Pikes Peak Summit Complex Update
and
Status Update: Pikes Peak Observatory

September 26, 2016

COLORADO SPRINGS
OLYMPIC CITY USA

Pikes Peak Summit Complex Update

September 26, 2016

Jack Glavan, PPAM
Brian Calhoun, RTA
Jim Hopper, GE Johnson

Summit Complex Project

- Public Process
- Environmental Assessment
- Design
- Construction
- Project Funding

Public Process

- Public Meetings:
  - August 25, 2015
  - October 7, 2015
  - January 26, 2016
  - **OCTOBER 18, 2016**
    - Location: City Auditorium
    - Time: 6-8 PM
- E-Newsletters

Environmental Assessment

- Environmental Process Underway
  - Entire Site Above 14,000' Considered
  - State Historical Preservation Office (SHPO), Tribal Governments, US Fish and Wildlife, and National Park Service Consultations have been initiated by USFS
  - Draft Environmental Assessment (EA) /Finding of no Significant Impact (FONSI) scheduled to be released for Public Comment: October 12, 2016
  - Goal: Final EA/FONSI issued by December 2016

Design

- Design Started:
  - Jun 2015
- Schematic Design:
  - Feb 2016
- Final Design:
  - Feb 2017

Site Plan

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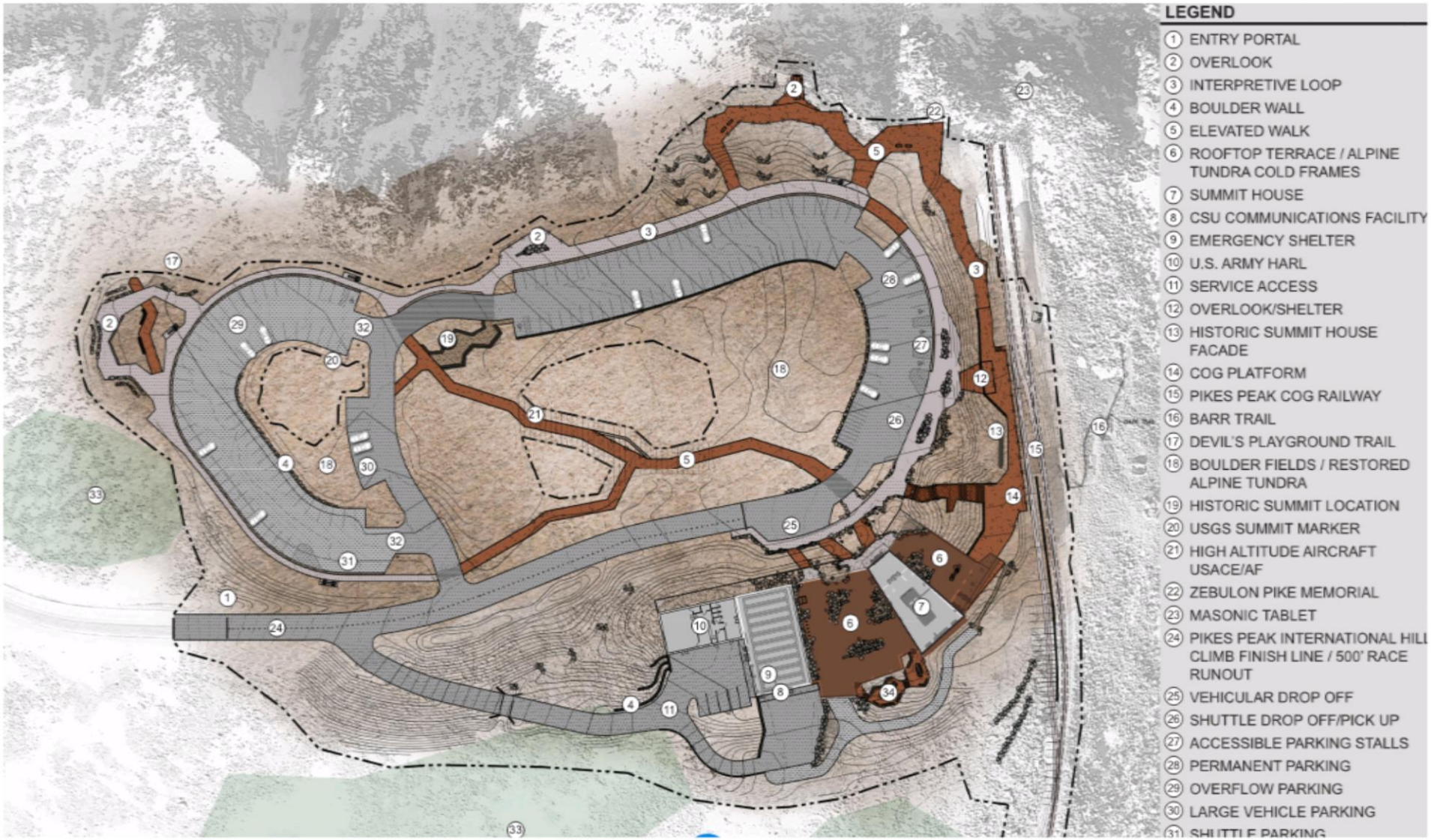
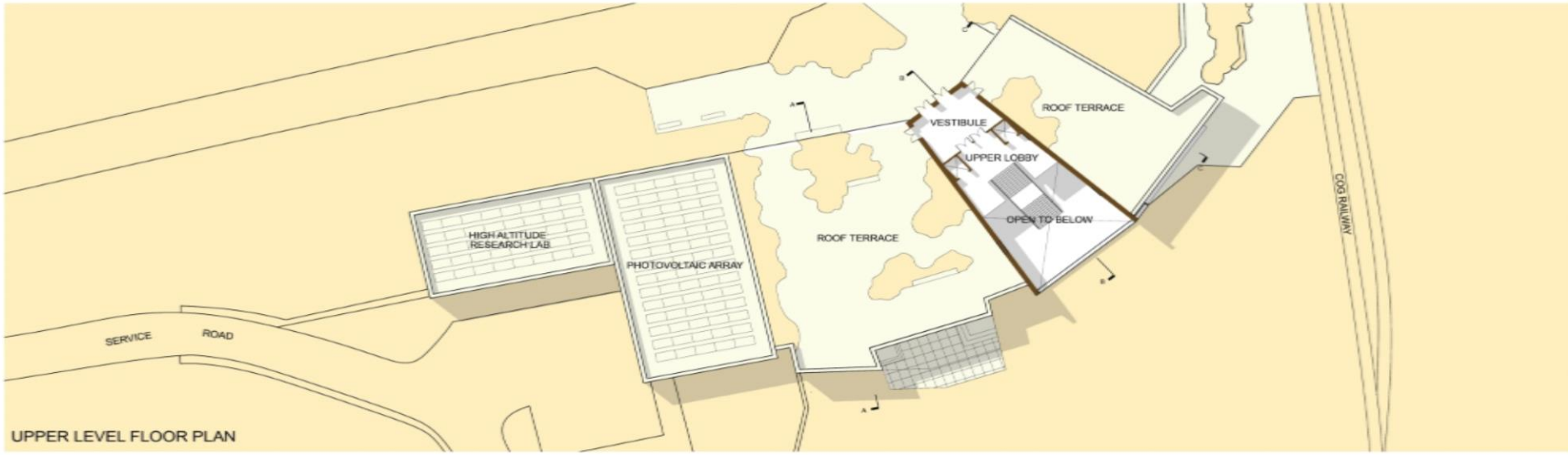


Floor Plan



UPPER LEVEL FLOOR PLAN

LOWER LEVEL FLOOR PLAN

Main Level Floor Plan

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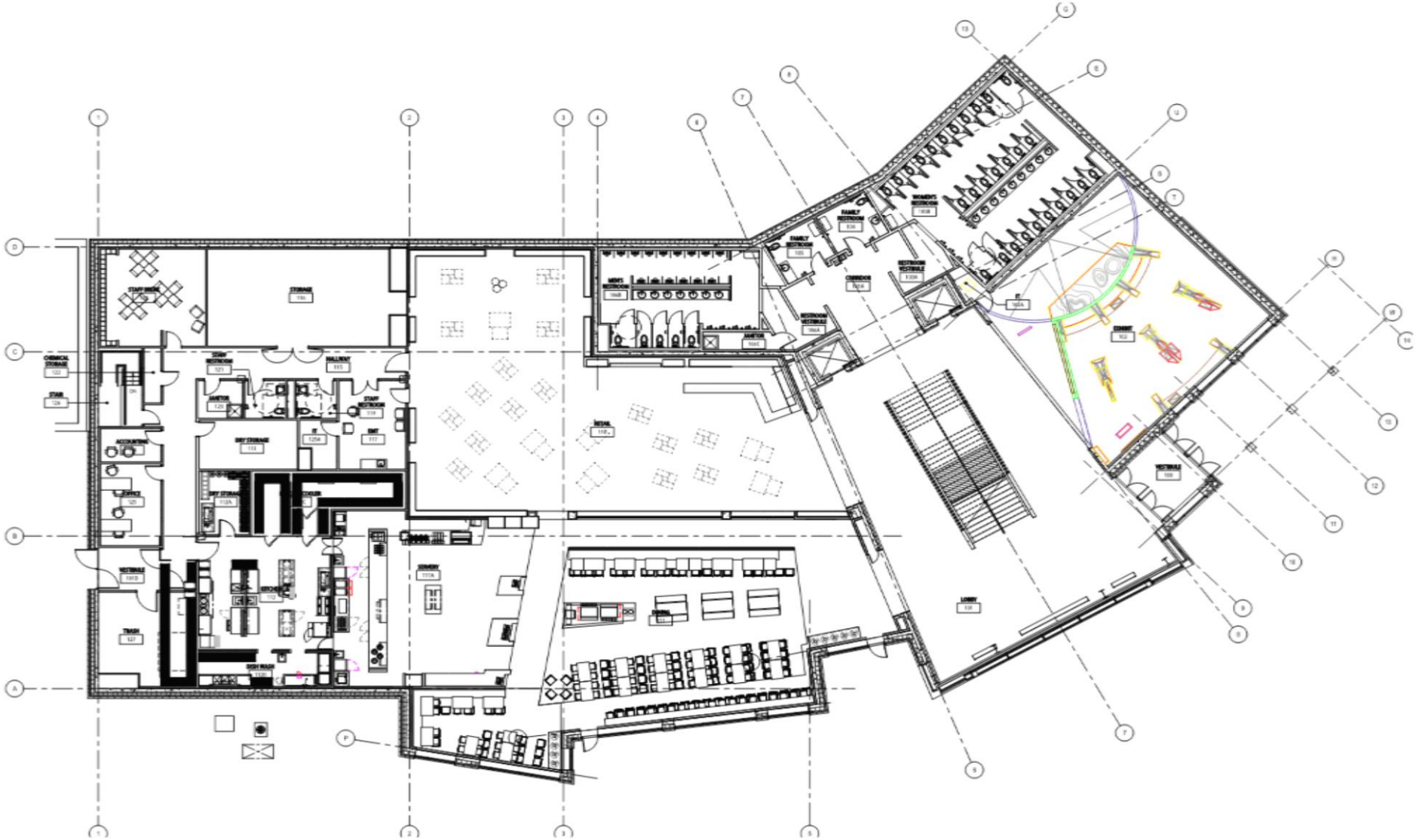
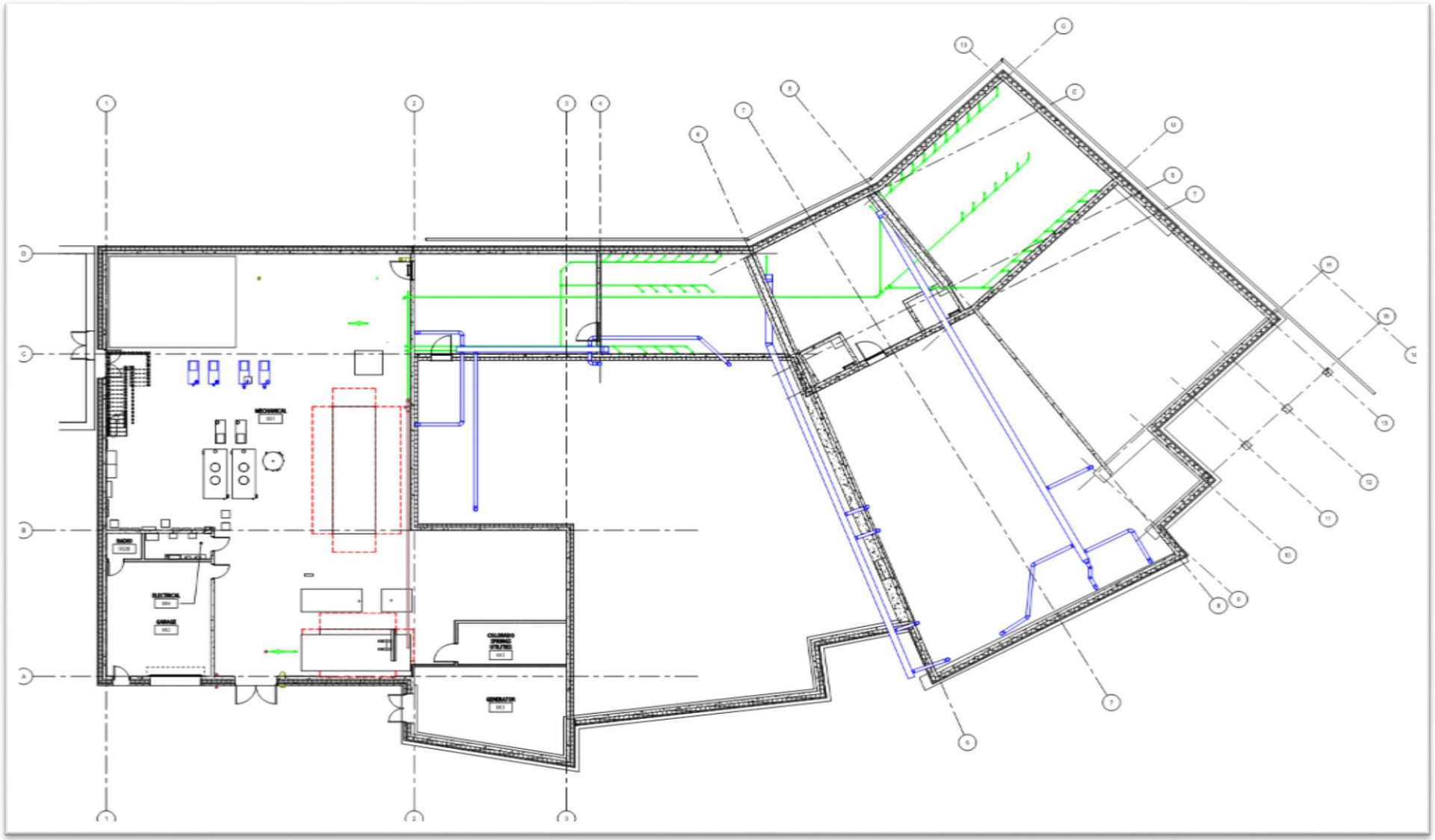


Lower Level Floor Plan



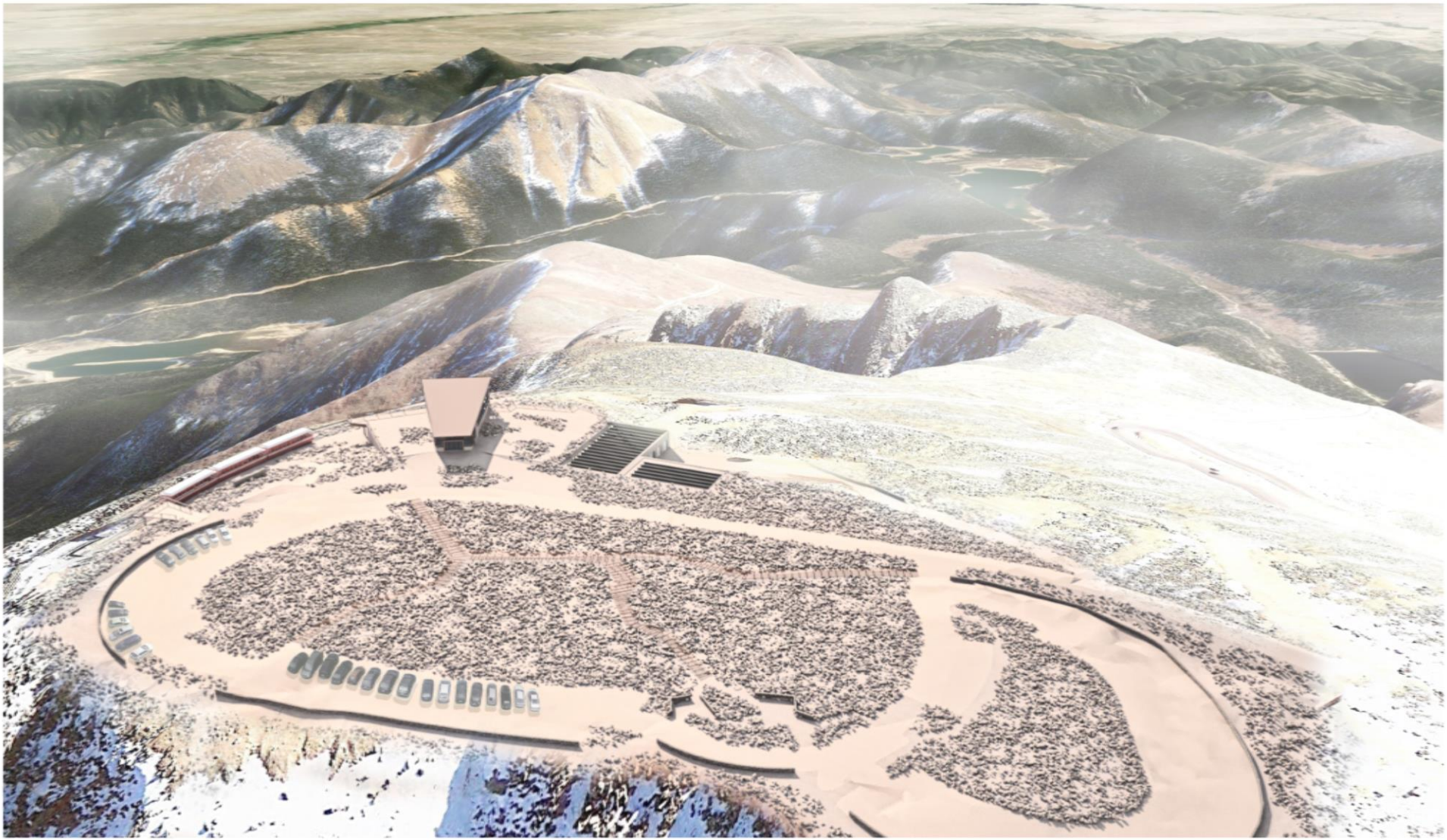
Building Sections

BUILDING SECTION B

BUILDING SECTION A

BUILDING SECTION C

Site Ariel



Summit Marker

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Northern Overlook

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Vehicle Approach

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Vestibule View of Mt. Rosa

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Cog Railway Approach

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Cog Platform

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Lower Level Entry

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Outdoor Dining Patio

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Roof Top Terrace

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Site Axonometric

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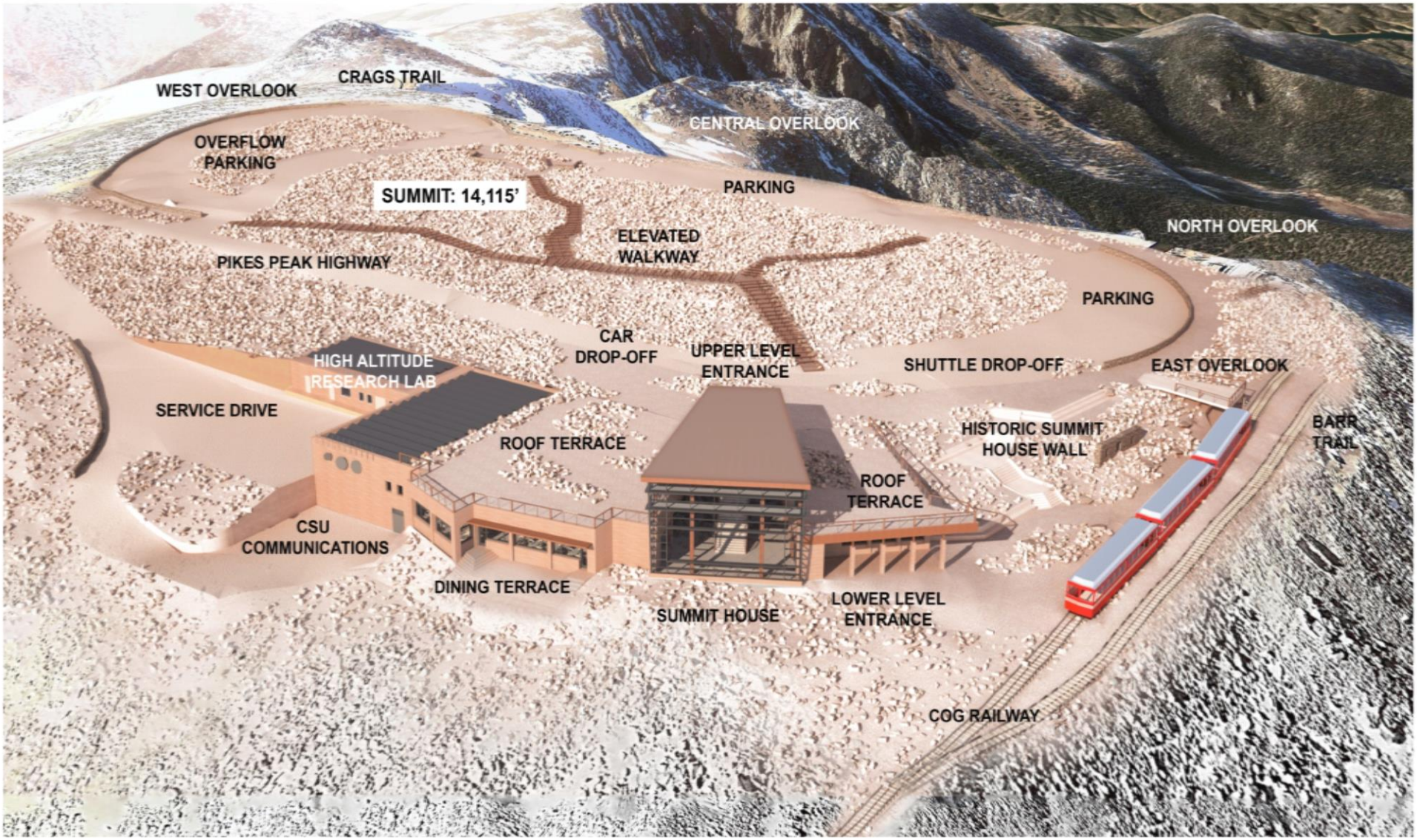
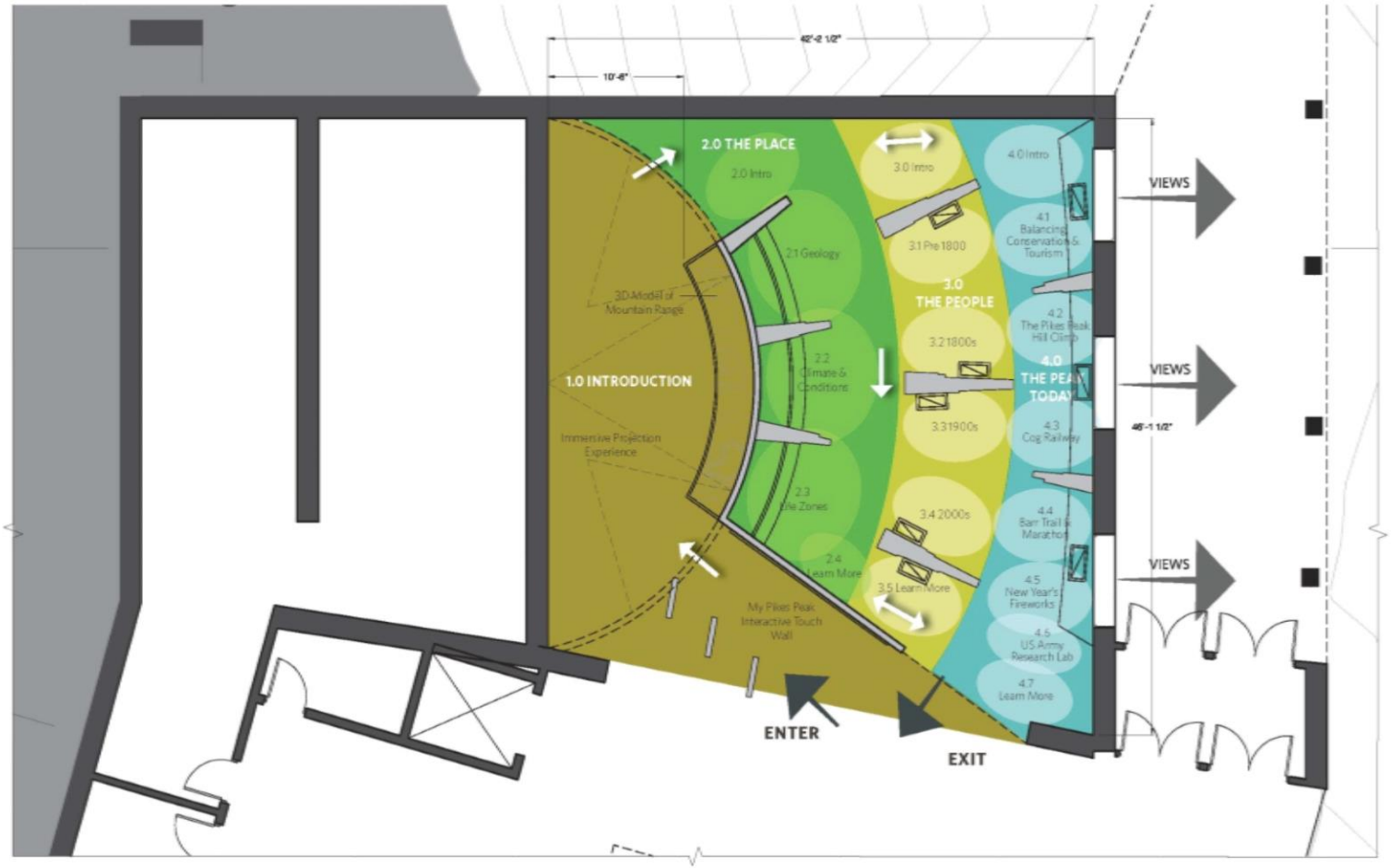


Interpretive Floor Plan



Interpretive Signage

Interpretive Themes

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Interpretive Themes

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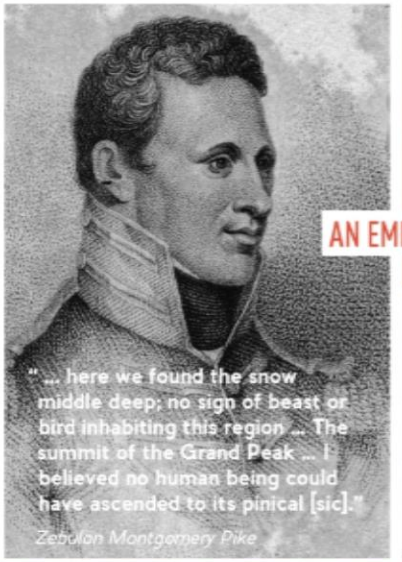

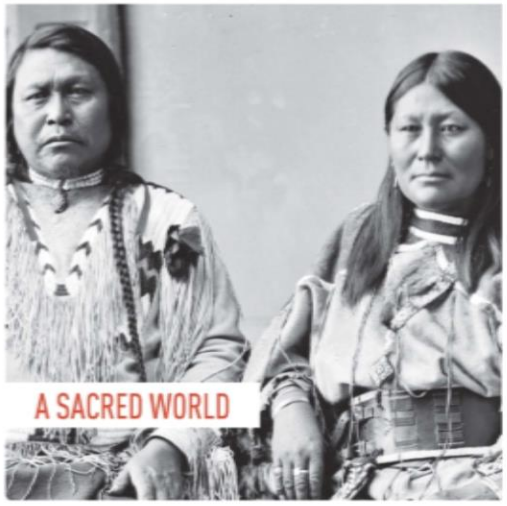

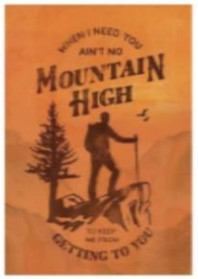

Interpretive Themes

COLORADO SPRINGS
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Sustainability Goals

Construction

- Construction Estimate
- Constructability Studies
- Construction Schedule
  - Construction, Phase 1
    - Demolition of Plant Building
    - HARL
  - Construction, Phase 2
    - Summit Visitors Center
  - Demolition and Restoration in 2020

Construction Cash Flow

Pikes Peak Summit Complex

GE Johnson Construction Company

Yearly Cash Flow Analysis

31-Aug-16

System	Description of Work	Year 2016	Year 2017	Year 2018	Year 2019	Grand Total
0	Enabling Work - Precon	$150,000	$350,000			$500,000
1	Demolition		$600,000		$340,000	$940,000
2	Site Work		$4,500,000	$2,395,000	$1,620,000	$8,515,000
3	Foundations		$910,000	$1,682,000	$0	$2,592,000
4	Substructure		$446,500	$2,160,000	$0	$2,606,500
5	Superstructure		$400,000	$3,475,475	$0	$3,875,475
6	Exterior Skin		$0	$1,623,000	$1,120,000	$2,743,000
7	Roofing		$0	$680,000	$76,000	$756,000
8	Interiors		$0	$1,020,000	$3,055,000	$4,075,000
9	Conveying		$0	$94,000	$210,000	$304,000
10	Equipment - Not Used		$0	$0	$0	$0
11	Fire Protection		$0	$30,000	$92,000	$122,000
12	Plumbing/Mechanical		$275,000	$2,698,000	$1,624,500	$4,597,500
13	Electrical		$125,000	$875,000	$1,363,000	$2,363,000
14	GC's/GR's and Indirect Costs		$2,300,000	$3,022,000	$2,400,000	$7,722,000
15	Contingency and Escalation		$489,000	$750,000	$400,000	$1,639,000

Grand Total	$150,000	$10,395,500	$20,504,475	$12,300,500	$43,350,475
Percentage Complete		24%	47%	28%	

Construction Phasing Plan

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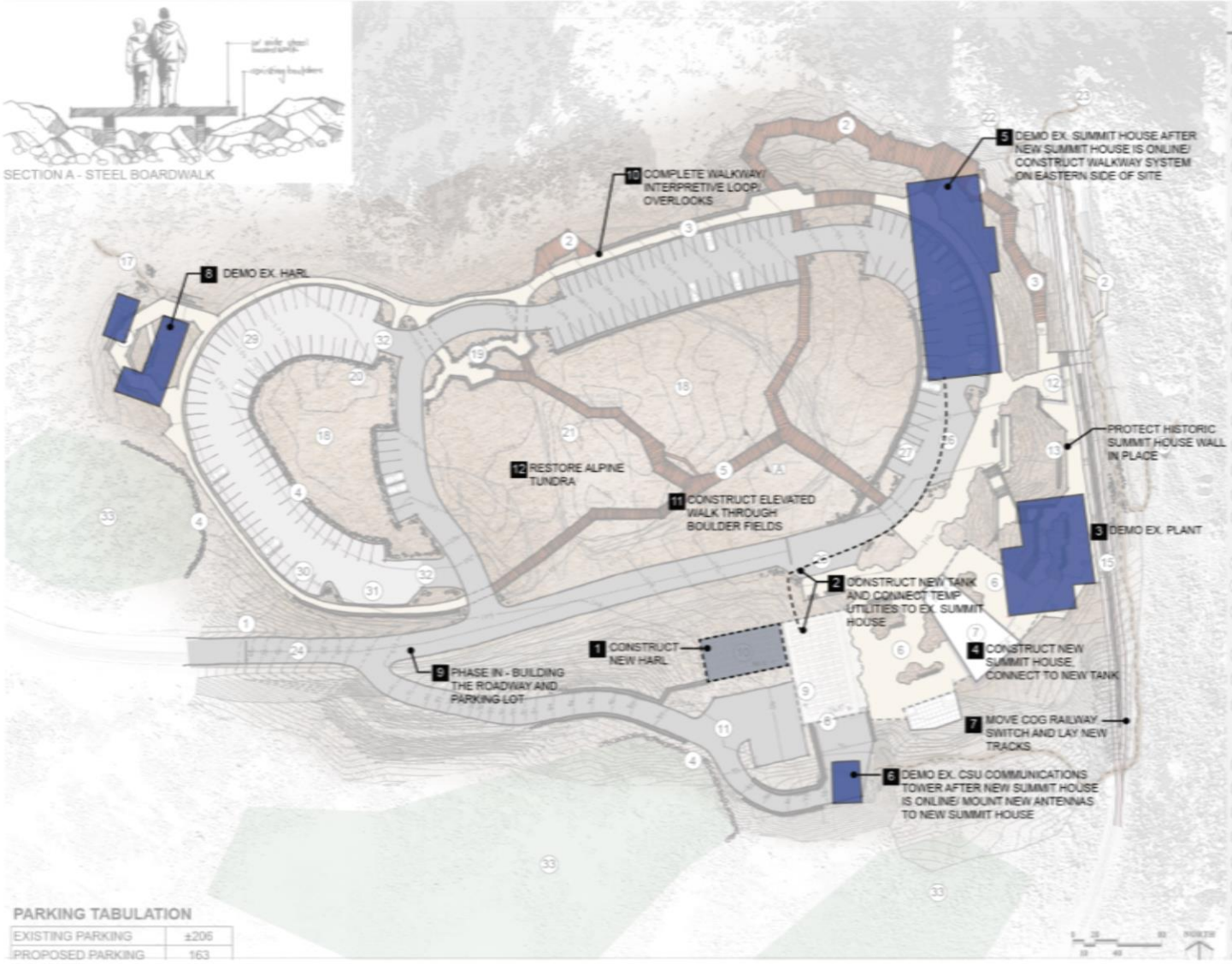

LEGEND

1. ENTRY PORTAL
2. OVERLOOK
3. INTERPRETIVE LOOP
4. BOULDER WALL
5. STEEL ELEVATED WALK
6. ROOFTOP TERRACE / ALPINE TUNDRA COLDFRAMES
7. SUMMIT HOUSE
8. CSU COMMUNICATION ANTENNAS ON BUILDING
9. EMT ROOM
10. HIGH ALTITUDE RESEARCH LAB
11. SERVICE ACCESS
12. OVERLOOK/SHELTER
13. HISTORIC SUMMIT HOUSE FACADE
14. COG PLATFORM
15. PIKES PEAK COG RAILWAY
16. BARR TRAIL
17. CRAGS TRAIL
18. BOULDER FIELDS / RESTORED ALPINE TUNDRA
19. HISTORIC SUMMIT LOCATION
20. USGS SUMMIT MARKER
21. HIGH ALTITUDE AIRCRAFT USACE/AF
22. ZEBULON PIKE MEMORIAL
23. MASONIC TABLET
24. PIKES PEAK INTERNATIONAL HILL CLIMB FINISH LINE / 500' RACE
25. VEHICLE DROP OFF
26. SHUTTLE DROP OFF/PICK UP
27. ACCESSIBLE PARKING STALLS
28. PERMANENT PARKING
29. OVERFLOW PARKING
30. LARGE VEHICLE PARKING
31. SHUTTLE PARKING
32. GATE
33. UNDISTURBED ALPINE PARSLEY

PARKING TABULATION

EXISTING PARKING	±206
PROPOSED PARKING	163

2017 Site Logistics

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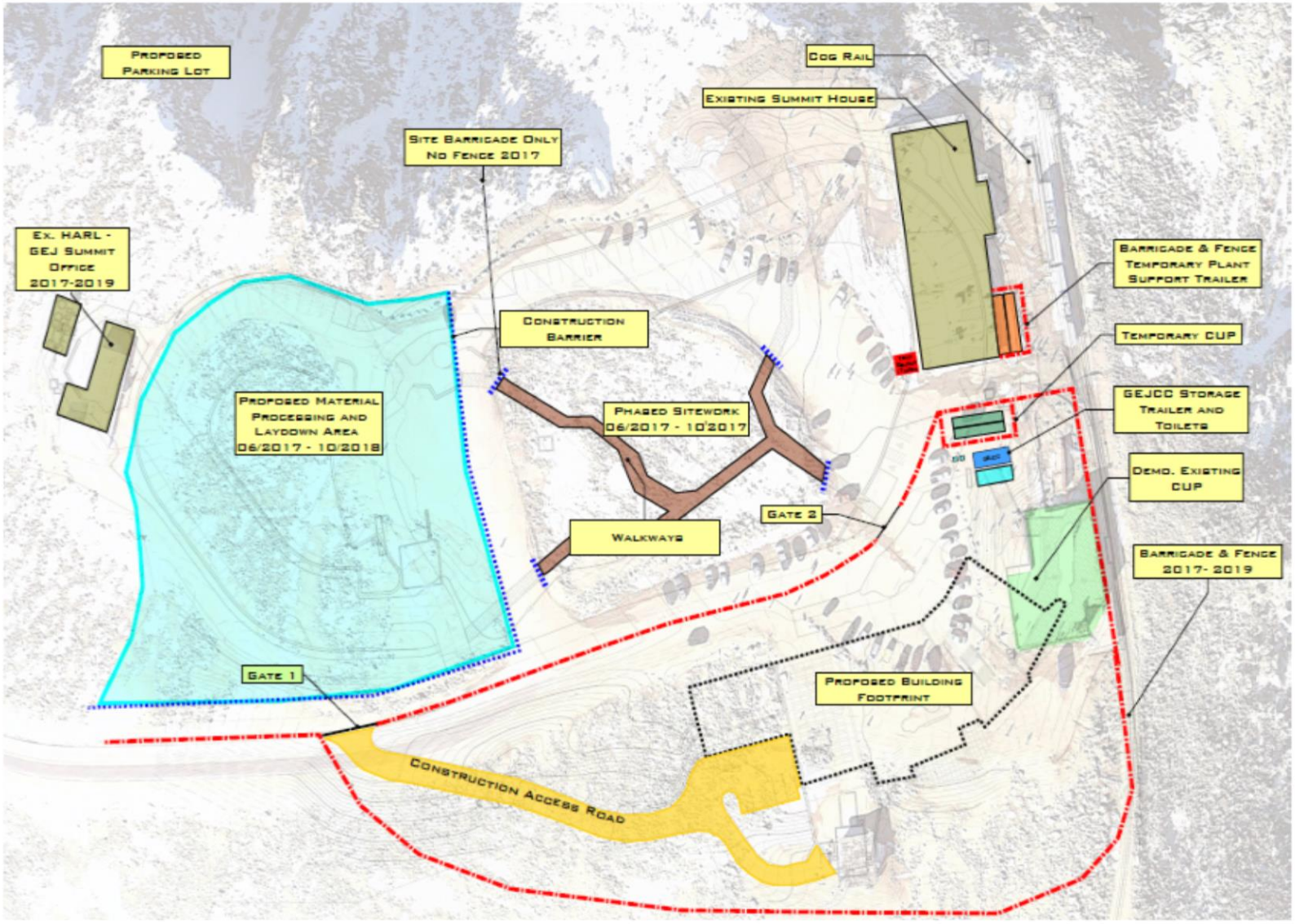

Pikes Peak Summit Complex Summer 2017 Site Logistics

Activities 2017

- Establish site logistics
- Enabling Work
  - Establish Temp CUP
  - Establish Temp Power
- Demolish Existing Plant Building
- Drill & Blast Foundations
- Excavate Foundations
- Begin Excavated Material Processing.
- Install Foot/Found.
- As-Built for 4D Modeling

Legend

- Construction Fence
- GEJCC Office
- Emergency Shelter
- Lay-Down Area
- Building Footprint
- Existing Building
- Construction Traffic
- Crane Pad

GEJOHNSON CONSTRUCTION COMPANY

SAFETY STARTS HERE

100% Fall Protection
Hard Hats, Safety Glasses
Shirts with 4 in Sleeves
Long Pants, Work Boots
No Drugs/ Alcohol Usage
No Firearms/ Explosives
No Personal Radios
Reflective Vests/Garments
10 MPH Jobsite Speed Limit

These are a condition of employment on this Project

2018-2019 Site Logistics

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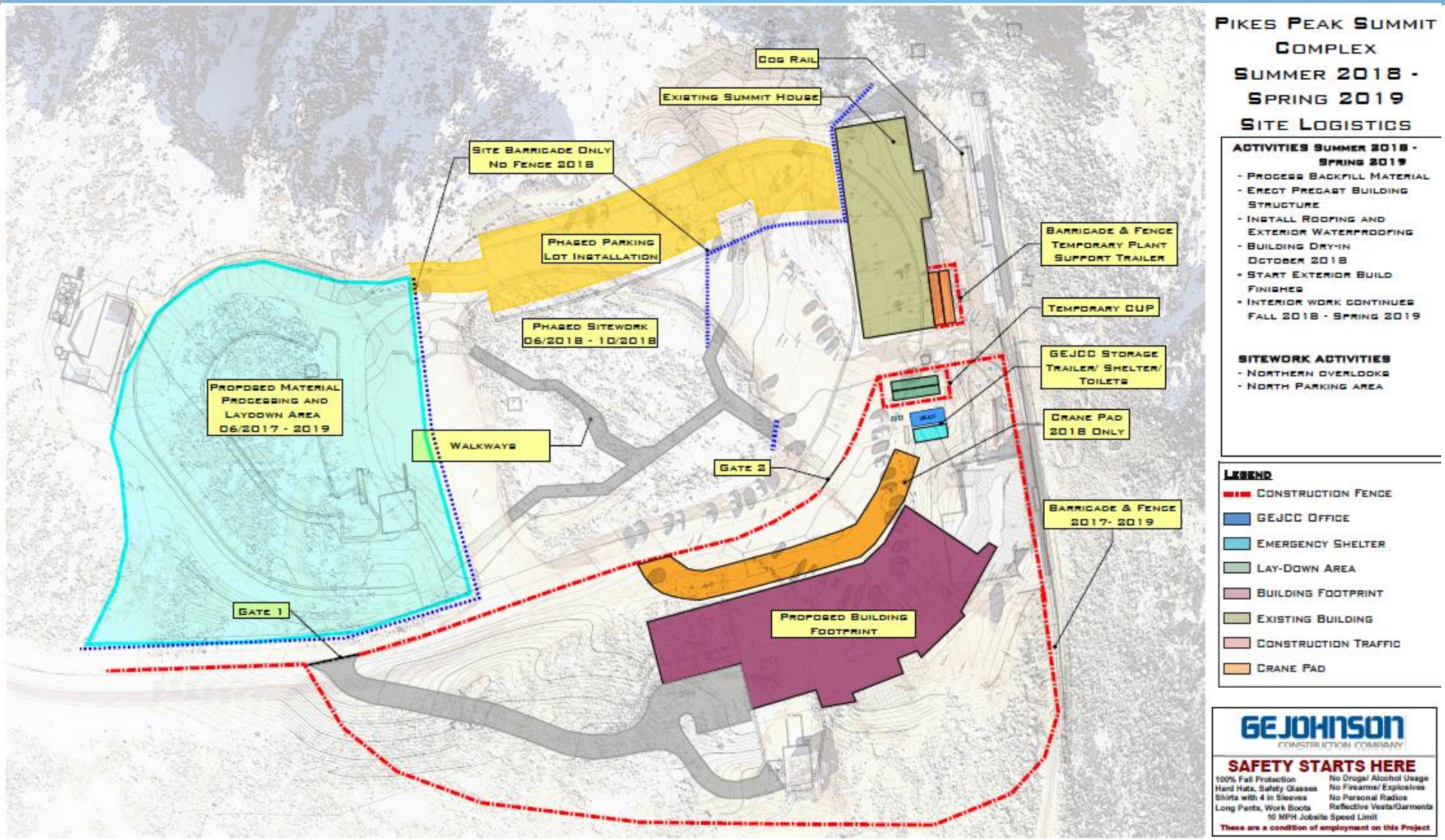
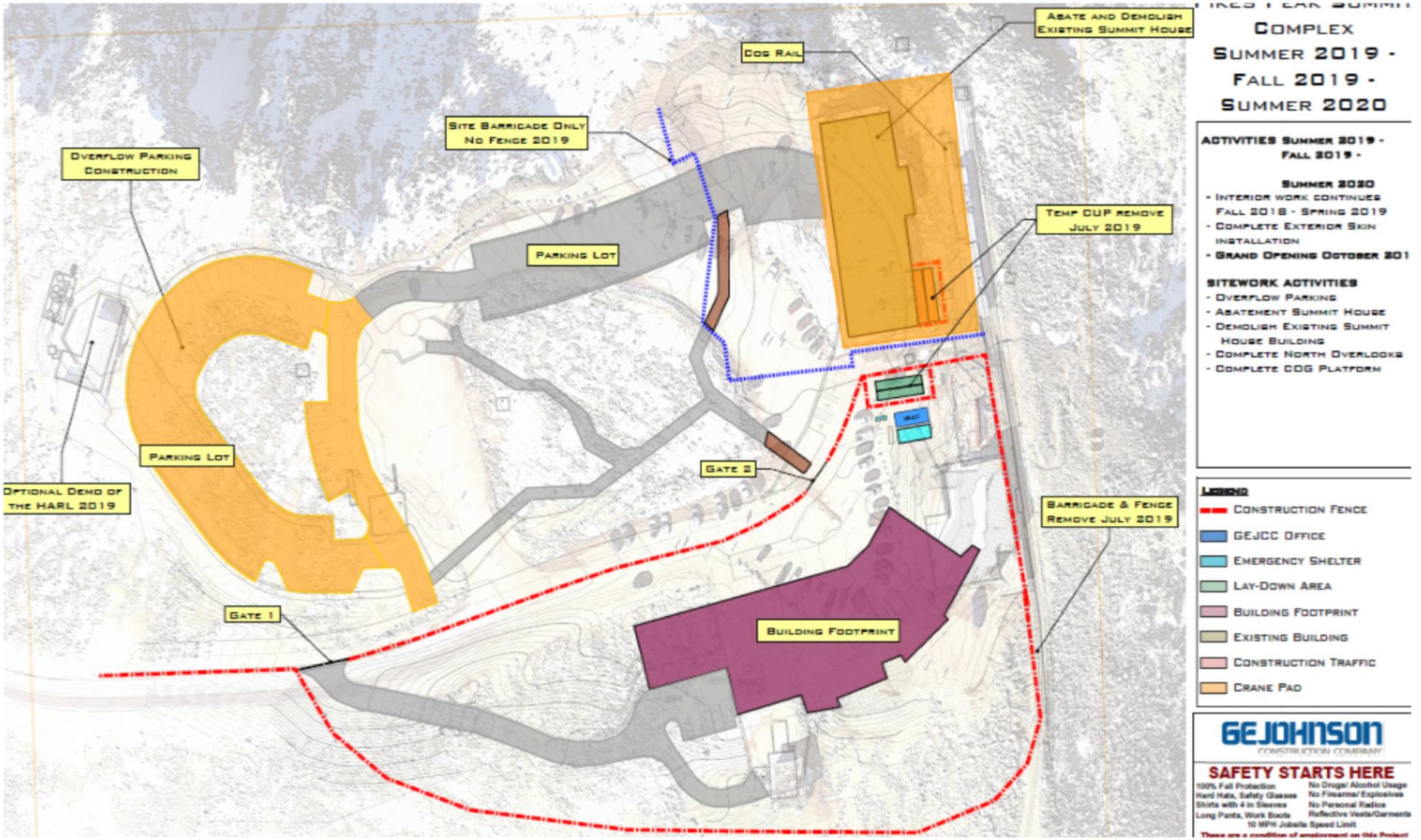
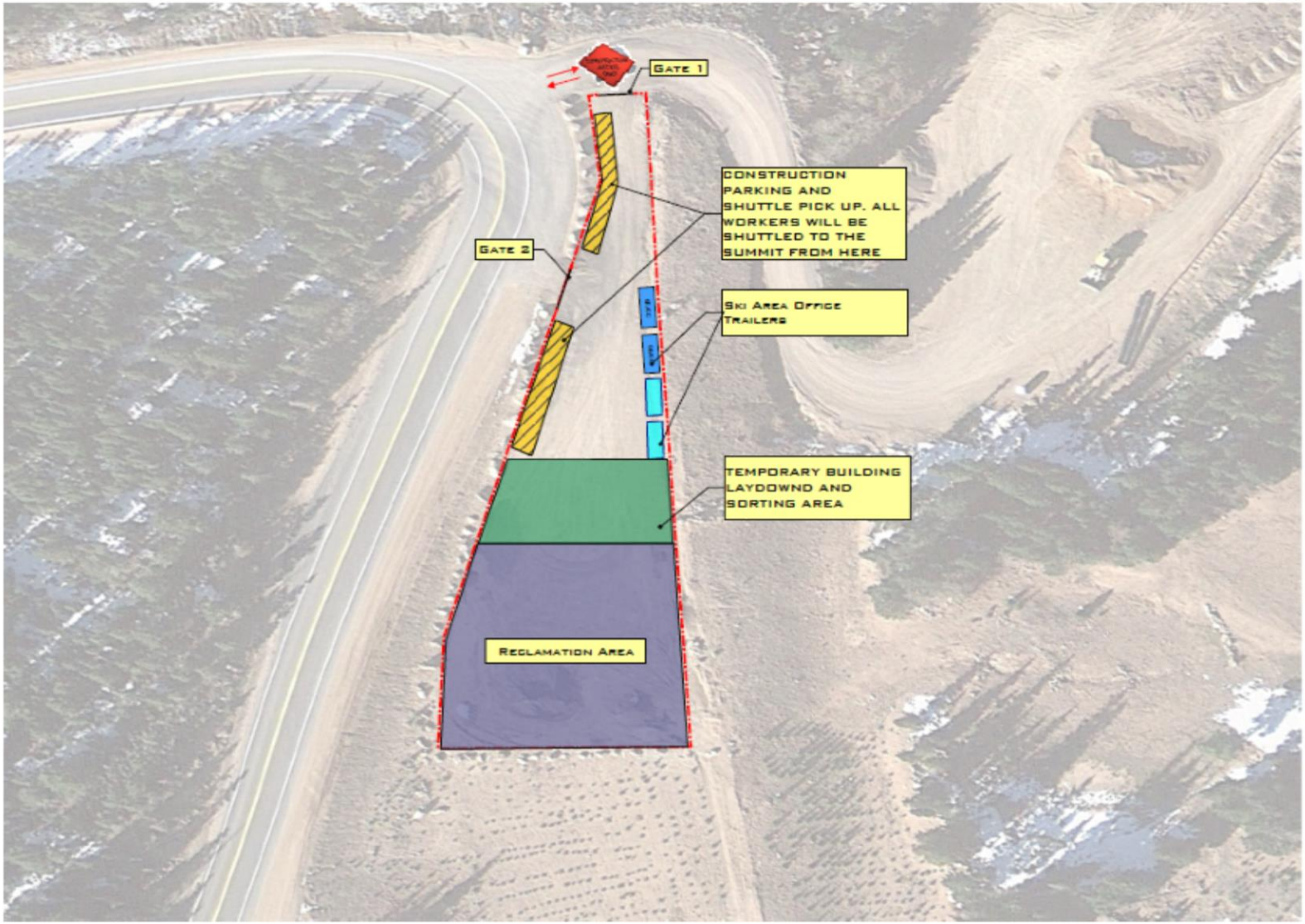


2019-2020 Site Logistics



Ski Area Site Logistics



PIKES PEAK
SKI AREA
SITE LOGISTICS
05/24/2016

LEGEND
- CONSTRUCTION FENCE
- GEJCC OFFICE
- EMERGENCY SHELTER
- LAY-DOWN AREA
- BUILDING FOOTPRINT
- EXISTING BUILDING
- CONSTRUCTION TRAFFIC
- CRANE PAD

GEJOHNSON CONSTRUCTION COMPANY

SAFETY STARTS HERE

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Hard Hats, Safety Glasses
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No Personal Radios
Reflective Vests/Garments
10 MPH Jobsite Speed Limit
These are a condition of employment on this Project

Financial Need

Total Construction Cost (estimated): **$45-50M**

PPAM Fund:	$ 6.0M
PPAM 2017 Contribution:	$ 1.0M
CSU (Construction Est.):	$ 0.5M
Bonding Potential:	$15.0M
LART *:	$ 0.5M
Subtotal:	$23.0M

Fundraising Required: **$27.0M**

Fundraising Firm: Benefactor Group

Feasibility Study: Estimated Completion: Mar 2017

*LART commitment of $1M over 4 years. Received to date: $0.5M

Questions

Status Update: Pikes Peak Observatory

September 26, 2016

Bob Sallee, PPO
Dimitri Klebe
Mark Miesch
Neal Lamping

Pikes Peak Observatory

SF-299: Application For Transportation And Utility Systems And Facilities On Federal Lands

- Project Description
- Type of system/facility
- Related structures
- Physical specifications
- Term of years needed
- Time of year of operation
- Volume or amount of product to be transported
- Duration and timing of construction
- Temporary work areas needed for construction
- Map covering area and location of project

Pikes Peak Observatory

SF-299: Application For Transportation And Utility Systems And Facilities On Federal Lands (cont.)

- **State or Local government approval**
  - (attached, applied for, or not required)
- **Technical and financial capability**
  - to construct, operate, maintain, and terminate system
- **Alternative modes considered**
  - Why were these alternatives not selected?
  - Why is it necessary to cross Federal Lands?
- **Need, economic feasibility, cost** cost of best alternative, and expected public benefits.

Pikes Peak Observatory

SF-299: Application For Transportation And Utility Systems And Facilities On Federal Lands (cont.)

- **Probable effects on area population**, including social and economic aspects and rural lifestyles
- **Likely environmental effects**: air quality; visual impact; ground water; noise levels; land surface, vegetation, permafrost, and soil/soil stability
- **Probable effects on plant life, wildlife, endangered species**
- **State whether hazardous material will be used, produced, transported or stored** during construction, operation, maintenance or termination of facilities

Pikes Peak Observatory

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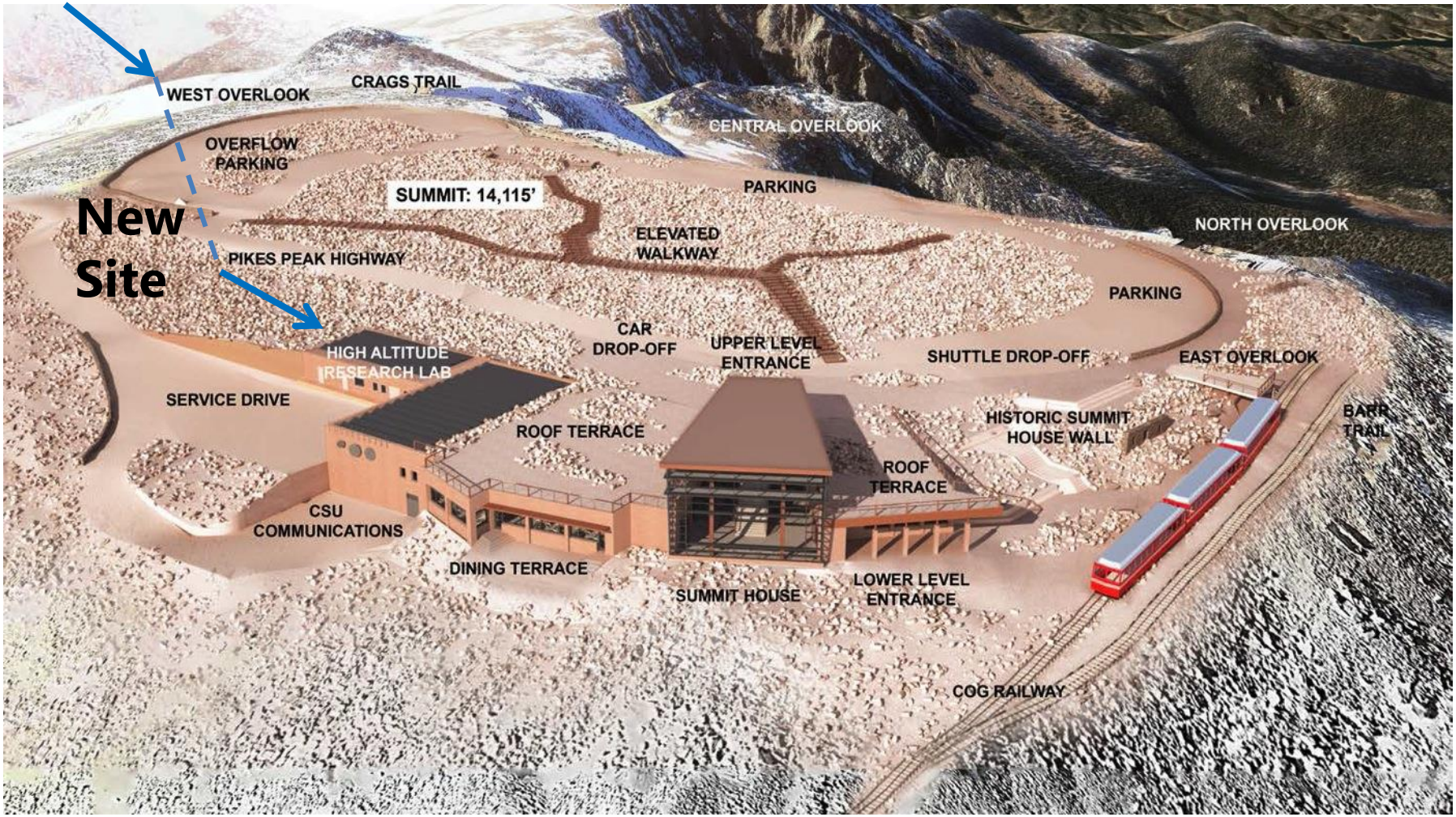
U.S. Army High Altitude Research Lab

Pikes Peak Observatory

Former Site of HARL



Pikes Peak Observatory

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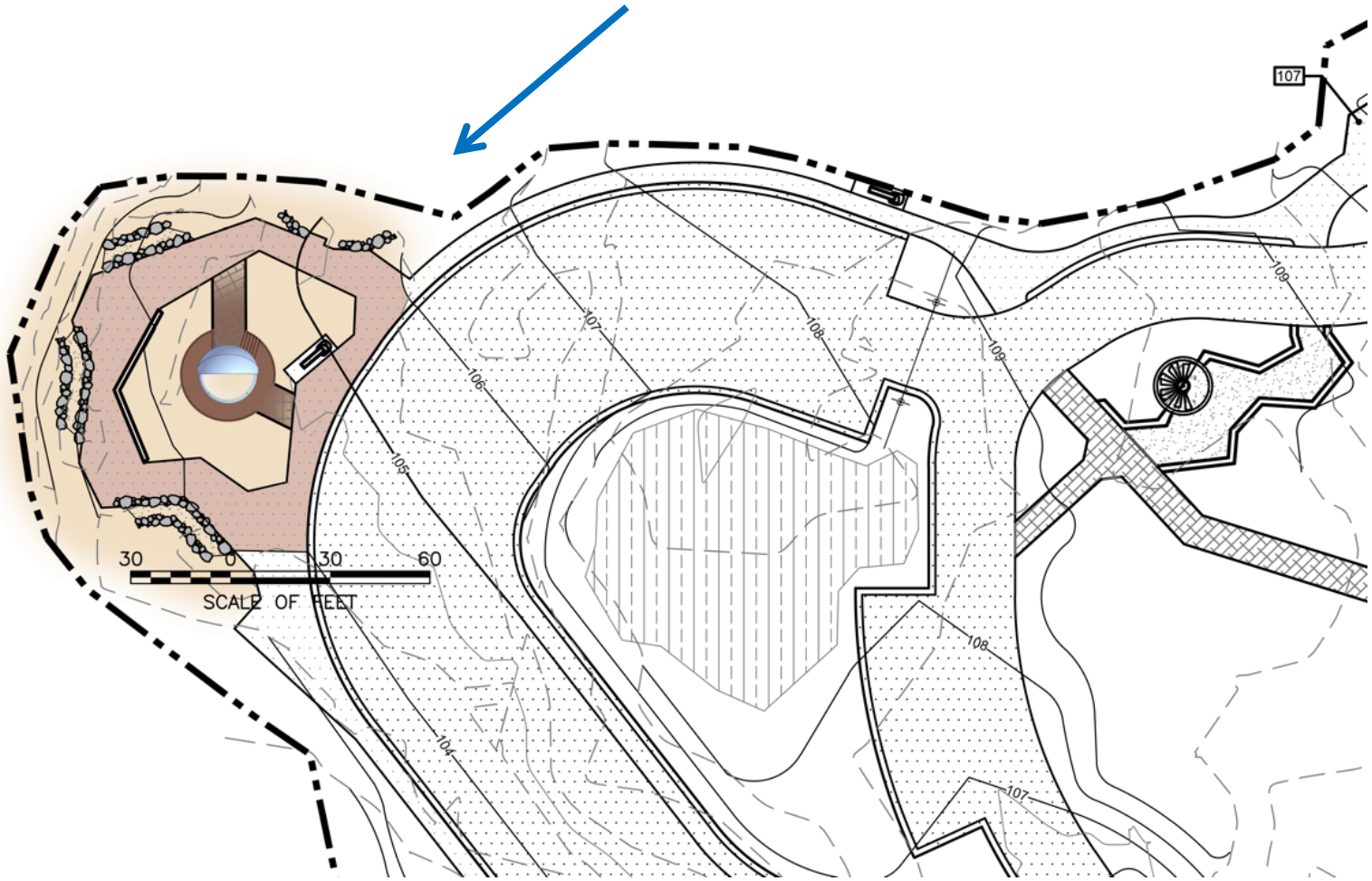
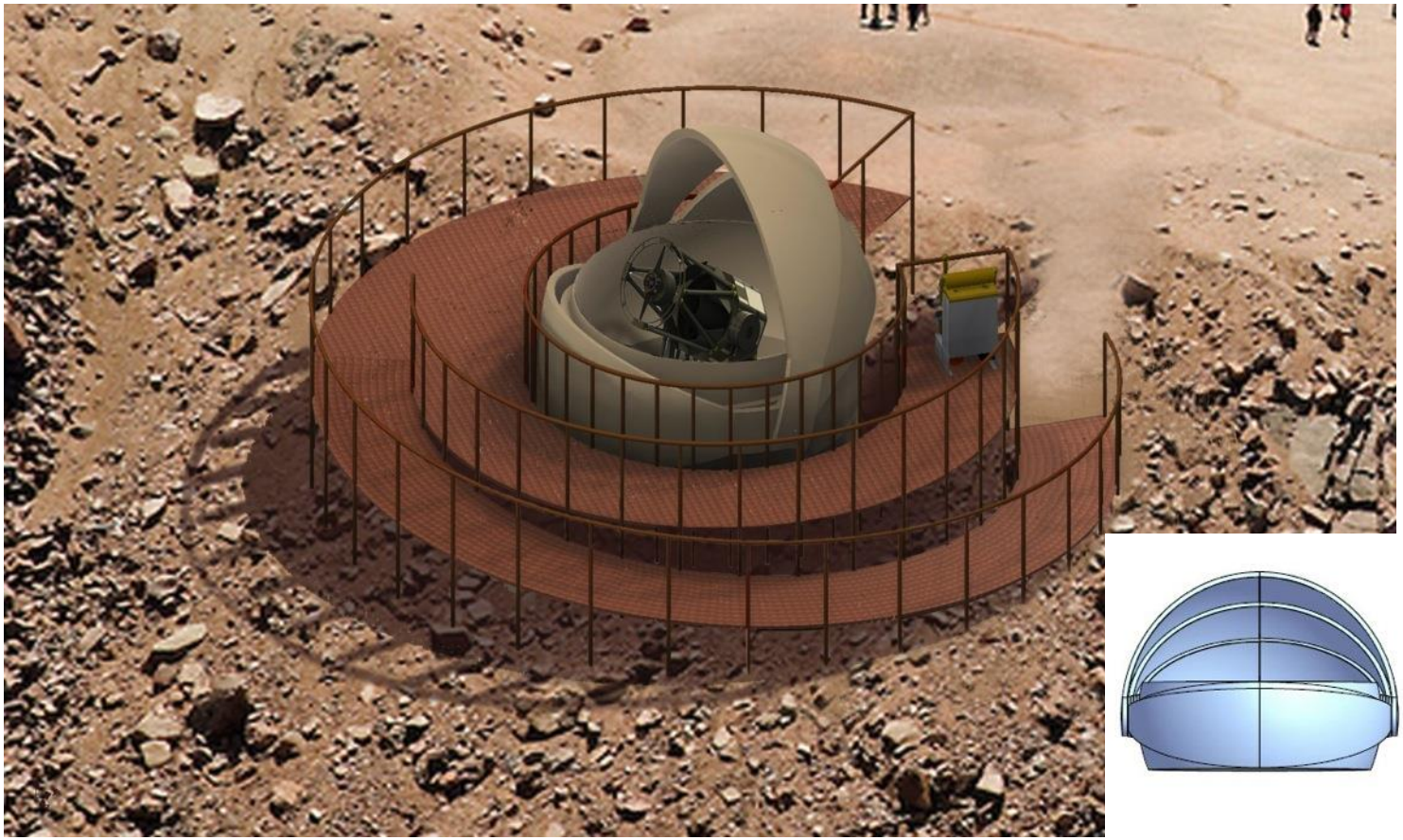
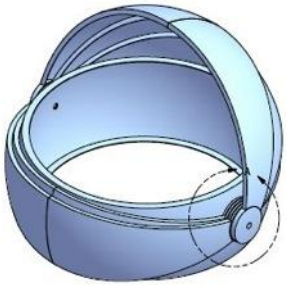
Proposed Observatory Site at West Overlook



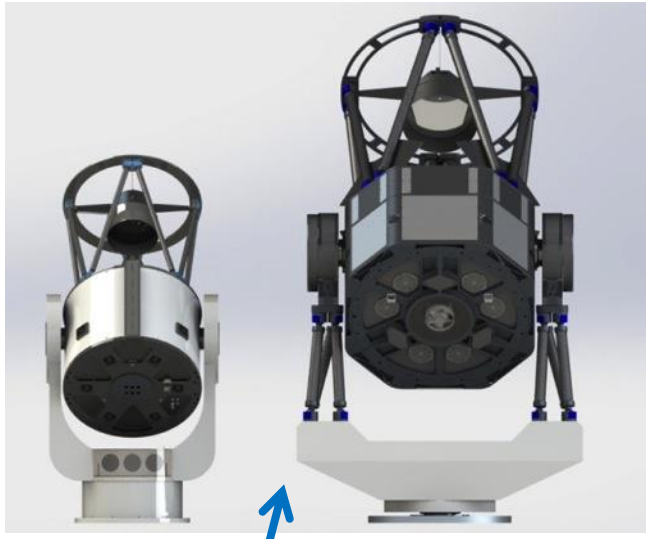
Pikes Peak Observatory

Artist Concept of Pikes Peak Observatory





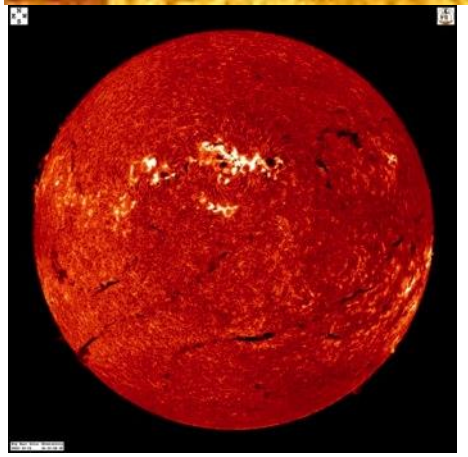
Pikes Peak Observatory



1-meter PlaneWave telescope

18’ diameter AstroHaven Observatory Dome

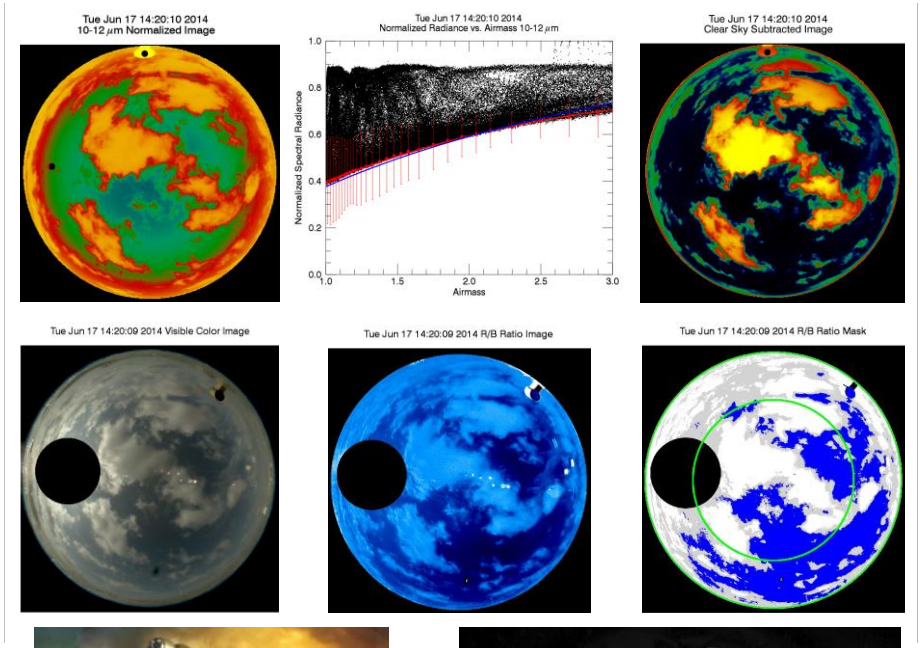
Pikes Peak Observatory

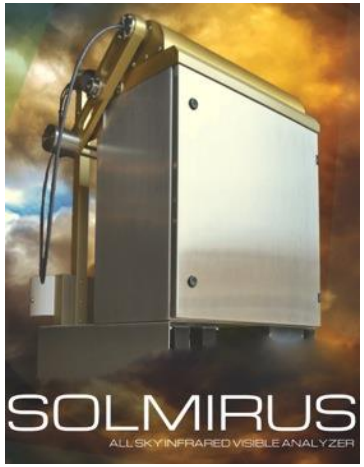


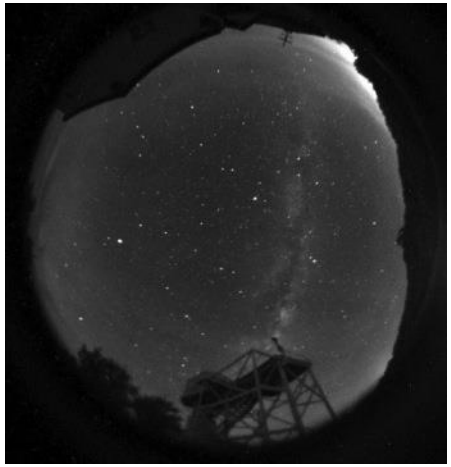
Lunt 152mm (6”) H-Alpha Solar Telescope

Mounted on the 1-m scope and on carts

Pikes Peak Observatory





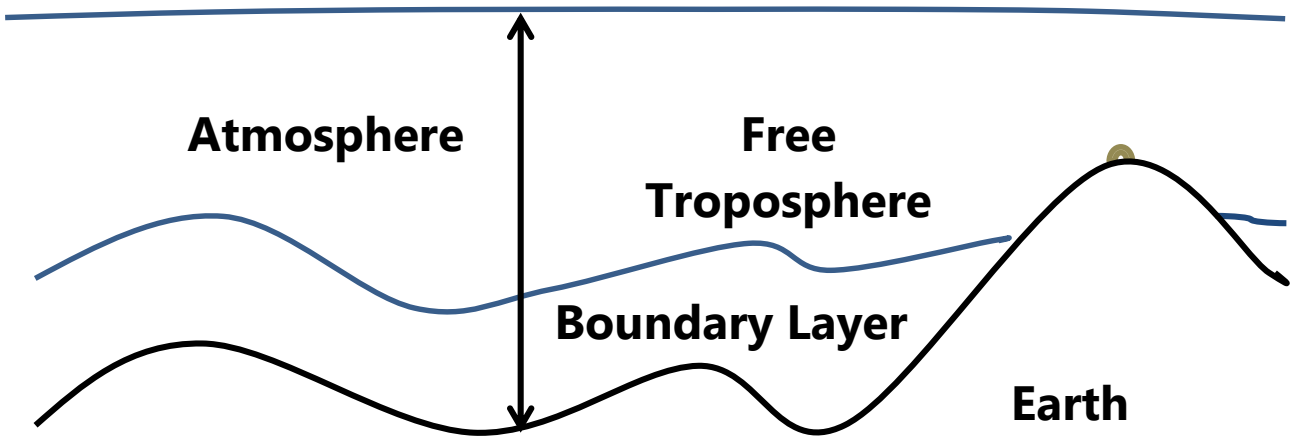


All Sky Infrared & Visible Analyzer

The ASIVA is an atmospheric monitoring device which collects observations relating to:

- Cloud/No Cloud Reporting
- Cloud Cover and Height
- Photometric Quality
- Sky Opacity
- Water Vapor and Ozone
- Sky/Cloud Temperature
- All-Sky (180 degree field-of-view)

Pikes Peak Observatory



The atmosphere is divided into a boundary layer and the free troposphere.
Physical processes that modify the atmosphere in the boundary layer:

- Heat transfer to/from the ground
- Frictional drag
- Evaporation/transpiration
- Terrain-induced flow modification
- Pollution emission

Pikes Peak Observatory

- Creating National Connections
- Connecting to National Organizations
- Supporting National STEM Goals
- Supporting College Student Research Projects
  - Weather and Atmospheric Sciences
  - Space Weather
  - Solar/Stellar Projects
  - Exo-planet Investigations
  - Orbital Analysis of Satellites

Pikes Peak Observatory

- Creating Regional Connections
- Connecting to Organizations in the Pikes Peak Region
  - U.S. Air Force Academy
  - Colorado College
  - Challenger Learning Center of Colorado
  - Colorado Springs Science Center/Science Festival
  - Colorado Springs Astronomical Society
  - U.S. Space Foundation

Pikes Peak Observatory

Mobile Earth & Space Observatory (MESO)

A Mobile STEM Lab
for engaging students in
hands-on projects
motivating them to seek
STEM higher education
and technology careers

Pikes Peak Observatory

Providing Informal STEM Education

Pikes Peak Observatory enhances the guest experience for visitors to the summit by improving their

- Understanding of the importance of earth and space science and the instruments used to advance our understanding
- Science literacy so they can make informed decisions regarding our environment and space
- Awareness of the role played by Pikes Peak historically, today, and in the future in advancing scientific knowledge
- Interest in visiting other local venues in Colorado Springs contributing to informal STEM education

Pikes Peak Observatory

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Supporting the U.S. Forest Service

"Our commitment at the Forest Service is to work with partners to achieve 'the greatest good of the greatest number,' both now and for generations to come." (Strategic Plan FY 2015-2020)

Pikes Peak Observatory serves **Forest Service Strategic Goals**

1. **Sustain Our Nation's Forests and Grasslands**... by employing modern technology to help assess environmental conditions and mitigate forest fire risk, and by supporting emergency response
2. **Deliver Benefits to the Public**... by strengthening our community and connecting people to the outdoors
3. **Apply Knowledge Globally**... by advancing knowledge, transferring technology and applications, exchanging natural resource expertise

Pikes Peak Observatory

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The Way Ahead

- Complete/Submit SF-299 Special Use Permit Application
- Engage elected officials at the state level
- Bring U.S. Congressional Delegation up to speed
- Increase awareness/engagement by the general public
- Conduct a Capital Campaign
- Complete fabrication/program development for MESO
- Complete installation/begin operation of Pikes Peak Observatory

Pikes Peak Observatory

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Questions?

NATIONAL
SPACE SCIENCE
& TECHNOLOGY
INSTITUTE