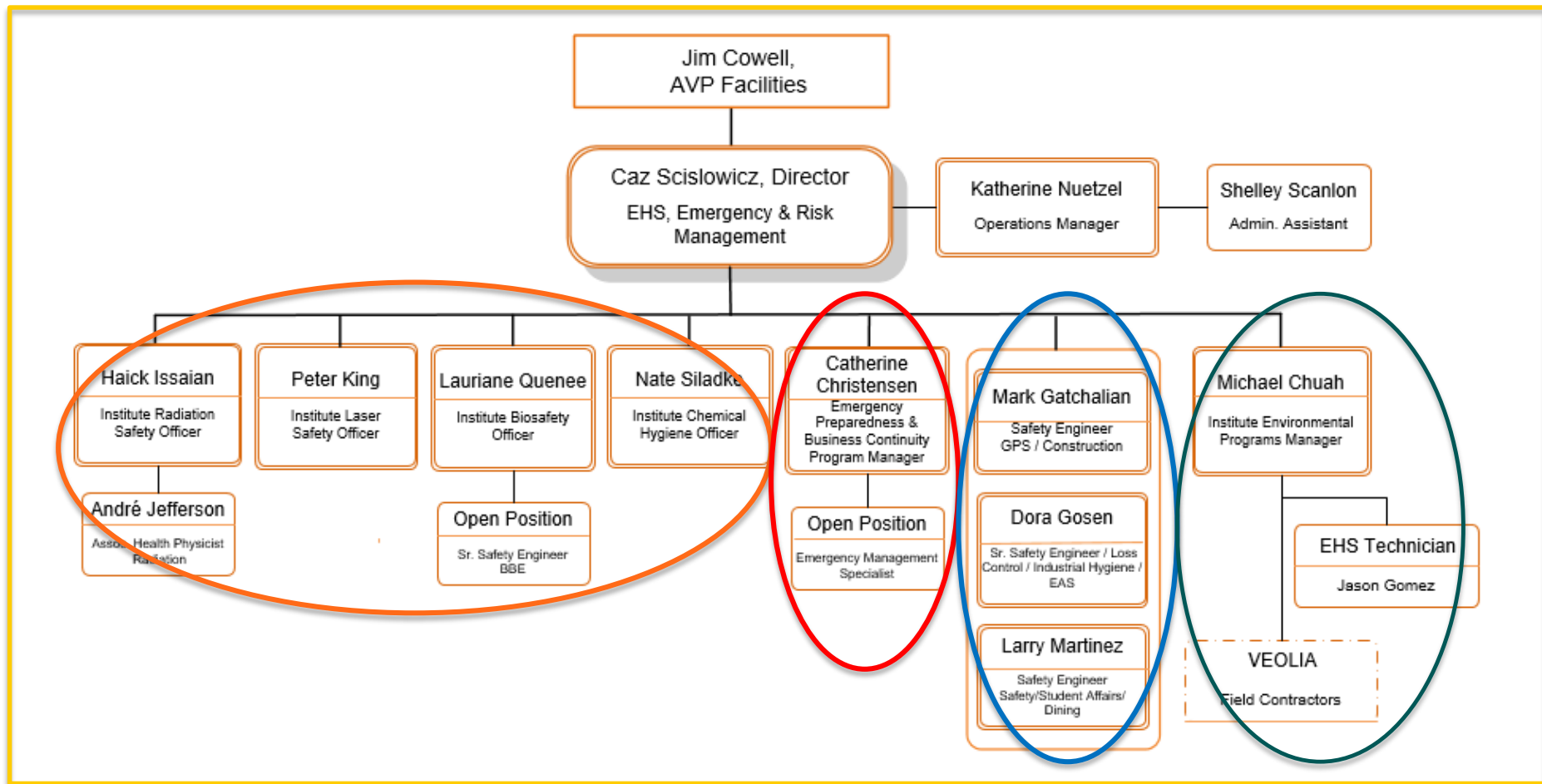
environment, health, & safety



Caz Scislowicz,  
Director



# ENVIRONMENT, HEALTH, AND SAFETY • EMERGENCY PREPAREDNESS • BUSINESS CONTINUITY



Caz Scislowicz, Director  
EHS, Emergency & Risk  
Management

Katherine Nuetzel  
Office Manager

Shelley Scanlon  
Admin. Assistant

## EHS Role on Campus



ASSESS



TRAIN



INSPECT



RESPOND

# Workplace Safety

Mark Gatchalian

Safety Engineer  
GPS / Construction

Dora Gosen

Sr. Safety Engineer / Loss  
Control / Industrial Hygiene /  
EAS

Larry Martinez

Safety Engineer  
Safety/Student Affairs/  
Dining



Shops



Labs



Campus



- Hazard Assessment
- Incident Investigation
- Hazard Correction
- Training



Title 8, California Code of Regulations Section 3203(T8 CCR 3203)

## **Injury/Illness Prevention Program (IIPP)**

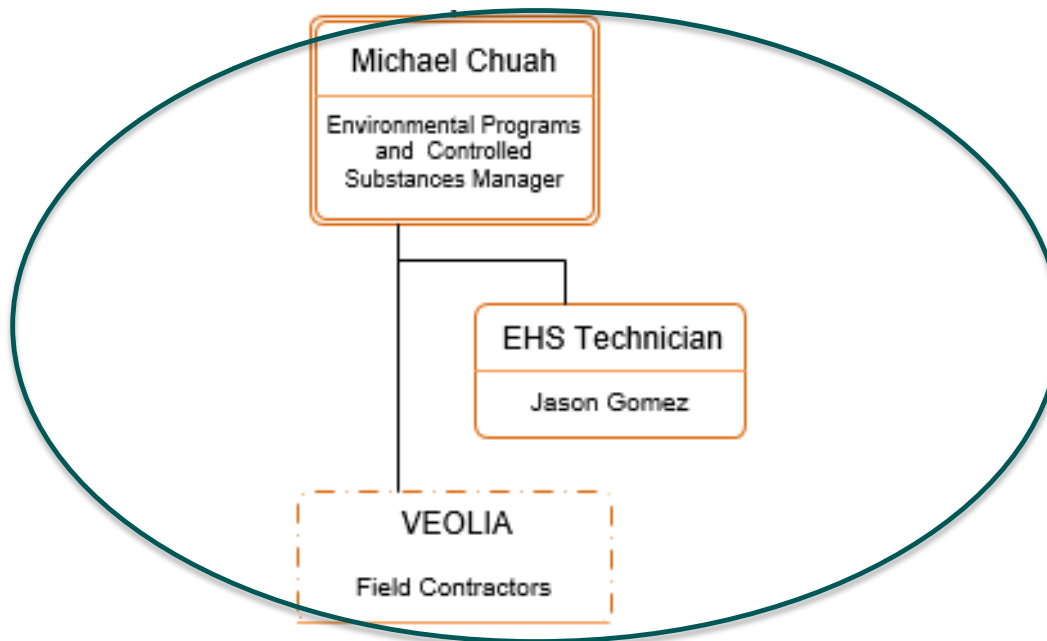
all Employees must  
be informed of the  
IIPP.

**Employees** Need to sign-  
in when receiving training

**Supervisors**  
**Accident / Injury**  
**Report**

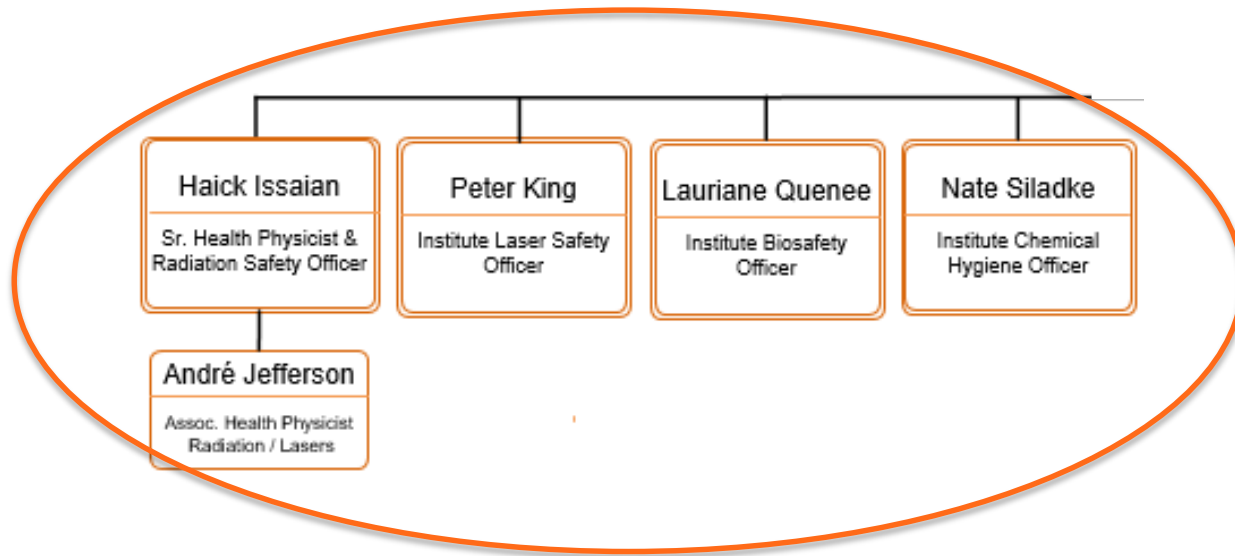
**Inspection Forms**

**Training**



# Environmental Protection





## Research Safety



**Biological**



**Laser**



**Radiological**



**Chemical**

# Animal Facilities

allergic reaction  
transmissible diseases

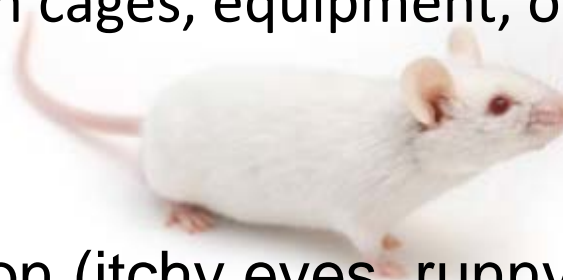
Wash hands



**ALWAYS:** Follow Safety Signs  
and wear proper PPE



**NEVER:** Touch cages, equipment, or animals



**IF:** Allergic reaction (itchy eyes, runny nose, etc.)

- GET OUT IMMEDIATELY
- REPORT TO YOUR SUPERVISOR







# Disaster Resilience



Emergency  
Coordinator Network



Emergency  
Communications



Exercises & Drills

**Caltech Ready**

Continuity planning tool for the California Institute of Techn  
to sustain our  
RESEARCH and TEACHING

Begin

Continuity

**Campus Emergency  
Management Plan**

Plans & Procedures



Outreach &  
Education

# Emergency Personnel

<div><b>Campus Critical</b></div> <ul style="list-style-type: none"><li>• Report to campus to assist in campus-wide recovery effort</li><li>• Such as EOC Personnel</li><li>• Issued Photo ID</li></ul>	<div><b>Essential Reporting</b></div> <ul style="list-style-type: none"><li>• Technical skills needed for emergency response</li><li>• Expected to report to campus and stay to assist</li></ul>
<div><b>Organizational Critical</b></div> <ul style="list-style-type: none"><li>• Report to campus to assist in div/<u>dept</u> recovery</li><li>• Such as DCC personnel</li><li>• Can't be both CC and OC</li></ul>	<div><b>Essential Non-Reporting</b></div> <ul style="list-style-type: none"><li>• Immediate reporting not required</li><li>• Expected to be in contact with campus should you be needed</li></ul>

# Personal Preparedness

- Keep personal information current in **access.caltech**
- Build kits for Work, Car, and Home
- Develop a communications plan
- Plan for dependents and animals

Resources available:

[www.emergencypreparedness.caltech.edu](http://www.emergencypreparedness.caltech.edu)



# Culture of Safety at Facilities

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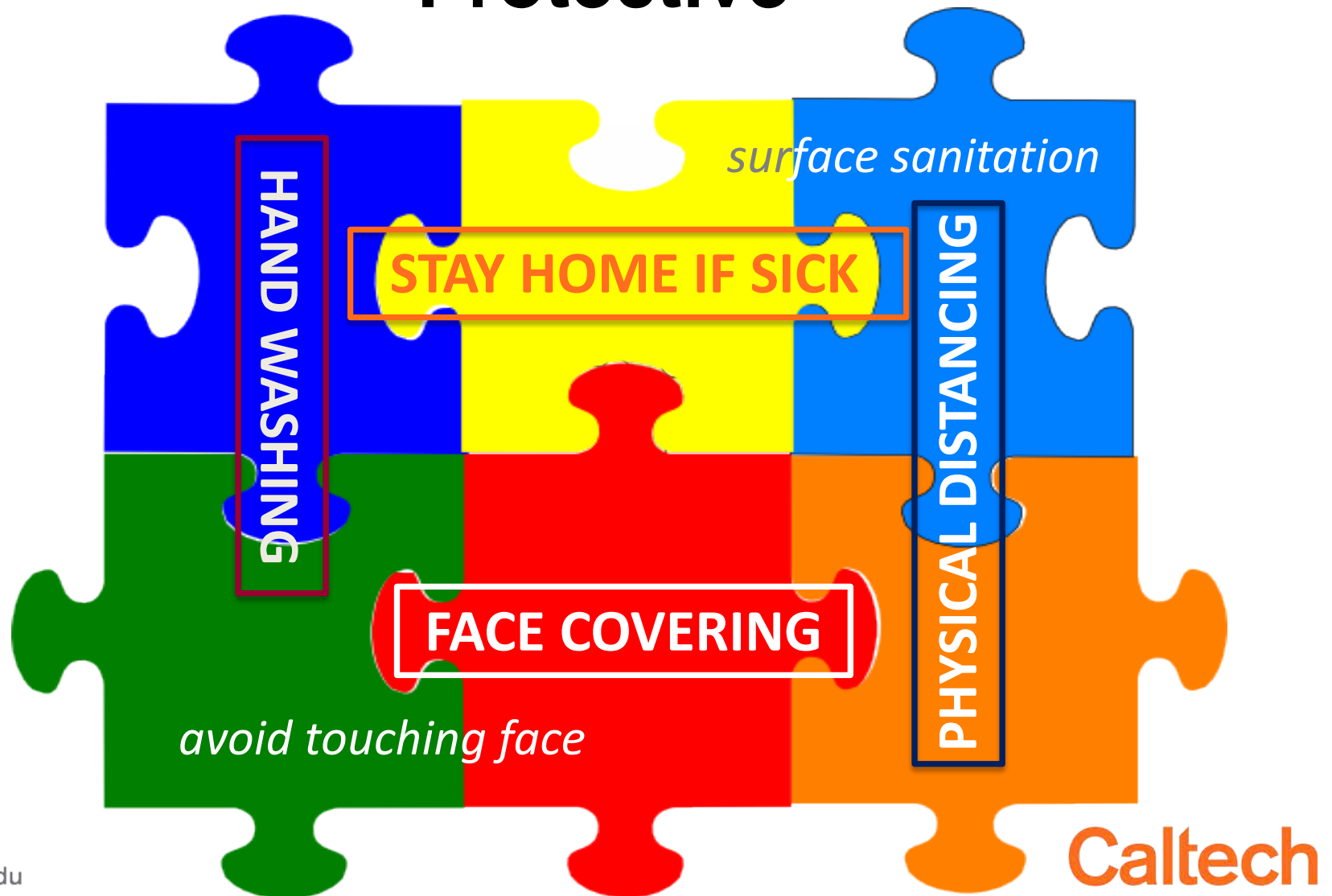
**Safety is Everyone's Responsibility**

**Doing the Right Thing**

**Communications**



# No Single Control Measure Alone is Protective



# Contact Information - EHS

## EHS Resources

Website: [www.safety.caltech.edu](http://www.safety.caltech.edu)

Office: B125 Keith Spalding

Phone: x6727 or (626) 395-6727

EHS Office eMail: [safety@caltech.edu](mailto:safety@caltech.edu)

EHS Training eMail: [safety.training@caltech.edu](mailto:safety.training@caltech.edu)

Staff on-call 24/7 (contact x5000)

Emergency Management:

<http://www.emergencypreparedness.caltech.edu/>

# Facilities' COVID Five W's

- Wear a face covering
- Wash your hands
- Watch your distance
- When you feel ill, do not come to campus,  
and
- When you come to campus fill out tracing  
info

# Facilities New Employee Indoctration

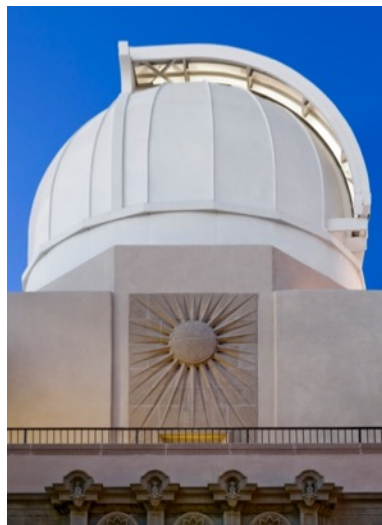


"The work we do each day impacts everyone on this campus."  
-Jim Cowell at Caltech Facilities "Coffee Talk"

Mission and Vision  
Guideposts  
The Big Picture  
Your Role

Please remember to take the survey





# Questions?

