

RECLAIMING MISSION CANYON

CYNTHIA TRIBULL | UCLA LANDSCAPE ARCHITECTURE PROGRAM | SPRING/SUMMER 2022 | MEG COFFEE and JIM PICKEL

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1.3 INTRODUCTION: PERSONAL STATEMENT AND ACKNOWLEDGMENTS



“Those who contemplate the beauty of the earth find reserves of strength that will endure as long as life lasts.”
Quote by Rachel Carson

I want to thank my cohort and teachers for their wisdom, inspiration and encouragement.

1.4 INTRODUCTION: PROJECT STATEMENT



Mission Canyon is owned by the County of Los Angeles and they have entered into a partnership with MRCA to create Mission Canyon Park.

MISSION CANYON = 500 ACRES

405 FREEWAY

SEPULVEDA BLVD

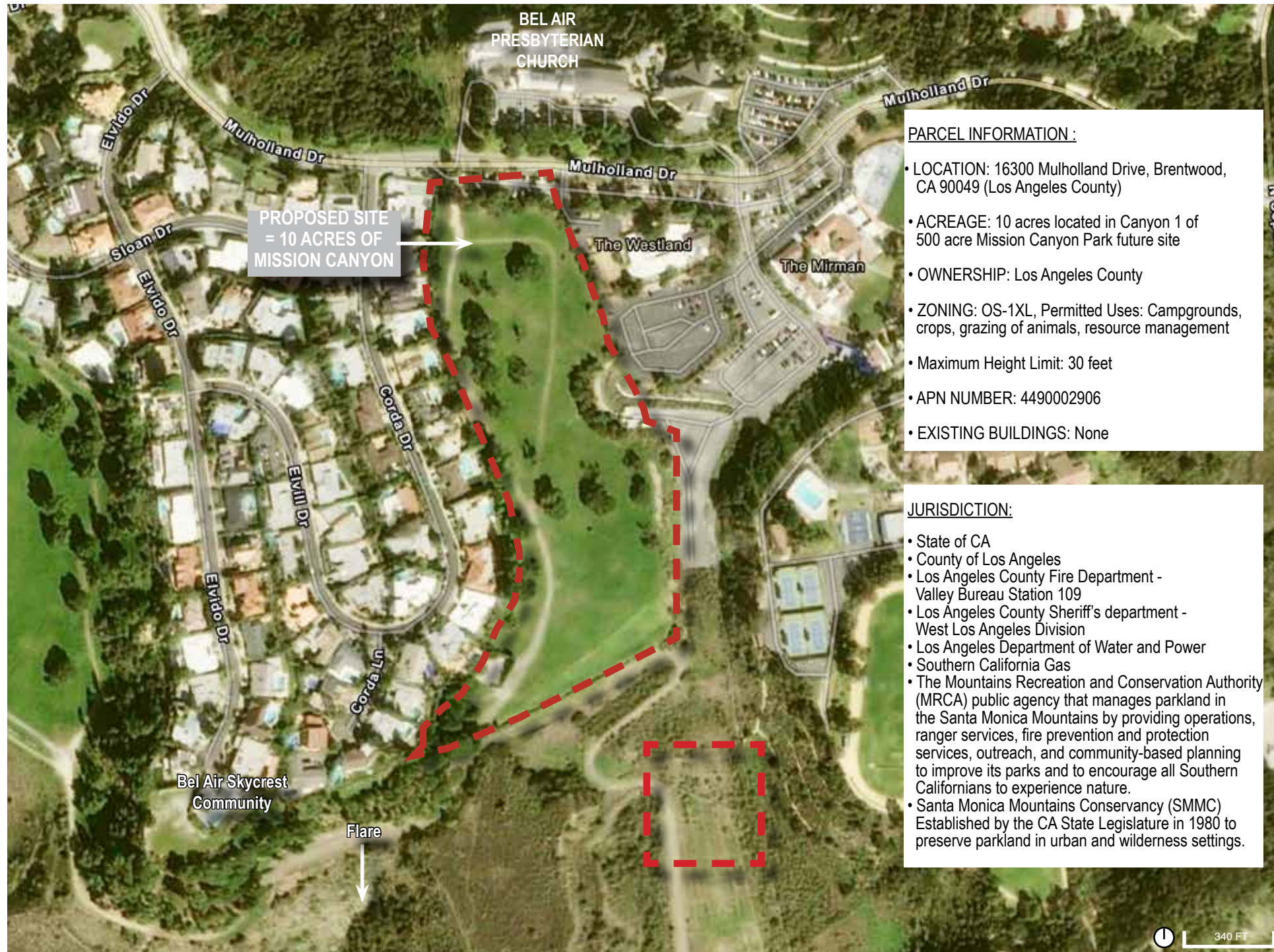
MULHOLLAND DRIVE

1200 FT

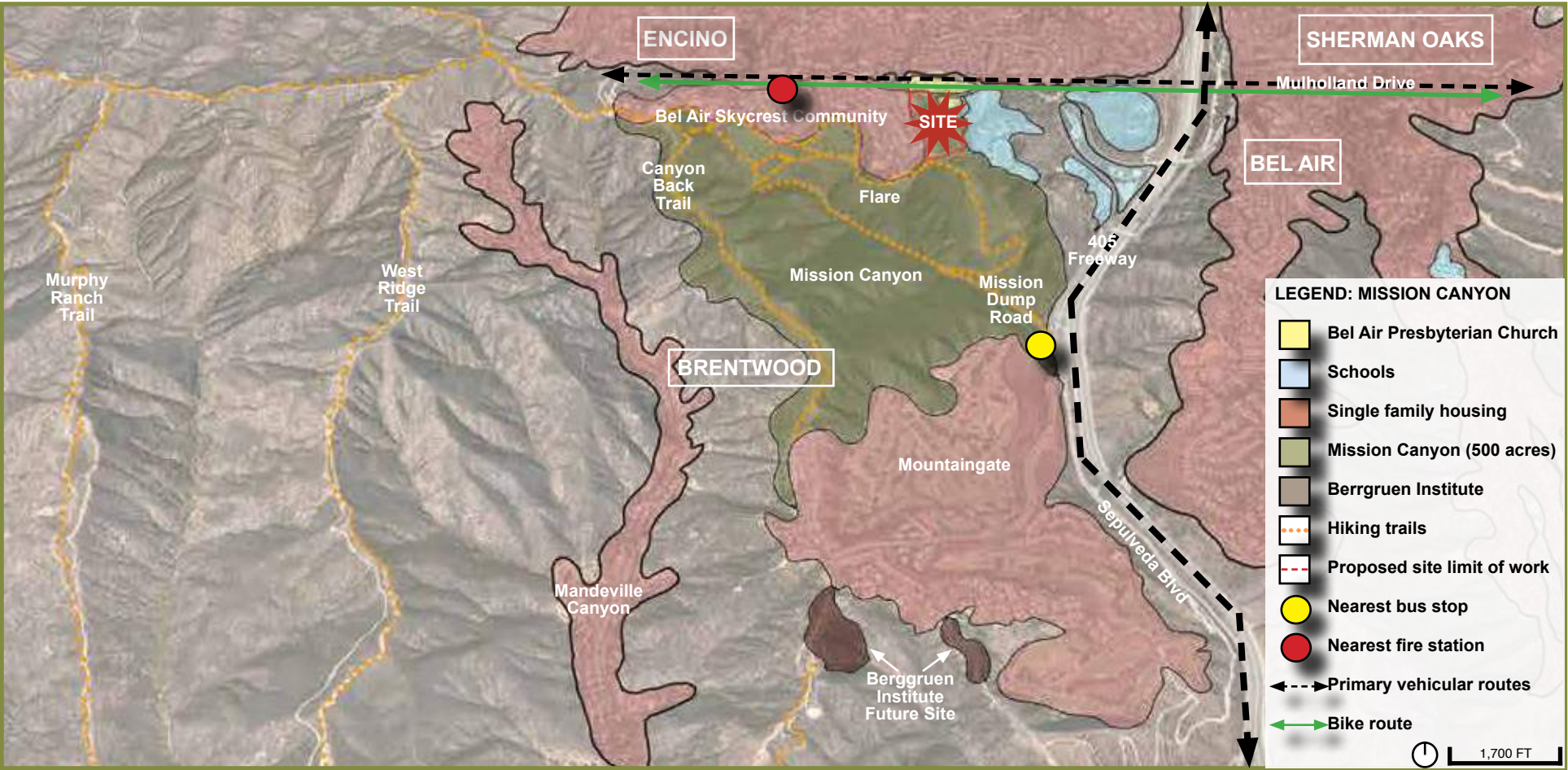
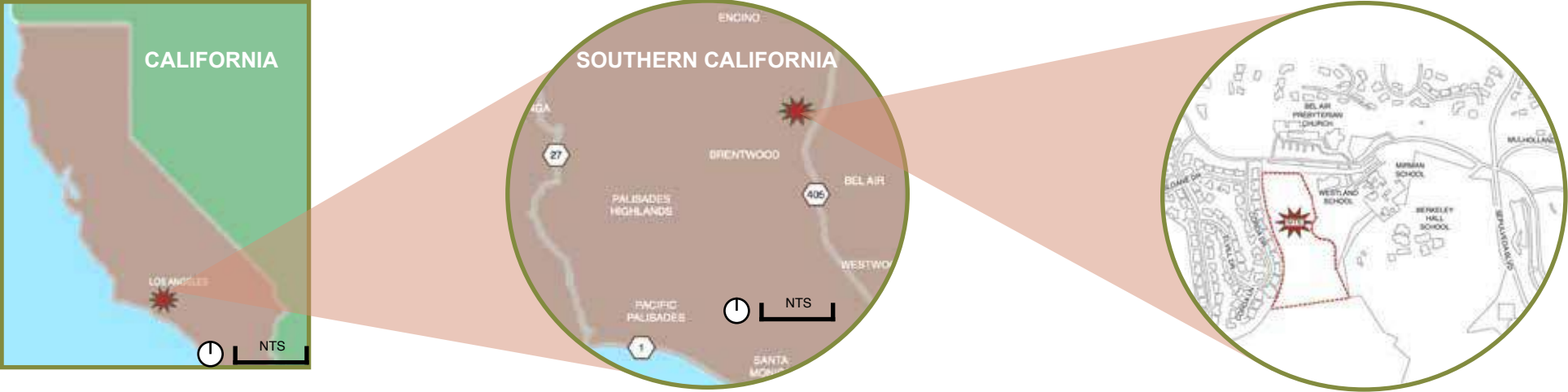
PROJECT STATEMENT

Mission Canyon exhibits common characteristics of a former landfill: excessive methane gas in the ground, landfill settlement, and poor air quality. The site will be a model for land reclamation and sustainability by incorporating **REGENERATIVE** design, to promote ecological **RESILIENCY**, and provide **RECREATION**, and **RESOURCE** opportunities.

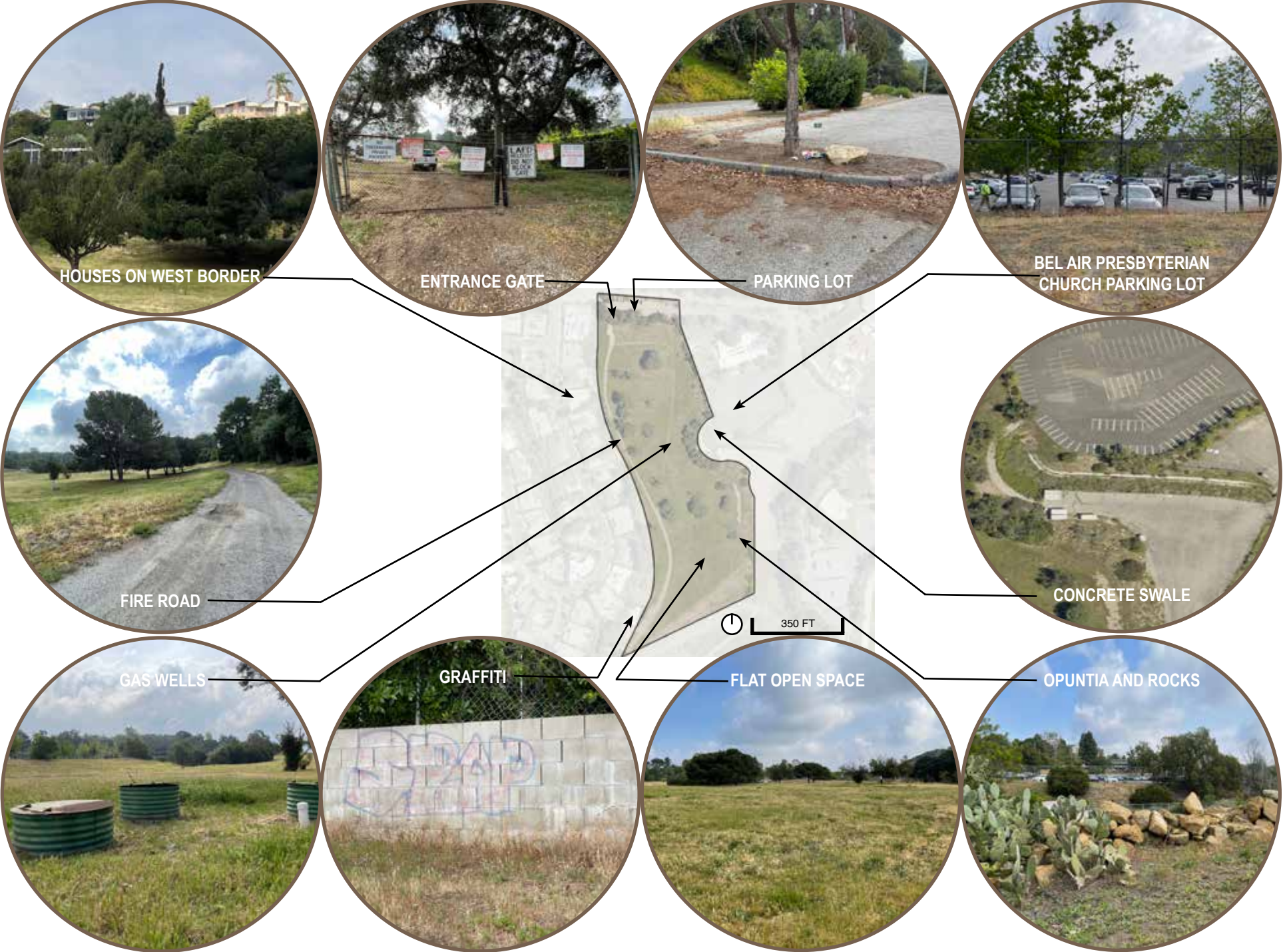
2.1 CONTEXT: SITE LOCATION



2.1 CONTEXT: SITE LOCATION



2.2 CONTEXT: SITE PHOTOS/EXISTING CONDITIONS

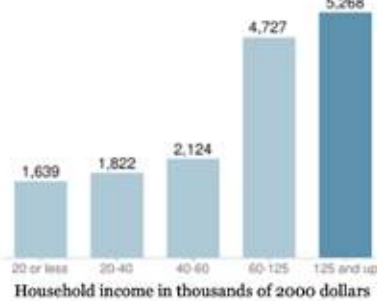


2.3 CONTEXT: USER STATISTICS

DEMOGRAPHICS OF USERS in Brentwood, CA

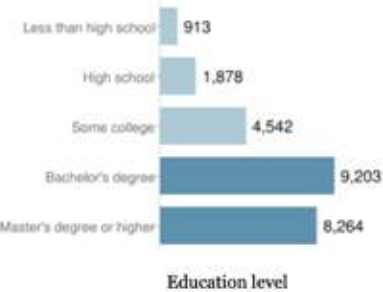
Income

- **\$112,927** median household income (2008 dollars), **high for the city of Los Angeles** and **high for the county**
- In Los Angeles County, **Bel-Air, Hidden Hills** and **Rolling Hills** have the most similar household incomes.
- The percentage of households earning **\$125,000 and up** is high for the county.



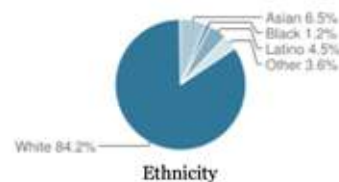
Education

- **70.4%** of residents 25 and older have a four-year degree, **high for the city of Los Angeles** and **high for the county**
- In Los Angeles County, **Century City, South Pasadena** and **Hancock Park** have the nearest percentage of residents 25 and older with a four-year degree.
- The percentages of residents 25 and older with a **bachelor's degree** and a **master's degree or higher** are high for the county.



Ethnicity

- The percentage of **white** people is high for the county.
- **Not especially diverse for the city of Los Angeles** and **not especially diverse** for the county

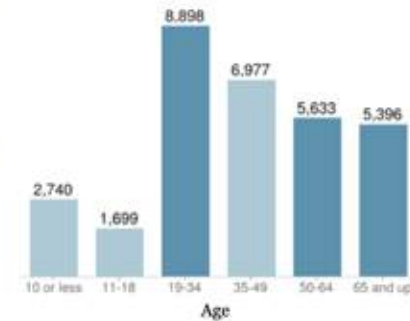


Population

- **31,344** population in 2000, according to the **U.S. Census**
- **33,312** population in 2008, based on **L.A. Department of City Planning** estimates.
- **15.22** square miles
- **2,059** people per square mile, **among the lowest densities for the city of Los Angeles** and **among the lowest densities** for the county

Age

- The median age is **39**, **old for the city of Los Angeles** and **old for the county**
- In Los Angeles County, **Agua Dulce, Arcadia** and **Beverly Grove** have similar median ages.
- The percentages of residents ages **65 and older**, **19 to 34** and **50 to 64** are among the county's highest.



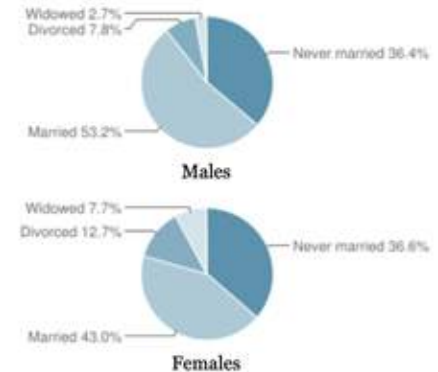
Housing

- Average household size of **2.0** people, **low for the city of Los Angeles** and **low for the county**
- **Commerce, Montebello** and **San Gabriel** have the most similar percentage of homeowners in Los Angeles County.



Families

- The percentages of **widowed males**, **never married females** and **divorced females** are among the county's highest.
- There are **414** families headed by single parents. The rate is **5.7%**, **low for the city of Los Angeles** and **low for the county**



Conclusion:

- High income level,
- High education level
- Mostly Caucasian, not especially diverse
- Medium age is 39 yrs

2.4 CONTEXT: USER/CLIENT DESCRIPTION

The reclaimed Mission Canyon will be open to anyone who wishes to enjoy the tranquility of nature, a recycled landfill and fire safety education. The park will be open 7 days a week from Sunrise to Sunset. Most visitors will likely use the site on Saturdays and Sundays in the mornings for hiking and biking. Sunday afternoon will also be busy with Bel Air Presbyterian Church congregation after services.

The park will be difficult to get to for people who do not live within walking or biking distance and do not have access to a car. The nearest public transportation stop to the site is a 1 mile walk. It is important to offer bus transportation to school groups and other groups that would be interested in visiting the park to allow the highest amount of access and equity.

The park will predominantly see the following groups of users:

- LA Fire Department
- Bicyclists
- Residents of Los Angeles County
- Residents of Brentwood, Bel Air, Encino and Sherman Oaks
- Los Angeles County Public and Private Schools
- Neighborhood Private Schools
- Bel Air Presbyterian Church Congregation
- Wildlife
- MRCA Rangers
- Hikers
- Residents adjacent to site

The staff of Mission Canyon will be 1 MRCA Ranger that lives on the site, 2 full time garden/grounds workers, 1 full time staff member for art and education. There will be 92 parking spaces in the parking lots. The 250 seat amphitheater and the 10,000 Sq. Foot building dictate the amount of parking. Additional parking space, food truck area and school bus loading and unloading will be available in rarely used parking lot owned by Bel Air Presbyterian Church adjacent to the east side of the property.

DEMOGRAPHICS OF USERS BY LOCATION

- Mulholland Educational Corridor - Over 1,000 students whose ethnicities are diverse and ages range from 2-18 yrs
- Brentwood Community Members - High income level, 80% college educated, 80% Caucasian, medium age is 40 yrs
- Los Angeles County - Below medium income level, 34% college educated, 70% Caucasian, medium age is 36.7 yrs



2.5 CONTEXT: USER/COMMUNITY ADJACENCIES

EDUCATIONAL



*Campus is currently for sale

TRAIL



CULTURAL



design rendering of Berggruen Institute

RESIDENTIAL



RELIGIOUS



CONCLUSION:

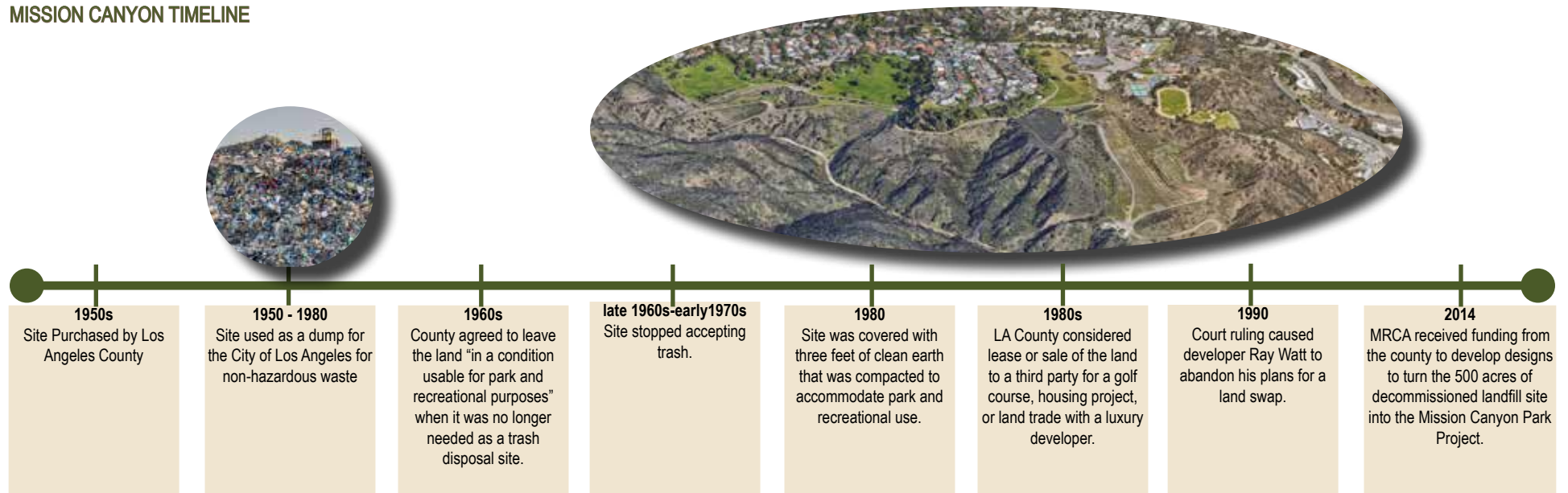
- Mulholland Educational Corridor has over 1,000 students whose ethnicities are diverse and ages range from 2 - 18 yrs
- Connection to over 2100 acres of trails
- Cultural opportunities in area
- Bel Air Presbyterian Church reached over 405,000 people last year. On average 7,860 people attend worship online and in person on Sundays

2.6 CONTEXT: HISTORY

SANTA MONICA MOUNTAINS TIMELINE (Important dates related to Mission Canyon)



MISSION CANYON TIMELINE



3.1 RESEARCH: PROJECT JUSTIFICATION

Mission Canyon operated as a landfill from about 1950 - 1970. In 1980 the site was covered with three feet of clean earth that was compacted to accommodate park and recreational use. Currently the site has 300 SCFM (square cubic feet per minute) of methane flow which is about “a fifth of what would be necessary to run a Solar Mercury 50 Gas Turbine-Generator like the ones in Calabasas” (MRCA Ranger). Turning this location into an energy plant is not an option, wasting this energy and making this publicly owned land inaccessible is also not an option.

Creating a model for land reclamation and sustainability at Mission Canyon by **regenerative** design, a climate **resilient** environment available for **recreation**, and **resources** will benefit Los Angeles.

REGENERATIVE DESIGN

WHY?

Health

- Reduction of global greenhouse gas emissions slows climate change
- Prevents premature deaths due to air pollution
- Improve soil quality

Safety

- Gas wells must be safe for public and wildlife to avoid accidental falls, fires, water contamination or other catastrophes.
- High Fire Severity Zone

Financial

- MSW landfills are a lost opportunity to capture and use an energy resource
- Design must be implemented to allow for settlement of soil, so costly repairs aren't needed

HOW?

Improve air quality and help economy

- A landfill collection system to remove methane gas and improve air quality. Gas can be burned with a Flare, used for energy plants, or micro gas turbines,

Build safe systems to collect gas and turn into energy

- Vertical wells connect the wellheads to lateral piping that transport the gas to a collection header using a blower or vacuum induction system.
- Micro turbine engines

Phytoremediation

- Use plants to improve soil quality



RESILIENT DESIGN



WHY?

Biodiversity loss

- P-12 IS the only one of 27 mountain lions collared over 10 years to cross the 101 and bring his genetic diversity south of the freeway.

Drought & Extreme heat

- 6% of coast live oaks, and 32% of riparian trees including sycamores, alders and willows have been lost in the Santa Monica Mountains during 5 years of severe drought that ended in 2017. 38% of the area's chaparral also died.

Fire

- Since 2012, a total of 12.7 million acres have burned in California. Geography of Los Angeles County is fueling the spread of fires. Causes: Dry Air, Winds, and Drought

Santa Ana Winds

- Winds strengthen and air dries as it descends from the inland deserts funneling through coastal mountains in the Los Angeles area.

Landslides

- In 2018 mud and debris loosened from burn-scarred areas in the Santa Ynez mountains and plowed through Montecito.

HOW?

Biodiversity

- Ecological health and plant diversity, instead of mono-cultures. Wildlife corridors and habitat restoration to reinvigorate ecosystems.

Sustainable landscape design practices

- Featuring irrigation systems; bioretention ponds; native, drought-resistant plants; and natural approaches that boost the retention of water in soils

Decrease temperature

- A system of Trees, green roofs, green streets, rain gardens, use of light-colored building materials, and parks can decrease temperatures

Fire-safe-land-use

- “Defensible spaces,” planting fire-resistant trees and plants farther away from residential, prescribed burns

Erosion control

- Construct slopes that are resistant to landslides.
- Erosion-control techniques geotextiles, soils, and hydrology

3.1 RESEARCH: PROJECT JUSTIFICATION CONT....

RECREATION



WHY?

Health

- Obesity rates are rising in LA County—24.3% of adults and more than 20% of students in junior high school are obese.

Social Value

- Community connections
- Human nature connections
- Public safety

HOW?

Open the canyon to the public

- Connects 2100 acre network of parks for hiking and biking

Amenities for residents

- Community gathering spaces
- Environmental education
- View corridors
- Access & equity

CPTED

- Natural surveillance -
features and activities that maximize the ability to see what's going on
- Access management -
entrances, exits, fencing, landscaping, and lighting to discourage crime.
- Territoriality -
Using fences, pavement, art, and signs
- Activity support -
Encouraging legitimate activity in public spaces to discourage criminal behavior.
- Maintenance -
repair of landscaping, lighting, and other features to facilitate a sense of caring and ownership.

RESOURCES



WHY?

Health and Safety

Located in an area zoned as very high fire hazard severity, “Southern California is facing a potentially treacherous wildfire season this year, officials say. Fire officials in recent years have been sounding the alarm about California’s changing conditions, with blazes across the West growing hotter, faster and harder to fight due to increasing heat and dryness.

This year, fuel moisture levels — or the amount of water in vegetation — are at least four months ahead of where they should be in terms of dryness, officials said. Nearly all of California is classified under severe, extreme or exceptional drought.” Hayley Smith, LA Times Reporter.

Financial

- FIRES CAN CAUSE SIGNIFICANT DAMAGE
- Private insurance companies often won’t sell policies to people who live in wildfire-prone areas because the risk is too great.

HOW?

- Fire Hazard reduction
- FAIR Plan Insurance
- Fire Access Roads
- Create Defensible Space
- Mile Markers and Signposts
- Fuel Modification Concepts
- Fire Hazard Reduction by Topography and Vegetation
- Water tanks
- A rangers residence
- A helipad for the fire department
- Educating the public and elected officials about growing wildfire risk
- Supporting sensible wildfire policies.

3.2 RESEARCH: DESIGN METHODOLOGY



3.2 RESEARCH: DESIGN METHODOLOGY CONT....

Four design methodologies will be used to develop Mission Canyon into the design typology of an open green space and public park for hiking and biking. They are Regenerative, Resilient, Recreation and Resources.



REGENERATIVE DESIGN

John T. Lyle is known as the founder of regenerative design for Landscape Architecture. He is the author of Design for Human Ecosystems (Van Nostrand Reinhold, 1985) and Regenerative Design for Sustainable Development (John Wiley and Sons, 1994). In 1996, he was awarded the ASLA Medal, the highest award of the American Society of Landscape Architects for professional achievement. He believed in order to avoid the potentially disastrous effects from environmental degradation, he looked for a way to provide benefit to surrounding ecosystems and community through development. To create a project that is in harmony with the local community and ecosystem, the people and environment in which it is located must be taken into account. His 12 strategies for effective design are:

1. Let nature do the work 2. Consider nature as both model and context 3. Aggregate, do not isolate 4. Seek optimum levels for multiple functions, not the maximum or minimum level for any one 5. Match technology to need 6. Use information to replace power 7. Provide multiple pathways 8. Seek common solutions to disparate problems 9. Manage storage 10. Shape form to guide flow 11. Shape form to manifest process 12. Prioritize for sustainability

Bill Reed, AIA, Leed took the regenerative design movement to the next level with his book Regenerative Development & Design: A Framework for Evolving Sustainability. (Wiley, 2016) A few of his defining quotes are “Regenerative practitioners do not think about what they are designing as an end product. They think about it as the beginning of a process.”, “Co-evolution among humans and natural systems can only be undertaken in specific places, using approaches that are precisely fitted to them.” And, “sustainability of a living system is tied directly to its beneficial integration into a larger system. The smaller system contributes to the larger system’s development and, in turn, receives nourishment for its own.”

The regenerative guidelines from the EPA and Brightview that will be followed to reclaim Mission Canyon Landfill are based on John T. Lyle and Bill Reed's work.

I.) EPA Guidelines

Revegetating Landfills and Waste Containment

Keys to Success when Revegetating Landfill Surfaces:

- Ensure proper planning, design, and funding
- Provide adequate soil quality and depth
- Determine appropriate target habitat and native plant selection
- Allow for appropriate planting and establishment
- Conduct routine monitoring and management

II.) Regenerative Design Guidelines

- Restore the environment
- Encourage long-term sustainability
- Increased biodiversity
- Enhanced resilience

Benefits:

- Effective erosion control.
- Reduced: water consumption, maintenance costs, capital construction costs, visual impact of development
- Elimination of chemical use.
- Better soil conditions due to the use of native plants.

Regenerative design methodology will be successfully integrated into the development of the design solution by mitigating effects of the landfill, Reducing greenhouse gas emissions by capturing energy for other uses, revegetating and encouraging long term sustainability of the site with improved soil quality and safe gas wells.

3.2 RESEARCH: DESIGN METHODOLOGY CONT...

RESILIENT DESIGN

This project will follow ASLA guidelines for resilient design and Low Impact Design Guidelines from LID, University of Arkansas. They will help Mission Canyon to prepare for and recover from extreme events: drought, extreme heat, fire, flooding, landslides, and biodiversity loss.

I.) ASLA guidelines believe that “Resilient design involves working with nature instead of in opposition to it. It provides value to communities, including:

- Risk Reduction. As events become more frequent and intense due to climate change, communities must adapt and redevelop to reduce potential risks and improve ecological and human health. It’s also time to stop putting communities and infrastructure in high-risk places. And communities must reduce sprawl, which further exacerbates the risks.
- Scalability and Diversity. Resilient landscape planning and design offer a multi-layered system of protection, with diverse, scalable elements, any one of which can fail safely in the event of a catastrophe.
- Multiple Co-Benefits. Resilient landscape design solutions offers multiple benefits at once. For example, designed coastal buffers can also provide wildlife habitat and recreation opportunities; urban forests made up of diverse species clean the air while reducing the urban heat island effect; and green infrastructure designed to control flooding also provides needed community space and creates jobs.
- Regeneration. Disruptive natural events that are now occurring more frequently worldwide harm people and property. Resilient design helps communities come back stronger after these events. Long-term resilience is about continuously bouncing back and regenerating. It’s about learning how to cope with the ever-changing “new normal.” (ASLA)

II.) Low Impact Design guidelines from LID: Low Impact Development: a design Manual for urban areas, (University of Arkansas Community Design center)

- Ecologically-based stormwater treatment technologies in urban contexts
- Conservation Planning
- Rainwater Harvesting
- Bioswale
- Pervious Paving

Resilient design methodology will be successfully integrated into the development of the design solution by stormwater management, drought tolerant/native plants, fire safe habitat, and heat Island reduction.



RECREATION DESIGN

The Recreational features of this park will follow standards developed by The County of Los Angeles Trails Manual, Frederick Law Olmsted and Catherine Dee.

I.) County of Los Angeles Trails Manual

Traffic Calming Trail Design

Trails attract many mountain bikers of varying skills, features should be implemented to provide both traffic calming functionality along with an enjoyable experience

- Corral the Trail
- Choke points
- Use Turns

Design Strategies

- Distance of at least 10 feet between trails and wood-lines to offer decent sight lines and distance from potential attacks.
- Clearly mark the areas to be used only during the day with entrance signs or gates to control accessibility.
- Install trail signs with trail names, directional signs pointing toward areas of public activity, and mile markers to help orient users. Trails need to be marked for different users, such as bicyclists, hikers, or equestrians.

II.) Community connections

Frederick Law Olmsted believed universal access to nature and beauty in designed landscapes would help elevate community health and in turn social discourse. He was guided by the belief that public spaces should be accessible and inclusive. He believed public parks would serve as a democratizing force, bringing many communities together to forge a new American society.

III.) Threshold Design by Catherine Dee

Integration of the physical landscape with the experience of it
Importance:

- Provides visual and physical integration of the landscape
- Place of transition
- Helps people adjust from one experience to another
- People wait, rest, anticipate, greet, and contemplate in this space
- An entrance place or gateway

Form and fabric in landscape architecture written by Catherine Dee

Recreation design methodology will be successfully integrated into the development of the design solution by hiking/biking paths, community green space, art, and education.



3.2 RESEARCH: DESIGN METHODOLOGY CONT...

RESOURCE DESIGN

The resource design methodology of reclaiming Mission Canyon will follow the Santa Monica Mountains Fire Safe Alliance “A Road Map to fire safety: How to create defensible Space in the Santa Monica Mountains” and The Fire Adapted Communities Facilitator’s Guide.



I.) A Road Map to fire safety: How to create defensible Space in the Santa Monica Mountains helps to find solutions and resources for property owners and land managers to improve stewardship in the wild land urban interface.

The following topics are discussed:

- Fire Hazard reduction
- FAIR Plan Insurance
- Fire Access Roads
- Create Defensible Space
- Mile Markers and Signposts
- Fuel Modification Concepts
- Fire Hazard Reduction by Topography and Vegetation

II.) Fire Adapted Communities Graphic and Facilitator’s Guide depicts a set of components that make up community wildfire adaptation.

- Resident Mitigation
- Safety and Evacuation
- Public health
- Wildfire response
- Landscape Treatments
- Safety and evacuation
- Prevention

Resource design methodology will be successfully integrated into the development of the design solution with a ranger’s residence, firefighting resources, a helipad for LA County firefighters, and educational signage



3.3 RESEARCH: DESIGN PRECEDENTS CASE STUDY 1

ARIEL SHARON PARK

LOCATION: Tel Aviv-Yafo, Israel

SIZE: 2000 Acres

DESIGNER: Latz+Partner

YEAR: 2021

VALUE:

- Former landfill, re-purpose methane gas to power site
- Rehabilitate habitat and create self-sustaining irrigation system
- Pathways, viewpoints, bridges, bike-path, art, amphitheater, and recycled materials



3.3 RESEARCH: DESIGN PRECEDENTS CASE STUDY 2

LOPEZ CANYON ENVIRONMENTAL CENTER

LOCATION: Lake View Terrace, Los Angeles

SIZE: 125 Acres

DESIGNER: City of Los Angeles

YEAR: 2015

VALUE:

- Former landfill that uses methane gas micro turbines for power
- Environmental education center
- Helicopter pad for fire department



3.3 RESEARCH: DESIGN PRECEDENTS CASE STUDY 3

LANDSCAPE PARK

LOCATION: Duisburg, Germany



SIZE: 560 Acres

DESIGNER: Latz+Partner

YEAR: 2002

VALUE:

- Metamorphosis of the existing rugged industrial structure into a public park
- Ecology to rehabilitate natural processes in an environment of devastation
- Places of retreat and contemplation



3.4 RESEARCH: GOALS AND OBJECTIVES

1. Site safety with REGENERATIVE design

- Reduce green house gas
- Improve soil quality
- Safe gas wells
- Plan for settlement from soil compaction



2. Improve ecological RESILIENCY for wildlife and community

- Stormwater management
- Drought tolerant/native plants
- Fire safe habitat
- Heat island reduction



3. RECREATION for the community

- Hiking/biking paths
- Community green space
- Engagement with nature
- Education



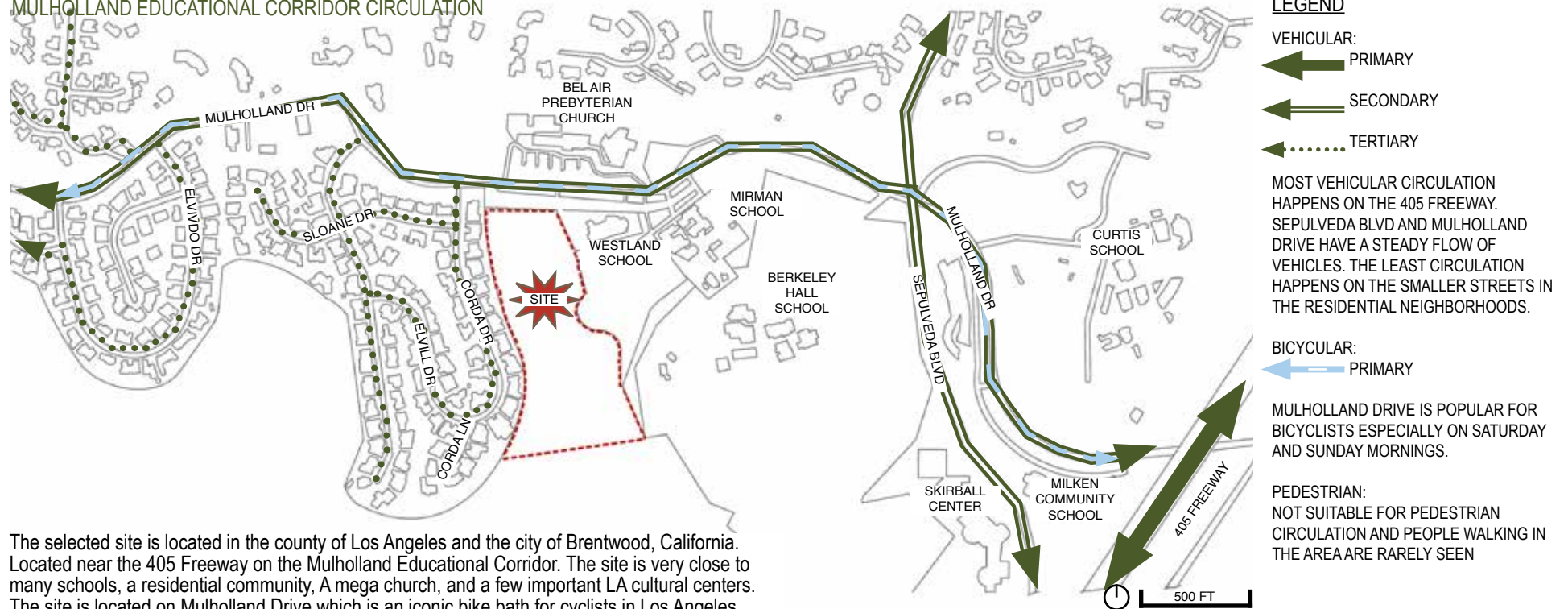
4. RESOURCES for the community

- MRCA ranger residence
- Fire fighting resources
- Helipad for fire department
- Educational signage



3.5 RESEARCH: SITE INVENTORY: circulation and zoning

MULHOLLAND EDUCATIONAL CORRIDOR CIRCULATION



The selected site is located in the county of Los Angeles and the city of Brentwood, California. Located near the 405 Freeway on the Mulholland Educational Corridor. The site is very close to many schools, a residential community, A mega church, and a few important LA cultural centers. The site is located on Mulholland Drive which is an iconic bike bath for cyclists in Los Angeles County. The site is a one mile walk from the nearest public transportation stop on Sepulveda Blvd.

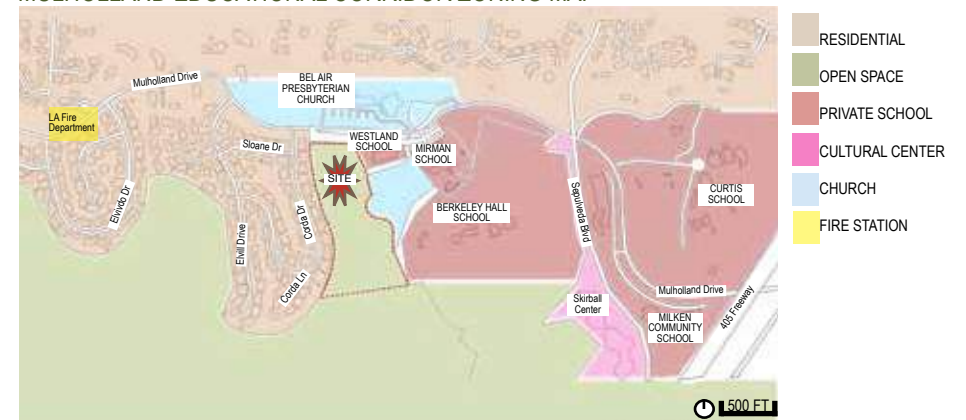
Mission Canyon has 500 acres of open green space in the Santa Monica Mountains that was previously used as a landfill. This project will focus on Canyon 1 of Mission Canyon which is 10 acres. The project site is zoned for Open Space and has residential development on its western border and school, parking lots on its eastern border, Mulholland Drive on the Northern border, and miles of trails and views on the southern border. The Mountains Recreation and Conservation Authority (MRCA) currently manage the site.

Reference material for Reclaiming Mission Canyon is available due to the County of Los Angeles and the MRCA currently working together to create Mission Canyon Park. This project envisions formalizing a multi-benefit regional trail on the former 500-acre landfill. Currently Mission Canyon Park is undergoing the public approval process and should begin construction in 2023.

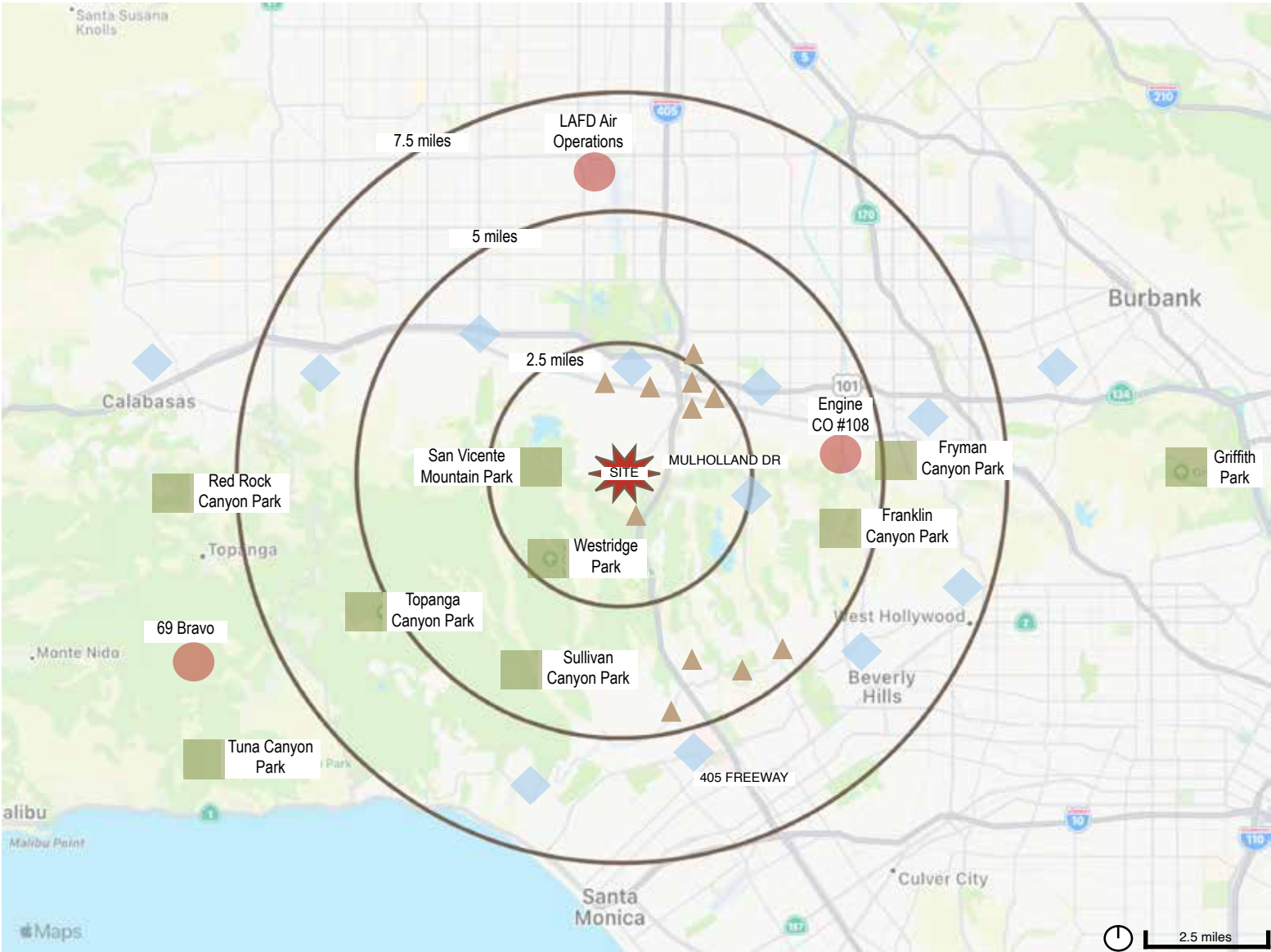
Implementation of the General Plan will serve to protect and preserve natural resources and natural features of the environment; to provide outdoor recreation opportunities and advance the public health and welfare; to enhance environmental quality; to encourage the management of public lands in a manner which protects environmental characteristics; and to encourage the maintenance of open space uses on all publicly owned park and recreation land, and open space public land which is essentially unimproved.

The site is located within areas that are zoned by the City of Los Angeles as Hillside Grading Area, Hillside Ordinance Area, and Very High Fire Hazard Severity Zones.18 The site is also located within the Mulholland Scenic Parkway Specific Plan.19

MULHOLLAND EDUCATIONAL CORRIDOR ZONING MAP



3.5 RESEARCH: SITE INVENTORY: helipad, transportation, parks, and food locations



- LEGEND**
- HELIPAD**
The nearest helipad is almost 5 miles from the site. A helipad on this site would be very useful in this high fire hazard zone.
 - PUBLIC TRANSPORTATION STOP**
The nearest stop is almost a one mile walk to the site. It will be necessary to have bus parking on the site. To allow visitors and school children from all areas of Los Angeles to have access to the site.
 - SANTA MONICA MOUNTAINS PARK**
This site connects to many other parks in the Santa Monica mountains
 - RESTAURANTS/FOOD LOCATIONS**
There are not any food locations near the site. It will be necessary to bring in food trucks and/or catering for large events.
- *not all public transportation stops or food locations are shown outside the radius of 2.5 miles

3.5 RESEARCH: SITE INVENTORY: site fauna

1 Western Fence Lizard
(*Sceloporus occidentalis*)



2 tiger whiptail
(*Aspidoscelis tigris*)



3 California Quail
(*Callipepla californica*)



4 Anna's Hummingbird
(*Calypte anna*)



5 Red-tailed Hawk
(*Buteo jamaicensis*)



6 Black Phoebe
(*Sayornis nigricans*)



7 Ash-throated Flycatcher
(*Myiarchus cinerascens*)



8 Western Diamond-backed Rattlesnake
(*Crotalus atrox*)



9 California Scrub-Jay
(*Aphelocoma californica*)



10 Canyon Wren
(*Catherpes mexicanus*)



11 California Ground Squirrel
(*Ostospermophilus beecheyi*)



12 Desert Cottontail
(*Sylvilagus audubonii*)



13 Lazuli Bunting
(*Passerina amoena*)



14 Black-headed Grosbeak
(*Pheucticus melanocephalus*)



15 Towhee
(*Melospiza crissalis*)



16 Dark-eyed Junco
(*Junco hyemalis*)



17 California Thrasher
(*Toxostoma redivivum*)



18 Cowbird
(*Molothrus ater*)



3.5 RESEARCH: SITE INVENTORY: site flora

1 *Artemisia californica*, CA sagebrush



2 *Olea europaea* "Montra", Little Ollie



3 *Pennisetum setaceum*, Green Fountain Grass (invasive)



4 *Brassica*, mustard weed



5 *Echium candicans*, Pride of Madeira (poisonous)



6 *Pinus halepensis*, Aleppo Pine



7 *Cistus purpureus*, Purple-flowered Rock Rose



8 *Washingtonia filifera*, CA fan palm



9 *Opuntia*, Prickly pear Cactus

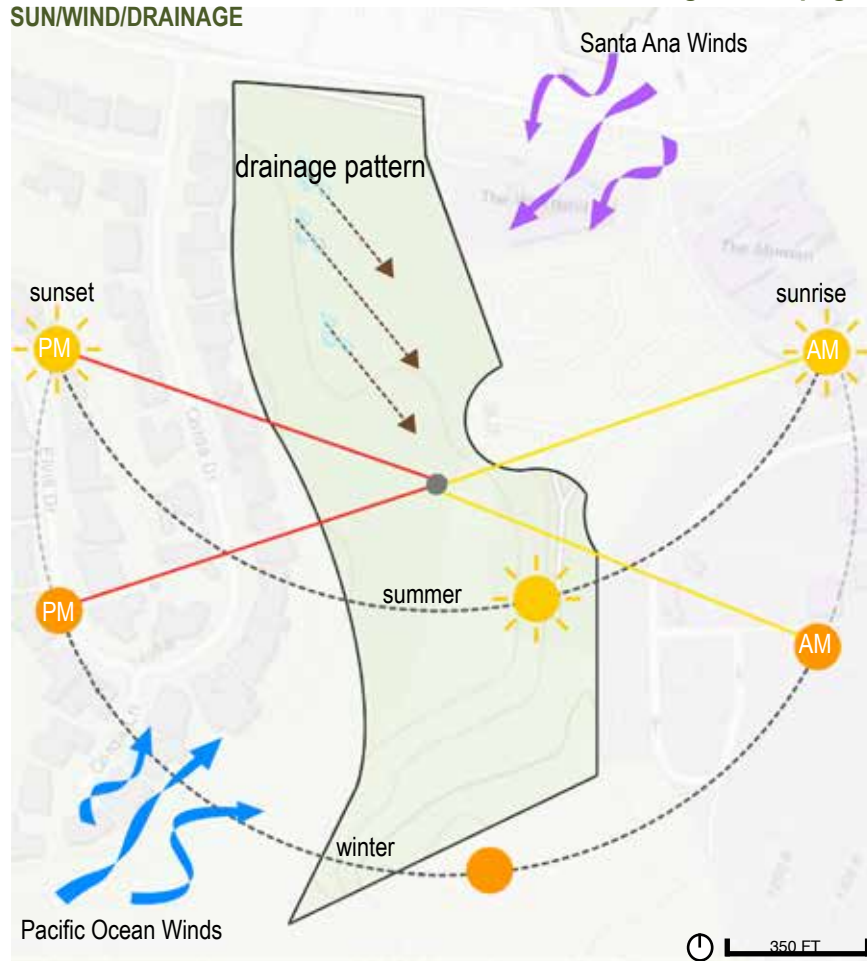


10 *Ricinus Communis*, Castor Bean (poisonous)



3.5 RESEARCH: SITE INVENTORY: sun/wind/drainage and topography/water well

SUN/WIND/DRAINAGE



ENVIRONMENTAL CONDITIONS

- Avg. Temperature High and Low: 92 degrees Fahrenheit to 40 degrees Fahrenheit, weather is influenced by both maritime air and interior air
- Avg. Rainfall: 15 inches per year
- USDA Hardiness Zone: 21
- Climate: Mediterranean
- Air Quality Index: 38, satisfactory, and poses little or no risk
- Growing Season: End of March to Middle of November

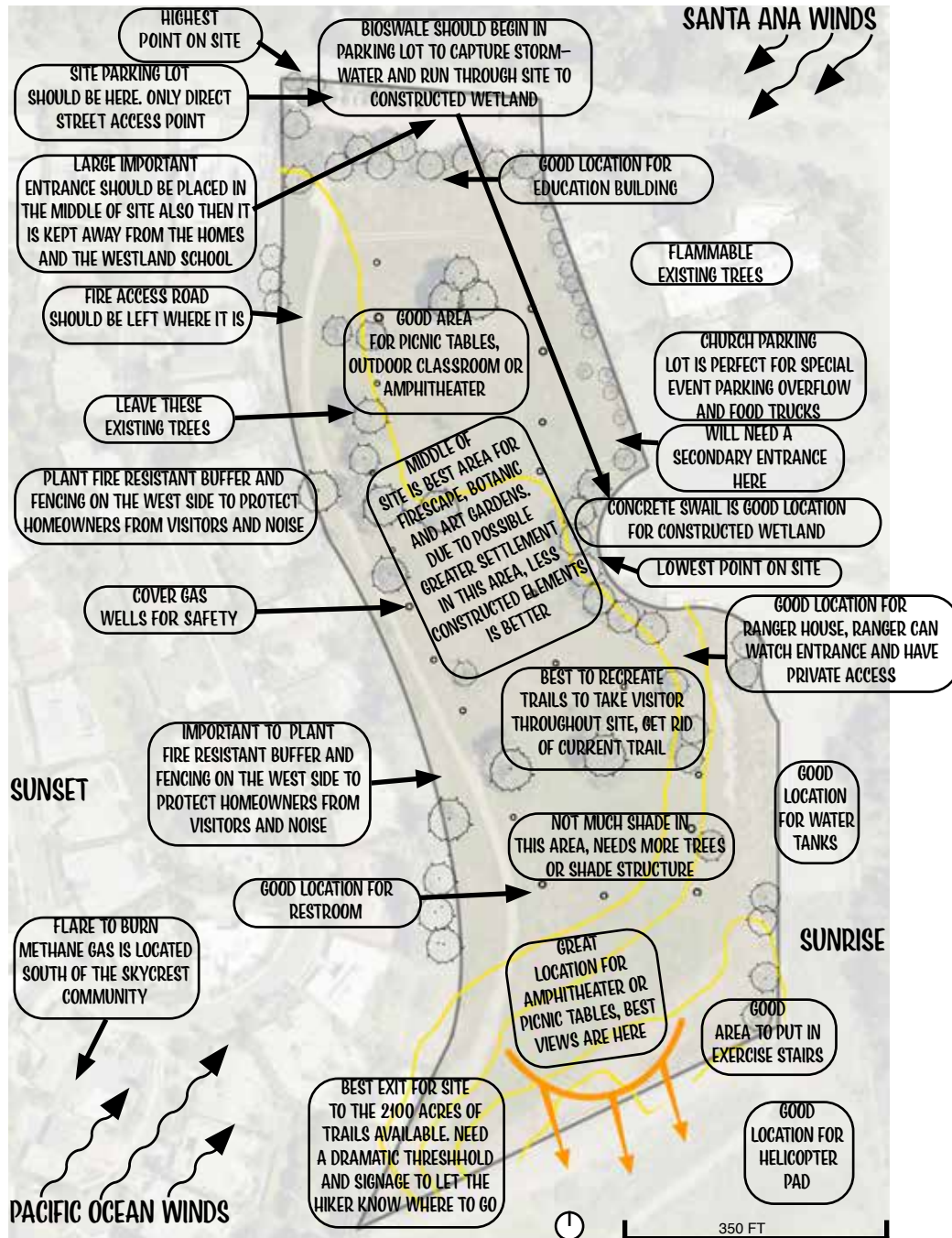
TOPOGRAPHY AND WATER WELL



TOPOGRAPHY ANALYSIS

Site is relatively flat and located in a canyon that is part of the Santa Monica Mountains. Highest point is 1340' and lowest point is 1300'

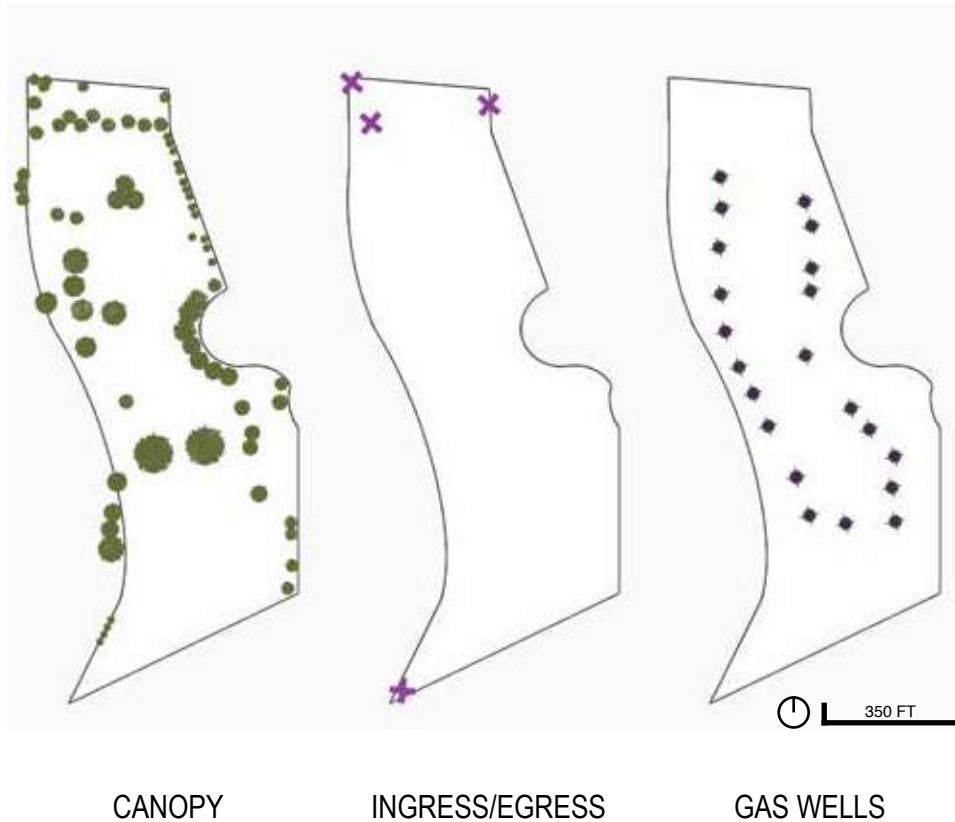
3.6 RESEARCH: SITE ANALYSIS DIAGRAM



SITE PHOTOS



3.6 RESEARCH: SITE ANALYSIS



Tree Canopy

The site has many attractive *Pinus halepensis* (Aleppo Pines), which are not fire safe. The site will need more vegetation on its West side to protect the neighbors from park activities, on the East side to cover the view into parking lots and to reduce the heat island effect on the site.

Ingress/Egress (Entrance/Exit)

There is one primary entrance/exit on Mulholland Drive to site. There is a secondary entrance/exit that takes you into the Santa Monica Mountains. A third entrance/exit could be created into a parking lot on the East side of the site.

Gas Wells

There are 22 gas wells on the site that need to be made visitor safe.

Circulation

The primary vehicular circulation is on the 405 Freeway near the site, Sepulveda Blvd. and Mulholland Drive can also become congested. People are almost never seen walking near the site, there are no sidewalks. Many bicyclists are seen in the mornings especially on weekends on Mulholland Drive.

Helipad

The nearest Helipad is almost 5 miles from the site. A helipad on this site would be very useful in this High Fire hazard zone.

Public transportation stop

The nearest stop is almost a one mile walk to the site. It will be necessary to have bus parking on the site to allow visitors and school children from all areas of Los Angeles to have Access to the site.

Restaurants/food locations

There are no food locations near the site. It will be necessary to bring in food trucks and/or catering for large events.

Environmental conditions

Avg. Temperature High and Low: 92 degrees Fahrenheit to 40 degrees Fahrenheit, weather is influenced by both maritime air and interior air. Avg. Rainfall: 15 inches per year which is low and drought tolerant plants will be needed. The site is located in USDA Hardiness Zone: 21 and the climate is Mediterranean. Air Quality Index: 38, satisfactory, and poses little or no risk. Growing Season: End of March to Middle of November

Topography:

Site is relatively flat and located in a canyon that is part of the Santa Monica Mountains. Highest point is 1340' and lowest point is 1300'

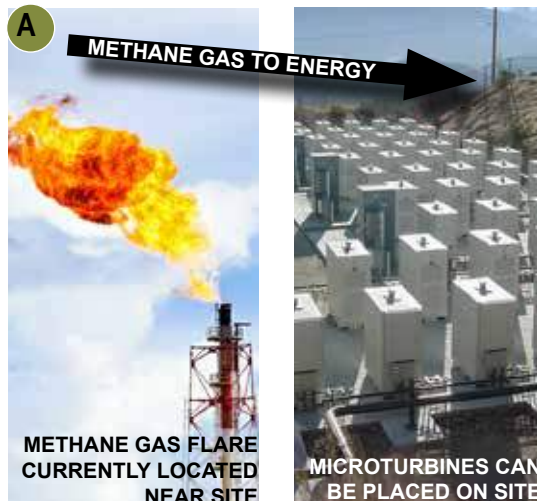
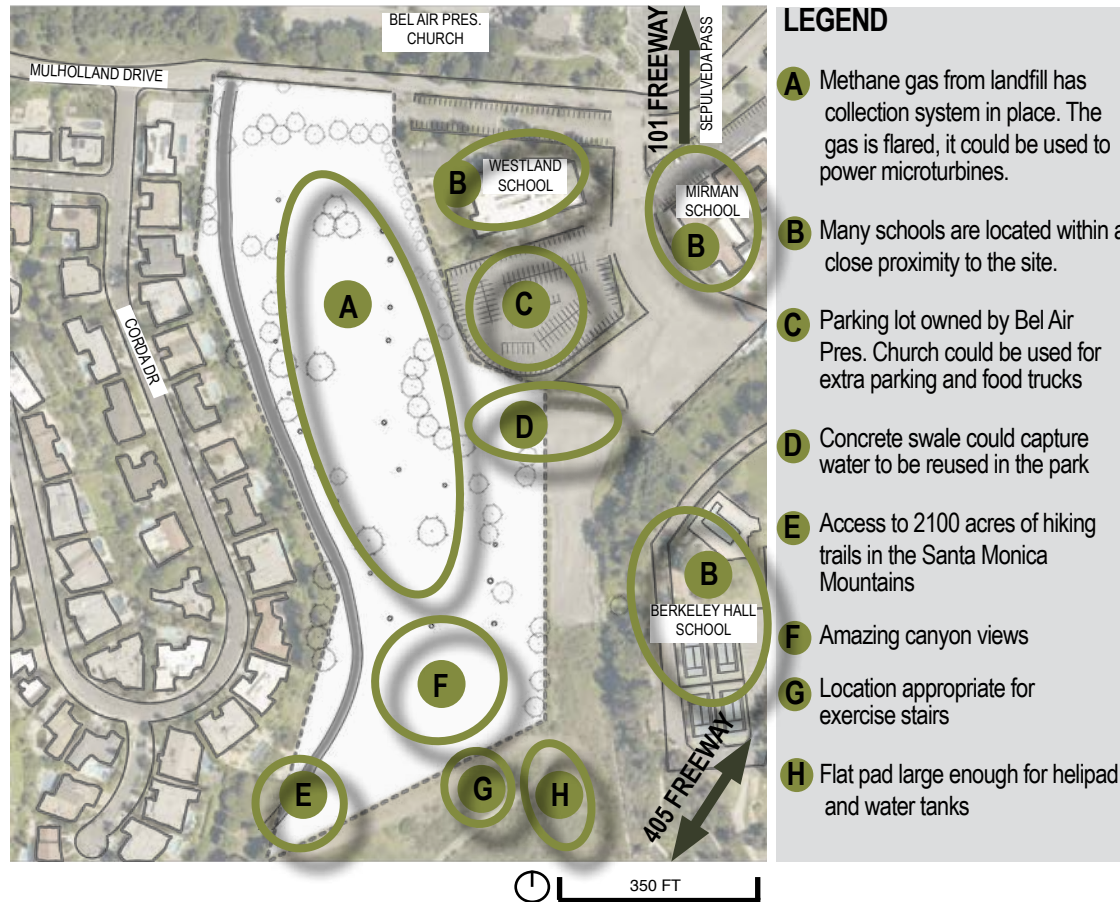
Ground Water

The ground water needs to be monitored due to the possibility that hazardous materials might have been dumped in the landfill.

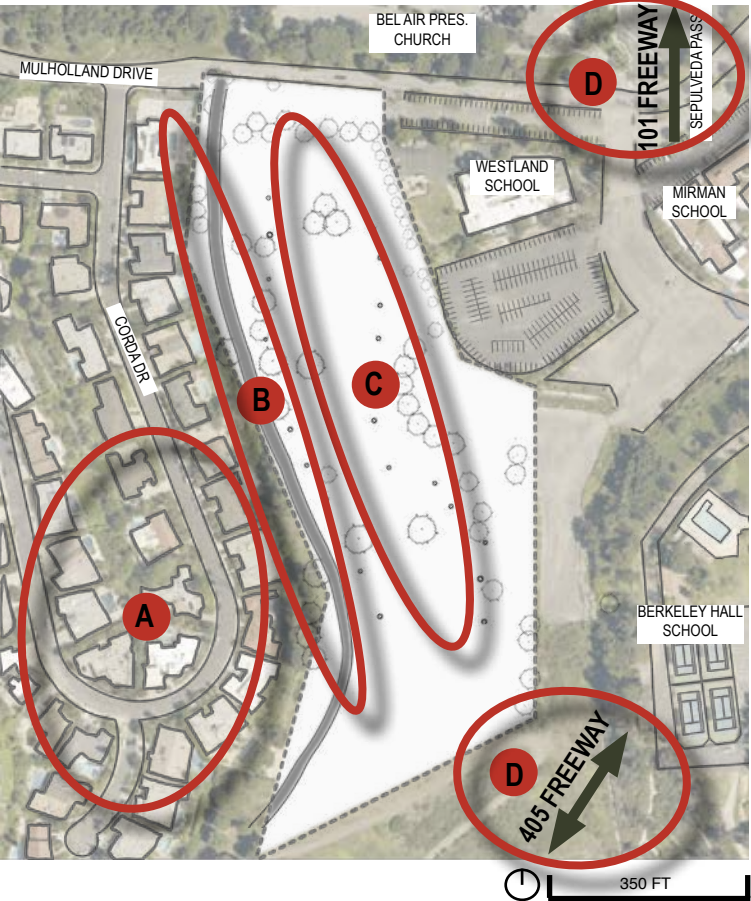
Site Drainage

Water drains from North West to South East due to topography.

3.7 RESEARCH: OPPORTUNITIES



3.7 RESEARCH: CONSTRAINTS



- LEGEND**
- A** Residential neighborhood on western border will not want extra noise or loss of privacy
 - B** Location is high fire severity zone, must keep fire road and choose fire safe plants
 - C** Gas wells can't be moved and need to have safety covers
 - D** Freeway noise and pollution



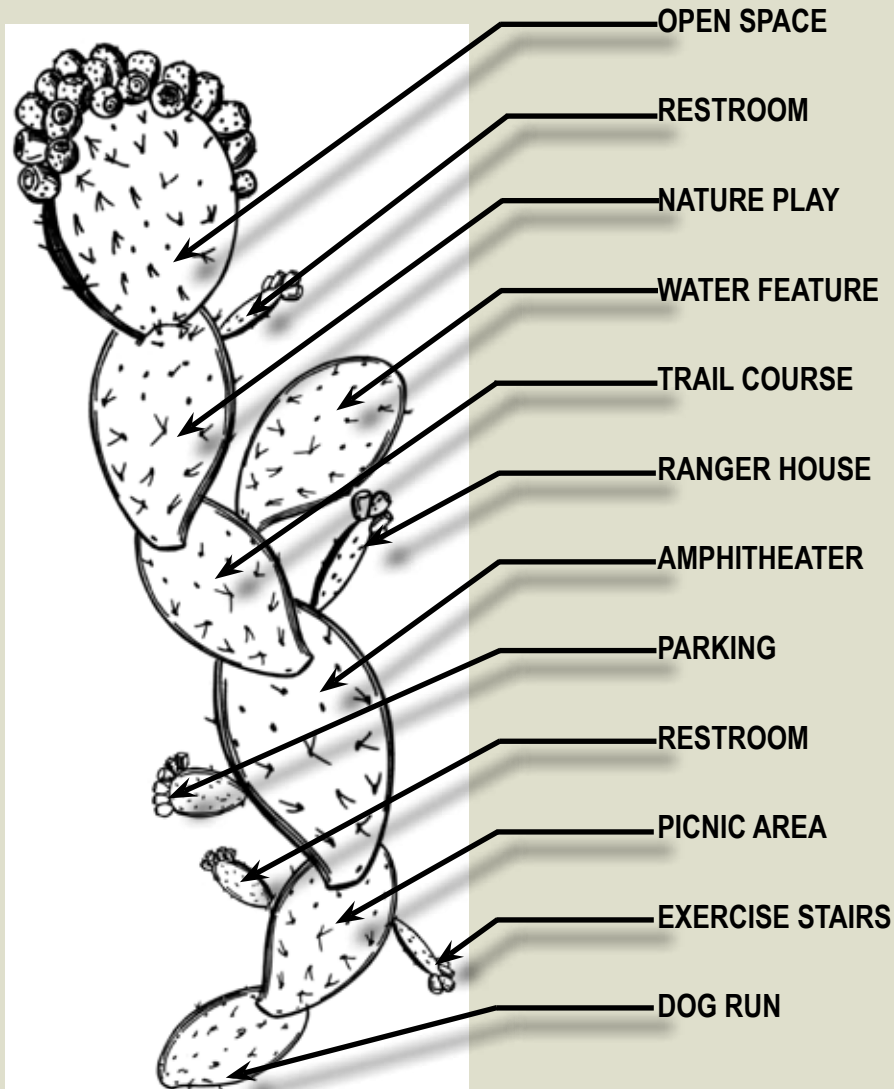
4.1 DESIGN DEVELOPMENT: DESIGN METAPHOR

OPUNTIA and LANDFILL are both beneficial despite seeming inhospitable

- Opuntia is a fire safe plant used for food, medicinal purposes, safety hedges, and house paint.
- Former landfills can be used for energy, recreation, and resources.



OPUNTIA FORM LENDS TO THE DESIGN OF THE SITE. The pads twist and turn as they grow, each in a unique shape. The edges of all the activity centers are designed in a way to mimic this quality of the plant.



OPUNTIA LOCATED ON SE AREA OF SITE

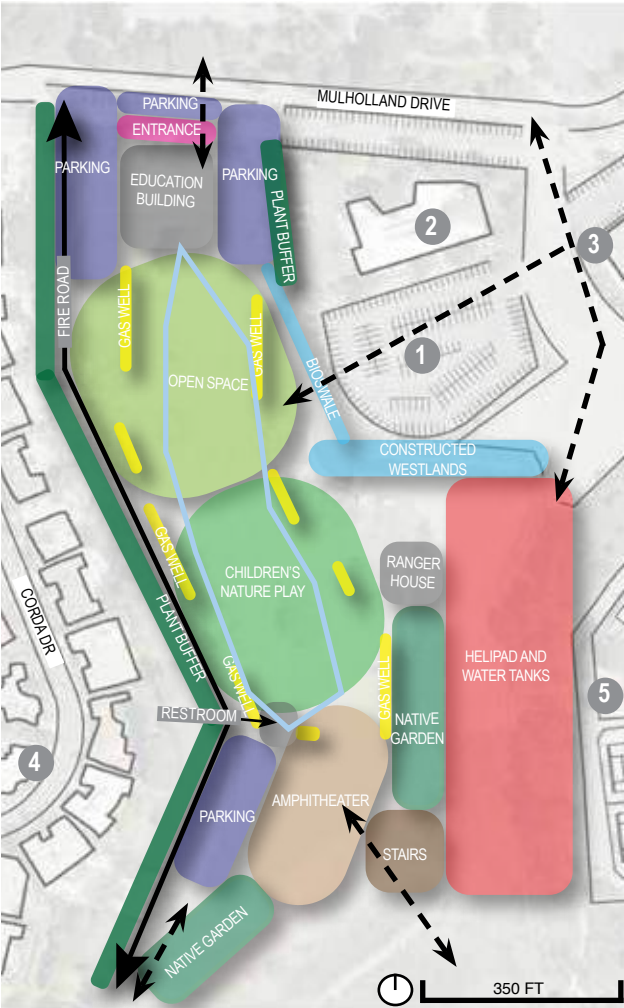


RENDERING OF OPUNTIA ON SW AREA OF SITE

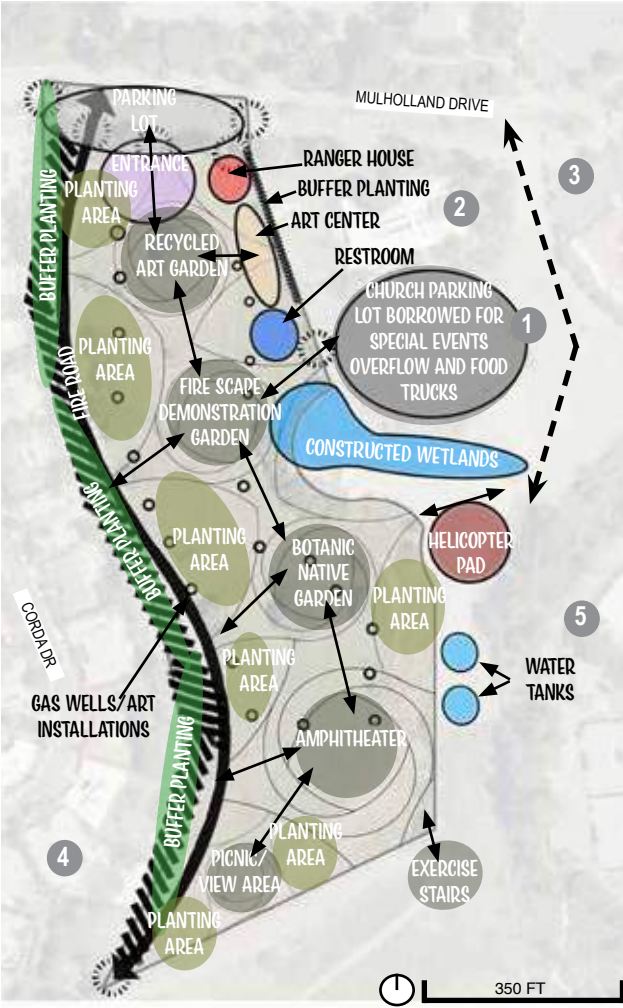
4.2 DESIGN DEVELOPMENT: PRELIMINARY CONCEPTS

CONCEPTUAL DESIGN ALTERNATIVES

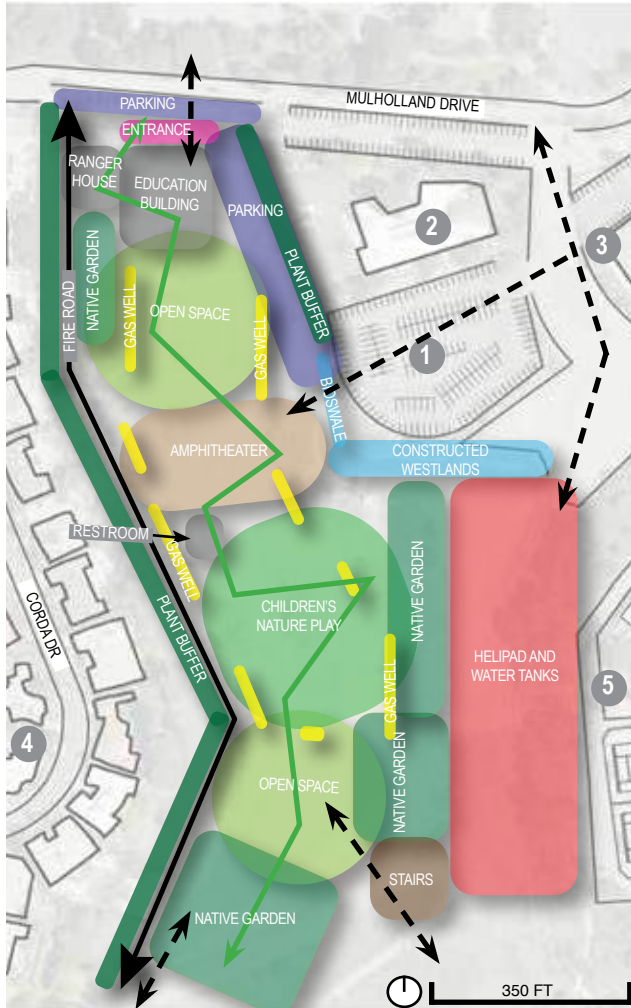
OPTION 1 - REGENERATIVE



OPTION 2 -THE GARDENS



OPTION 3 - RESILIENT



LEGEND

Elements that must remain in same location

- Helipad and water tanks
- Gas wells
- Bioswale and Wetlands
- Buffer Planting
- Stairs
- Fire Road

Elements that can change location

- Entrance
- Structures
- Open Space
- Children's Nature Play
- Native garden
- Parking
- Amphitheater

1. Bel Air Presbyterian Church Parking Lot
 2. Westland School
 3. Mirman School
 4. Bel Air Skycrest Community
 5. Berkeley Hall School
- ← -- Ingress/Egress

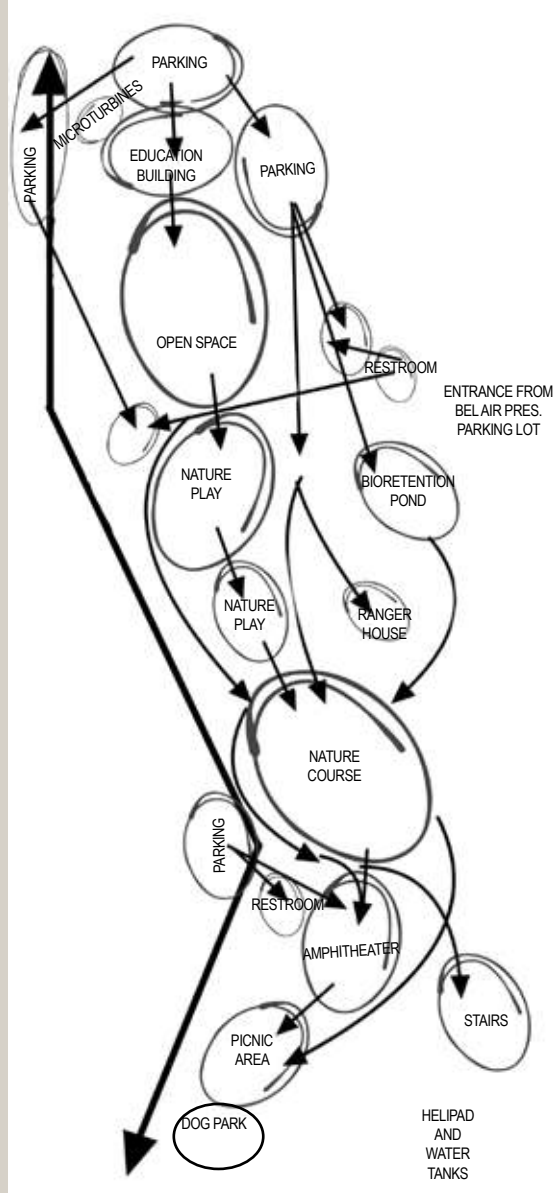
OPTION 1: The Regenerative Design solution will guide the visitor through the park's gas wells and educate them on the site's history.

OPTION 2: The Gardens solution will showcase learning gardens that will educate the visitor on the importance of recycling and fire safe planting.

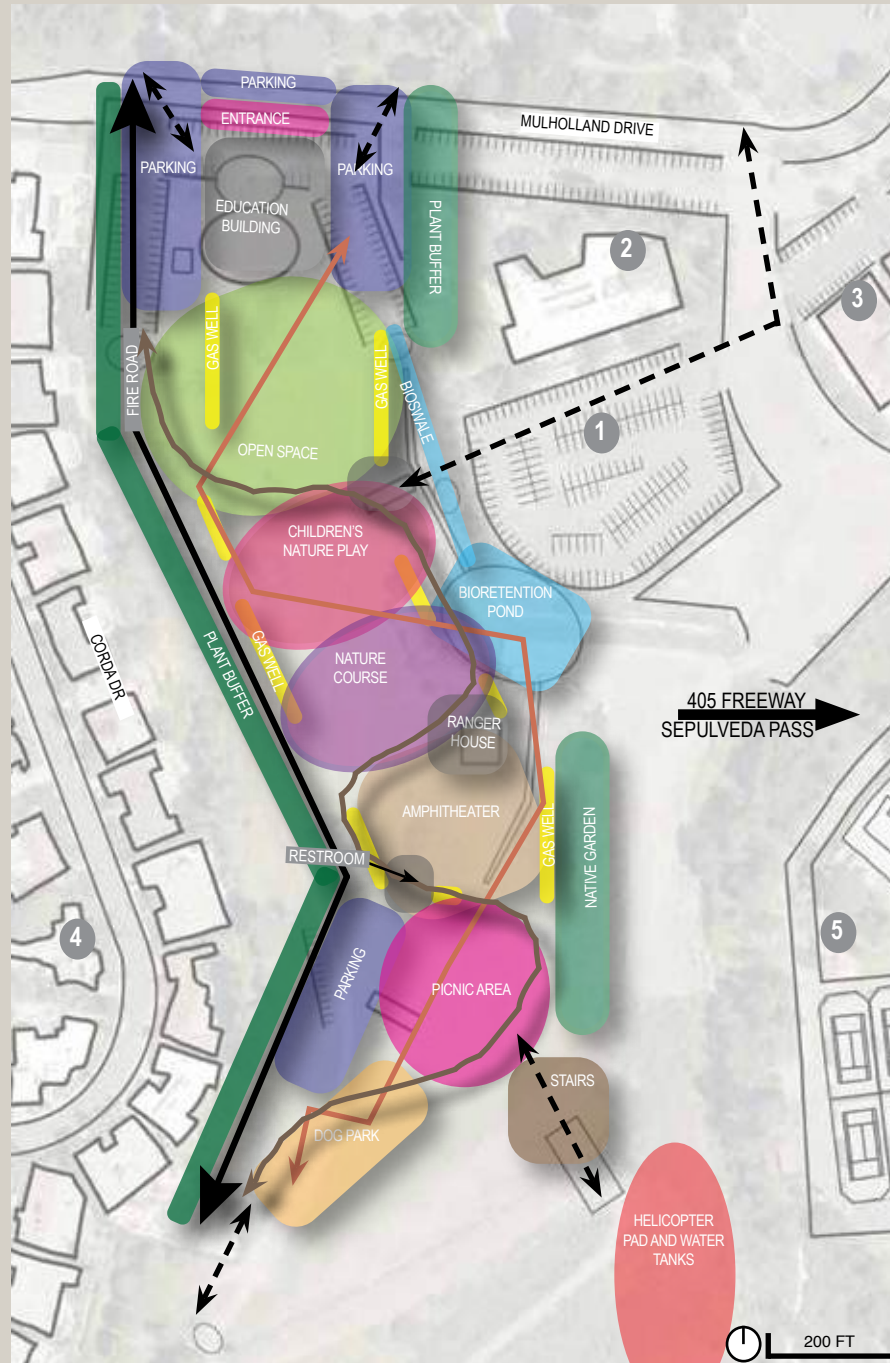
OPTION 3: The Pathways will show the Resilient Design by emphasizing a path through the native gardens and through the bioswale and by the constructed wetlands.

4.3 DESIGN DEVELOPMENT: FINAL CONCEPT DIAGRAM - RECREATION

FLOW CHART



CONCEPT DIAGRAM



LEGEND

- 1 Bel Air Presbyterian Church Parking Lot
- 2 Westland School
- 3 Mirman School
- 4 Bel Air Skycrest Community
- 5 Berkeley Hall School
- ↔ Ingress/Egress
- Walk Path
- Bike Path
- Fire Road

PROS

- Lots of parking, room for bike rentals and storage
- Safer design for both bikers and hikers
- Ranger has private site in middle of park, more privacy and closer to site elements
- Park elements fit into spaces not occupied by gas wells
- Helicopter pad located off main site, safer for park patrons

4.4 DESIGN DEVELOPMENT: MASTER PLAN



HELIPAD AREA



LEGEND

- A1 parking lot - 36 spaces
- A2 parking lot - 26 spaces
- A3 parking lot - 16 spaces
- A4 parking lot - 14 spaces
- A5 solar powered bicycle rental
- B entrance/exit structure
- C education building with restroom
- D community open space
- E1 children's nature play area
- E2 older children's nature play area
- F adult exercise nature play area
- G bio retention pond
- H ranger house
- I gas well
- J amphitheater
- K restroom
- L picnic area with shade structure
- M exercise stairs
- N fire road
- O bike path
- P walking path
- Q micro turbine area
- R helipad
- S water tanks
- T dog park
- U opuntia garden

4.5 DESIGN DEVELOPMENT: PROJECT ELEMENTS/DETAILS



Parking Lots

- Use permeable paving and plant islands to capture stormwater
- ADA compliant, 6 handicap spaces
- Bike racks
- Shade provided by trees
- Trash receptacles
- Electric vehicle charging stations
- Size: 350' x 100', fit 92 cars



Lighting Fixtures

- Minimal for safety
- Reduce glare, light trespass, and sky glow lighting



Education Building

- Powered by Microturbines
- Space for education and Art
- 7000 sq ft



Water Features

- Bioswale
- Bioretention Pond



Gardens

- Native plants
- Low water plants
- Plants for pollinators
- Meandering pathways
- Showcase fire safe planting techniques



Outdoor Classroom/Amphitheater

- To fit 250 people
- Trees for shade
- Size: 100' x 75' = 7,500 sq ft



Passive Space/Picnic Areas

- Shade covered areas
- Natural seating areas
- Size: 100' x 50' = 5000 sq ft



Dog Park

- Shade covered areas
- Natural seating areas
- Size: 200' x 50' = 10000 sq ft



Multi-Use Trails

- Traffic calming trail design
- Trails for hikers and bikers
- View areas created with Thresholds
- Fitness trail course
- Children Nature Play Area
- Meandering pathways



Entrance Gates and Fencing

- Replace and improve chain link fencing
- Security fencing
- Grand entrances



3 Restroom Facilities

- ADA Compliant
- 2000 sq ft
- One located in education building
- Drinking water stations



Ranger Residence - 1 full time ranger

- Single Story
- 2500 sq ft



Signage

- Informational
- Safety
- Educational



Helicopter Pad

- Size: 109' x 109'



2 Water Tanks for Helicopters

- Each tank size: 15' X 15'

4.5 DESIGN DEVELOPMENT: PROJECT ELEMENTS/DETAILS



SIGNAGE



PARKING LOTS



EDUCATION BUILDING



OPEN SPACE



NATURE PLAY



NATURE COURSE



PICNIC AREA



AMPHITHEATER



TRASH RECYCLE CONTAINERS



FENCING



LIGHTING FIXTURES



RESTROOMS

CURVILINEAR DESIGNED RESTROOM WITH GREEN ROOF AND GREY WATER USED FOR CONSTRUCTIVE WETLAND

4.6 DESIGN DEVELOPMENT: MATERIALS



MATERIAL FOR NATURE PLAY SURFACE - YELLOW PEBBLE FLEX 2.9



WOOD FOUND ON BENCHES AND EDUCATION BUILDING - TEAK Species: *Tectona grandis* Certification: FSC Recycled 100% - FSC-C021798



GREEN ROOFS ON EDUCATION BUILDING AND RESTROOMS



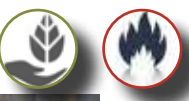
BIKE PATH - GRANITECRETE



WALKING PATH - PEA GRAVEL



PARKING LOTS - H221-ANTIQUE SANDSTONE 5x5 COBBLE AND LIMESTONE CURB



4.7 DESIGN DEVELOPMENT: PLANT PALETTE

Fire Safe Planting Techniques will be used throughout park

All plants will eventually burn. There is no such thing as a fireproof plant. There are some plants that can retain moisture, even in dry areas, and are called fire resistant.

1. **Avoid Conifers** (pine, juniper, spruce, or arborvitae)
2. Plant **deciduous** trees (not a lot of dead wood)
3. **Mulching** is the best way to maintain consistent soil moisture
4. **Eliminate weeds**
5. **Gravel or seashells** better than shredded bark or pine needles
6. Select **low compact** shrubs, trees, and perennials
7. **Space your plants** so they don't form a solid mass of burnable material
8. Avoid landscaping **hard-to-mow locations** with turf grass
9. Plant **low-maintenance ground covers**.
10. **Prune** to keep garden free of any dead and dying branches on shrubs and trees
11. Select **Fire-Resistant Plants**, no plants are truly fireproof.
12. **Low-growing** plants with a **high level of moisture** in their leaves are best.

Good Options: sedum, succulents, cacti, Euphorbia, Cotoneaster, Mahonia, lilac, Santolina, ice plant, thyme, lavender, Echeveria, agave, allium, and iris



Santolina and agave require little care and are both fire-resistant.



Desert Museum Palo Verde
Cercidium x 'Desert Museum'



Coast Live Oak
Quercus agrifolia

4.7 DESIGN DEVELOPMENT: PLANT PALETTE, fire safe plants



GROUNDCOVERS



Atriplex barclayana. Beach Carpet Saltbush



Atriplex canescens. Four-wing Saltbush



Baccharis pilularis "Pigeon Point"

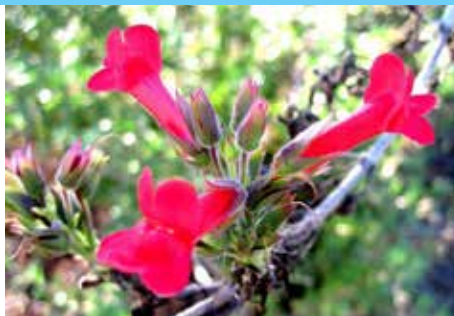


Monardella linoidea viminea. Willowy Coyote Mint

SHRUBS



Atriplex lentiformis breweri



Galvezia speciosa. Island Bush Snapdragon



Isomeris arborea. Bladderpod



Symphoricarpos albus. Common Snowberry

SHRUBS



Mahonia aquifolium, Mahonia/Barberry



Rhus laurina, Laurel Sumac



Rhus integrifolia. Lemonade Berry



Agave americana, Century Plant

TREES



Ginkgo biloba "Fairmount", Maidenhair Tree



Pistacia chinensis, Chinese Pistache



Heteromeles arbutifolia. Toyon



Quercus suber, Cork Oak

5.10 SCHEMATIC DESIGN: ILLUSTRATIVE PLAN



HELIPAD AREA



LEGEND

- A Parking lot
- B Entrance/exit structure
- C Education building with restroom
- D Community open space
- E Children's nature play area
- F Adult exercise nature course
- G Bioretention pond
- H Ranger house
- I Gas well
- J Amphitheater
- K Restroom
- L Picnic area with shade structure
- M Exercise stairs
- N Fire road
- O Bike path
- P Walking path
- Q Microturbine area
- R Helipad
- S Water tanks
- T Dog park

5.15 SCHEMATIC DESIGN: PARKING LOTS AND EDUCATION BUILDING INSPIRATIONAL ELEMENTS



SOLAR POWERED BIKE RENTAL

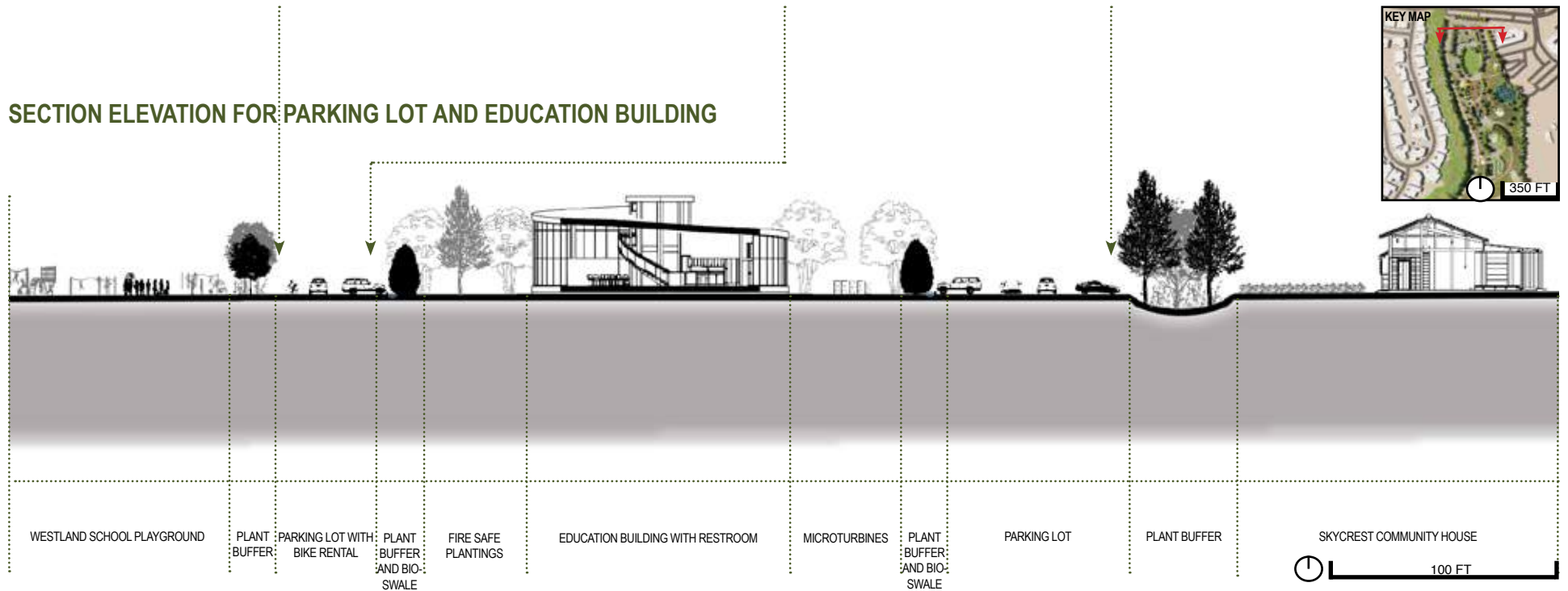


EV CHARGING STATION



PARKING LOT WITH BIOSWALE

SECTION ELEVATION FOR PARKING LOT AND EDUCATION BUILDING



5.15 SCHEMATIC DESIGN: PARKING LOTS AND EDUCATION BUILDING

A. ENLARGEMENT OF PARKING LOTS AND EDUCATION BUILDING



LEGEND

A1 parking lot - 36 spaces
 A2 parking lot - 26 spaces
 A3 parking lot 16 spaces
 B entrance structure

C education building green roof
 D community open space
 E children's nature play area
 F micro turbines

G bio retention pond
 H solar power bicycle rental
 I gas well
 J accessible parking

K electric vehicle charge
 L fire road
 M restroom
 N Bel Air Skycrest community

5.15 SCHEMATIC DESIGN: PARKING LOTS AND EDUCATION BUILDING

A. PARKING LOTS AND EDUCATION BUILDING DETAIL IMAGES



EAST ENTRANCE GATE



WEST ENTRANCE GATE

CURVILINEAR THRESHOLDS, ENTRANCE STRUCTURES, MADE OUT OF RECYCLED MATERIALS



MAIN ENTRANCE GATE



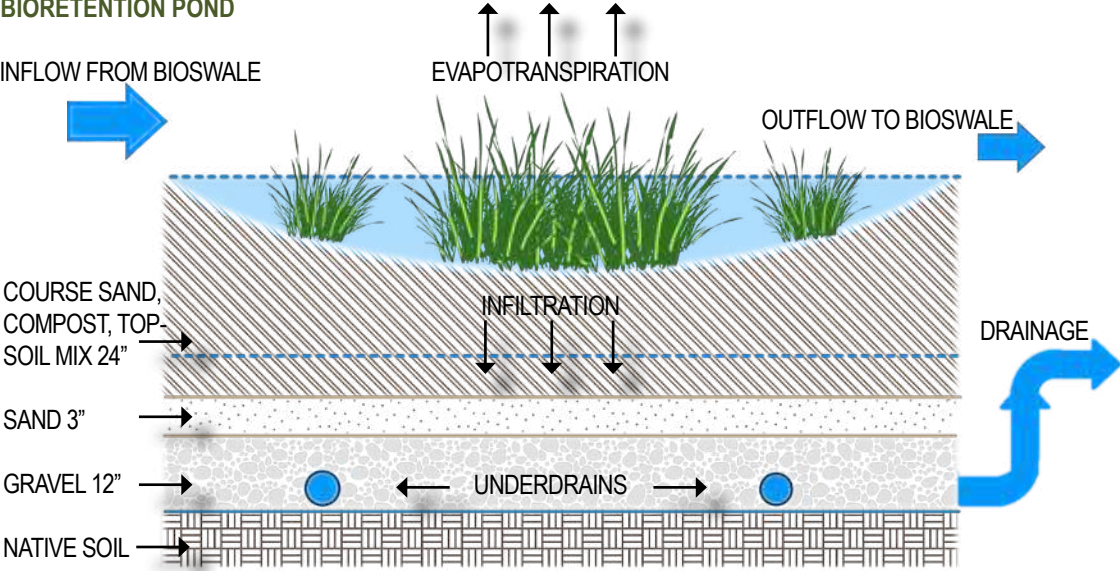
BICYCLE SOLAR POWERED RENTALS



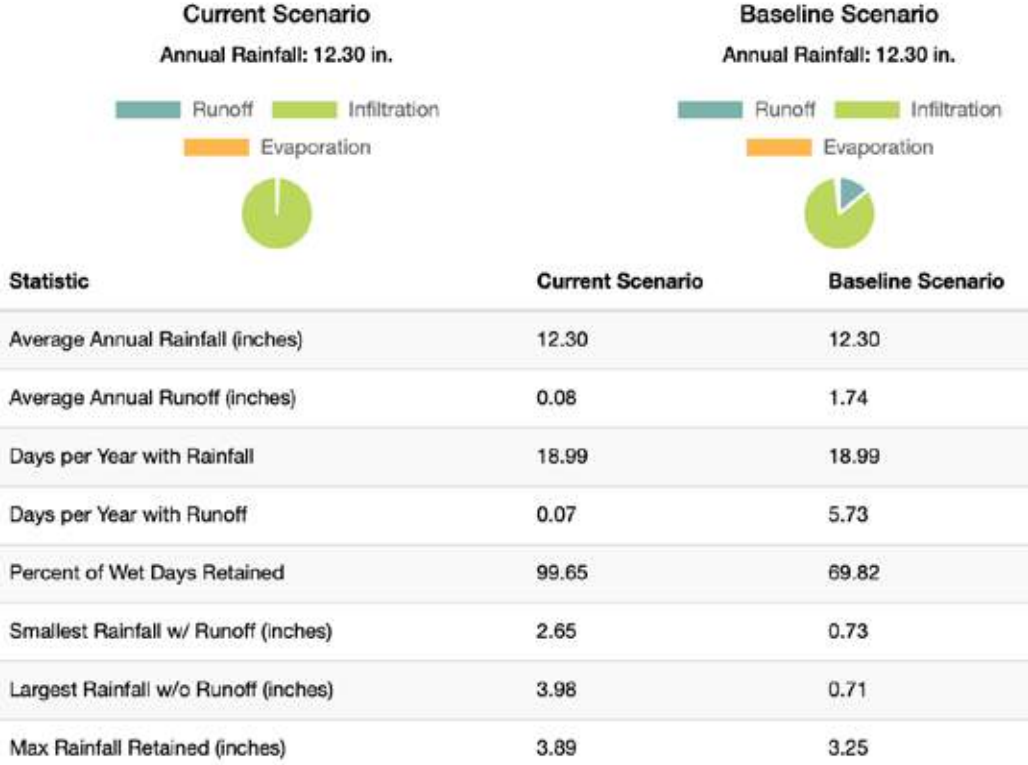
EDUCATION BUILDING WITH GREEN ROOF AND RESTROOM



5.20 SCHEMATIC DESIGN: BIOSWALE AND BIORETENTION POND
BIORETENTION POND



Summary Results



SITE IRRIGATION

Water will be diverted to a wet retention pond by a network of underground pipes connecting storm drains and bioswales to the pond. The system will allow for large amounts of water to enter the pond, and the bioswales will help to maintain the desired water level in the pond and irrigate the site.

SUMMARY RESULTS

The baseline scenario describes the site without bioswales or bioretention ponds and with non-permeable pavement. The Current Scenario describes the site with bioswales, a bioretention pond and permeable pavement. The current scenario will retain 30% more water on wet days. The average annual runoff will decrease by 1.66 inches. 1 inch over 1 acre of ground would mean 27,143 gallons of water saved. The site has 10 acres and is saving 1.66 inches of water. The current scenario will save 450,574 gallons of water per year.



5.20 SCHEMATIC DESIGN: BIOSWALE AND BIORETENTION POND
B. PERSPECTIVES OF BIOSWALES AND BIORETENTION POND



BIRD'S EYE VIEW OF POND AND BIOSWALES



BIOSWALE FROM NE PARKING AREA TRAVELING TOWARDS POND



POND AND BIOSWALE TRAVELING TOWARDS AMPHITHEATER



SEATING AREA NEXT TO BIORETENTION POND



5.25 SCHEMATIC DESIGN: PERSPECTIVES OF RANGER HOUSE AND ENTRANCE TO BEL AIR PRESBYTERIAN PARKING LOT

C. RANGER HOUSE

CURVILINEAR STRUCTURE BUILT FROM RECYCLED MATERIALS



D. ENTRANCE FROM BEL AIR PRESBYTERIAN PARKING LOT AND BRIDGE OVER BIOSWALE



5.30 SCHEMATIC DESIGN: OPEN SPACE



INSPIRATIONAL IMAGE FOR OPEN SPACE



INITIAL SKETCH OF OPEN SPACE



SKYCREST COMMUNITY

WESTLAND SCHOOL

350 FT

Labels: A, B, C, D, E, F, G, H, I, J, K, L, M, N, O, P

A community open space	E pedestrian trail	I gas well	M east entrance gate
B fire safe plantings	F shaded benches	J sky glow lights	N fire road
C education building green roof	G bollards to slow trail merge	K bioswale	O nature play
D bike trail	H recycle bins	L west entrance gate east	P young children nature play

5.30 SCHEMATIC DESIGN: OPEN SPACE

F. NORTHERN ENTRANCE TO OPEN SPACE



G. SOUTH EAST BENCH IN OPEN SPACE



5.35 SCHEMATIC DESIGN: METHANE TO ENERGY TRANSFER

MISSION CANYON'S GAS WELLS

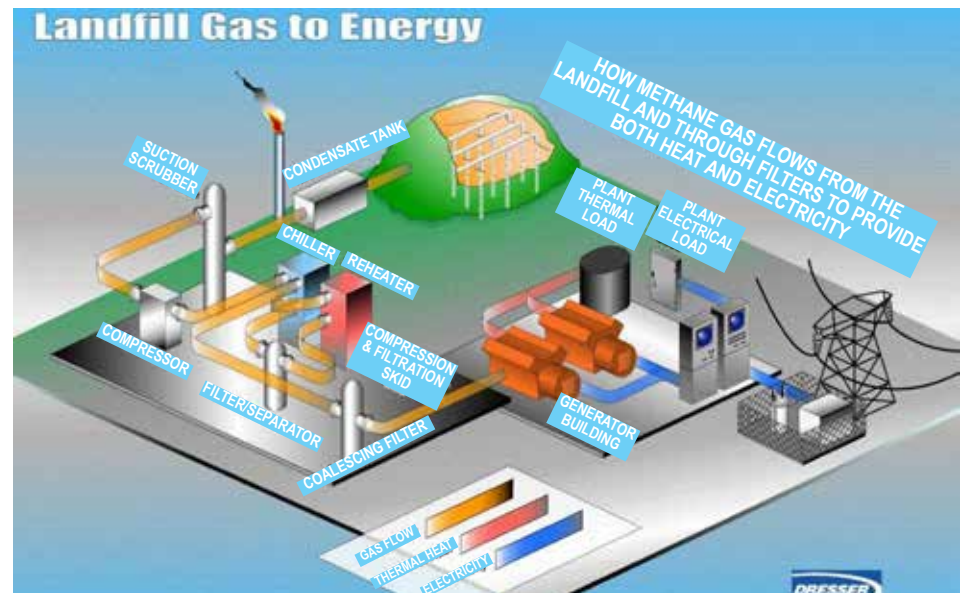
- Produce 300 SCFM (Square Cubic Feet per meter) of methane flow
- Microturbines generate 125,00 kWh of power per month on 300 SCFM.
- Average home uses 900 kWh/month
- **Mission Canyon could power 138 homes/month**

*Information based on The Burbank 250 KW microturbine demonstration project which proves that the IRES 250 kW microturbine can operate successfully on landfill gas.

H. GAS WELL COVERED FOR SAFETY



I. MICROTURBINES

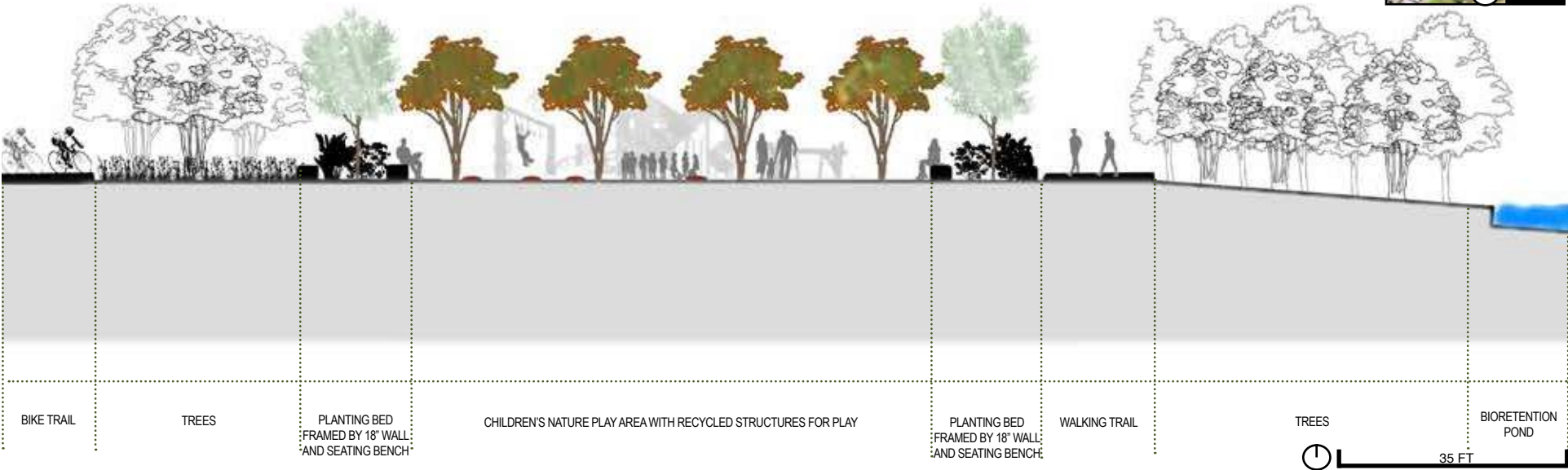


5.40 SCHEMATIC DESIGN: NATURE PLAY
INSPIRATIONAL IMAGES



SECTION ELEVATION FOR NATURE PLAY AREA

*AREA IS IMPORTANT FOR THE OVER 1,000 CHILDREN THAT
ATTEND SCHOOL IN THE MULHOLLAND CORRIDOR



KEY MAP

A small inset map showing the project area (J) within the larger context of the site. The map includes a scale bar indicating 350 FT.



A older child nature play	E pedestrian trail	I gas well	M bioswale
B younger child nature play	F sky glow lighting	J nature course	N recycled tires
C bioremediation pond	G bollards to slow trail merge	K trails merge	O shaded seating
D bike trail	H fire safe plantings	L fire road	P bridge over bioswale

5.40 SCHEMATIC DESIGN: NATURE PLAY

K. PERSPECTIVE NATURE PLAY AREA FOR YOUNGER CHILDREN



L. PERSPECTIVE NATURE PLAY AREA FOR OLDER CHILDREN



5.40 SCHEMATIC DESIGN: NATURE PLAY SECTION ELEVATION FOR NATURE COURSE AND NATURE PLAY AREA



NW VIEW OF NATURE PLAY AREA FOR OLDER CHILDREN



5.45 SCHEMATIC DESIGN: NATURE COURSE AND TRAILS ENLARGEMENT EXERCISE NATURE COURSE AND TRAILS



LEGEND

- | | | | |
|-----------------------|-----------------------|--------------------------------|---------------------|
| A nature course | E pedestrian trail | I trails merge | M bioswale |
| B nature play | F ranger house | J gas well | N bench |
| C bioremediation pond | G fire road | K buffer planting | O sky glow lighting |
| D bike trail | H fire safe plantings | L bollards to slow trail merge | P green roof |

5.45 SCHEMATIC DESIGN: NATURE COURSE AND TRAILS

M. NATURE COURSE



N. PEDESTRIAN TRAIL

Curving path, "traffic calming trail design"





5.45 SCHEMATIC DESIGN: NATURE COURSE AND TRAILS

INSPIRATIONAL IMAGE FOR NATURE COURSE



SKETCH OF PEOPLE WALKING ON TRAIL



INSPIRATIONAL IMAGE FOR BIKE TRAIL



HIKING PATH



BIKING PATH



5.50 SCHEMATIC DESIGN: AMPHITHEATER AMPHITHEATER ENLARGEMENT

Amphitheater can seat 250 individuals for educational or entertainment events

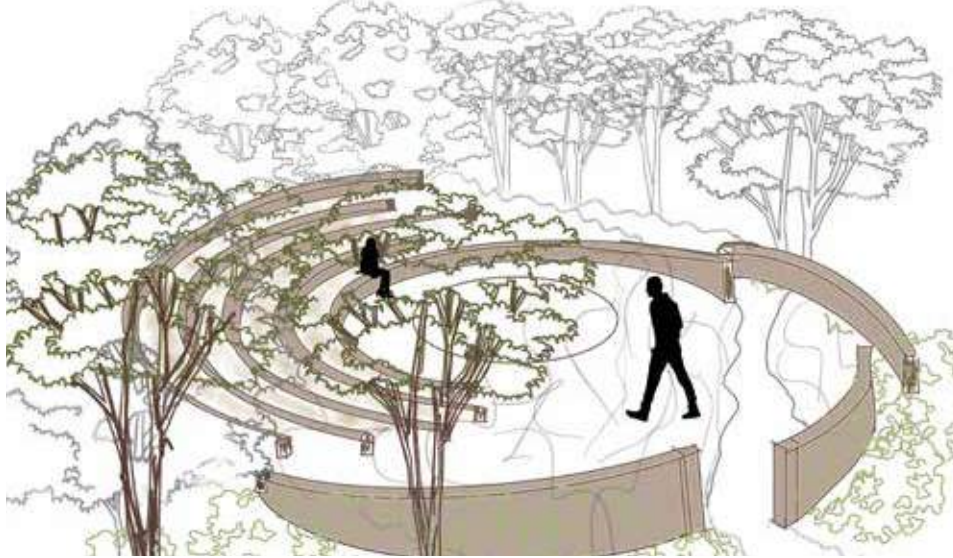


LEGEND

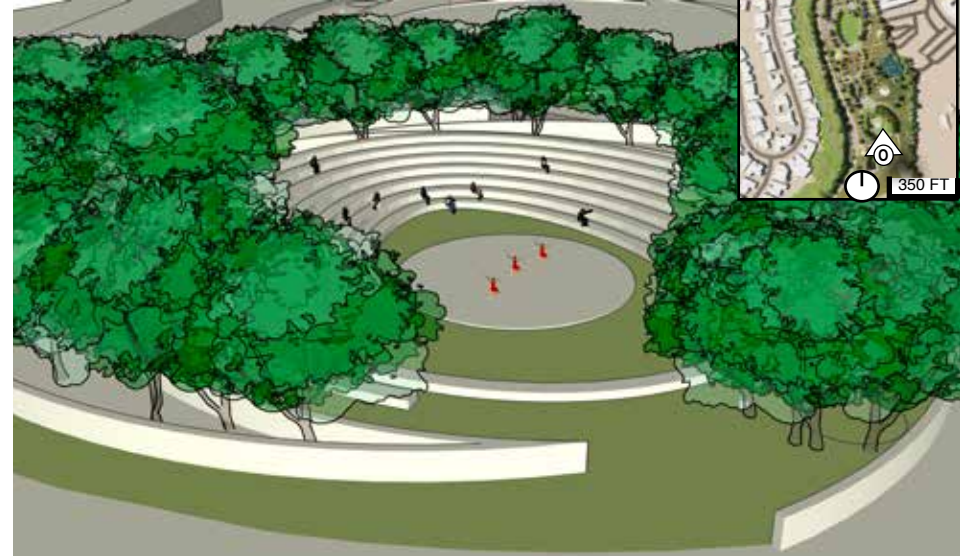
- | | | | |
|----------------------------|-----------------------|------------------------------|----------------------|
| A amphitheater | E pedestrian trail | I circular bench and planter | M bioswale |
| B parking lot | F sky glow lighting | J buffer planting | N picnic table |
| C restroom with green roof | G picnic area | K opuntia planting | O recycle containers |
| D bike trail | H fire safe plantings | L gas well | P fire road |

5.50 SCHEMATIC DESIGN: AMPHITHEATER

SKETCH OF AMPHITHEATER



INITIAL RENDERING OF AMPHITHEATER



O. AMPHITHEATER PERSPECTIVE



5.55 SCHEMATIC DESIGN: PICNIC AREA

PICNIC AREA ENLARGEMENT



LEGEND

- | | | |
|-----------------------------------|----------------------------------|-------------------------------------|
| A picnic area | E pedestrian trail | I circular bench and planter |
| B recycle bins | F sky glow lighting | J parking lot |
| C restroom with green roof | G picnic table with shade | K drinking fountain |
| D bike trail | H fire safe plantings | L exercise stairs |

5.55 SCHEMATIC DESIGN: PICNIC AREA
P. PICNIC AREA AND RESTROOM



Q. PICNIC AREA



R. PICNIC AREA



5.60 SCHEMATIC DESIGN: DOG PARK
S. VIEW TO EAST DOG PARK



For many years Mission Canyon had a carefully disguised opening to keep out people who didn't know about this secret place to allow dogs to run off leash.

T. VIEW TO WEST DOG PARK



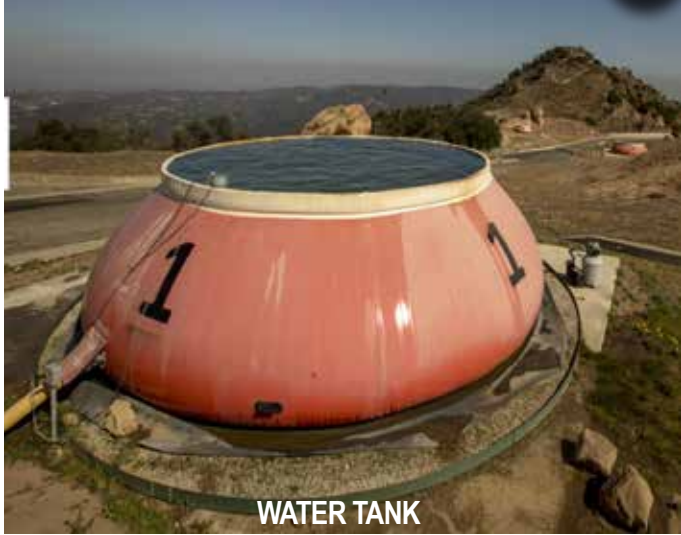
5.65 SCHEMATIC DESIGN: EXERCISE STAIRS, HELIPAD AND WATER TANKS



EXERCISE STAIRS

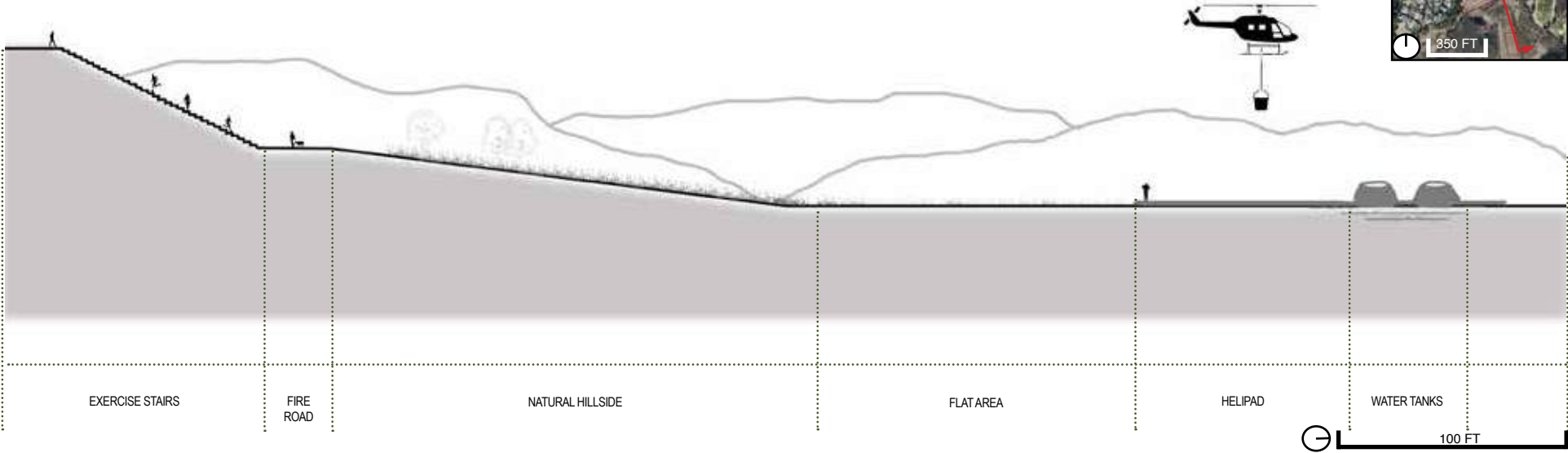


HELIPAD



WATER TANK

SECTION ELEVATION FOR EXERCISE STAIRS, HELIPAD AND WATER TANKS



*IMPORTANT FIRE FIGHTING RESOURCE FOR LOS ANGELES COUNTY

5.65 SCHEMATIC DESIGN: EXERCISE STAIRS, HELIPAD AND WATER TANKS

VIEW NORTH EAST OF EXERCISE STAIRS



BIRD'S EYE VIEW OF HELIPAD AND WATER TANKS



VIEW TO SOUTH OF HELIPAD AND WATER TANKS



VIEW TO NORTH OF FIRE ROAD AND EXERCISE STAIRS



VIEW TO SOUTH OF HELICOPTERS



6.0 CONCLUSION: STATISTICS and ACHIEVEMENTS

SITE SAFETY WITH REGENERATIVE DESIGN

REDUCE GREEN HOUSE GAS

- Eliminated flaring of methane
- Methane used in microturbines
- Site and nearby homes powered by microturbines
- Created enough power for over 138 homes/month

IMPROVE SOIL QUALITY

- Phytoremediation
- Mulch
- Native plants
- 32,267 cubic yards of remediated soil

SAFE GAS WELLS

- 22 gas wells designed for safety with covers and seals

PLAN FOR SETTLEMENT FROM SOIL COMPACTION

- Education building and restrooms constructed in areas not effected by settlement and gas wells. Gardens and activity areas are designed around gas wells.

IMPROVE ECOLOGICAL RESILIENCY

STORMWATER MANAGEMENT

- Irrigation systems
- Bioretention pond
- Bioswales
- Permeable Surfaces
- 30% more of water from wet days will be retained
- 1.66 in/yr saved is 450,574 gallons of stormwater per year

DROUGHT TOLERANT/NATIVE PLANTS

- 435,600 square feet of habitat restored

FIRE SAFE HABITAT

- Planting fire safe trees and plants
- Replace Pinus Halepensis trees when they fail with fire safe trees
- Remove dead leaves and litter
- Planted Buffer of Oak Trees on East side of property between houses and fire road

HEAT ISLAND REDUCTION

- Light colored buildings
- Green roofs
- Over 100 buffer trees planted

RESOURCES FOR THE COMMUNITY

RANGER'S RESIDENCE

- A ranger living on site will help protect the public and the land from potential dangers

RESOURCES

- Water tanks
- Fuel Brakes
- Fire access roads

HELIPAD FOR FIRE DEPARTMENT

- Help to reduce severity of fire by getting to fire sooner

EDUCATIONAL SIGNAGE

- Signs directing public to trails
- Signs of caution about trail hazards
- Fire Safety Signs
- Signs that educate about recycling
- Mile markers and signposts

RECREATION FOR THE COMMUNITY

HIKING/BIKING PATHS

- Over 1 mile of hiking and biking trails created on site
- Access to 2100 acres of trails created
- Public safety - CPTED designed park
- Traffic calming trail design - curves and bollards
- Exercise stairs

COMMUNITY GREEN SPACE

- Views from amphitheater seating and picnic area
- Access and equity - community outreach and transportation for people and schools in park poor areas
- Community gatherings/connections in open space
- Threshold design - entrance structures help visitors to adjust from the parking lot to the site.

ENGAGEMENT WITH NATURE

- 435,600 square feet of habitat restored

EDUCATION

- Fire safety programs
- Recycling education
- Waste treatment education
- Outdoor classroom/amphitheater



MISSION CANYON RECLAIMED

METHANE GAS

RAINWATER & GREY WATER

LANDFILL

FIRE HAZARD



ENERGY

IRRIGATION

PARK/TRAILS

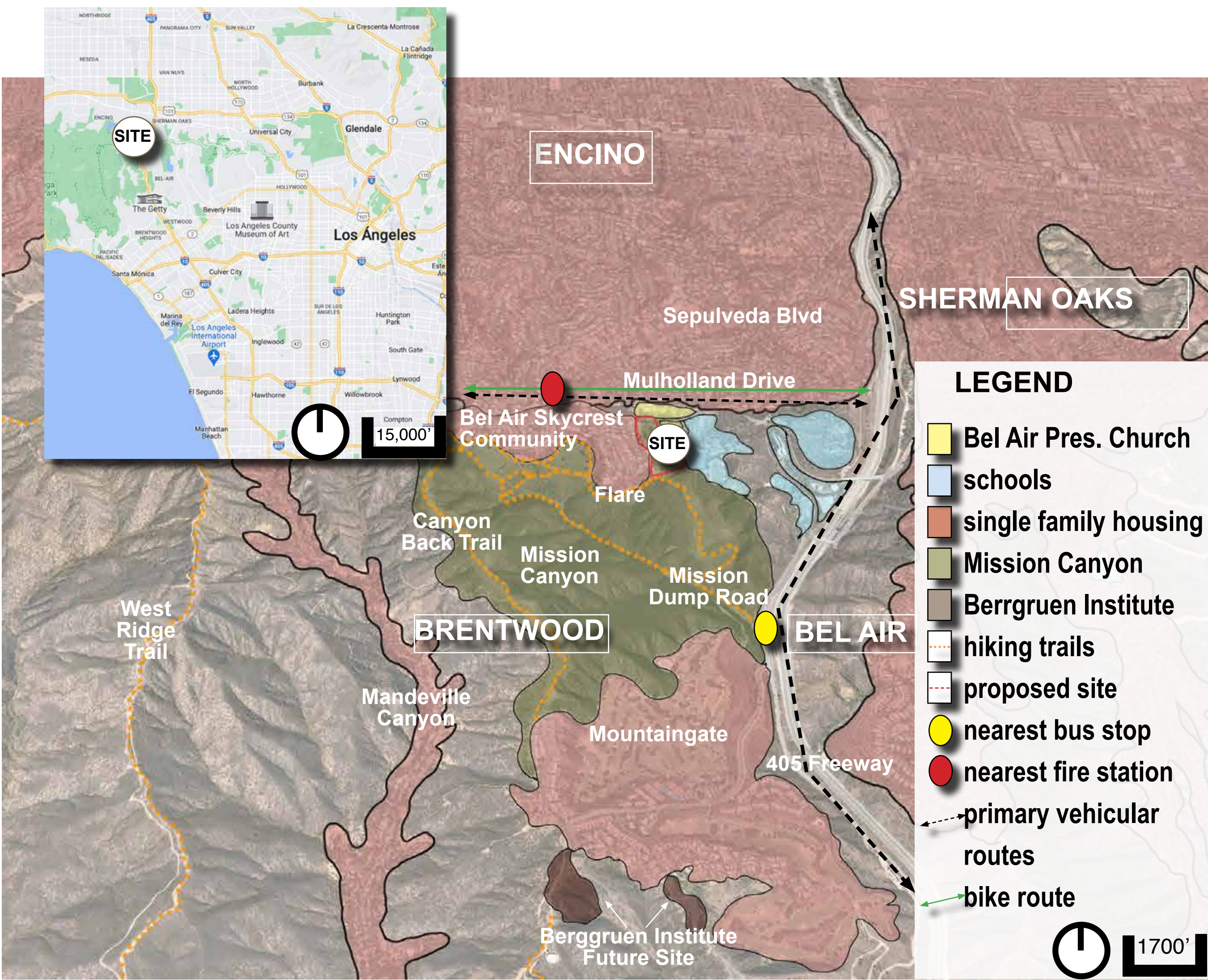
FIRE SAFE



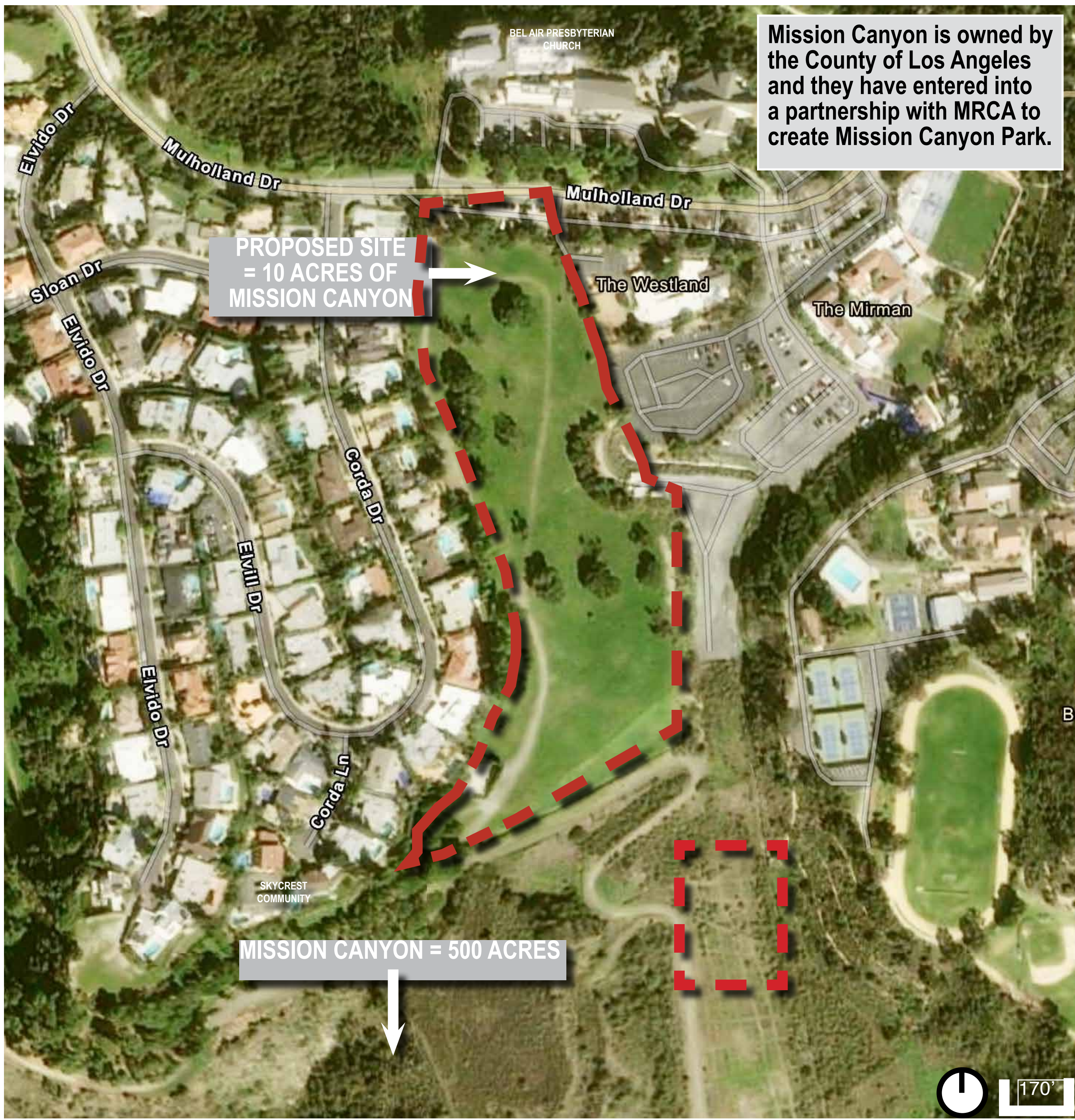
PROJECT STATEMENT

Mission Canyon exhibits common characteristics of a former landfill: excessive methane gas in the ground, settlement, and poor air quality. The site will be a model for land reclamation and sustainability by incorporating **REGENERATIVE** design, to promote ecological **RESILIENCY**, and provide **RECREATION**, and **RESOURCE** opportunities.

CONTEXT



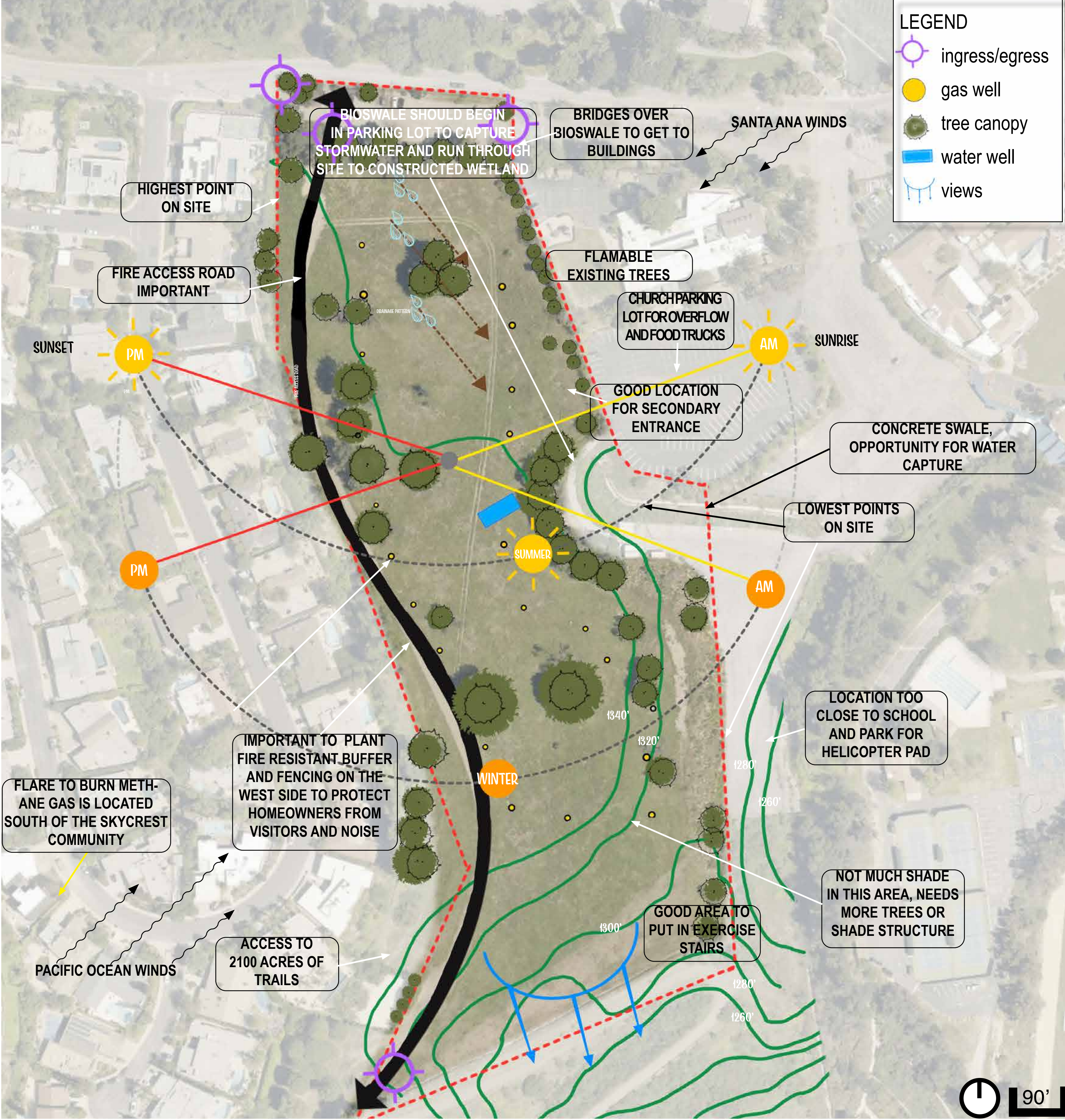
SITE LOCATION



RECLAIMING MISSION CANYON
PROJECT GOALS AND OBJECTIVES

1. site safety with REGENERATIVE design • reduce green house gas • improve soil quality • safe gas wells • plan for settlement from soil compaction	2. improve ecological RESILIENCY for wildlife and community • stormwater management • drought tolerant/native plants • fire safe habitat • heat island reduction	3. RECREATION for the community • hiking/biking paths • community green space • engagement with nature • education	4. RESOURCES for the community • ranger residence • fire fighting resources • helipad for fire department • educational signage
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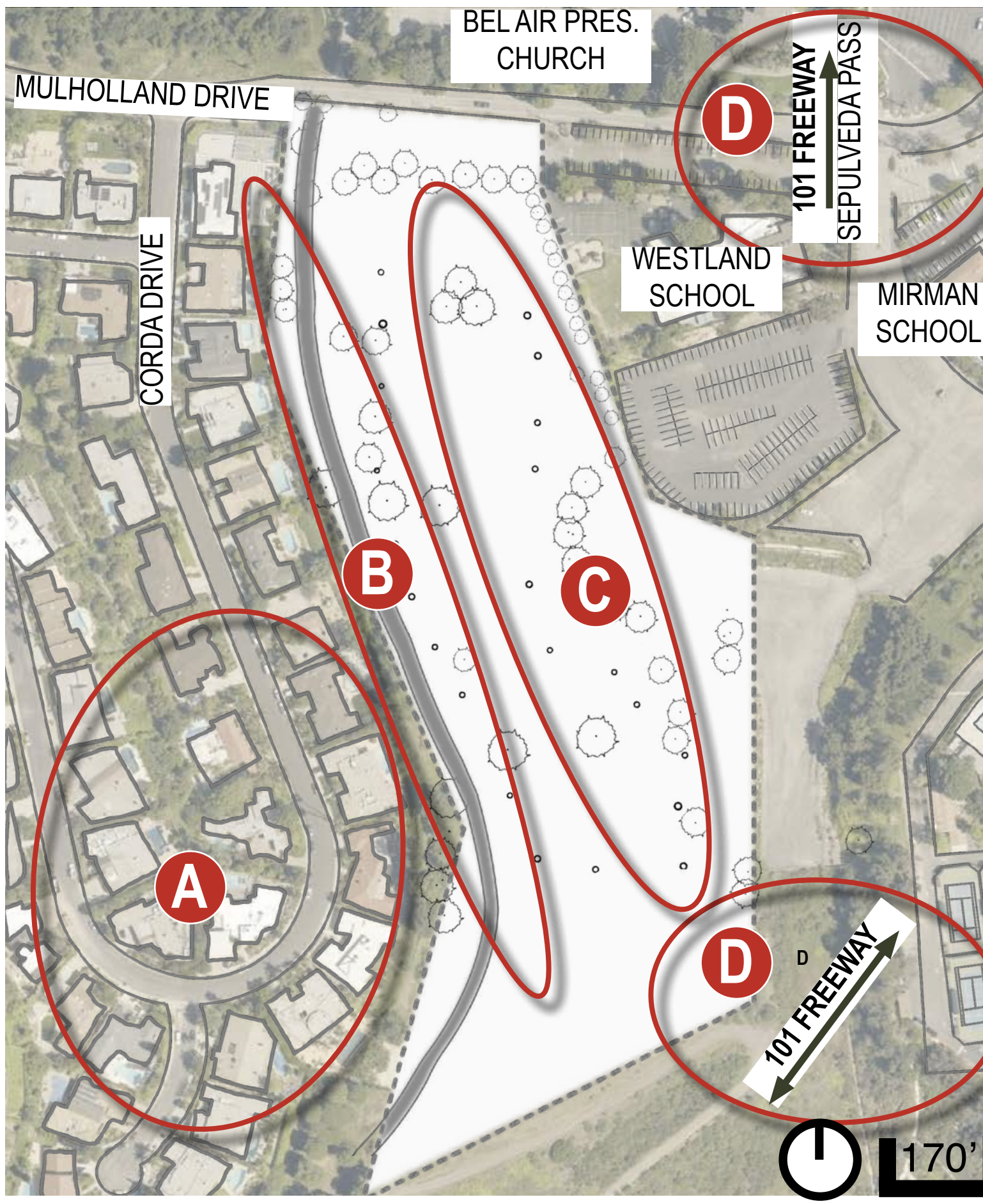
SITE ANALYSIS



SITE HISTORY

1950s - Site Purchased by Los Angeles County
1950 - 1980 - Site used as a dump for the City of Los Angeles for non-hazardous waste
1960s - County agreed to leave land "in a condition usable for park and recreational purposes" when no longer needed as a trash disposal site.
late 1960s-early 1970s - Site stopped accepting trash.
1980 - Site was covered with three feet of clean earth that was compacted to accommodate park and recreational use.
1980s - LA County considered lease or sale of the land to a third party for a golf course, housing project, or land trade with a luxury developer.
1990 - Court ruling caused developer Ray Watt to abandon his plans for a land swap.
2014 - County funded MRCA to develop designs to turn the 500 acres of decommissioned landfill site into the Mission Canyon Park Project.

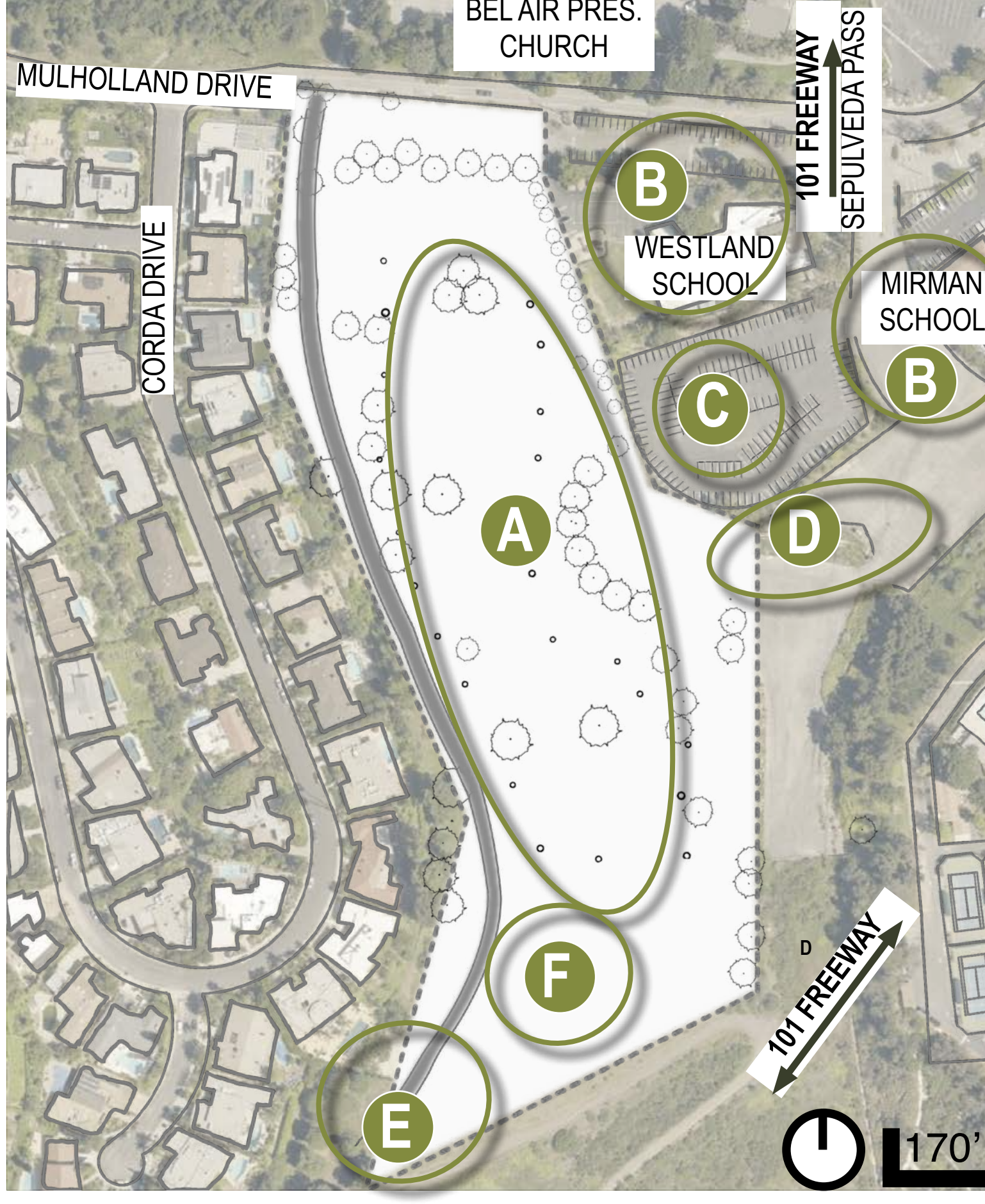
SITE CONSTRAINTS



- LEGEND**
- A** residential neighborhood on western border will not want loss of privacy
 - B** location is high fire severity zone, must keep fire road and choose fire safe plants
 - C** Gas wells can't be moved and need to have safety covers
 - D** Freeway noise and pollution



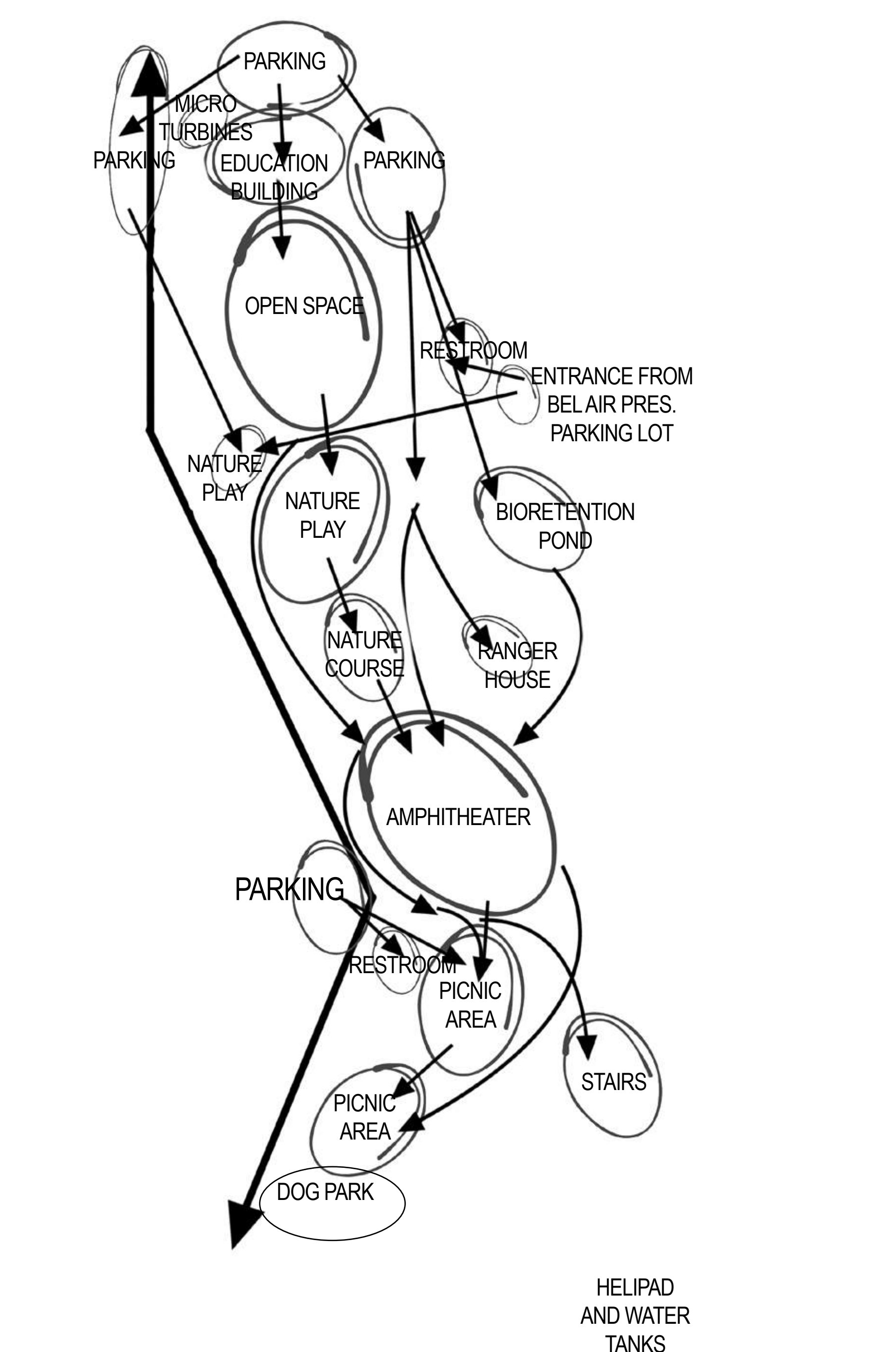
SITE OPPORTUNITIES



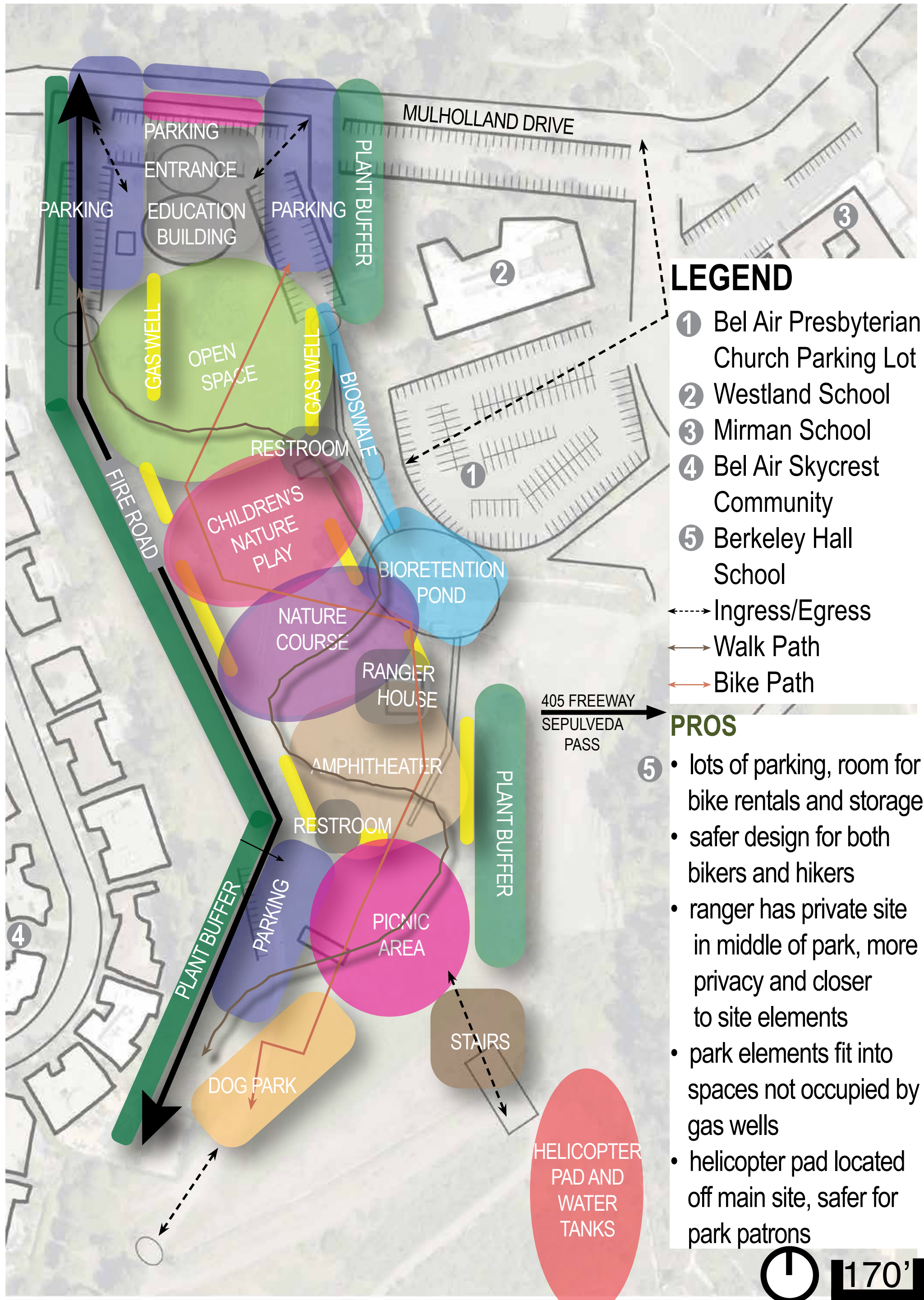
- LEGEND**
- A** methane gas from landfill has collection system in place. The gas is flared, it could be used to power microturbines.
 - B** Many schools are located within a close proximity to the site for field trips.
 - C** parking lot owned by Bel Air Pres. Church could be used for extra parking and food trucks
 - D** concrete swale could capture water to be reused in the park
 - E** access to 2100 acres of hiking trails in the Santa Monica Mountains
 - F** amazing canyon views



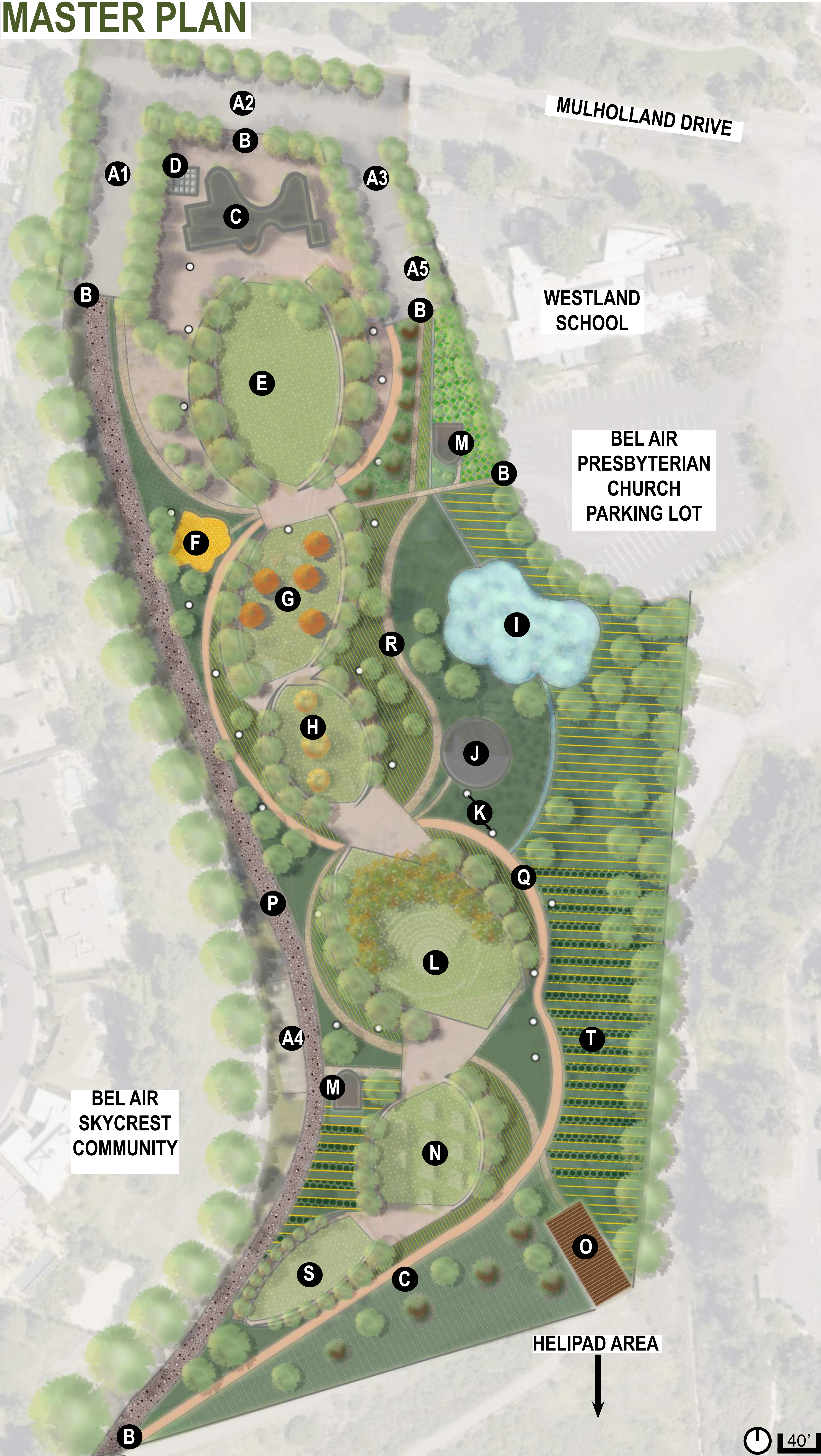
CONCEPTUAL DESIGN
FLOW CHART



CONCEPT DIAGRAM



MASTER PLAN



HELIPAD AREA

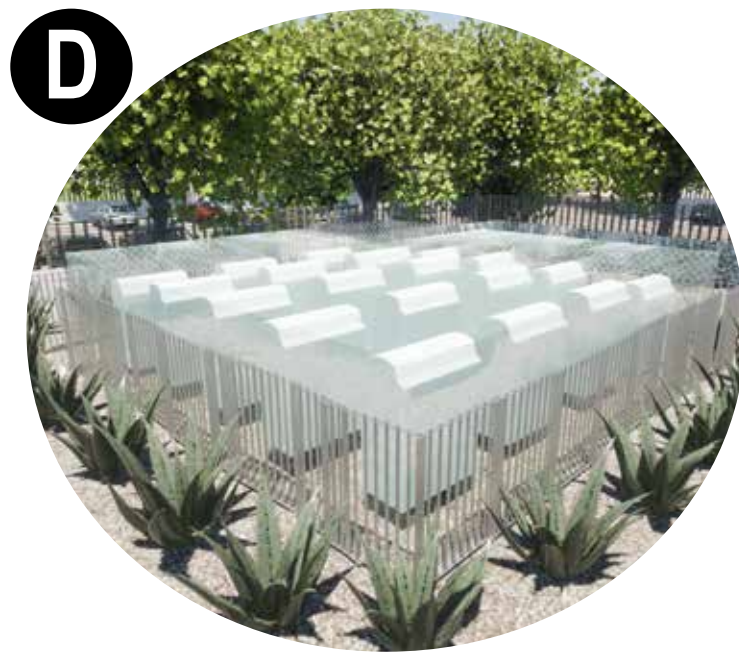


LEGEND

- A1 parking lot - 36 spaces
- A2 parking lot - 26 spaces
- A3 parking lot - 16 spaces
- A4 parking lot - 14 spaces
- A5 solar powered bicycle rental
- B entrance/exit structure
- C education building with green roof
- D microturbine area
- E community open space
- F children's nature play area
- G older children's nature play area
- H adult exercise nature course
- I bioretention pond and bioswales
- J ranger house
- K gas well
- L amphitheater
- M restroom
- N picnic area
- O exercise stairs
- P fire road
- Q bike path
- R walking path
- S dog park
- T opuntia garden
- U helipad and water tanks

7.0 FINAL PRESENTATION BOARDS





8.1 APPENDIX: INTERVIEW WITH MRCA RANGER

INTERVIEW WITH MRCA PARK RANGER IN CHARGE OF MISSION CANYON PARK 3/29/22

Park has 300 SCFM (square cubic feet per minute) of flow for the methane. Each turbine needs at least 3000 SCFM to run 2 turbines. Calabassas runs 3500 SCFM and has 2 turbines.

Site could have been a power plant but there wasn't enough trash to turn it into a power plant, not enough trash or flow production. Had the site continued to collect waste it might have had enough methane to be a power plant now. Concrete doesn't produce enough methane, but food waste does. 50% methane, 0% oxygen, food, sludge, liquid waste in the sewers good for creating methane.

Water wells test ground water for VOCs (volatile organic compounds). If there is something that needs remediation like arsenic or chloromethane in the water we need to figure out how to get it out, so it doesn't leach into the ground water.

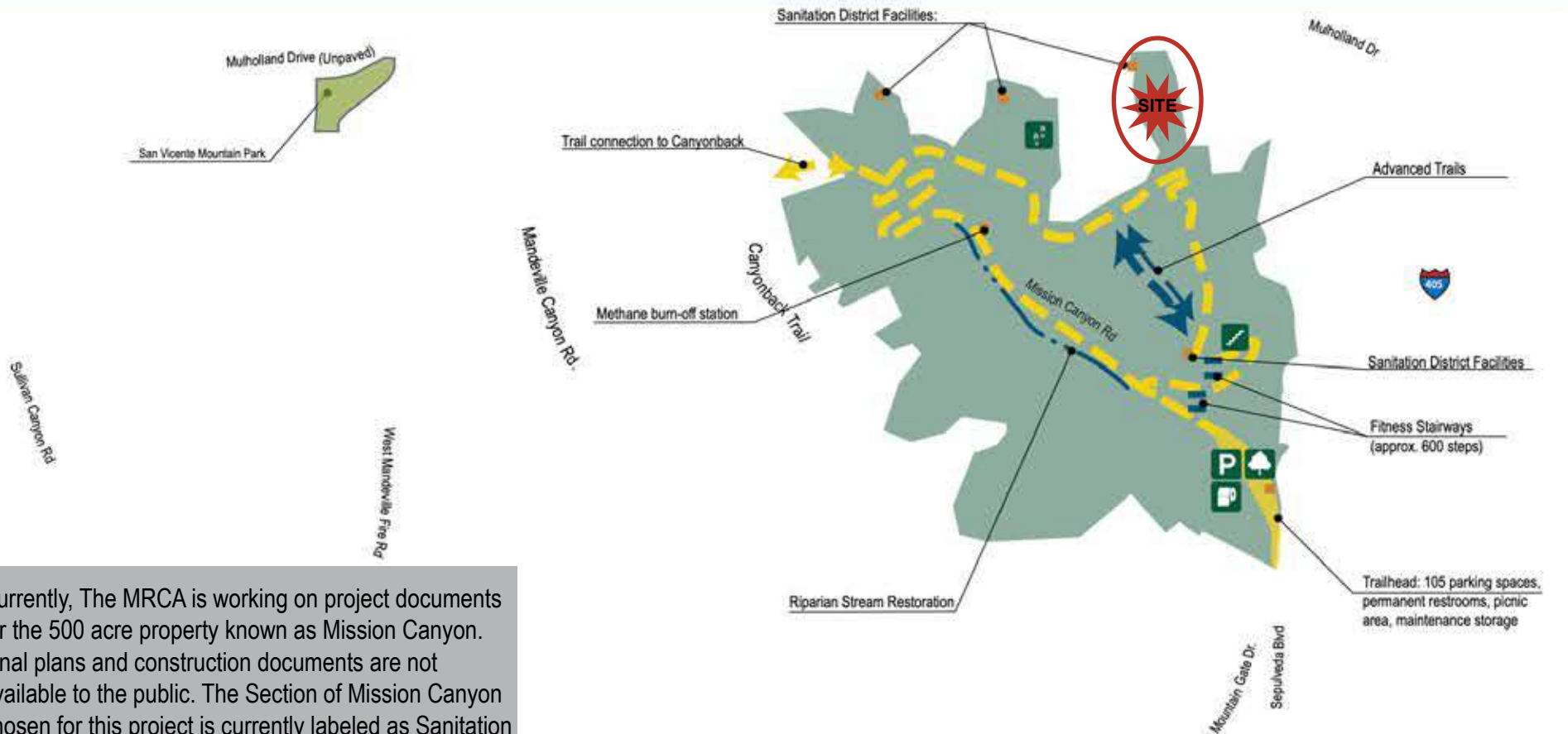
STATEMENT FROM MISSION CANYON PARK WEBSITE

"A gas control system was installed at Mission Canyons 1,2, and 3 in 1982 to control the emission of landfill gas to the environment and to protect the health and safety of the public. The existing control system consists of 58 active vertical gas collection wells and 2.5 miles of gas transport header pipeline. A vacuum is applied to the gas wells such that landfill gas is drawn from the refuse into the gas control system. The collected landfill gas is transported through header pipelines that are situated around the landfill to the on-site flare station for disposal. Presently, approximately 350 cubic feet per minute of landfill gas is collected by the gas control system and disposed by flaring. The collected landfill gas is approximately 10 percent methane, with the remaining 90 percent being mostly air." https://www.missioncanyonpark.com/_files/ugd/a3b0c3_dbf029c117d346048ea05f1614ee59cd.pdf



MISSION CANYON PARK

Larger Vision



Currently, The MRCA is working on project documents for the 500 acre property known as Mission Canyon. Final plans and construction documents are not available to the public. The Section of Mission Canyon chosen for this project is currently labeled as Sanitation District Facilities. The Sanitation District will continue to monitor the gas wells on this part of the site. The visitors to the site will not be able to enter through this project site's area, they will be able to hike into it.

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