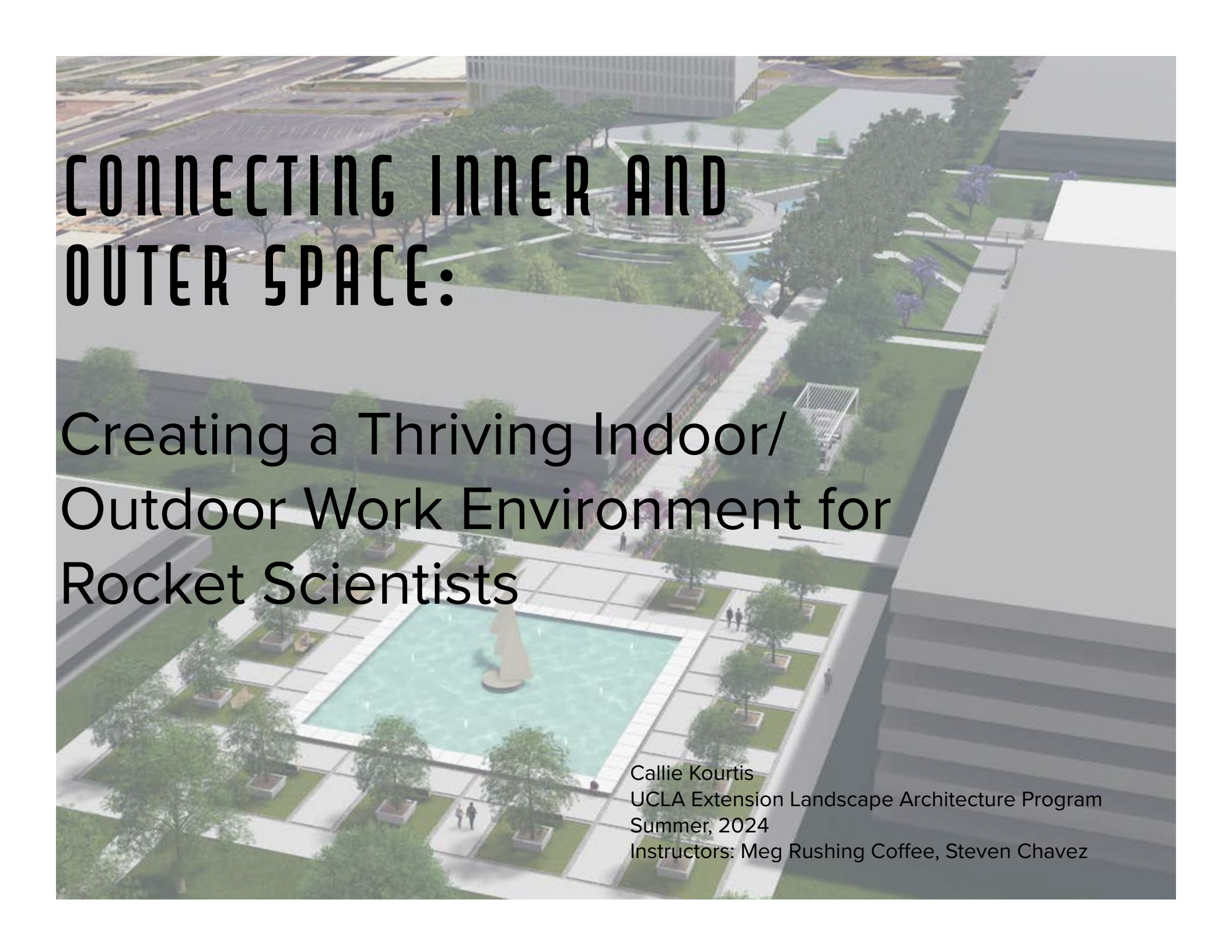


An architectural rendering of a courtyard space. In the foreground, a large rectangular pool with a light blue-green water surface is the central feature. A large, abstract, light-colored sculpture stands in the middle of the pool. The pool is surrounded by a paved walkway with a grid pattern. Small trees in planters are placed along the walkway. In the background, there are modern buildings with large windows and a parking lot. The overall scene is bright and sunny.

CONNECTING INNER AND OUTER SPACE:

Creating a Thriving Indoor/
Outdoor Work Environment for
Rocket Scientists

Callie Kourtis
UCLA Extension Landscape Architecture Program
Summer, 2024
Instructors: Meg Rushing Coffee, Steven Chavez

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PROJECT STATEMENT

This project seeks to create a **vibrant, healthy, and productive work environment** while improving natural elements such as **biodiversity** and **storm water management**. The project will improve the overall workplace experience while introducing **climate conscious** updates to the central campus. The outcome will also result in the originally intended **California indoor/outdoor living experience** that was pioneered at mid-century.



Space Park Center Courtyard circa 1965

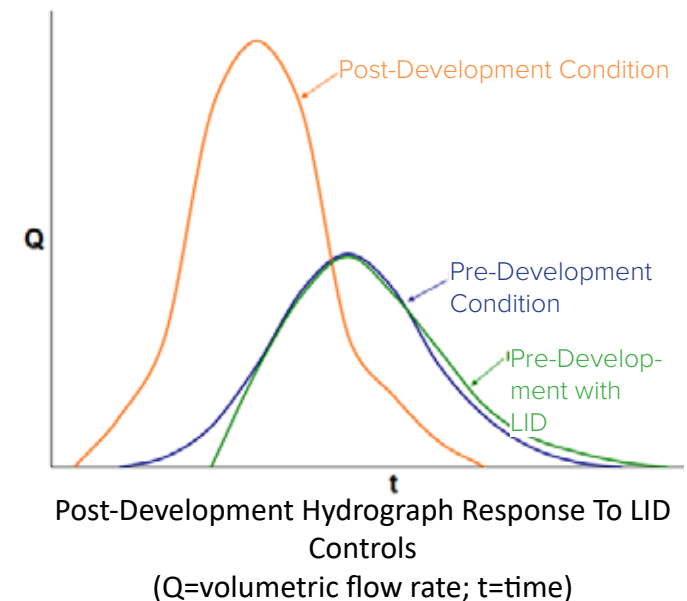
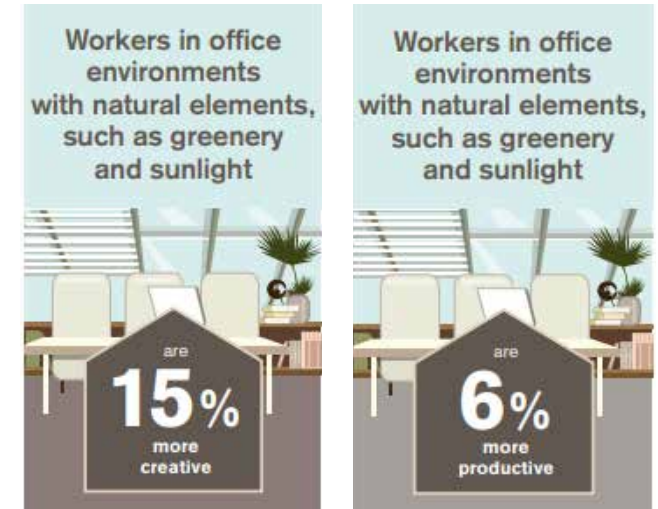


Space Park Center Courtyard 2024

PROJECT JUSTIFICATION

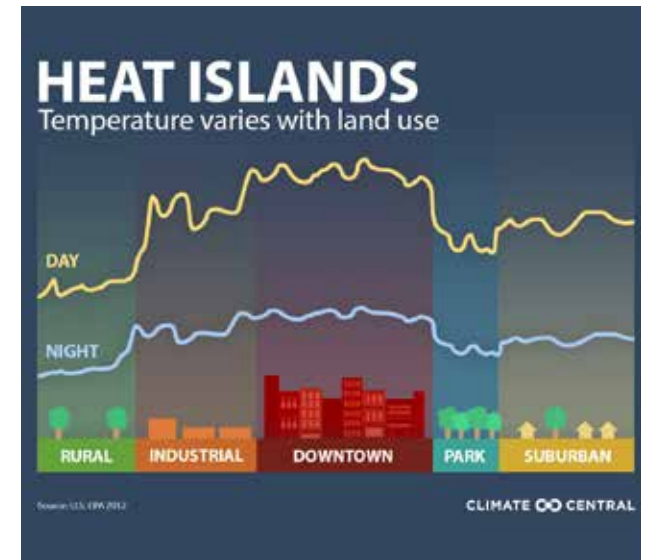
While Space Park has historical significance, it is still a working campus for almost 7,000 employees. A redesign of the space is supported by the following reasons:

- **Access to the natural environment increases productivity, creativity, and psychological well-being.** Social connection and Biophilic design research shows that social connection and access to the outdoors contributes to health, well-being, and higher levels of productivity. This project provides the foundation for social connection, biological improvements, and an improvement in how the spaces function.
Natural elements positively linked to productivity at work include:
 - **Nature views** - Viewing external nature scenes from the office space has a positive impact on workers' productivity
 - **Nature within the workspace** - Ensuring the presence of natural elements within the workplace, such as plants, green space, plenty of light, and elements of water predict greater levels of productivity
- **Managing storm water and infiltrating it within the site removes untreated runoff that drains into the ocean just blocks away** and lessens the impact on the storm water drainage infrastructure and the ocean's ecosystem. Additionally, water infiltration returns water to the ground, improving ground water recharge. The north parking lot and surrounding rooftops on the site produce **3 million gallons** of storm water in an average year.

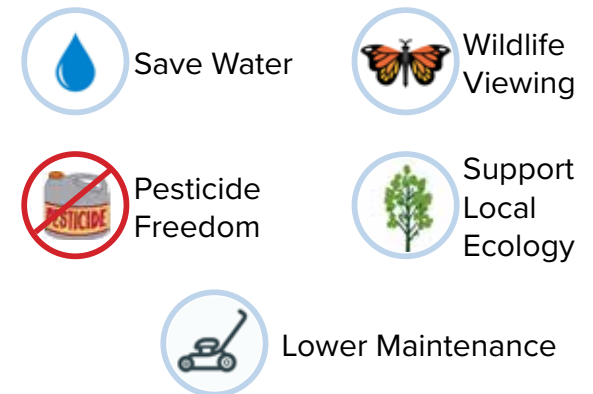


PROJECT JUSTIFICATION

- The transitioning of asphalt to green space lessens the **urban heat island effect** and keeps the cityscape cooler through the use of trees and cool pavements. According to the Environmental Protection Agency, the annual air temperature of a city with 1 million people can be 1.8 - 5.4°F warmer than it's surroundings. 45% of the Los Angeles population of 7.2 million (2020 U.S. Census) live in areas with greater than 8°F urban heat island effect.
 - **Cooling Through the Use of Trees** - Research shows that urban forests have temperatures that are on average 2.9°F cooler than unforested urban areas
 - **Using Cool Pavements** - Conventional paving materials can reach peak summertime temperatures of 120-150°F. Although this approach and materials are still new with data being gathered, using reflective and/or permeable paving materials have properties that allow a cooler surface.
- The introduction of California natives into the landscape supports biodiversity and local species
 - Los Angeles has lost over **90%** of local butterflies and songbirds since 1900 due to replacement of natives. Planting natives can contribute to the reversal of this trend
 - On average, non-native trees use **six times** more water than native species
 - California uses **20%** of it's energy to move and treat water; switching to natives produces immediate water savings.



Benefits of California Natives



THE SITE

Location and Context

SITE LOCATION



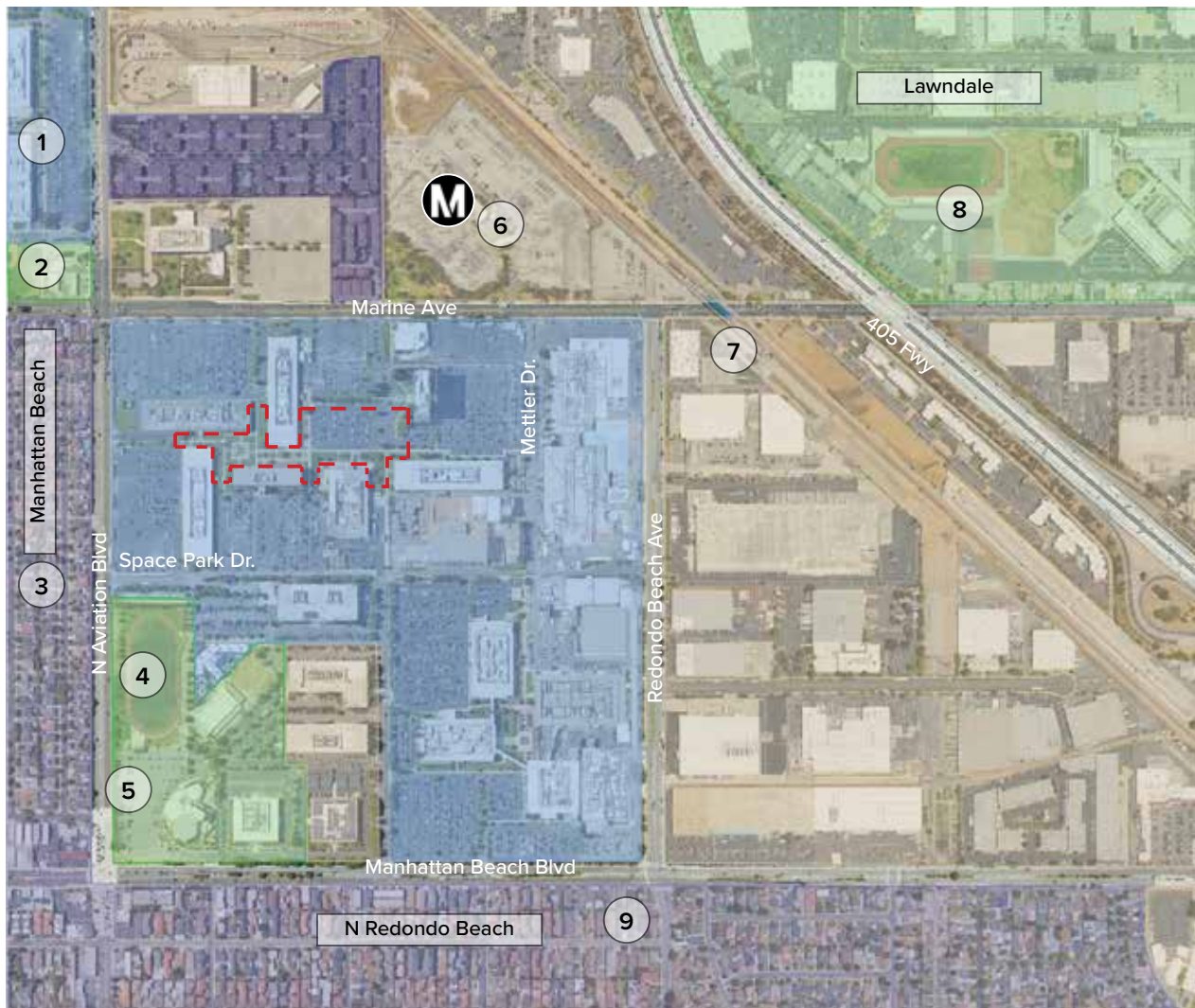
Location of Space Park
Within Los Angeles Metropolitan Area



Location of Space Park
Redondo Beach, CA

The site is a corporate campus called Space Park, located in the South Bay of Los Angeles in North Redondo Beach between the 405 Freeway and Pacific Coast Highway, just north of Manhattan Beach Blvd.

SITE CONTEXT



Site Context

0' 500' 1,000'
SCALE: 1" = 1,000' - 0"
Map: Google Earth Pro

LEGEND

- 1 Manhattan Beach Campus
- 2 Manhattan Beach Sports Fields/Adventure Plex
- 3 Manhattan Beach Single Family Residential
- 4 Aviation Sports Complex
- 5 Redondo Beach Performing Arts Center
- 6 LA Metro Train Station
- 7 Metro Train Tracks
- 8 Lawndale High School
- 9 North Redondo Single Family Residential

--- Space Park Capstone Project Site

- Space Park Total Site
- Industrial
- Single Family Residential
- Multi-Family Residential
- Municipal, Public, Educational

The Space Park campus is adjacent to single family residential neighborhoods of Manhattan Beach and North Redondo Beach. Industrial warehouses are adjacent on the east and north, toward the freeway and train tracks. There are additional buildings at the Manhattan Beach campus located diagonally to the north west of Space Park. There is an LA Metro transit station across Marine Ave on the north.

SITE HISTORY



Map: ARC-GIS
Topo Map Explorer

Site prior to 1960: open land
belonging to Santa Fe Railroad

1944

110 acre site is purchased from Santa
Fe Railroad, and ground is broken for
TRW Space Technology Lab's (STL)
Space Park campus



Photo: Timothy C. Jacobson, TRW 1901 - 2001



Photo: ACMartin
Architecture

Space Park's original 14 buildings are
constructed, designed by Albert C.
Martin Architects and Arthur G. Barton as
Landscape Architect.

1961-1967

Christopher Boyce convicted of
espionage from selling classified
transmissions to Russian intelligence.



Photo: IMDB



Photo: Google Earth
Pro

Manhattan Beach campus
developed

1985

Fire destroys portion of
Manhattan Beach buildings,
Manhattan Beach Studios is built
on the burned site.



Photo: MBS Media Campus



AIAA
SHAPING THE FUTURE OF AEROSPACE

Photo: Los Angeles
Conservancy

Space Park site receives historic
designation by American
Institute of Aeronautics and
Astronautics

1999

2011

James Webb Space
Telescope completed and
launched.

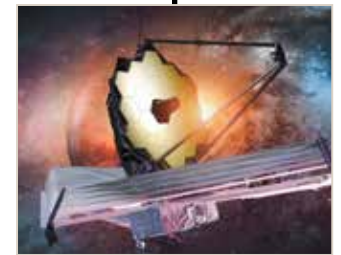


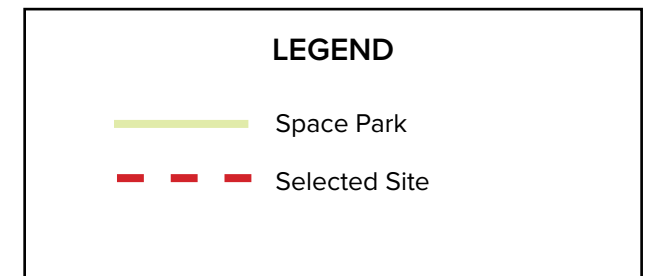
Photo: dima zel, Getty Images

2021

Ground was broken in 1960 for Space Park after the land was purchased from the Santa Fe Railroad by TRW's Space Technology Lab for designing satellites and other space technologies. The original 14 buildings were designed by Albert C Martin; Arthur G. Barton was the landscape architect. Barton was a well known and respected landscape architect at the time, and his other projects include the California Capitol, Dodger Stadium, and the USC campus.

The campus grew over time through the 1980s, and subsequently some buildings were sold off. In 2011, the campus received an historic designation from the American Institute of Aeronautics and Astronautics. Today, Space Park is owned by Northrop Grumman where the primary products are still satellites and space technology, including the James Webb Space Telescope that was launched on Christmas of 2021.

SITE SELECTION



Space Park was chosen for the project because it is a corporate campus with large outdoor spaces, but these spaces are outdated and have little environmental value.

The central portion within Space Park was chosen because

- The central location within the campus is the physical core of the campus and is heavily used by employees
- There is an existing architectural spine across the site that can be strengthened to improve connectivity
- The parking lot adjacency provides access

SITE: SPACE PARK CAMPUS CENTER



Courtyard Looking East



Reflecting Pool Materials

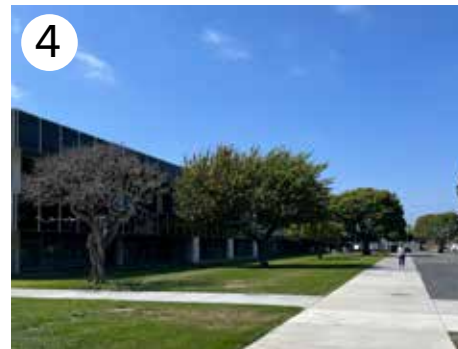


Existing Space Park Site

Map: Google Earth Pro



Example of Mature Trees



Walkway on East Side of Building R3



Center Path Looking West



Under Utilized Parking Lot

Views across the campus show large green lawns, straight concrete sidewalks with no hierarchy, the large, unused central parking lot, and typical mid-century corporate architecture.

THE PROJECT

Goals and Objectives
Program Elements

GOALS AND OBJECTIVES



IMPROVE PRODUCTIVITY

Improve employee productivity, creativity, and well-being by providing outdoor space with access to natural elements and light for workspaces, breaks, exercise, and views.



PROVIDE CONNECTION

Connect spaces to provide functional and enjoyable walkability across the campus and to adjacent context.



ENVIRONMENTAL IMPACT

Lessen impact on the environment and improve sustainability

- **Improve biodiversity:** incorporate California natives into the design
- **Improve storm water management:** utilize on-site management and infiltration
- **Mitigate urban heat island:** cool the cityscape through the reduction of asphalt (parking lots), the utilization of plant material in it's place, and cooling and permeable paving materials.



HISTORICAL SIGNIFICANCE

Provide an appreciation of the historical significance of the site

- Bring back original design elements such as water features, hardscape, art elements (sculptures)
- Keep the connection to inner and outer space: building of satellites and other space technology

The goals and objectives align with the Project Statement:

This project seeks to create a **vibrant, healthy, and productive work environment** while improving natural elements such as **biodiversity** and **storm water management**. The project will improve the overall workplace experience while introducing **climate conscious** updates to the central campus. The outcome will also result in the originally intended **California indoor/outdoor living experience** that was pioneered at mid-century.

PROGRAM ELEMENTS

Outdoor Workspace



Logix Headquarters, Valencia, CA, PB&Co,
photo: C. Atkinson

Shaded space with furniture
for working, socializing, solitary
quiet, lunch or coffee breaks

Meditation Garden



photo: Gardenary

Gardens for outdoor passive
reflection

Meadow and Sports Field



photo: Logix Headquarters, Valencia, CA, PB&Co

May be used for active
recreation such as frisbee or
soccer

Landscaped Connective Gardens



photo: Mark Thor, Flickr

Landscaped pathways,
thoughtfully planned circulation

Flexible Event Space



photo: Food Truck Championship

Primarily for use by employees, event space may also be shared
with community.



photo: Shellburne Falls Farmers Market

PROGRAM ELEMENTS

Programming is focused on the employee's experience while also improving storm water management and biodiversity to meet the project's goals and objectives.

ENVIRONMENTAL
IMPACT



California Native Garden



photo: Natural History Museum of Los Angeles

May be demonstration or meditation garden

Bioretention Pond



photo: Manuel Builders

- On site storm water management
- May be infiltrated or stored for on site irrigation

Plazas

HISTORICAL
SIGNIFICANCE

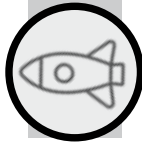


photo: San Francisco Botanical Gardens, Interstice Architects

- Incorporate outdoor art/sculpture/water feature
- Entry and/or central plaza

Outdoor Art



photo: Jim Henderson, Wikipedia

Outdoor art elements that pay tribute to space heritage of the site



DESIGN METHODOLOGIES

DESIGN METHODOLOGIES

The following methodologies have been selected to address the goals and objectives of the project:

BIOPHILIC DESIGN

Guiding Principles and Practices That Apply

- Designing workspaces that fill the innate needs of humans to be connected with nature

Implementation/Design Elements

- Access to nature
- Outdoor workspaces
- Providing views into natural spaces

Goals addressed



Reference: “Human Spaces: The Global Impact of Biophilic Design in the Workplace”, Sir Gary Cooper CBE, Bill Browning

DESIGN PATTERNS

Guiding Principles and Practices That Apply

- Design theories using geometry and patterns
- Form, Space, and Order (Francis D.K. Ching): organization of form and space for functional design
- Utilization of the elements of landscape design elements for spatial optimization and organization: Spaces, Paths, Edges, Foci, Thresholds, Detail (Catherine Dee)

Implementation/Design Elements

- Radial form
- Linear form
- Grid patterns
- Use of paths to connect, edges and thresholds to define space
- Imitation of architectural design patterns into the landscape
- Goals addressed



References

- “Architecture, Form, Space, and Order”, Francis D.K. Ching
- “Form and Fabric in Landscape Architecture”, Catherine Dee
- Jane Jacobs

LOW IMPACT DESIGN (LID)

Guiding Principles and Practices That Apply

- Green infrastructure, sustainable storm water management from parking lots, sidewalks, and rooftops
- Heat island mitigation
- Sustainability and ethical design

Implementation/Design Elements

- Infiltration gallery
- Permeable paving
- Bioretention pond & rain gardens
- Rooftop gardens
- Vegetated swales, buffers, and strips
- Rain barrels and cisterns
- Curb cutouts

Goals addressed



References

- “Design With Nature”, Ian McHarg
- “Materials for Sustainable Sites”, Meg Calkins
- “Low Impact Development”, California State Water Board
- “Low Impact Development Standards Manual”, Los Angeles Co

INCREASE AND MAINTAIN BIODIVERSITY & CALIFORNIA NATIVE HABITAT

Guiding Principles and Practices That Apply

- Reintroduction of native species
- Introduce food source for local wildlife and pollinators

Implementation/Design Elements

- California Native plant material, native gardens
- Plant material that encourage pollinators and local wildlife

Goals addressed



Reference: “California Native Plants for the Garden”, Bornstein

DESIGN METHODOLOGIES

HUMAN FACTORS/USABILITY

Guiding Principles and Practices That Apply

- Connection of spaces
- Walkability
- Safety, accessibility
- Crime Prevention Through Environmental Design (CPTED)

Implementation/Design Elements

- Buffers while keeping space visible
- Thoughtful pathway design
- Accessible designs
- Designs that utilize multiple senses

Goals addressed



PROVIDE
CONNECTION



IMPROVE
PRODUCTIVITY

Reference:

“How to Study Public Life”, Jan Gehl, Birgitte Svarre

MID-CENTURY MODERN CALIFORNIA

Guiding Principles and Practices That Apply

- Eckbo: Connection between landscape, architecture, and art, use of water as design element
- Outdoor living

Implementation/Design Elements

- Sculpture garden
- Amenities that encourage outdoor living

Goals addressed



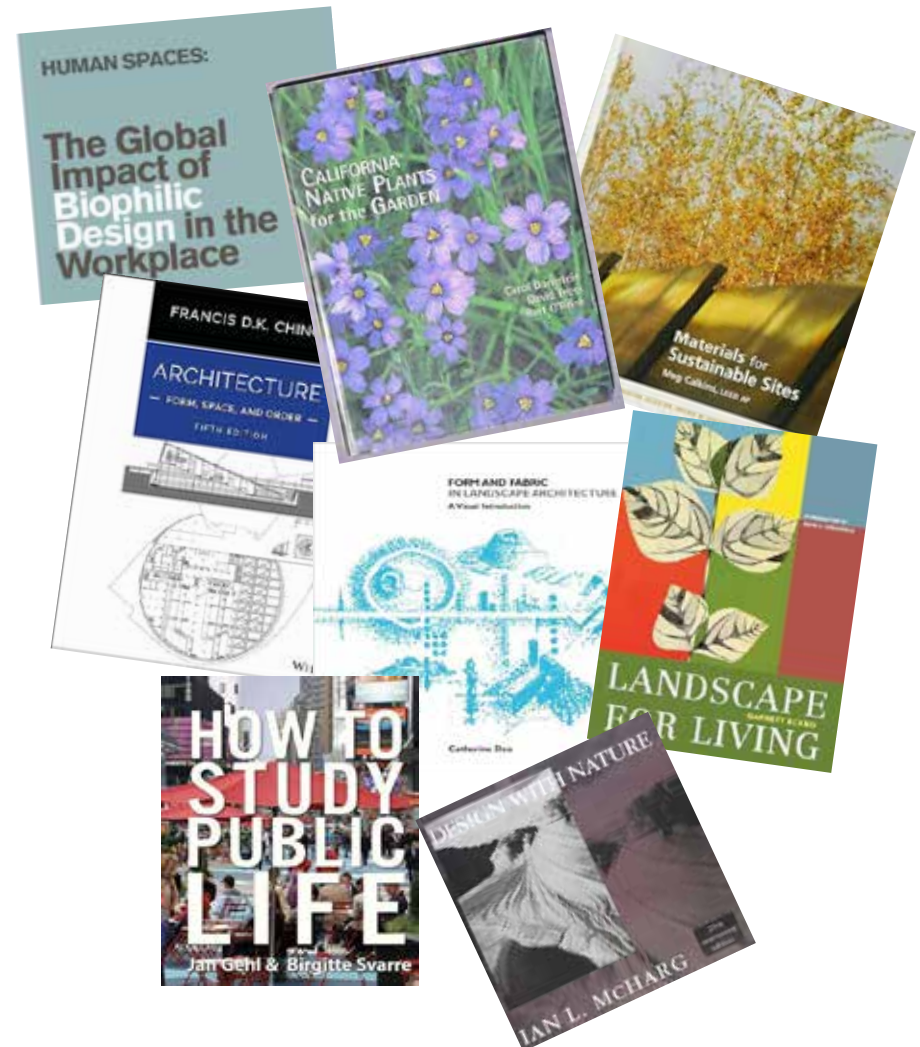
HISTORICAL
SIGNIFICANCE



IMPROVE
PRODUCTIVITY

References:

- “Landscape For Living”, Garret Eckbo
- Lawrence Halprin
- Arthur G. Barton



USER AND SITE ANALYSIS

User and Site Inventories

Site Analysis

Opportunities and Constraints

USERS AND STAKEHOLDERS

Primary Users: Employees of the Space Park center buildings

The primary users of the site are the employees. There are over 7,000 employees working in the Space Park site with 4,500 working in buildings that regularly access the site. The site culture is very collaborative with people working on large project teams.

Number of users regularly accessing the site	Age of Users	College Educated	Type of Work Performed	Culturally and Lifestyle
4,500	Adults 22-65 years old	90% - Technical: 70% - Business/Non-technical: 30%	Technical/ Engineering Business & Program Management Research & Development Manufacturing	Diverse 37% People of Color - Asian: 11% - Hispanic: 14.4% - Black/African American: 7.4% - Two or More Races: 3.6% (US/National Statistics)
Primary Activities	Peak Hours Used	Other Activities	How People Get to the Site	People With Disabilities
Walking to a destination - Other buildings - Cafeteria - Parking lots	9am - 3pm	Employee Events - Employee Appreciation - Exhibits/Displays - Family Day	Drive	8.5%

Other Stakeholders

- Maintenance staff: 5-6 staff members, 2-3 days per week
- 24 hour Security staff: 6 staff members and vehicles
- Corporate owners
- Facilities staff who make decisions about maintenance

The site is under jurisdiction of

- City of Redondo Beach
 - Redondo Beach Fire Department
 - City of Redondo Beach Planning Division
 - County of Los Angeles, State of California
- It is not within jurisdiction of California Coastal Commission



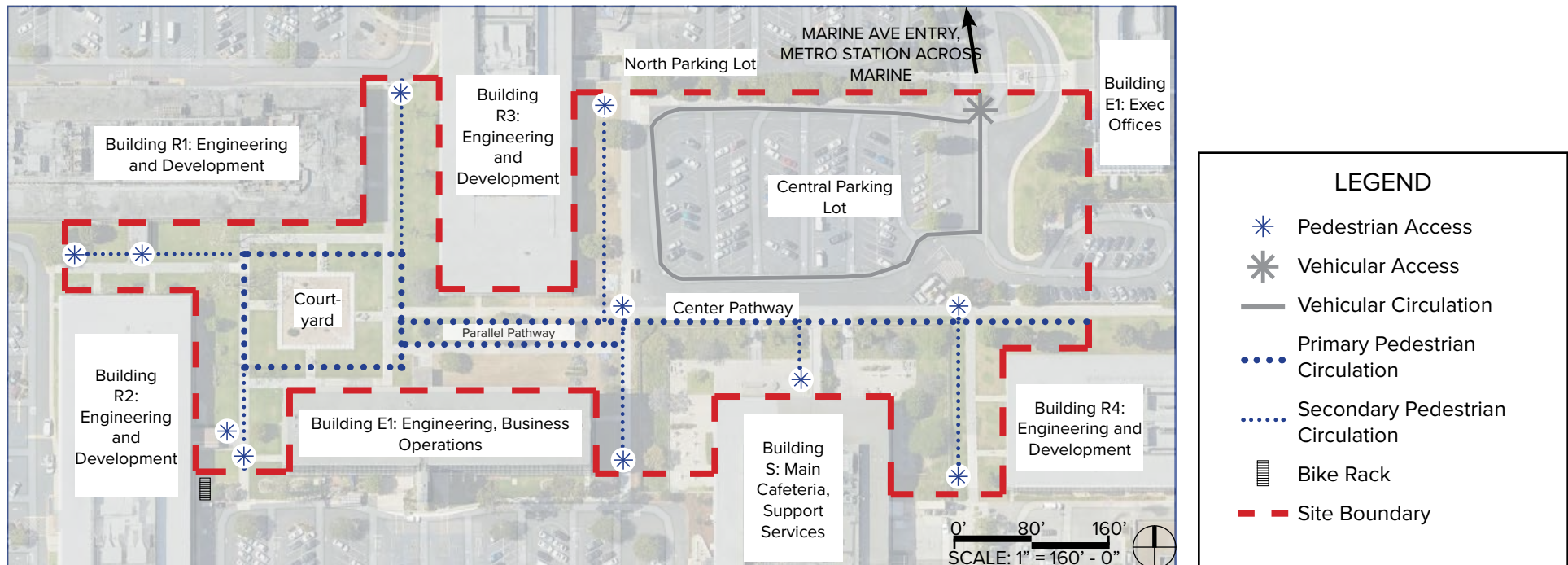
Photo: Northrop Grumman

SITE INVENTORY: CIRCULATION, BUILDING AND PARKING LOT USAGE

Analysis Notes

- Primary circulation is served by a central linear spine across the site
- There is no clear circulation hierarchy reflected in pathway dimensions
- Pedestrian circulation internal to the site is along paved walkways
- Pedestrian destinations are the parking lots, Main Cafeteria, and building entrances
- There is no direct pedestrian connection from the street all the way into the site or from the Building E1 main entry sidewalk to the center pathway
- The central parking lot is frequently used for employee events such as employee appreciation with food trucks and seating, family days with carnival attractions and games, and tech fair style events
- Both central parking lot and the adjacent north lot are at about half capacity, even after employees have returned to work after Covid work from home directions.

Parking Lot	Area (sq. ft.)	Total Number of Spaces	Average Number of Spaces Used on Weekdays
Central Lot	58,200	77	45
North Lot	90,000	150	78



SITE INVENTORY: ENVIRONMENTAL CONDITIONS



9am



noon



5pm

Shadows at Equinox

Average	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
High	65°F	65°F	65°F	67°F	68°F	70°F	74°F	75°F	75°F	73°F	69°F	65°F
Temp.	57°F	58°F	59°F	61°F	63°F	65°F	68°F	69°F	69°F	66°F	62°F	57°F
Low	51°F	52°F	54°F	56°F	58°F	61°F	64°F	65°F	64°F	61°F	55°F	51°F

Average Temperature

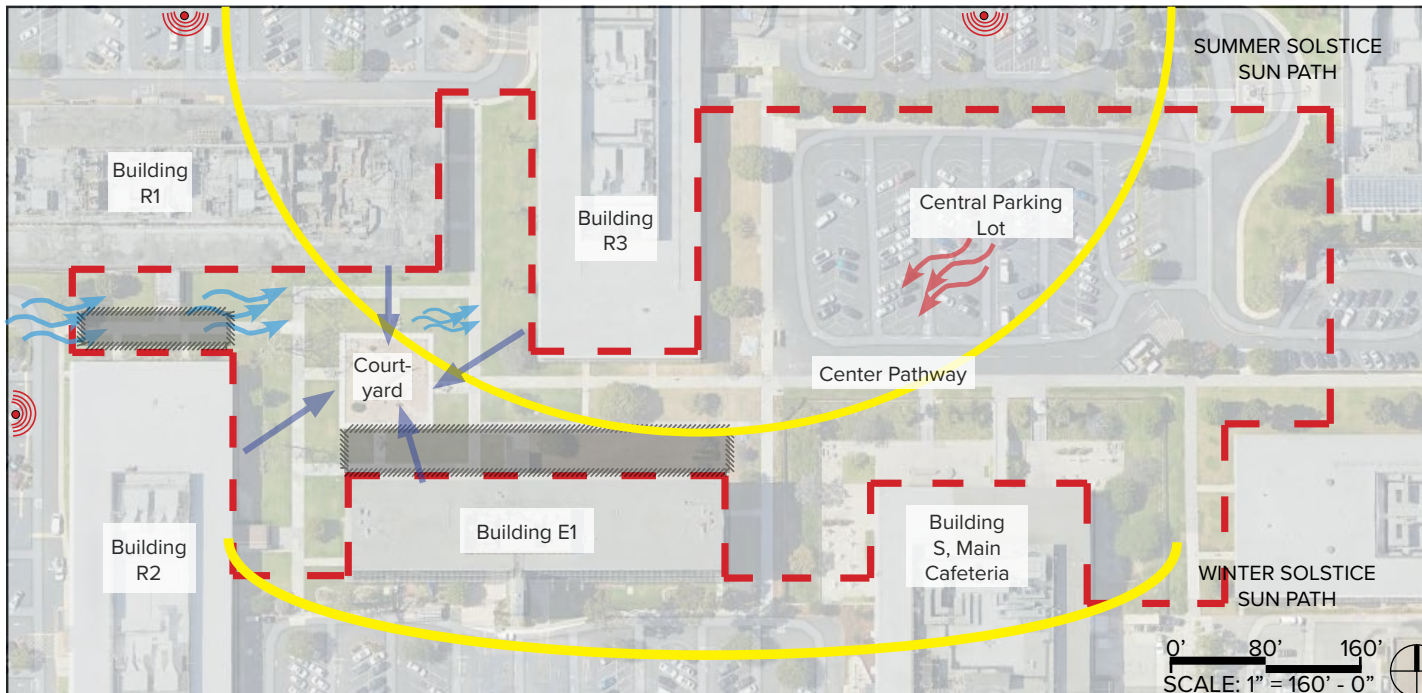
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Rainfall	2.6"	3.3"	2.0"	0.7"	0.2"	0.0"	0.0"	0.2"	0.5"	1.0"	2.2"

Average Rainfall

Sunset Zone 24: Marine influence along the Southern California coast

Analysis Notes

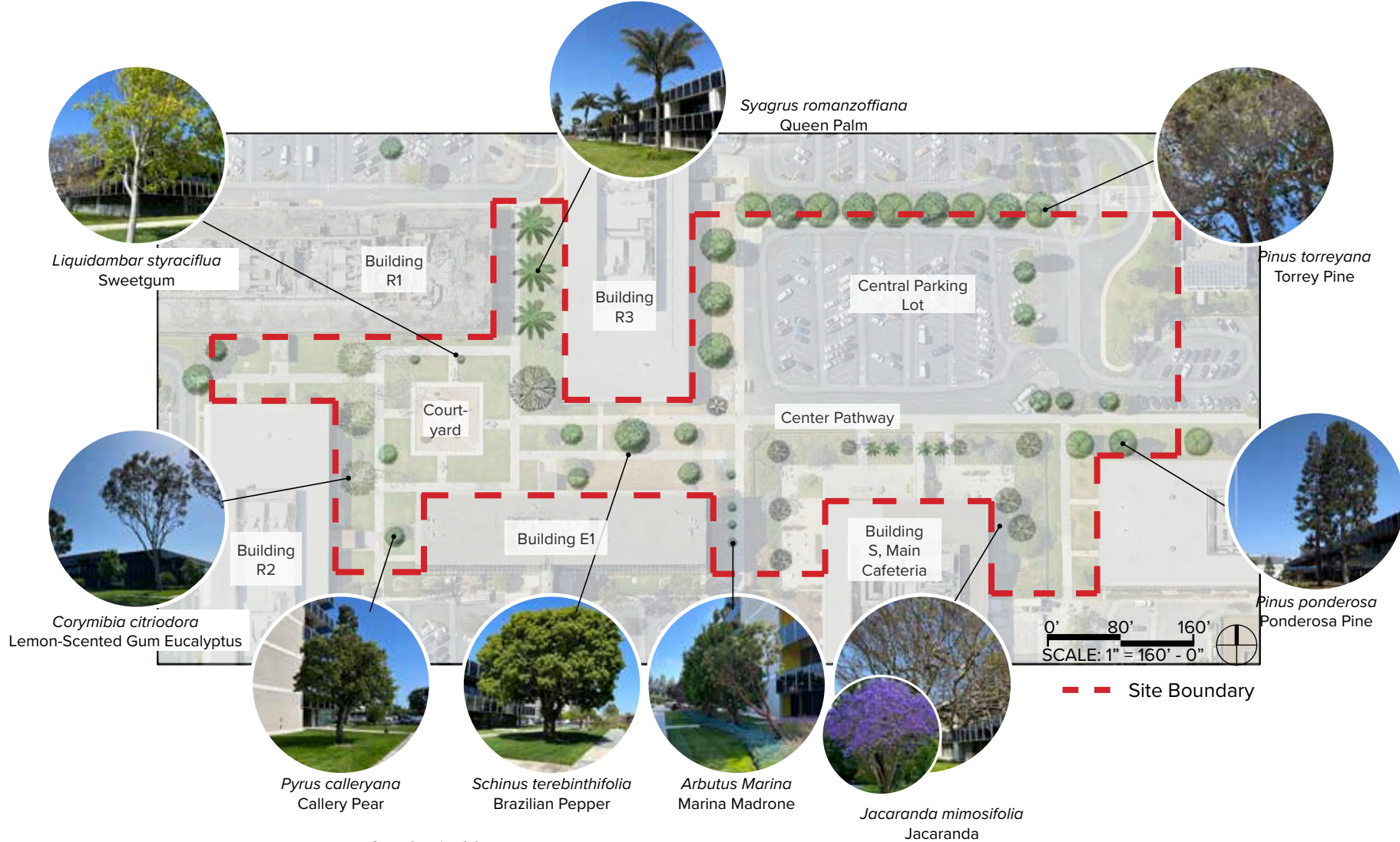
- Climate is coastal Mediterranean, generally sunny with mid-60 degree average
- Courtyard is sunny during the working hours
- Courtyard provides views for 4 adjacent buildings
- Westerly winds traveling between Buildings R1 and R2 are stronger in the northwest of the courtyard, and become weaker on the east side
- Noise from the streets is not heard from the interior of the site
- Areas of most shade throughout the day are north of R2 and north of E1



LEGEND

- Noise Source
- Prevailing Winds
- Seasonal Winds
- Sun Path
- View Direction
- Most Shaded Area
- Site Boundary

SITE INVENTORY: EXISTING TREE SPECIES AND CANOPY



Analysis Notes

- The most common tree is the Callery Pear which is also used in the parking lots
- Many mature trees exist and the majority are healthy and well maintained
- Although there are many trees, there is minimal canopy or shade

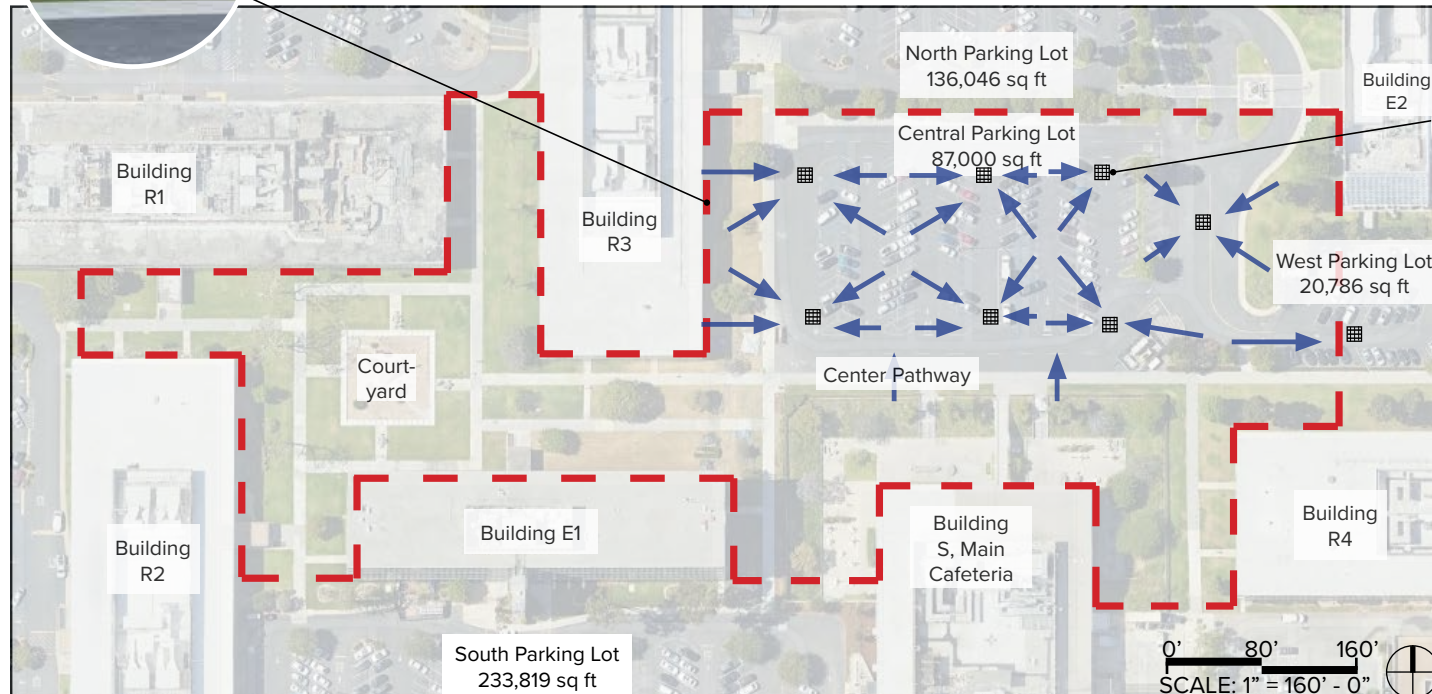
SITE INVENTORY: DRAINAGE

Analysis Notes

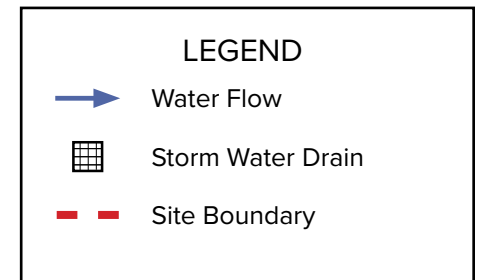
- Water drains from parking lots into storm drains which then drain into the ocean
- Site landscaping is irrigated using reclaimed/recycled water provided by Hyperion Water Treatment Facility
- There are no curbs between parking lot and adjoining concrete walkways
- Roof water drains directly into storm water system, there are no spouts or gutters

Location	Area (sq ft.)	Average Volume of Stormwater/Year (gal)	Stormwater Produced in 1" Rain Event (gal)	Stormwater Produced in 1.5" Rain Event (gal)
Central Parking Lot	87,000	690,000	54,000	81,000
Surrounding Building Rooftops	390,212	3,090,000	243,200	365,000
Surrounding Parking Lots	390,651	3,093,000	243,500	365,300
Total	867,863	6,873,000	540,700	811,300

No Curb Between Sidewalk and Asphalt



Parking Lot Drain



SITE ANALYSIS: OPPORTUNITIES



IMPROVE PRODUCTIVITY

- 1 Coastal climate has moderate humidity and temperatures that promote outdoor use
- 2 Courtyard area is sunny during work hours
- 3 Views into courtyard from surrounding buildings



PROVIDE CONNECTION

- 7 Site is flat, no topographic challenges exist
- 8 Large, unused parking lot provide an opportunity to create a campus center to connect employees
- 9 Site is shielded from street noise
- 10 Large, open areas create opportunity to add programming and trees



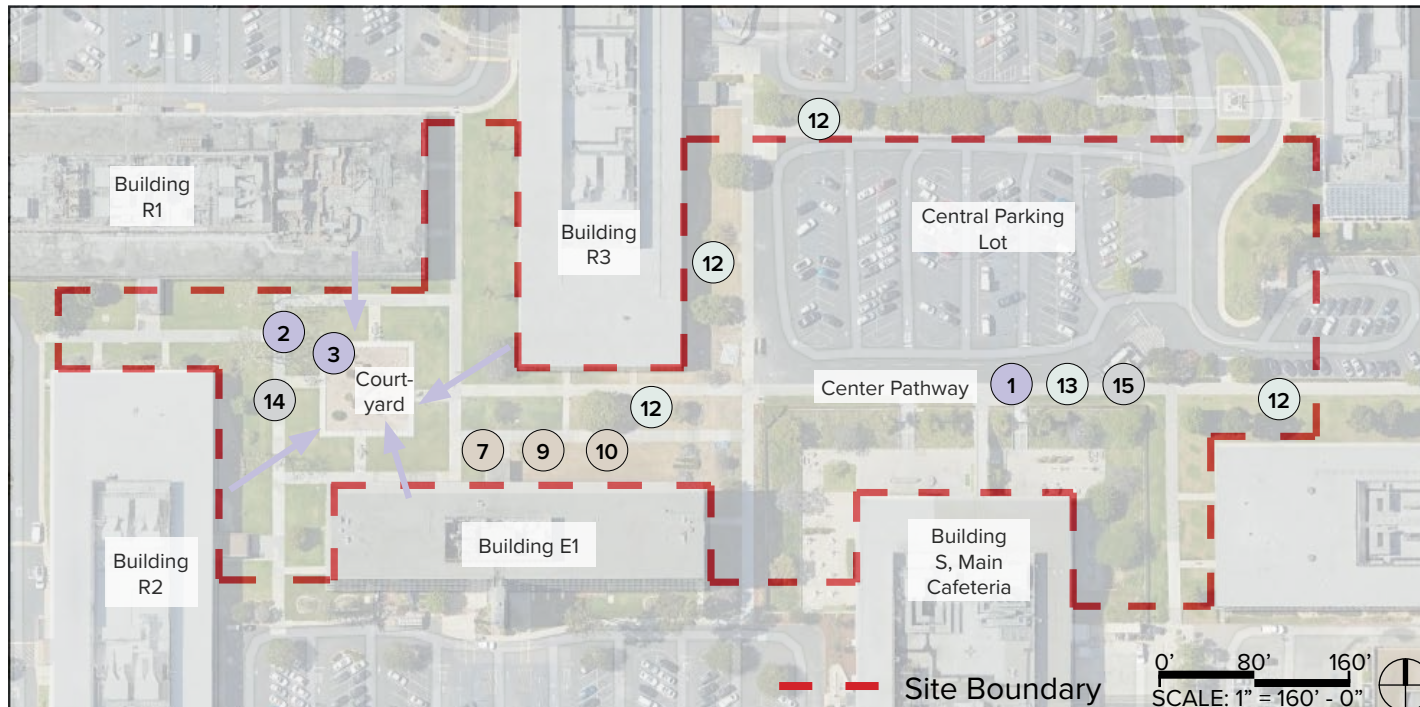
ENVIRONMENTAL IMPACT

- 11 Large, unused parking lot provides an opportunity to create storm water infiltration area and add green space
- 12 Mature trees provide a foundation to the landscape
- 13 Reclaimed water irrigation system provides opportunity to vary landscaping



HISTORICAL SIGNIFICANCE

- 14 Wind in courtyard area provides opportunity for kinetic sculpture
- 15 Rich history of site provides opportunity to incorporate identity and linkage to past accomplishments for newer employees



Courtyard



Unused Parking Lot

SITE ANALYSIS: CONSTRAINTS



IMPROVE PRODUCTIVITY

- 1 Wind in courtyard area constrains placement of programming



PROVIDE CONNECTION

- 2 Any new grading must fit within existing overall topography and structures
- 3 Existing structures will remain in place



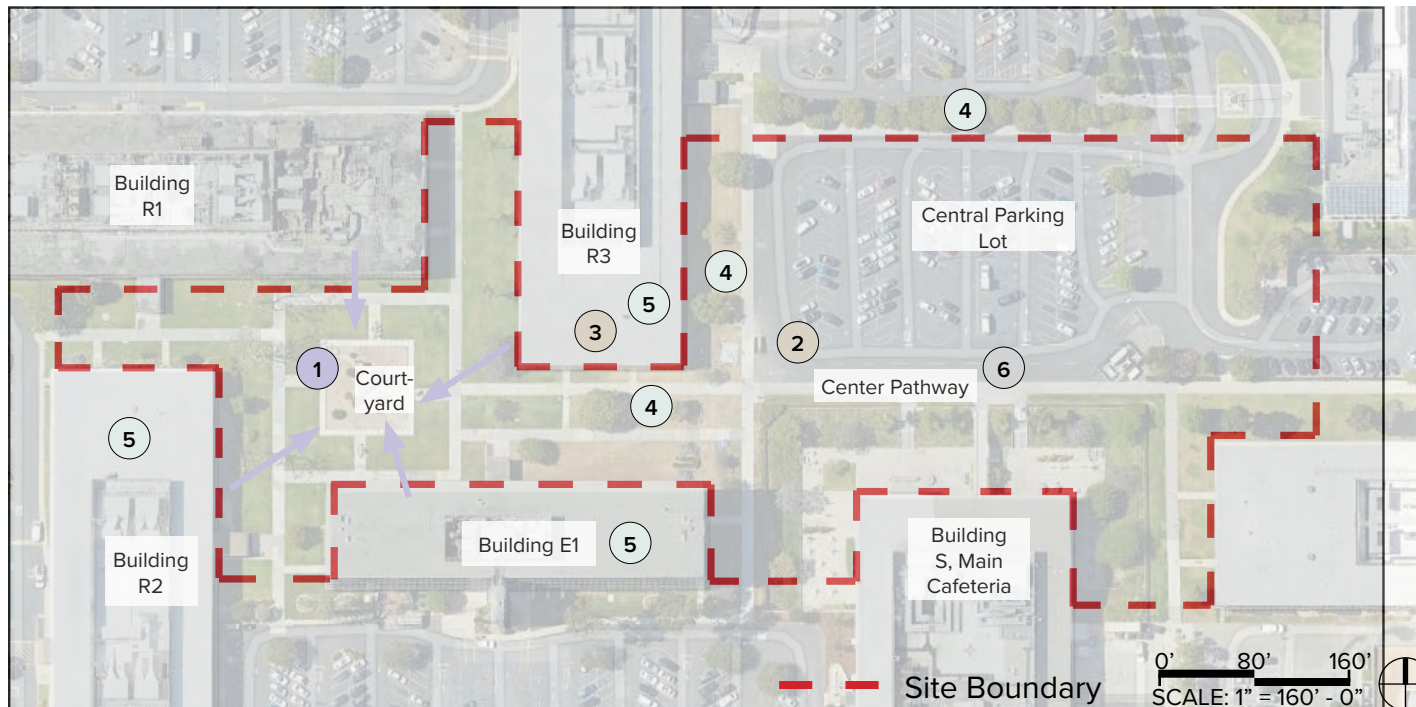
ENVIRONMENTAL IMPACT

- 4 Preservation of mature trees
- 5 Large building roofs produce large quantities of water during rain events



HISTORICAL SIGNIFICANCE

- 6 Updates and modifications should be architecturally consistent



Mature Trees



Original Kinetic Sculpture in Courtyard

PROJECT PRECEDENTS

PROJECT PRECEDENT

LOGIX HEADQUARTERS CORPORATE CAMPUS, VALENCIA, CA
Pamela Burton & Company

How it applies: uses for outdoor activities on a corporate site,
different size spaces with distinct uses

Size: 13 Acres

Designed to be the company headquarters, the design incorporates access, circulation, and outdoor activities, as well as safety requirements, specifically for fire safety. The goal of the project was to make every part of the site useful by creating different size spaces with distinct uses.

Key Takeaways

Benefits, what works

- Multiple spaces provided for employee interaction and recreation: The Hub gathering space, The Sports Meadow multi-purpose field and grove for team building and athletic activities, a Fitness Walk that connects all the program elements together
- Drought-resistant planting and water conserving irrigation

What doesn't work:

- Not a lot of tree canopy, shade is provided by structures

Source: Pamela Burton (PB&Co) website



Shaded Gathering and Work Space



The Meadow Multi-Purpose Sports Field



Sports Court

PROJECT PRECEDENT

MILLER GARDEN, COLUMBUS, IN

Office of Dan Kiley

How it applies: Outdoor modernist garden, linear pathways, focal sculpture. Existing structure is constructed around a grid cruciform.

Size: 13 Acres

The Miller Garden is considered to be Kiley's residential masterpiece. It was designed and constructed between 1953 - 1957, and the owners were active in the design collaboration. The design consists of three distinct sections, and the geometric design reflects the home's interior geometry.

Key Takeaways

Benefits, what works:

- Linear design directs the visitor intentionally to a focal point
- Garden reflects the architectural geometry of the residence

What doesn't work:

- Lush landscaping doesn't apply to California climate

Source: The Cultural Landscape Foundation



Tree Allee



Grid Design of Garden



Trees Align with Residence Geometry

PROJECT PRECEDENT

DUKE UNIVERSITY WATER RECLAMATION POND, DURHAM, NC

Nelson Byrd Woltz Landscape Architects

How it applies: Significantly reduces storm water runoff and urban heat while creating an satisfying outdoor experience.

Size: 5.5 acre pond on 12 acre lot

The Duke University Water Reclamation Pond improves the health of a degraded urban stream in Durham, North Carolina and captures Duke campus runoff for use in the university's chilled water plant. Recalling the Olmsted Brothers' 1924 Duke campus plans, the pond completes a grand axis focused on aesthetic and infrastructural performance.

Key Takeaways

Benefits, what works:

- The pond collects rainfall and surface runoff from 265 acres of campus. 51% is covered by impervious surfaces.
- The creates a habitat for native wildlife while creating a beautiful destination and broadly accessible landscape for relaxation and recreation for students and faculty members.

What doesn't work/Lessons Learned:

- Some invasive species infiltrated the meadow area.
- Maintenance of meadow and wetland plantings as well as the pond water have presented opportunities and challenges. Maintenance staff had to be trained.

Source: Landscape Performance Series



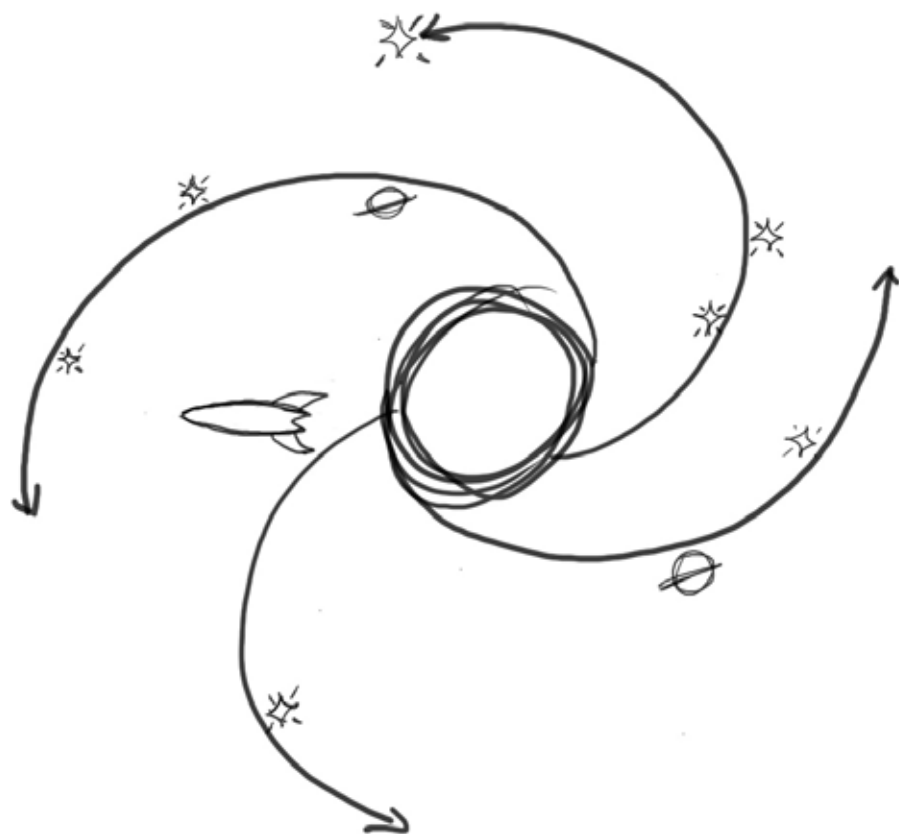
Duke Pond



Pond with Viewing Area and Bridge



The pond also offers spaces for serenity and reflection.



CONCEPT DEVELOPMENT

Concept Diagrams

Final Site Plan/Schematics

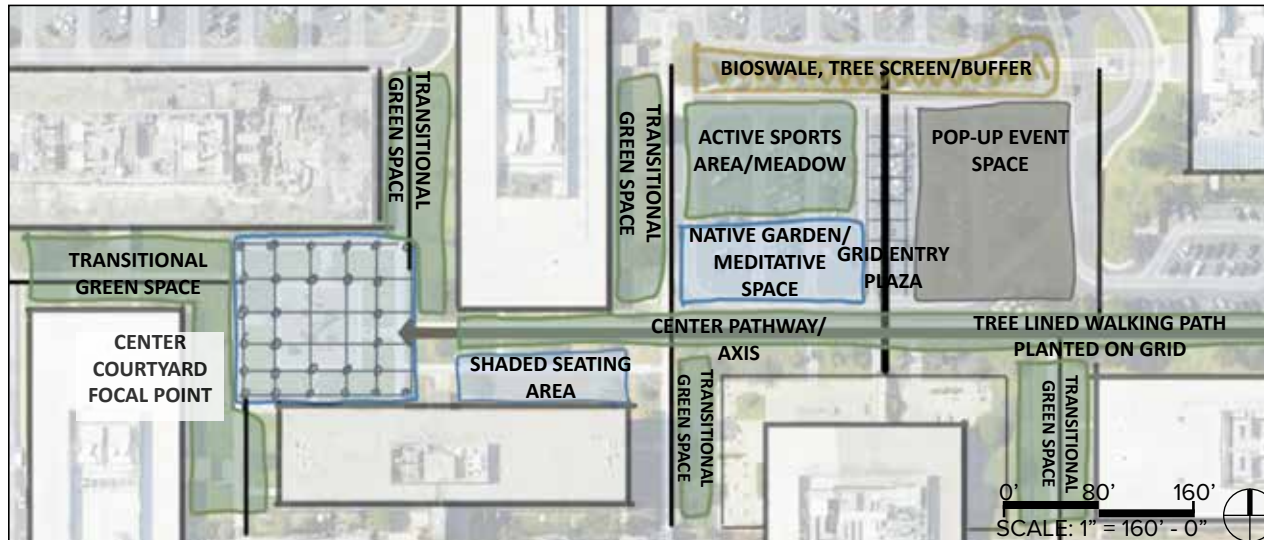
Circulation, Drainage

CONCEPT DEVELOPMENT

The driving concept behind the design is **Connecting Through Space**, tying together the goal of providing stronger connection across the physical spaces of the campus with the legacy of the space technology developed here.

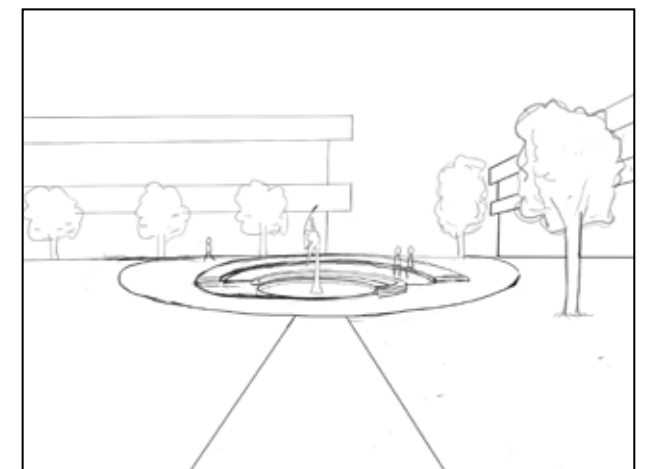
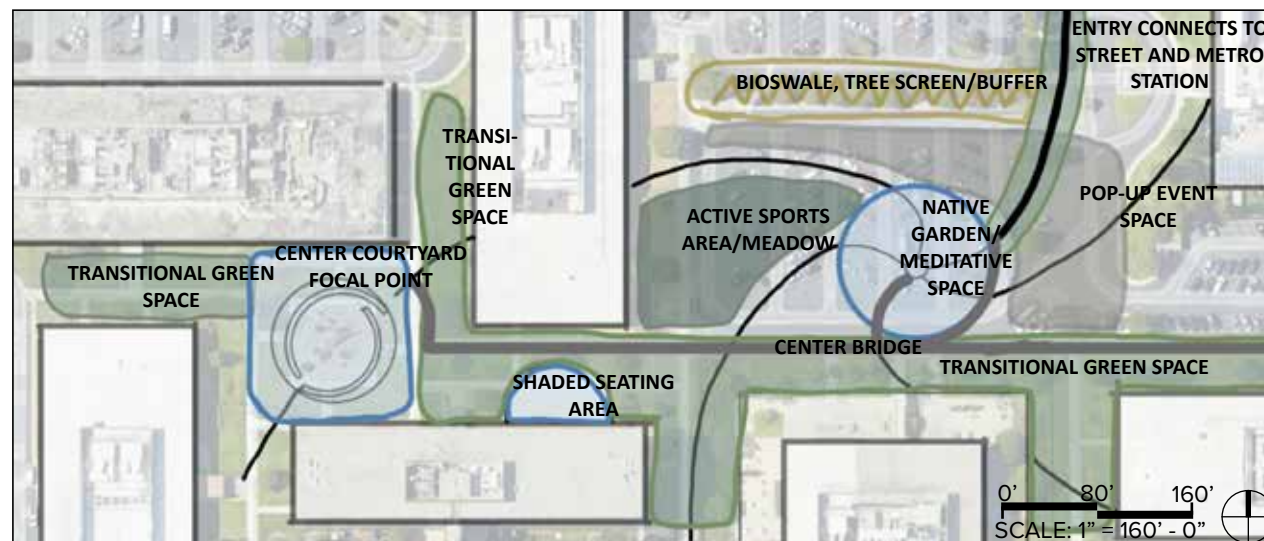
The concept development process explored three options:

Grid Concept: the grid concept uses the linear connection and grid forms to integrate with the existing architecture.



Inspiration: US Air Force Academy, Dan Kiley
Photo: Cultural Landscape Foundation, Charles A. Birnbaum, 2014

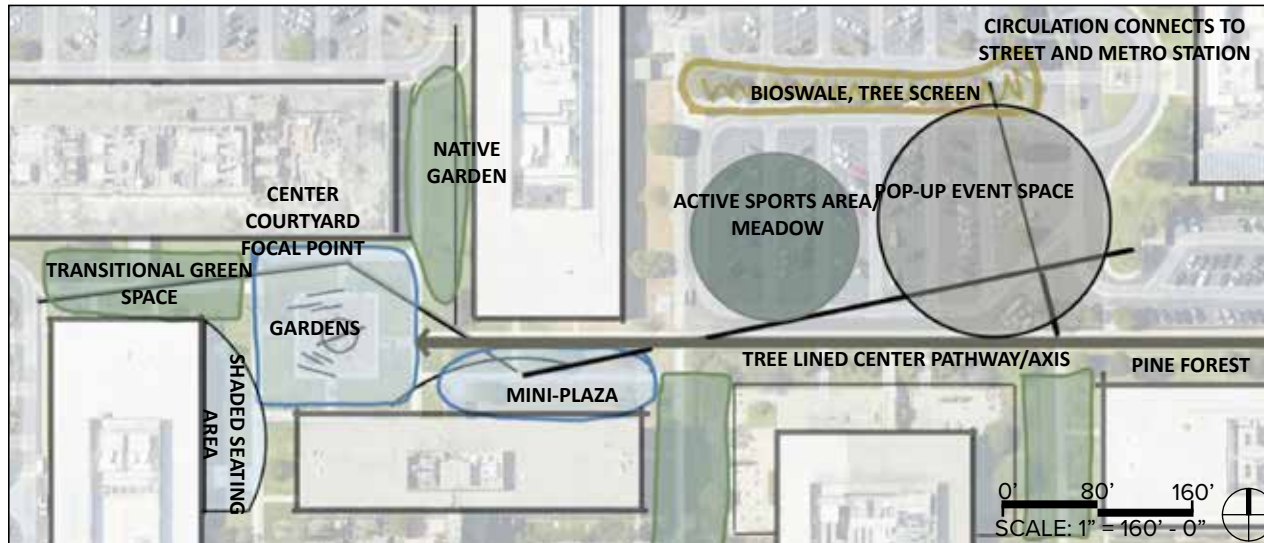
Radial Concept: this concept explores a central gathering space and radial connections originating from the center, like our Milky Way galaxy. This concept utilizes circular shapes for programming.



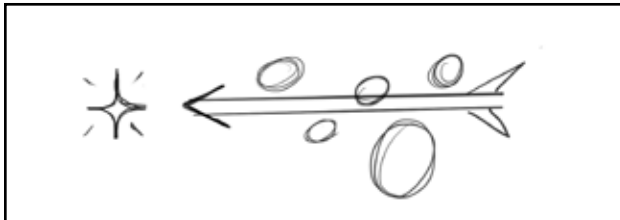
Concept Sketch: Galaxy Shaped Plaza in Courtyard

CONCEPT DEVELOPMENT

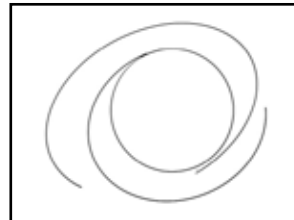
Irregular Forms Concept: this concept incorporates a collection of irregular forms, inspired by the mid-century movement of outdoor landscapes and spaces mimicking modern abstract art.



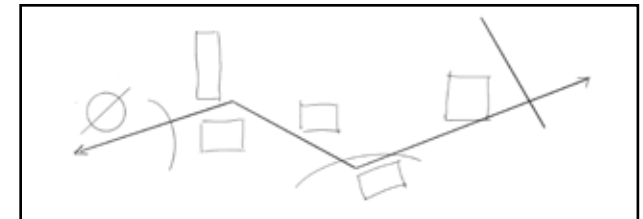
Inspiration: Composition 8, Vasily Kandinsky
Photo: The Guggenheim Store



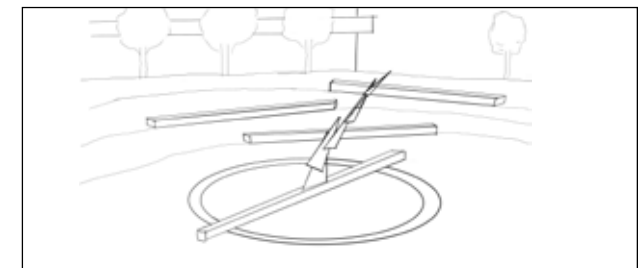
Concept of the linear connection across the campus: a metaphor to launching through space, a journey to a destination.



Pinwheel spiral form with radial arms reaching from center

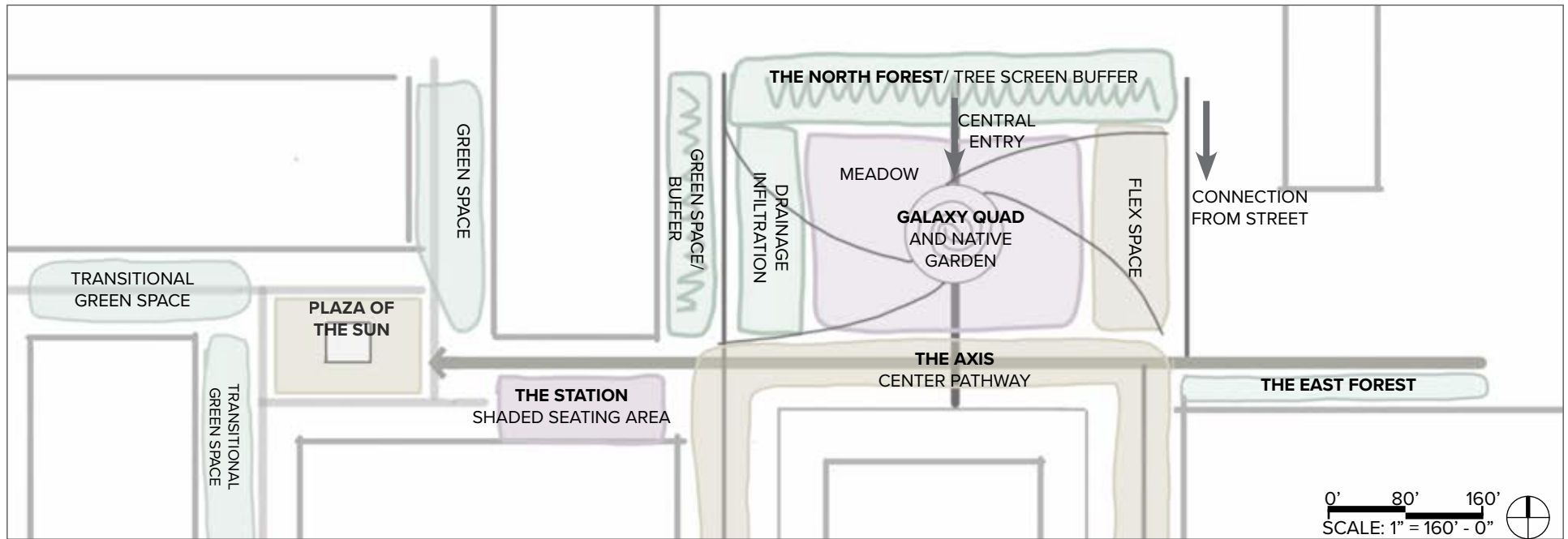


Concept of irregular forms and datum off a center path



Concept sketch of irregular forms as a courtyard water feature

FINAL CONCEPT DIAGRAM



COLOR LEGEND / GOALS AND OBJECTIVES



IMPROVE
PRODUCTIVITY



PROVIDE
CONNECTION



ENVIRONMENTAL
IMPACT

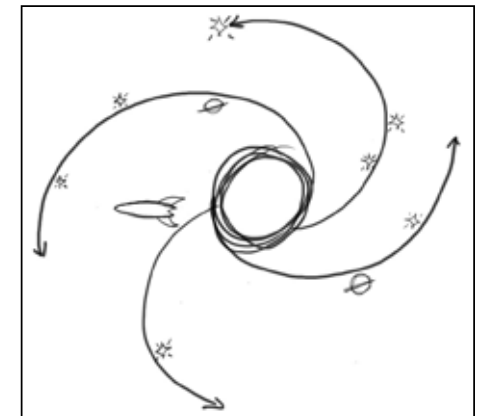


HISTORICAL
SIGNIFICANCE

Connecting Through Space Design Concept

The final concept diagram represents the placement of programming on the site to meet the goals and objectives. It is a combination of the radial concept with a strengthened linear axis across the site.

The concept began with the pinwheel galaxy idea (our Milky Way is a pinwheel galaxy) and a radial form which was implemented in the central parking lot. Employees and visitors move or “radiate”, through the site from this focal center. To emphasize this movement further, the strengthened central linear axis provides the clear primary pathway to program elements that sit adjacent to it, leading to the final destination at the opposite end of the path.



Pinwheel Galaxy Concept/Parti

FINAL MASTER PLAN WITH CONTEXT



MASTER PLAN WITH CONTEXT

0' 125' 250'
SCALE: 1" = 250' - 0" 

The master plan with surrounding context shows the project site in the center of Space Park. The site is within the parking lots and is adjacent to buildings on the east.

FINAL MASTER PLAN

Our journey through Space Park begins at the entry where we enter the campus through the **North Forest** from the north parking lot. The North Forest provides a screen from the parking area and street, augmenting the existing Torrey Pines to add canopy. As we enter, we approach the **Galaxy Quad**. In the center of the quad is a plaza that surrounds a labyrinth style meditation garden featuring California natives; radial pathways lead to the quad corners.

Behind and on each side of the plaza is a gentle slope to a meadow that can be used for active recreation, people watching, or simply being outside. Terraced seating along the edges of the meadow is shaded by Sycamores and Big Leaf Maple. It may also be used as event space, with access for food trucks and event equipment provided along the east edge.

The meadow doubles as an infiltration pond during the wet months, and storm water from the adjacent rooftops and parking areas is directed to this area for drainage.

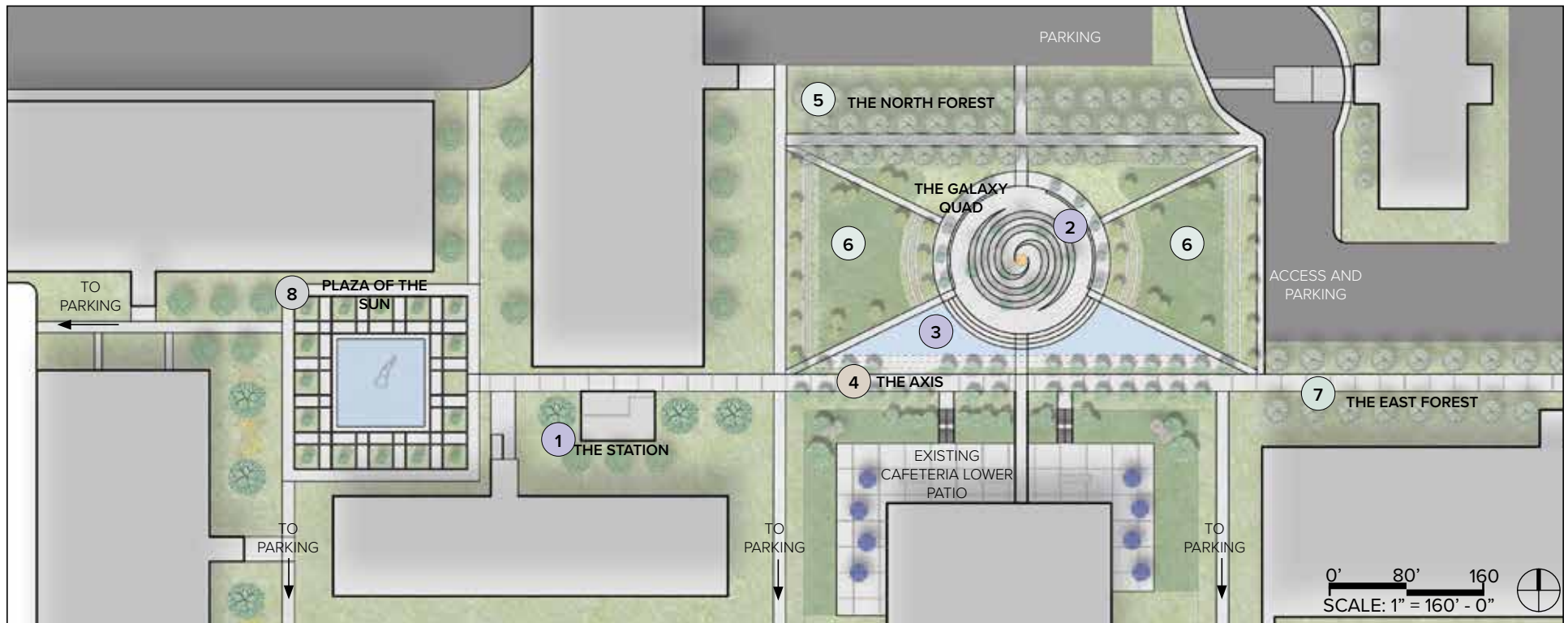
As we approach the center pathway, we cross the reflecting pool also bordered with terraced seating, and head into the Axis. **The Axis** is the strengthened central pathway through the site, lined with trees forming an allee.

On the east of the Galaxy Quad, the **East Forest** fills in the existing Ponderosa Pines bordering the building, adding shade and a soft bed of needles beneath.

Continuing along The Axis to the west we pass **The Station** outdoor workspace into the **Plaza of the Sun** courtyard. The Plaza of The Sun incorporates a plaza around the original reflecting pool in the courtyard utilizing a grid design with trees and defined hardscape.

Throughout the site, lawn is replaced with native or low water ground cover and shrubs.

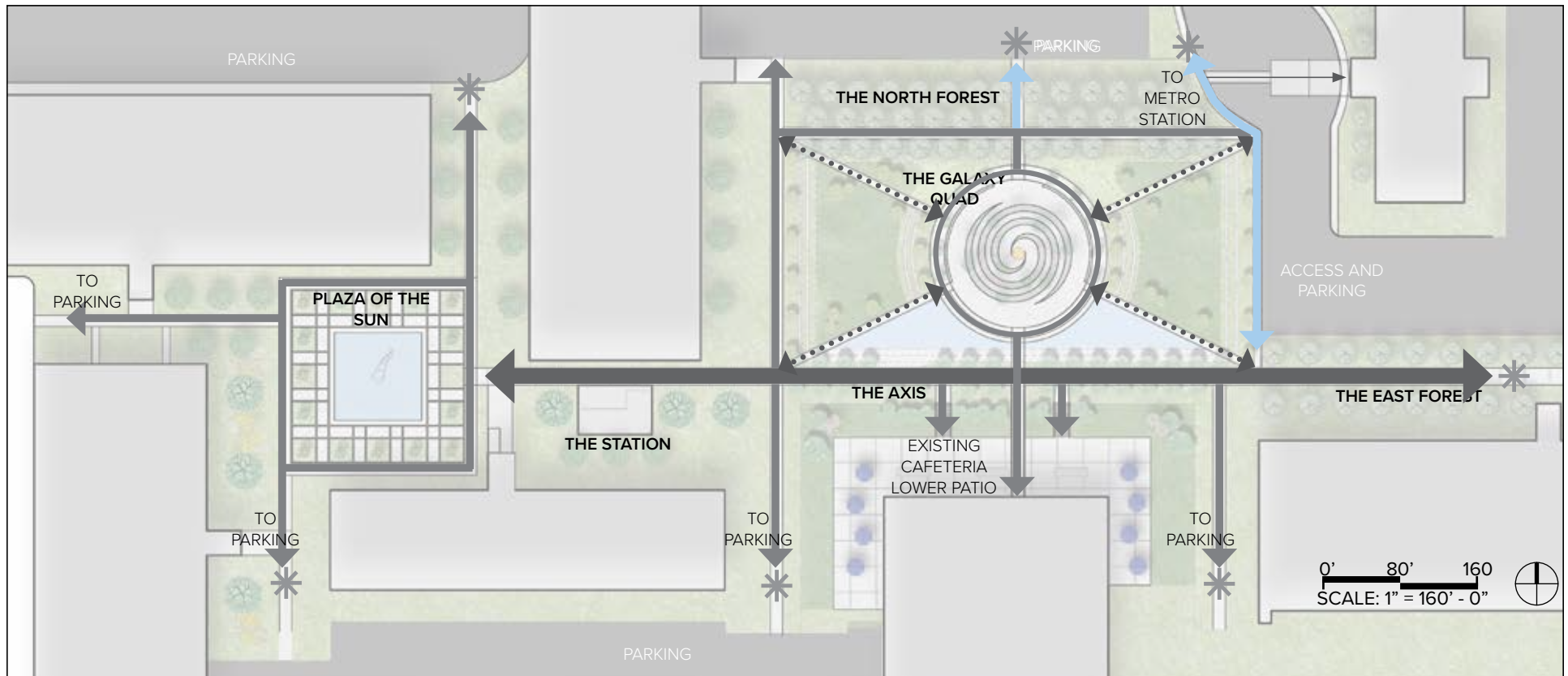
FINAL MASTER PLAN



LEGEND

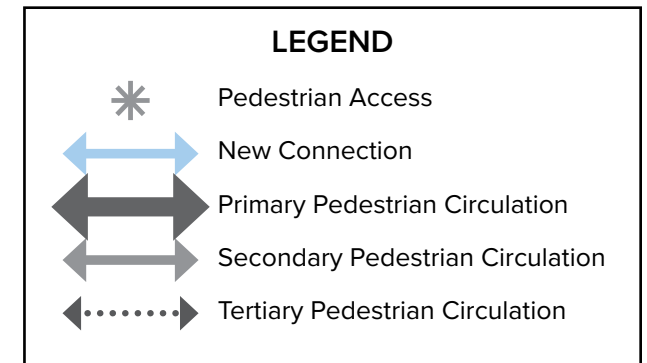
- | | | | |
|--|--|---|---|
|  IMPROVE PRODUCTIVITY |  PROVIDE CONNECTION |  ENVIRONMENTAL IMPACT |  HISTORICAL SIGNIFICANCE |
| <p>1 THE STATION outdoor shaded workspace</p> <p>2 Meditation garden with California natives</p> <p>3 Reflecting pool</p> | <p>4 THE AXIS central pathway within tree alley</p> | <p>5 THE NORTH FOREST pine forest with shady path, serves as buffer from parking and street</p> <p>6 California native meadow/ infiltration pond for active recreation, people watching, relaxing, or used as flexible space when dry</p> <p>7 The EAST FOREST pine tree walk</p> | <p>8 PLAZA OF THE SUN with center reflecting pond, renovated rocket sculpture, and bench seating</p> |

FINAL MASTER PLAN - CIRCULATION DIAGRAM

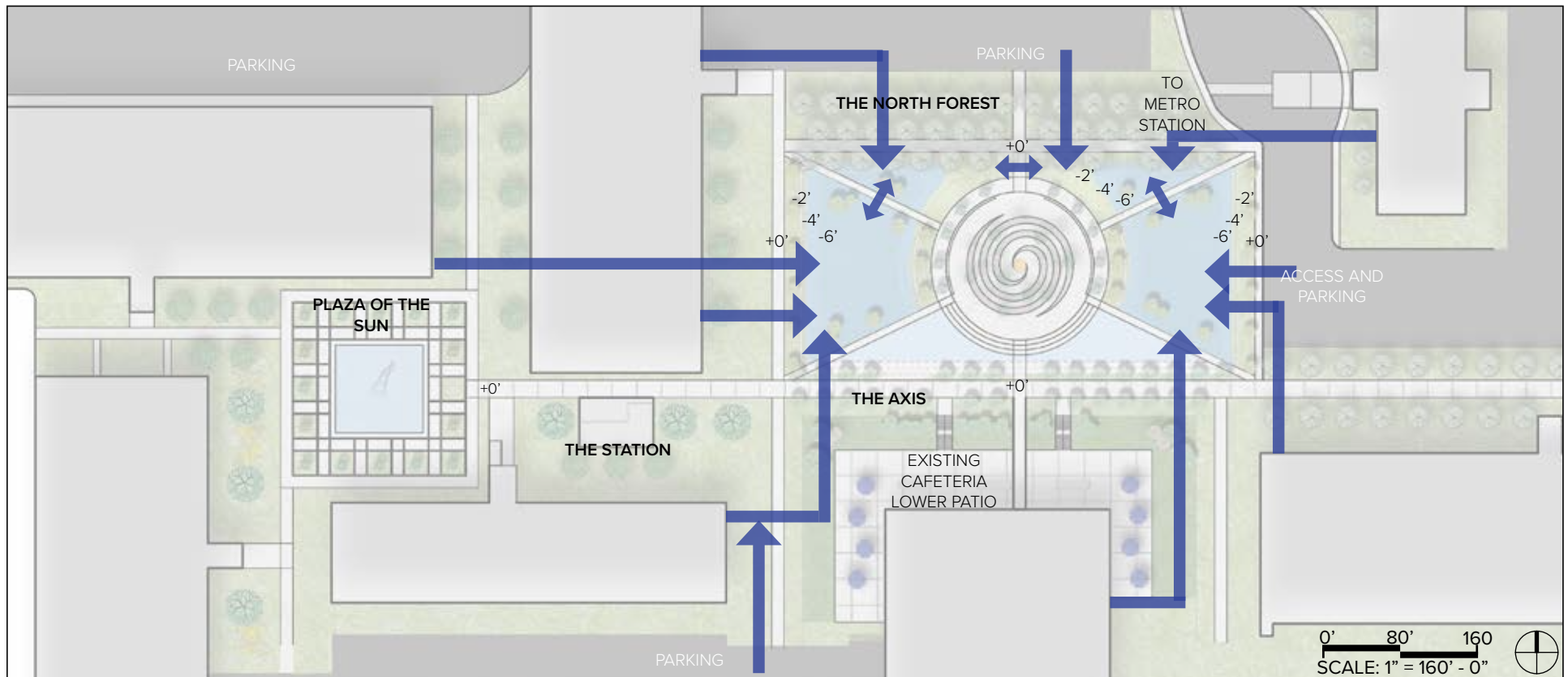


Circulation has been modified to add a new direct pedestrian connection to the metro station and a new, well defined entry access point from the north parking area leading directly into the quad.

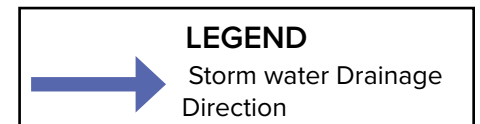
A circulation hierarchy has been established utilizing path widths and materials. The central axis is strengthened by widening, lining with trees and landscaping, and a by removing a parallel pathway.



FINAL MASTER PLAN - DRAINAGE DIAGRAM



Storm water is directed from surrounding building rooftops and parking lots into the infiltration ponds during rain events. The ponds can hold 1.6 million gallons, and can infiltrate up to a 4 inch rain event before overflowing into the city storm water system.



ENLARGEMENT AREAS

The Galaxy Quad
Plaza Of The Sun
The Axis
The Station

THE GALAXY QUAD INSPIRATION AND DESIGN METHODOLOGY

Inspiration

Inspiration for the Galaxy Quad was taken from the university quads at Western Illinois University and the University of Central Florida. The Western Illinois quad has a central plaza and pathways through landscaped green spaces and trees. University of Central Florida has a terraced reflecting pool and fountain that is drained for events such as graduation.

The Logix Headquarters meadow was the inspiration for the meadow because it provides a beautiful California-style open space for employees to participate in organized or pick-up games and recreation.

The central garden is inspired by the Labyrinth Garden Earth Structure in West Bend, WI. While its paths are more a sacred Celtic pattern, it shows how a labyrinth garden can be laid out with color and a central destination, a metaphor for a journey.



W Illinois University Quad Cities Campus Quad
Photo: Site Design Architects and Landscape Architecture



Logix Corporation Headquarters
Photo: PB&Co



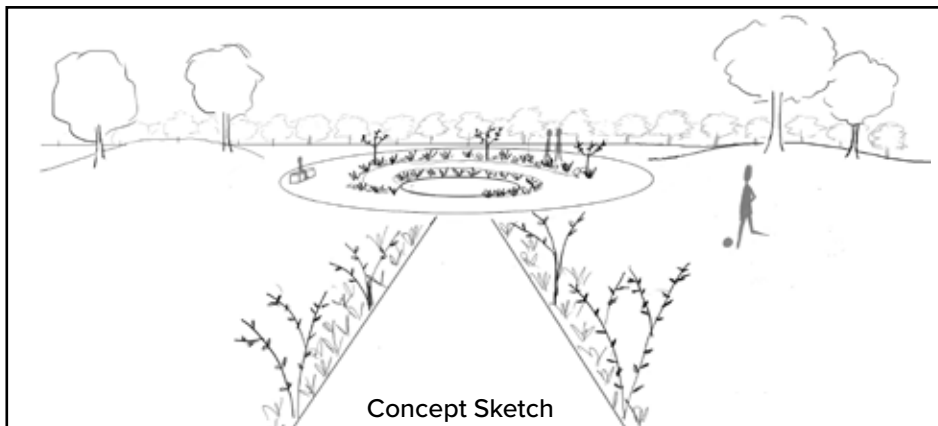
University of Central Florida Reflecting Pond
Photo: Martin Aquatic



Labyrinth Garden Earth Structure, West Bend WI
Photo: Travel Wisconsin, Downtown West Bend Association

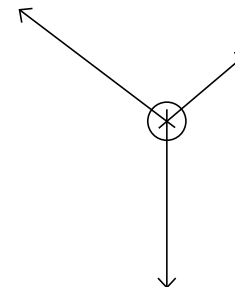
Design Methodology

The radial form is used as a design methodology for the quad with the central plaza and garden and the linear circulation paths extending outward.



Concept Sketch

Design Methodology: Radial Form



A radial form consists of linear forms that extend outward from a centrally located core element in a radiating manner. It combines the aspects of centrality and linearity into a single composition.

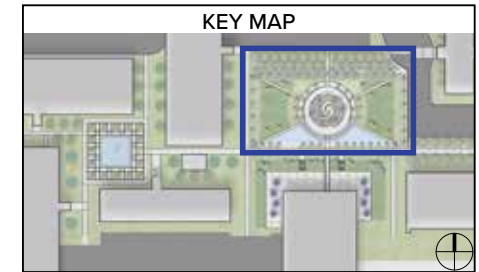
Diagram: Architecture: Form, Space, and Order
Francis D. K. Ching

THE GALAXY QUAD ENLARGEMENT & SECTION



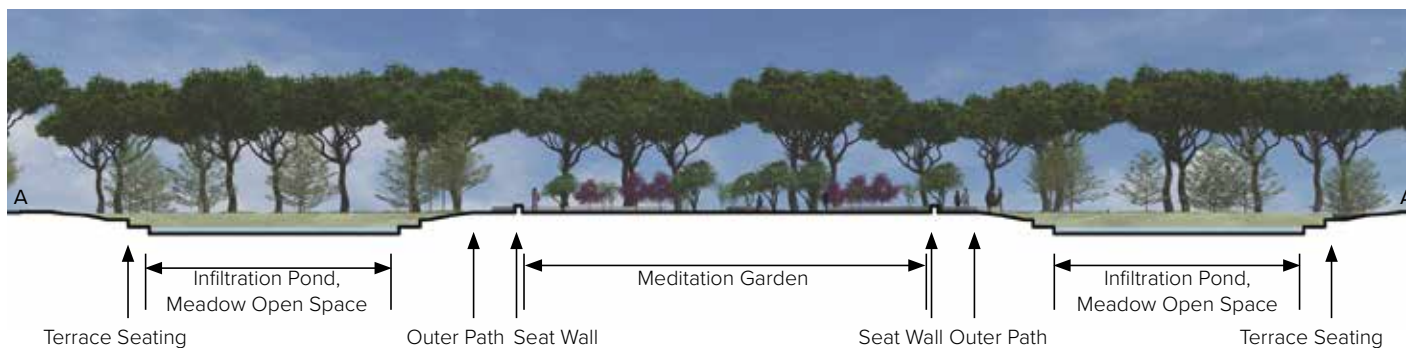
The Galaxy Quad Enlargement

0' 25' 50'
SCALE: 1" = 50' - 0"



LEGEND

- 1 Terraced edge with seating
- 2 Sunken meadow and infiltration pond
- 3 Seat wall at edge of plaza
- 4 Reflecting pool
- 5 Central plaza and meditation garden
- 6 New entry from parking
- 7 The North Forest pine tree grove
- 8 Terraced edge of reflecting pool, used for seating
- 9 Access for food trucks or event equipment



The Galaxy Quad Section/Elevation

THE GALAXY QUAD PERSPECTIVES



The Galaxy Quad



Front of Quad



Entry from Parking



Relaxing on the Green
After Rain Event



Central Plaza and Meditation Garden

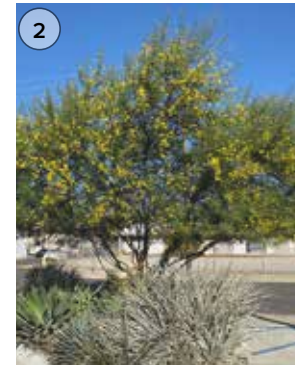
PLANT PALETTE - GALAXY QUAD



Galaxy Quad: California Native Meditation Garden, North Forest, meadow with infiltration pond.



Pinus torreyana
Torrey Pine
Add to existing Torrey Pines



Parkinsonia 'Desert Museum'
Desert Museum Palo Verde



Acer macrophyllum
Big Leaf Maple



Cercis occidentalis
Western Redbud



Platanus racemosa
Western Sycamore



Artemisia californica
California Sagebrush



Salvia leucophylla
Purple Sage



Ceanothus 'skylark'
Skylark Mountain Lilac



Muhlenbergia rigens
Deergrass



Festuca californica
California Fescue



Encelia californica
California Bush Sunflower

Plant and tree options for California Native Meditation Garden include colorful shrubs, interspersing small trees for shade. The low meadow is shaded with Sycamores and Big Leaf Maple. In The North Forest, additional Torrey Pines are added to the existing ones, thickening the canopy.

PLAZA OF THE SUN INSPIRATION AND DESIGN METHODOLOGY

Inspiration and Grid Form Design Methodology

The Plaza of the Sun is inspired by Dan Kiley's gardens at the US Air Force Academy in Colorado Springs, CO, and at the Art Institute of Chicago. These grid form gardens were popular at mid-century as were the clean lines of the structures they complement.



US Air Force Academy, Office of Dan Kiley
Photo: The Cultural Landscape Foundation

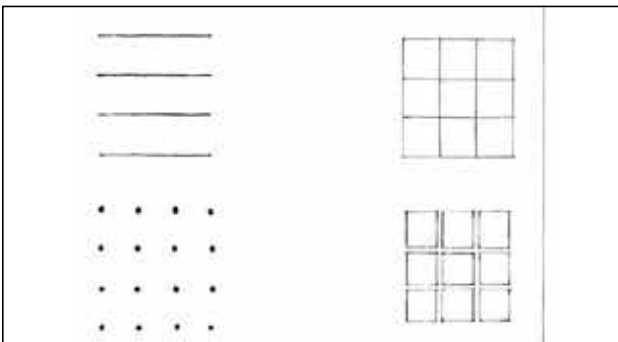


Art Institute of Chicago, Office of Dan Kiley
Photo: The Cultural Landscape Foundation



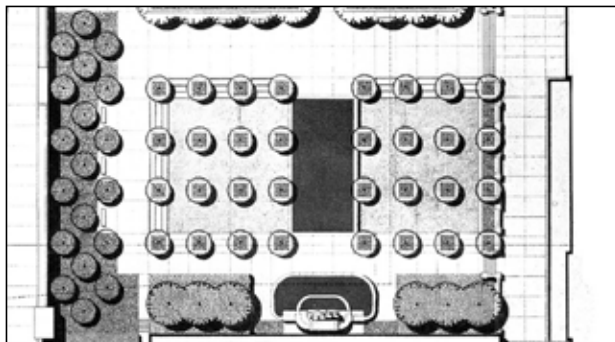
US Air Force Academy, Office of Dan Kiley
Photo: The Cultural Landscape Foundation

Design Methodology: Grid Form



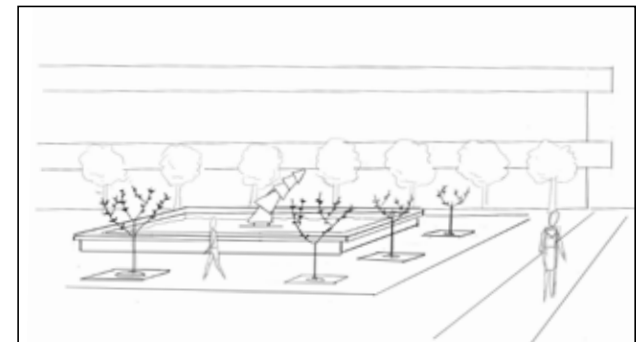
Grid Form

Diagram: Architecture: Form, Space, and Order
Francis D. K. Ching



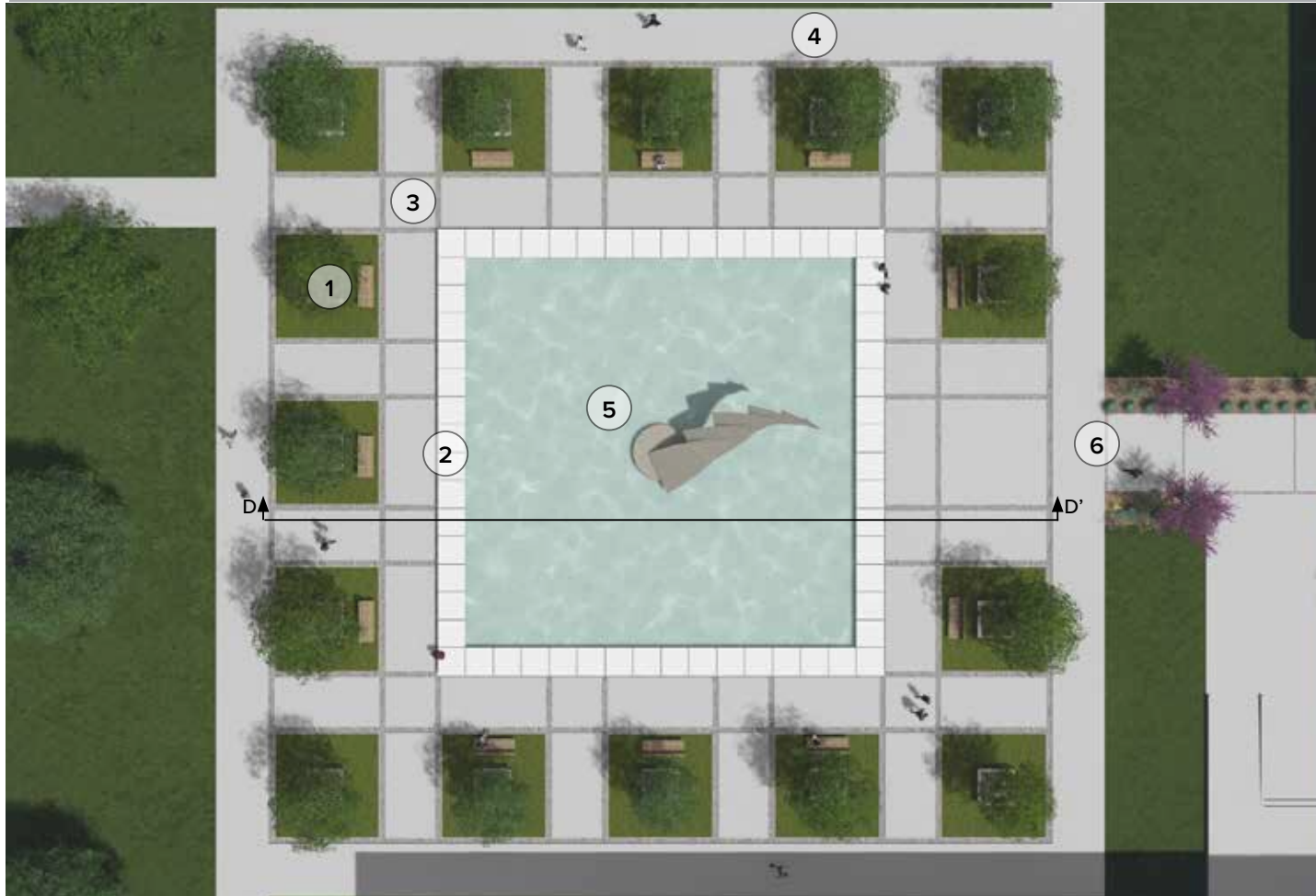
Art Institute of Chicago Plan, Office of Dan Kiley

Diagram: The Cultural Landscape Foundation

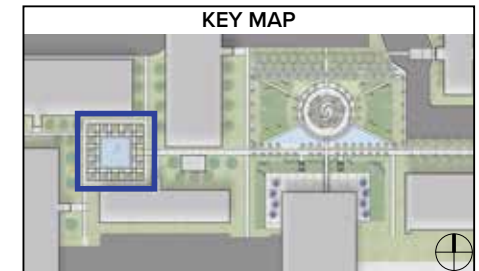
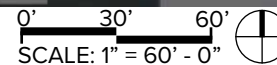


Concept Sketch

PLAZA OF THE SUN ENLARGEMENT & SECTION

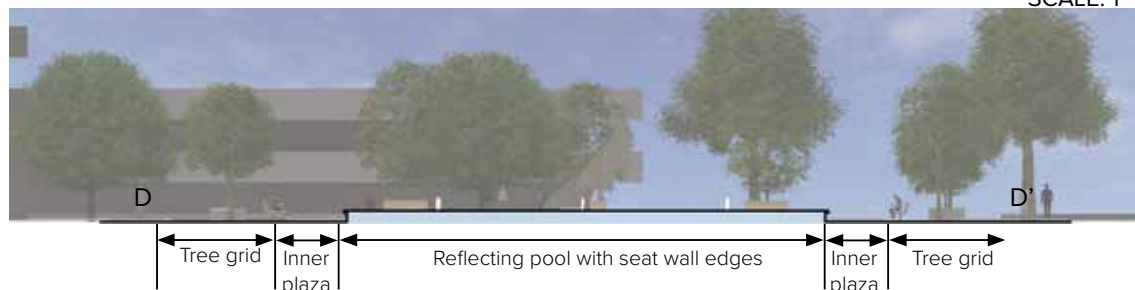


Plaza of The Sun Enlargement



LEGEND

- 1 Big Leaf Maple trees in grid pattern with benches beneath
- 2 Seat wall around reflecting pool
- 3 Inner plaza walkway
- 4 Outer sidewalk
- 5 Reflecting pool with original rocket kinetic sculpture
- 6 The Axis central pathway



Plaza of The Sun Section/Elevation

PLAZA OF THE SUN PERSPECTIVES



Plaza of The Sun Aerial View



Approaching from the Axis with Restored
Kinetic Rocket Sculpture



Corner View Looking Back Toward The Station



Corner View Looking East

MATERIALS - GALAXY QUAD & PLAZA OF THE SUN



Galaxy Quad Materials



Galaxy Quad enlarged, showing concrete seat walls and benches



Sun Plaza Materials



Decomposed Granite
(Grey)



Pea Gravel



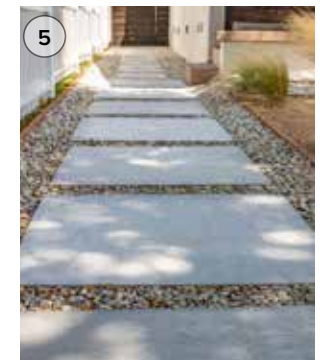
Stone Edging



Existing Concrete Seat Wall



Existing Concrete Seat
Wall



Cast In Place Concrete
Pavers

Galaxy Quad and Sun Plaza utilize the **same materials** to **connect** and **unify** the two ends of the campus. The original concrete courtyard seat wall material is preserved and also replicated at the galaxy quad plaza. Decomposed granite and cast in place concrete with pea gravel are used for pathways.

THE AXIS CONCEPT, INSPIRATION, AND DESIGN METHODOLOGY

Inspiration

The Axis is inspired by tree allees of Dan Kiley and Lawrence Johnston. The pathways between regularly spaced trees provide a calm experience while moving through the space, not just reaching a destination, but enjoying the journey.

Design Methodology

The linear form expresses the intentional movement through the campus toward the clearly defined destination, like a rocket after being launched.



Miller Garden, Office of Dan Kiley
Photo: Architectural Digest



Hidcote Manor, Lawrence Johnston
Photo: Architectural Digest



Tree Lined Path
Photo: Mark Thor, Flickr

Design Methodology: Linear Form



Linear Form Expressing Procession or Movement

Diagram: Architecture: Form, Space, and Order
Francis D. K. Ching

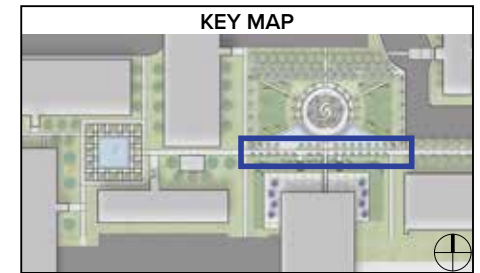
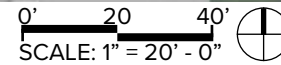


The Axis Concept Sketch

THE AXIS ENLARGEMENT & SECTION



The Axis Enlargement

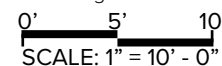


LEGEND

- 1 The Axis central pathway, benches between trees
- 2 The Quad reflecting pool
- 3 Existing steps down to main cafeteria patio
- 4 Existing main cafeteria patio lower patio level
- 5 Existing bridge to Building S entry



The Axis Section/Elevation



THE AXIS PERSPECTIVES



The Axis Walking West



The Axis from Cafe Bridge



View into Sun Plaza

THE STATION CONCEPT AND INSPIRATION

The Station was inspired by the corporate outdoor seating spaces designed by Pamela Burton (PB&CO) and Perkins & Will.



Resurgens Plaza, Perkins & Will
Photo: Sahar Coston-Hardy



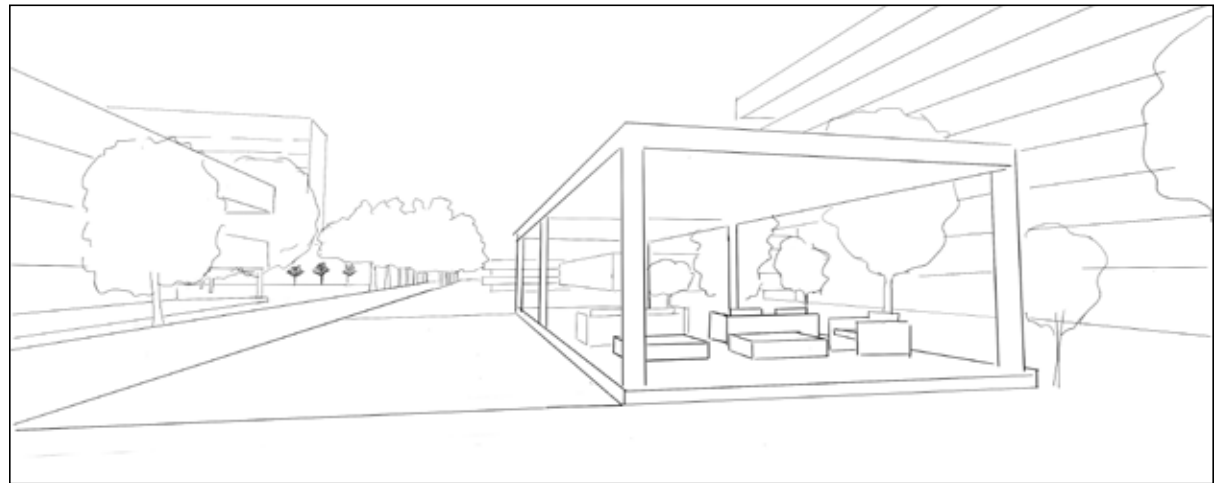
Logix Corporation Headquarters, PB&Co
Photo: PB&Co



Colorado Center, PB&Co
Photo: Hollywood Locations

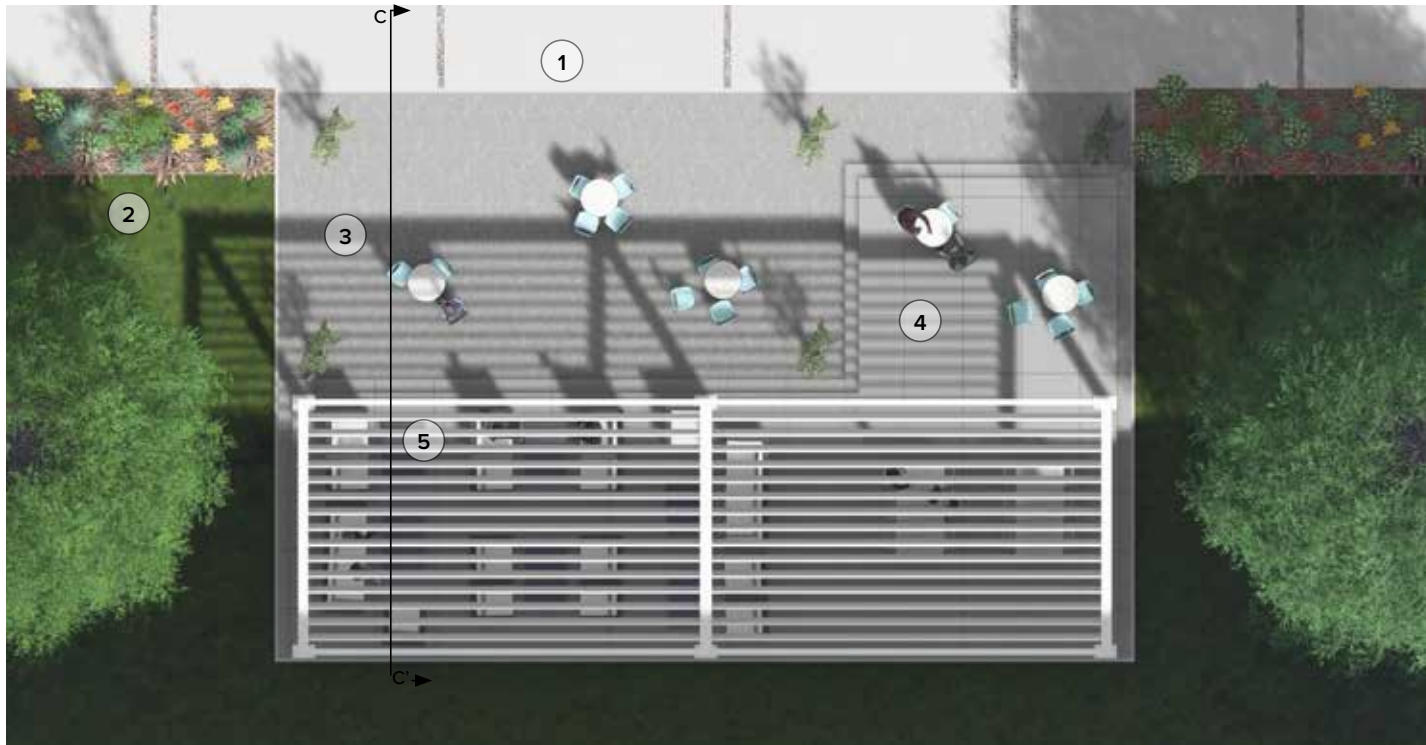


C6 Bank HQ, Sao Paulo, Perkins & Will
Photo: Renato Navarro

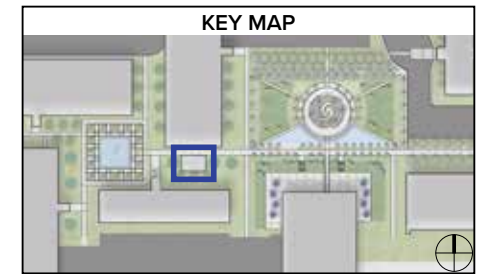
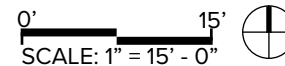


THE STATION OUTDOOR WORKSPACE CONCEPT

THE STATION ENLARGEMENT & SECTION

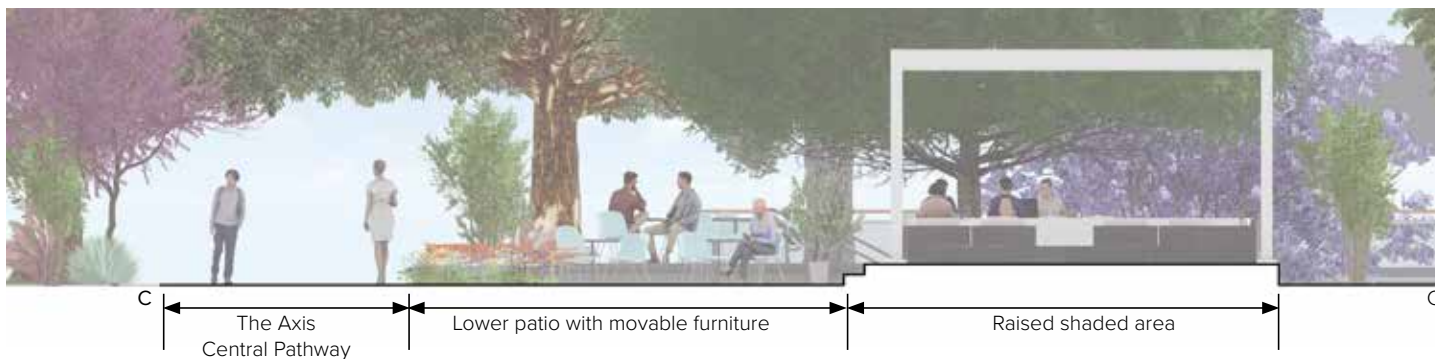


THE STATION ENLARGEMENT



LEGEND

- 1 The Axis central pathway
- 2 Native California landscaping and Coast Live Oaks
- 3 Lower patio with movable furniture
- 4 Raised patio
- 5 Shaded space with lounge furniture and conference tables for meetings or dining



THE STATION SECTION/ELEVATION

THE STATION PERSPECTIVES



The Station looking west

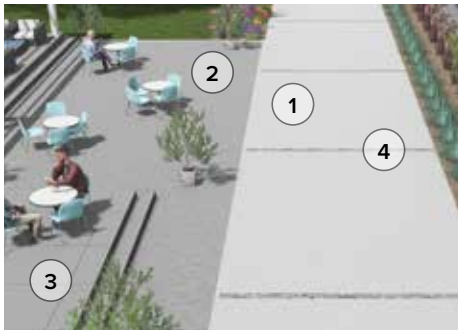


The Station looking east

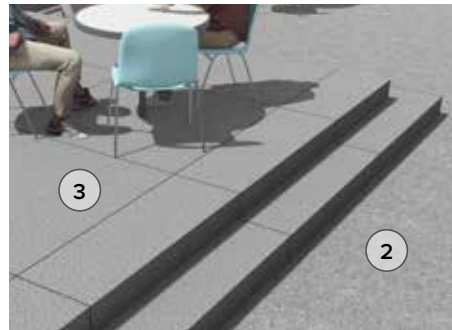


The Station from The Axis

MATERIALS - THE AXIS & THE STATION



The Axis Pathway: Cast In Place Concrete Separated by Pea Gravel



The Station Patio: Porcelain or Concrete Tile



Benches Lining The Axis



Cast In Place Concrete Pavers with Pea Gravel



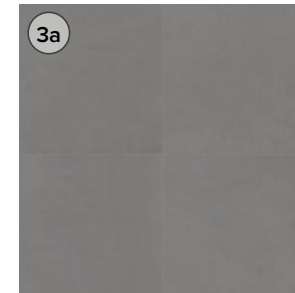
The Station Materials

- 6 Long dining or conference tables and chairs
- 7 Lounge furniture
- 8 Movable bistro style tables and chairs

Common materials across the campus include **cast in place concrete pavers**, **pea gravel**, and **decomposed granite**. Lounge type furniture and meeting tables sit under the shade structure, and movable furniture is on the outside for those who enjoy the sun.



Decomposed Granite (Grey)



Exterior Tile Option:
Rectified Concrete
Tile, 24"x24"
(Landmark
Ceramics)



Exterior Tile Option:
Matte Anti-Slip
Porcelain Paver,
24"x24"
(Bedrosians)



Pea Gravel



Shade Structure (example: Structureworks Stratus)

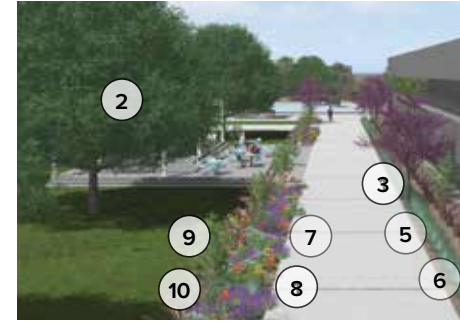
PLANT PALETTE - THE AXIS, THE STATION, SUN PLAZA



The Axis tree alley, shown with Arbutus. Several exist on the campus.



Mature Arbutus (Strawberry Tree) Canopy along The Axis



West end of The Axis shown with flowering annuals, shrubs, and grasses. Large spaces planted with oaks.



Cercis occidentalis
Western Redbud



Arbutus 'marina'
Marina Madrone, Strawberry Tree



Quercus agrifolia
Coast Live Oak



Acer macrophyllum
Big Leaf Maple



Sun Plaza with Big Leaf Maple in planting boxes drawing consistency with planters in Galaxy Quad.



Aristida purpurea
Purple Three Awn



Festuca californica
California Fescue



Salvia spathacea
Hummingbird Sage



Eschscholzia californica
California Poppy



Baileya pleniradiata
Woolly Marigold



Epilobium canum
California Fuchsia

Native plant and tree options are suggested throughout the campus to encourage native wildlife species populations and low water use. California Natives are planted for color along the pathways. Arbutus are chosen for the Axis which exist along other pathways across the campus. Oaks are integrated in some of the larger open spaces

CONCLUSION

GOALS AND OBJECTIVES ARE MET BY:



IMPROVE PRODUCTIVITY

- The addition of
- A **240 sq. ft.** outdoor workspace
 - **2** plazas
 - **31** outdoor benches
 - **11,000 sq. ft.** meditation garden as a destination and a place to reset
 - **42,000 sq. ft.** of open green space for active or passive recreation



PROVIDE CONNECTION

- Strengthening the existing **central pathway** and adding tree canopy and destinations at either end
- Adding **two new access points** and **connections** into the campus: to the metro station and an well defined entry from adjacent parking
- **Connections** through the quad lead to a central destination



ENVIRONMENTAL IMPACT

- Adding **99** new trees and **tree canopy** throughout the site and augmenting existing mature trees
- Incorporating **15,000 sq. ft.** of native California shrubs
- Converting **90,000 sq. ft.** of lawn to shrubbery and ground cover
- Converting **90,000 sq. ft.** parking lot to green space and infiltration area
- Providing **1.6 million gallon** capacity for infiltration



HISTORICAL SIGNIFICANCE

- Restoring the **mid-century architectural design** in the courtyard and **kinetic rocket sculpture**
- Incorporating a **central art sun dial** art element in the **galaxy** shaped meditation garden



COMPARING THE EXISTING TO THE PROPOSED

Key Map with views across the campus today



Courtyard Looking East



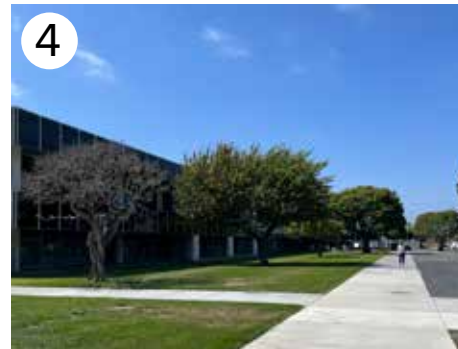
Reflecting Pool Materials



Example of Mature Trees



Existing Space Park Site



Walkway on East Side of Building R3



Center Path Looking West



Under Utilized Parking Lot

EXISTING



PROPOSED



Courtyard Looking East



Reflecting Pool Materials

EXISTING

PROPOSED



Example of Mature Trees



Walkway on East Side of Building R3

EXISTING

PROPOSED



Center Path Looking West



Under Utilized Parking Lot/Now the Galaxy Quad



APPENDIX A - RESEARCH REFERENCES (1 of 2)

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