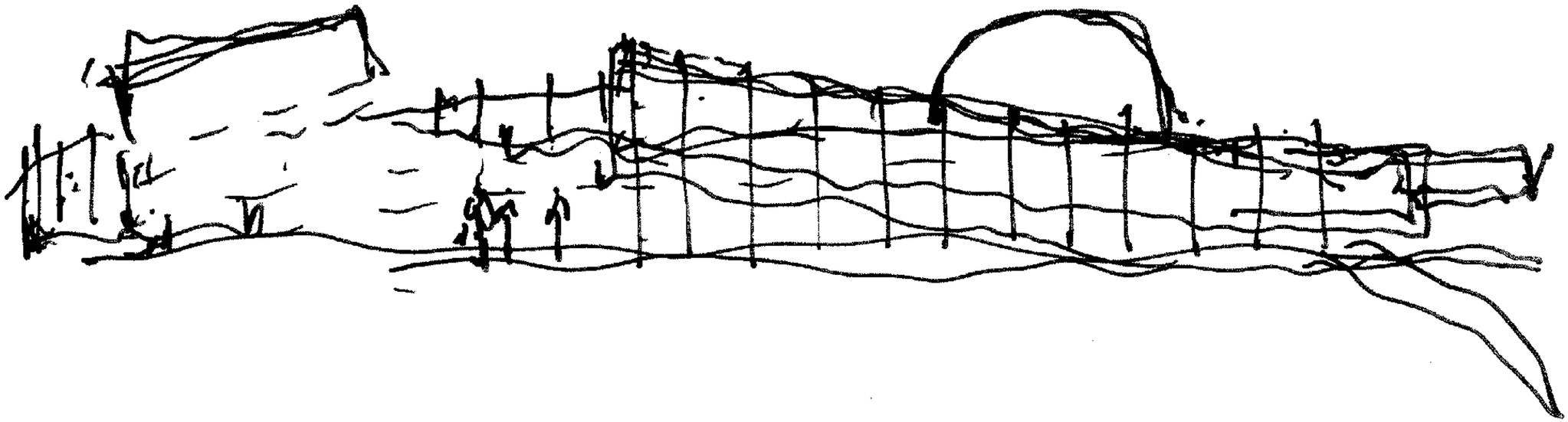
GOLDENDALE OBSERVATORY STATE PARK
PHASE 3 EXPANSION

MEETING #2: PROGRAMMING PHASE PRESENTATION

JUNE 2, 2016



Location: Goldendale, Washington

Building Type: Institutional, State Park

Design Team: Patano Studio Architecture (Architecture)
Walker Macy (Landscape Architecture)
Quantum Consulting Engineers (Structural)
Rainbow Consulting (Mechanical)
Coffman Engineers (Electrical, Civil)

Background
The Goldendale Observatory was built in cooperation with the City of Goldendale (City) and a non-profit group, "The Goldendale Observatory Corporation", using private funding and a Federal grant. The facility was dedicated in 1973 at its present location. In 1980, Washington State Parks and Recreation Commission (Parks) purchased the observatory and it has been maintained in its original status, with minor upgrades, until 2015 when a new observation deck was constructed, miscellaneous site work performed, a solar telescope added, and new mirrors designed and ordered to upgrade the primary telescope configuration from a Cassegrain to Newtonian configuration.

Phase 3 Goals
Today, Goldendale Observatory State Park is an under utilized, 5.1 acre facility that is burdened beyond acceptable parameters. Existing facilities were not designed to house interpretive exhibits or to handle the group sizes that are visiting the Observatory. Phase 3 will produce an iconic facility where visitors, students, sky watchers, and the local community can come together to observe the solar system and regional geography simultaneously. New interpretive programs will enhance the visitor experience and understanding of the universe. New parking, landscape, restrooms, and ADA accessibility will bring the site up to modern standards. The Goldendale Observatory Phase 3 expansion will create the jewel of the Washington State Parks system.

Site
The site is approached via a winding road that begins north of Goldendale. There is presently inadequate signage. Near the top of the hill is a substandard parking area. The observatory sits just at the peak of the hill, to the east of the parking lot. From the park grounds are vistas to the east, south and west. From the southern and eastern portions of the site are views to Mt. Hood, roughly 50 miles to the southwest. The State Park is adjacent to a series of trails managed by the City of Goldendale.

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Goldendale, Washington
Executive Summary

Climate
Goldendale falls in the Koeppen-Geiger Climate *Csb* Classification. The *Csb* classification indicates a warm, temperate climate with dry, warm summers. Temperatures fluctuate dramatically during the course of the day – up to 35-40 degrees Fahrenheit in summer. On average, Goldendale receives 17" of rain, mostly in fall and winter. Annual snowfall averages 26".

Annual Base 65F Heating Degree Days for the city of Goldendale are 6,224. Given the Observatory's 500' elevation over the city of Goldendale, actual heating degree days for the observatory will trend higher.

Annual Base 55F Cooling Degree Days for the city of Goldendale average 1,218.

The site's height and orientation mean that there is a significant amount of exposure to the elements, the sun and heat can be intense.

Existing building
The existing building consists of two parts; the first is the physical Telescope Room which features the telescope. The Telescope Room envelope is uninsulated, unprotected, and the masonry shows significant weathering and staining from penetrations. The second is a wood-framed structure over slab on grade.

Functionally, the wood-framed structure is inadequate in allowing park staff to fulfill the mission of the observatory. The existing spaces are too small for the number of visitors; the building's ceiling heights are incredibly low; the restrooms are undersized for peak occupancy; and the mechanical system is loud and ineffective. The existing facility does not meet the current Washington State Energy Code and is likely in need of a seismic upgrade.

Bringing the existing wood-framed structure to current codes would require a large investment that is unlikely to meet the functional needs of the observatory without significant compromise.

Given this, we're proposing that the existing wooden structure be demolished and replaced with a modern structure. There is the potential to re-use the concrete slab and foundations, or portions of them – which will be explored in further phases. The Telescope Room will remain largely in its present state, there is an opportunity to wrap the existing structure with the new structure. This would reduce the moisture and temperature issues and improve the occupant comfort level.

Program
The Observatory expansion is programmed to be approximately 5,000-7,000 square feet on a single level; incorporating a multitude of spaces to support the mission of the Goldendale Observatory. There is an opportunity for an upper level observation deck as well as an observation deck within the landscape. Along with the existing Telescope Room, the program includes interpretive galleries, a lecture-style Multi-Purpose Room, adequate staff and staff support spaces, retail space and accessible toilets.

In all three proposed schemes, the entry remains on the west side of the building, adjacent to the existing parking lot. In contrast to the present configuration, there will be a fair amount of transparency in order to pull visitors into the building. A central lobby/gallery space unites all public spaces.

The Multi-Purpose Room is a lecture-hall style room for seating for up to 150 visitors. The room features a desk and lectern for interpretive staff, as well as storage for props. The room also incorporates a projector or large format OLED for displaying various media. Given the dimensions of the Multi-Purpose Room, a greater volume - and specifically height - will be needed than exists in the present space utilized as a Multi-Purpose Room.

The Gallery is a space for displaying interpretives. Presently, we're showing the gallery as one large space that could be divided in two, however it may best be finalized as two spaces, where one can be closed off as needed.

The Telescope Room will remain in all three schemes. We are proposing 'burying' the Telescope Room in all schemes within the building to extend the life of the structure.

Staff support entails two individual offices with space for interviews and small meetings. A larger group room is intended for Interpretives staff. A combined work/break room can be utilized for coffee, lunch, and preparing things throughout the day.

The Storage combines needed storage for retail, Staff props, as well as incorporating the area of the existing shed to the north of the existing facility. Due to its unsightly nature and prominence in one of the flatter areas of the site, we are proposing this be salvaged and relocated off site.

The toilets are intended to be accessible from the interior or exterior, so that they may be fully utilized when the Park is open, but the building is not. This will allow for greater visitor access.

The program presents a unique opportunity to integrate the building with not only the directly adjacent landscaping, but distant vistas and its position in the greater universe. We are proposing three schemes that offer three variations on this theme.

Scheme A BAR: Landscape Narrative
Upon arrival, the visitor passes by the entry monument and is met by a combination stormwater/entry garden, ringed by a parking lot loop road. The loop road is achieved by extending the existing parking lot to the west into the current overflow parking. Visitor drop-off is performed at the main entry forecourt. ADA parking is north of the drop-off.

The parking/drop off is laid out relatively close to the building. The result is an intimate forecourt in close proximity to the building face. Open space is achieved to the north and east of the proposed building and accessed from the north of the building. A self-guided tour of the grounds begins in the forecourt and continues clockwise around the building where the visitor may then take the accessible route back to the building entry or continue to explore the regional trail network. Interpretive site elements lead the viewer from the forecourt to the open space, growing increasingly interactive as one approaches the east side of the building where they begin to promote play and more active interaction.

Directly east of the building, a flat visitor telescope staging area is situated in between the solar telescope and the Telescope, all of which are protected from the heat generated by the parking lot and the prevailing winds by the building. The amphitheater is enhanced for accessibility and is presented as an object in the open space that allows for a flexibility of use during and outside of operating hours. It is oriented to achieve views of the solstice sun rise and moon rises.

An elevated viewing deck is situated outside the Telescope room, oriented toward Mt. Hood, and is accessible through the building during operating hours.

Scheme A BAR: Architectural Narrative
Scheme A presents a singular 'bar' that is aligned in the north-south direction, in line with the Telescope Room. The toilets, storage, staff, and back of house spaces are pushed to the north of the building, with the Multi-Purpose Room, gallery and Telescope Room located in the southern portion of the building.

This scheme presents a simple ordering, but poses some challenges. First, the approach from the parking lot is to a very broad façade. Second, the southernmost space will be elevated above the slope fairly significantly, presenting structural challenges. However, this would also present unobstructed views to the south and west towards Mt.. Hood. The building effectively divides the top of the hill in half.

Scheme B COURTYARD: Landscape Narrative
Upon arrival, the visitor passes by the entry monument and is met by an opportunity to park amidst a procession of interpretive spaces at varying distances from the building. Parking is achieved through a reconfiguration and partial expansion of the existing parking lot and drop-off is performed at the building entry forecourt. The interpretive procession extends through the forecourt to the building, into a courtyard, and ultimately to the east side of the building and the exterior visitor telescope staging area.

In addition to the procession of interpretive spaces, larger contiguous open space is provided to the north and east of the building. An accessible route allows visitors to circumnavigate the building on a self guided tour. Interpretive elements guide the visitor around the building and begin to incorporate interactive play elements for younger visitors as the visitor approaches the NE corner of the building.

The amphitheater is enhanced for accessibility and presented as an object in the open space. It is situated to allow for a diversity of program during and outside of operating hours and oriented to maximize views of summer solstice sun rise and moon rises.

Attached to the south of the building, a partially elevated viewing area offers expansive views of the surrounding

Scheme B COURTYARD: Architectural Narrative
Scheme B presents a courtyard-enclosed program that allows for a multitude of readings and observations. The Courtyard could be open or closed at the west end, depending on final configuration. The courtyard connects the interior to sky, becomes a calming point of repose that re-centers the visitor as they enter from the parking lot.

The Staff and support spaces are again located to the north. The Telescope Room, Multi-Purpose Room, Gallery and Entry Gallery are set up around the periphery of the building. These spaces could flow into the courtyard and landscape, making for a very diaphanous structure. The Courtyard focuses the effects of the sun, the sky, the weather on the visitor.

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Architectural and Landscape Narratives

Scheme C ELLIPTICAL ORBIT: Architectural Narrative
Scheme C plays off planetary motion, establishing an elliptic orbital form. The building is accessed from the parking lot, with a recessed entry providing an opportunity for protection from the elements and harsh sun – as well a chance for initiating self-guided interpretive display. The Entry Gallery is central to the building, with staff and support spaces to the north, the Multi-Purpose Room, Gallery and Telescope Room to the south. The retail space sits adjacent to the entry and staff area, so that it can be staffed as needed. Through a series of windows, balconies or slices in the building – the connection to the greater landscape, allowing further means of observation, is strengthened.

The building implies a rotational character, and allows for great connectivity with landscaping and interpretive display and utilization of the full site.

In this scheme we propose that the solar telescope be positioned on the roof of the building in order to reduce the effects of heat and glare associated with the parking lot and cars. This also becomes an effective location for naked-eye observation of the night sky.

Scheme C ELLIPTICAL ORBIT: Landscape Narrative
Upon arrival, the visitor passes by the entry monument and is met with stormwater gardens alongside a parking drive offering an oblique view of the new building. The building is itself presented as an object in the landscape as low-growing, native vegetation is orchestrated alongside the entry forecourt, buffering the building from the parking lot.

Parking is achieved by a re-grading and re-surfacing of the existing lot as well as the overflow lot. The visitor is presented with the opportunity for an accessible self-guided tour around the building, making use of the open space encircling the building, as well as a navigation route taking the visitor to the roof of the building. An active space is provided at the NE corner of the building where interpretive elements promote more active engagement for younger visitors.

The amphitheater is replaced by a viewing seatwall connecting the visitor telescope staging area to the at-grade viewing deck outside the Telescope room. The seatwall will provide ample opportunity to take in the expansive views to the SE while the viewing deck will offer the opportunity to sponsor a flexible exterior program oriented toward Mt.. Hood and Goldendale.

Plumbing Systems
The existing plumbing system will be demolished as part of the facility upgrades; none of the existing fixtures are reusable or salvageable. No plumbing exists in the Telescope Room.

It is anticipated that a new Domestic water booster pump system will be installed outside of the building, as described by Coffman Engineers (see civil narrative). The existing 2-inch domestic water line that is currently routed to the building may be utilized, or a new line may be required.

A 4-inch sanitary waste line will connect to the new plumbing fixtures. This 4-inch sanitary waste line will either connect to the existing line that is routed to the existing septic tank, or alternatively, a new sanitary line and new septic tank will be installed.

The Men's and Women's Restrooms will be provided with plumbing fixtures that meet State Park's standards. The restrooms will be accessible from both outside and inside the space. Water closets and urinals will be wall mounted flushometer type with infra-red sensors. The lavatories will be provided with sensor type metering faucets. All fixtures will possess water-saving features. It is anticipated that the restroom fixtures will be vitreous china type (as opposed to stainless steel vandal resistant type). There will be floor drains in both restrooms.

The Work Room will include a stainless steel countertop sink which can be provided with a hot water dispenser.

The Mechanical Room will feature a floor mounted mop sink, and freeze proof hose bibs will be installed externally on each side of the new building. Two drinking fountains will be installed: a freeze proof type will be located on the outside and an indoor drinking fountain located inside. It is expected that the Multi-Purpose Room will not require a sink.

An electric storage tank type water heater will be installed in the mechanical room and will be provided with a circulation pump.

Drain, waste, and vent piping will be plastic pvc type. Domestic hot and cold water piping will be copper and insulated in accordance with the Washington State Energy Code.

All plumbing fixtures will be listed as ADA compliant as required by the Building Code.

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Rainbow Consulting Mechanical Narrative

Fire Protection
Currently no fire protection system serves the Observatory. Patano Studio is consulting with Bob Pielow Fire Protection Consultant to determine the requirements for the site. Options appear to be a fire protection system within the new building or an on-site water tank and pump. If the local fire marshal requires that a fire protection system be installed, then the facility will be provided with a wet-pipe sprinkler system (with a dry pipe sprinkler system serving the Telescope Room). The sprinkler riser will be installed in the Mechanical Room. A fire hydrant on site would be a prohibitively expense and not add to the life safety of the building.

Heating, Ventilation and Air Conditioning (HVAC)
The existing HVAC system will be demolished as part of the facility upgrades. None of the existing HVAC system is reusable or salvageable.

No HVAC systems currently exist in the Telescope Room and that condition will remain. It is proposed that the Multi-Purpose Room, Gallery, Entry and Retail spaces be served by split system ducted heat pumps. Given the potentially high occupancy load, it is anticipated that the Multi-Purpose Room would be one zone, with the remaining spaces included in a second zone. Heat pump condensing units would either be pad mounted or located on the roof. The ductwork will be sound-lined to reduce mechanical noise.

HVAC for the Offices and the Workroom could be provided with split system ductless heat pumps, utilizing operable windows for ventilation as required. Alternatively, this zone could also be served by a split system ducted heat pump.

The Mechanical Room and the Restrooms would be provided with electric heat only, utilizing either wall or ceiling mounted heaters. If heat is necessary in the Storage Space, then this would also be electric.

The restrooms would be provided with cabinet ventilation fans exhausting to the exterior. The sink area in the Work Room will also be provided with an exhaust fan to help remove food odors from the building.

All ductwork will be galvanized sheet-metal and insulated in accordance with the requirements of the Washington State Energy Code.

It is anticipated that HVAC controls will be stand-alone type. State Parks standards for temperature control systems for remote facilities will be met as required.

All systems will be tested and balanced (TAB) by an independent contractor.

SEPTIC / SEWER DESIGN

It is our understanding that the existing onsite septic system is failing. It has reached the end of its design life and a new way to manage sewage generated by the site is needed. There are two potential options to consider. 1) A new sewer main extension to connect the site to the public system. 2) A new onsite septic system.

The City of Goldendale provided two conceptual sewer system designs to install a sewer main extension from the observatory to the City's existing system. The City also provided a cost estimate for the shorter of these two routes. The City's construction estimate from 10/07/15 is approximately $330,000. The sewer main extension would provide a way to handle sewer without the need to provide maintenance, repairs or replacement in the future, but is likely the most expensive option. Additionally, it could be difficult to install this system with the potential for shallow bedrock and/or large boulders along the proposed route.

The second option is to install a new onsite septic system. This system could replace the existing system in about the same location or be relocated to a new location on the site. If the new system is located at the same location, potentially some of the existing infrastructure could be reused as part of the new system. (For example, the existing tank might be used as a dosing tank for the new system.) Depending on the soils in this area, a traditional septic system might work, but space is limited and a mounding/sand filter type of system may be required. Alternatively, a new septic system could be installed at the southwest corner of the site, to the west of the main entrance. This is a larger, relatively flat area on the site and may be a better location for an onsite septic system. If there are adequate soil depths in this area, a traditional septic system is more likely to work in this location. Depending on the final site design, other locations may also be viable.

We recommend having a septic system contractor complete test pits and percolation tests at the two potential locations for the septic system to determine the existing soil depths and characteristics. This will give us a baseline to evaluate what type of system will work for this site. Once a type of system is selected, pricing for the onsite treatment system option can also be determined.

DOMESTIC WATER

Since the observatory is located above the City's reservoir and public water system, getting adequate water to the site is a challenge. It is our understanding that the existing booster pumps providing water to the site are sufficient for current usage, but may be reaching the end of their design life and with the proposed increased demand they will need to be replaced. Also, the existing booster pump system was installed before the City's upper reservoir was installed, so reevaluating the system with the new public system conditions is recommended.

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Coffman Engineers Civil Narrative

When the upper reservoir was installed, the potential for installing a booster pump to service the observatory and the other properties along the ridgeline was included. There is a location for a future booster pump shown on the City's plans for the upper reservoir.

The City has provided a cost estimate for installing a domestic booster pump system at this location. The City's construction estimate from 10/07/15 is approximately $130,000. The benefit of installing the booster pump system at the reservoir would be that after construction this system would be part of the City's system and would be maintained by the City. Also, potentially the existing and/or future residents also using this system would share in the construction costs. The disadvantage is that the pump would likely be larger than needed to service just the observatory and the additional costs associated with the larger pump may not be reimbursed unless an agreement with the neighbors is made, or until the "late comers agreement" is activated when future development is completed along the ridgeline.

Alternatively, a private booster pump system could be installed on the observatory's connection to the public system. This would be sized for just the observatory's demand, but it would need to be maintained by State Parks. A single booster pump would likely be sufficient and the pump within the building could be eliminated.

However, regardless of where the pump is located, power for the pump will need to be provided and this will be a limiting factor for the pump sizing. With the existing power available, it should be possible to provide adequate domestic water for the proposed upgrades for the site usage, but water for fire protection will be difficult to provide. The final design of the domestic water supply will depend on what is required for fire protection for this site.

FIRE WATER

There is currently not adequate flow or pressure from the public water system to the site to meet the City's typical fire protection requirements. A larger booster pump would be required, which would also require changing the power service to the site from single phase to three phase. The City's estimate for extending three phase to the site is approximately $100,000. At this time, it is unknown what the demand would be for a building fire sprinkler system. Potentially this demand would be closer to the proposed domestic system demand and we could provide adequate fire sprinkler flow without installing three phase power. Depending on the type of building design selected, a preliminary sprinkler system could be designed for sizing and to determine if adequate flow can be provided by a pump with single phase power. Coffman can provide this preliminary sprinkler system design as part of the schematic design phase. Once it is determined if this is a viable option, construction costs can be added to this alternative.

FIRE WATER (Cont'd)

Alternatively and/or additionally, a private reservoir could be installed on the observatory site to provide fire water to the building and site. At this time, it is unknown how big this reservoir would need to be, and what the associated costs would be. Potentially, this reservoir could be used to provide both the domestic and fire water for the site, so the costs will depend on what the final usage of the reservoir would be. A small booster pump would be used to supply this reservoir from the public system, and a second system would be used downstream of the reservoir to provide the domestic and fire flows, as required. This option will take up space on the site and will cost more to install, but it would provide a reliable, onsite source of water for both domestic use and fire protection. Coffman can provide a preliminary design and a construction cost estimate for this option as part of the schematic design phase if this is option is selected.

DRAINAGE / STORMWATER

The stormwater requirements will depend heavily on what scheme is chosen and what the extents of the new work will be. Dispersion will likely be the best option for controlling stormwater flow from this site. The City has stated they would be willing to allow the stormwater to be dispersed across the City's park land if necessary. Depending on the peak flows from the site, it is possible that some form of detention may be required to reduce the erosion potential on the steeper portions of the site.

In addition to flow control, onsite water quality treatment for the parking and driveway areas will be required per the Department of Ecology's Stormwater Management Manual for Eastern Washington. The type and size of the treatment system will be driven by the size of the parking area.

Once the project footprint begins to take shape, we can begin to look at options for the site and determine what the limiting factors will be. Having onsite stormwater dispersion in conjunction with an onsite septic system can be challenging, since they both require similar site conditions, but need to have adequate separation to ensure both function as designed. From a preliminary review it appears we should be able to make both systems work on this site, but like any project, the size and construction costs of the facility will be driven by the extent of the proposed site improvements.

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Coffman Engineers Civil Narrative

SUMMARY

With the exception of stormwater, the basic design requirements of the necessary infrastructure (sewer and water) will not change significantly with the 3 proposed schemes since the visitor demand will not change with each scheme. In order to better understand the site and cost restrictions for this project, we would recommend proceeding with preliminary design of this infrastructure to get realistic construction costs, which will assist in the decisions as design proceeds.

1. SEWER – We recommend getting an onsite septic system contractor on board to complete the required onsite soil tests and to begin looking at design alternatives for onsite treatment. It is likely onsite treatment is the most cost effective alternative, but a preliminary design will be required to obtain a realistic construction cost estimate for this alternative.

2. DOMESTIC WATER – The domestic water system supply will depend on what is required for fire protection. Either a separate domestic water supply system could be installed independent of the fire water supply system, or a combined system could be installed to service the site. The construction costs for these two options can be completed once preliminary designs of these systems are completed.

3. FIRE WATER – We recommend first looking at what the building fire sprinkler system demand requirements will be and determining if the city will approve what can be provided with a single-phase pump given the limitations of the existing public water supply. If the building fire sprinkler system option doesn't work or is not acceptable by the city, we would then recommend looking at the onsite reservoir option to see if this could be used to meet the fire protection requirements for this site. Once we have a preliminary design that meets the fire protection requirements and that would be approved by the city, realistic construction cost estimates can be completed.

4. The onsite stormwater system design will vary greatly depending on what the extents of the proposed site improvements will be. Once the footprint of the proposed improvements starts to take shape, we can begin to estimate what will be required for flow control and water quality from a basic square footage standpoint. From this, preliminary construction cost estimates can be derived.

INTRODUCTION

A. General: This narrative provides a summary description of existing portions of the Observatory to be reused and a basis of design for future electrical installation at the Goldendale Observatory State Park including lighting, power, and low-voltage systems. This narrative is based on review of available record drawings, a site visit that took place on Wednesday, May 11, 2016 and follow-up scoping and design conversations with Patano Studio and the rest of the design team.

B. Codes and Guidelines: Relevant electrical codes, guidelines, and standards as adopted and amended by the City of Goldendale, Washington include:

1. 2014 WCEC (Washington Cities Electrical Code)
2. 2008 NFPA 70 (National Electrical Code)

EXISTING CONDITION ASSESSMENT AND DESIGN INTENT

Telescope Room

A. The existing electrical infrastructure is mostly surface metal raceway (SMR) and exposed conduit routed on the surface of brick. For the most part, there isn't much to be done in the way of cleaning up the wall of the room. Per, Patano, we plan to design the new Observatory building around the existing Telescope room and therefore do not see much opportunity for significant electrical work within the Telescope with the exception new lighting. At a minimum, the existing incandescent light fixtures should be replaced with more energy efficient LED fixtures. Depending on the needs of the observatory staff and presentations, there may also be an opportunity to explore RGB and/or dimming options and controls to maximize (or rather minimize) effective light usage during viewings.

Service

A. The local power company is Klickitat County PUD. The building is served by a single-phase 50kVA transformer located between the small Telescope and the storage building. Service to the building is routed below ground from a utility vault a short way down the hill to the East.

B. The existing building service is 600A, 120/240V. Depending on what we learn from 12-month utility demand records, we may be able to intercept and extend the existing service to new distribution equipment in the new building. There is chance though, that it will make sense to increase the service size to 800A. We do not anticipate the need for a 3-phase service.

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Goldendale, Washington
Coffman Engineers Electrical Narrative

Devices

A. Lighting

1. Lighting in the building will be primarily LED with the potential for some fluorescent lamps as needed for specific design goals. Lamp color temperature will be 3000K or less.
2. Exterior lighting will be designed to comply with International Dark Sky requirements. All fixtures will be LED with full cut-off optics. Pole heights in the parking lot will be minimized and all other site lighting will be building mounted or low-profile bollards and step lights. Lamp color temperature will be 3000K or less.
3. All spaces both inside and out will be controlled by an automatic low voltage control panel or vacancy sensors as required by the Washington State Energy Code

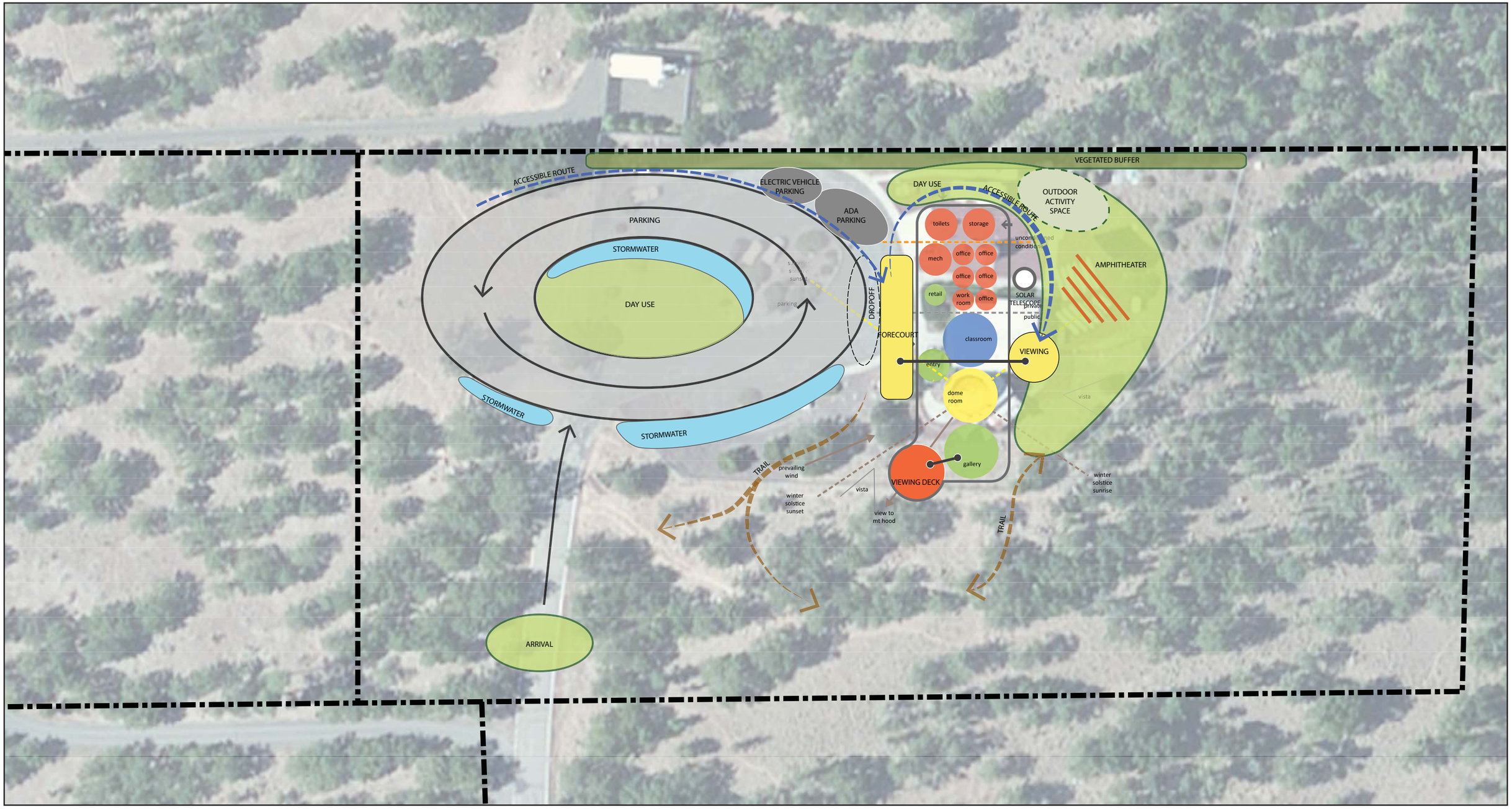
B. Power systems:

1. Power to the existing Telescope and all systems therein will be intercepted and refed from the new electrical distribution system.
2. 120/240V power will be provided to support all HVAC, water service and other mechanical systems.
3. Convenience and miscellaneous power will be provide to support normal building operation and specific programmatic needs related to the classes and demonstrations given at the Observatory.

C. Low-Voltage Systems:

1. A new fiber optic service is currently being installed to support the existing observatory building. The fiber service will be extended/re-terminated in the new building and new low-voltage distribution systems for telephone and data will be provided throughout.

Fire Water
Increase service to 3-phase to accommodate 225HP booster pump: $100,000.
Increased cost of the electrical system and the backup generator and diesel fuel system: $100,000.



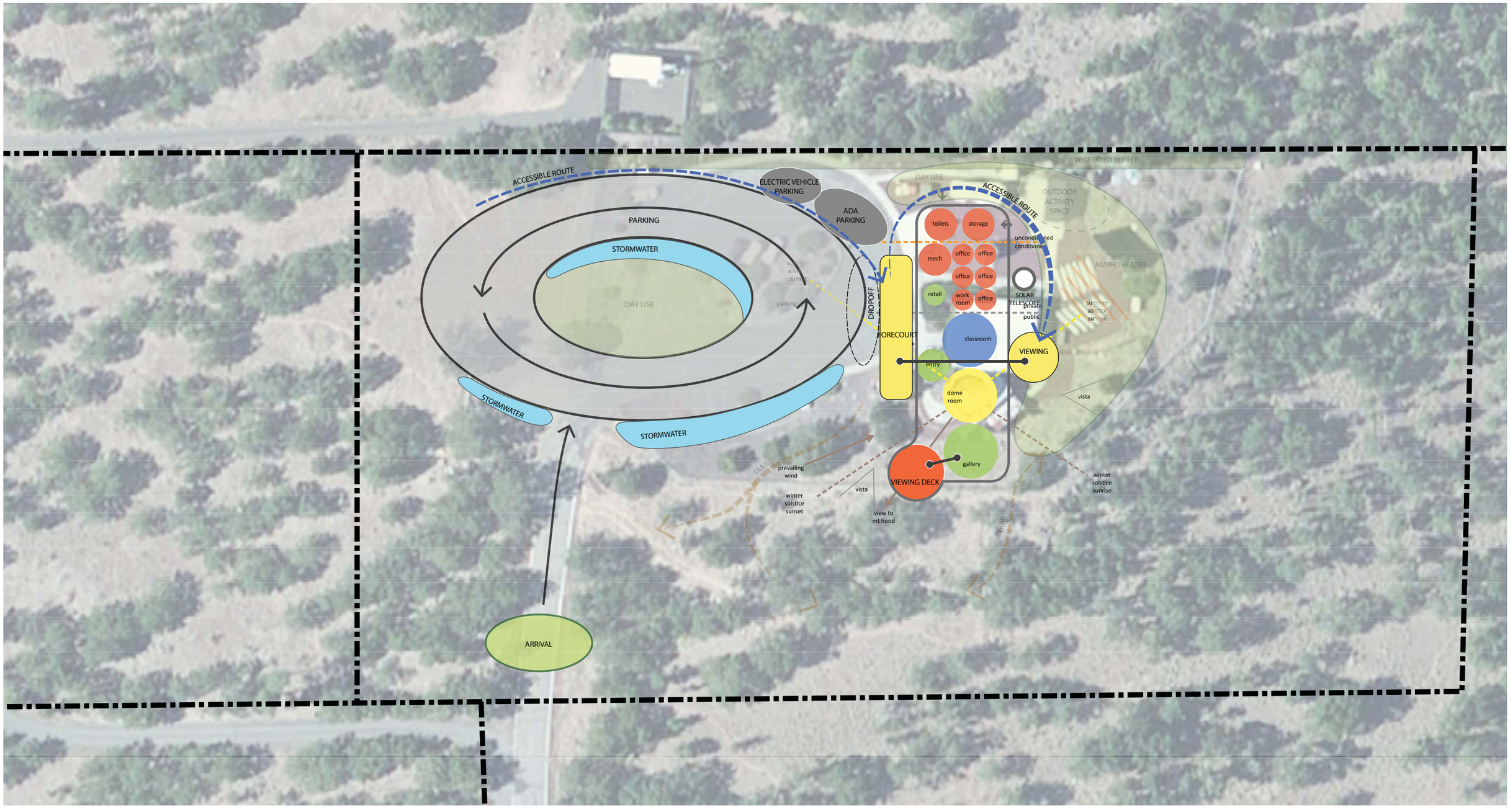
SCHEME A: BAR

PATANO STUDIO ARCHITECTURE

WALKER|MACY

GOLDENDALE OBSERVATORY STATE PARK

GOLDENDALE, WASHINGTON | JUNE 2, 2016



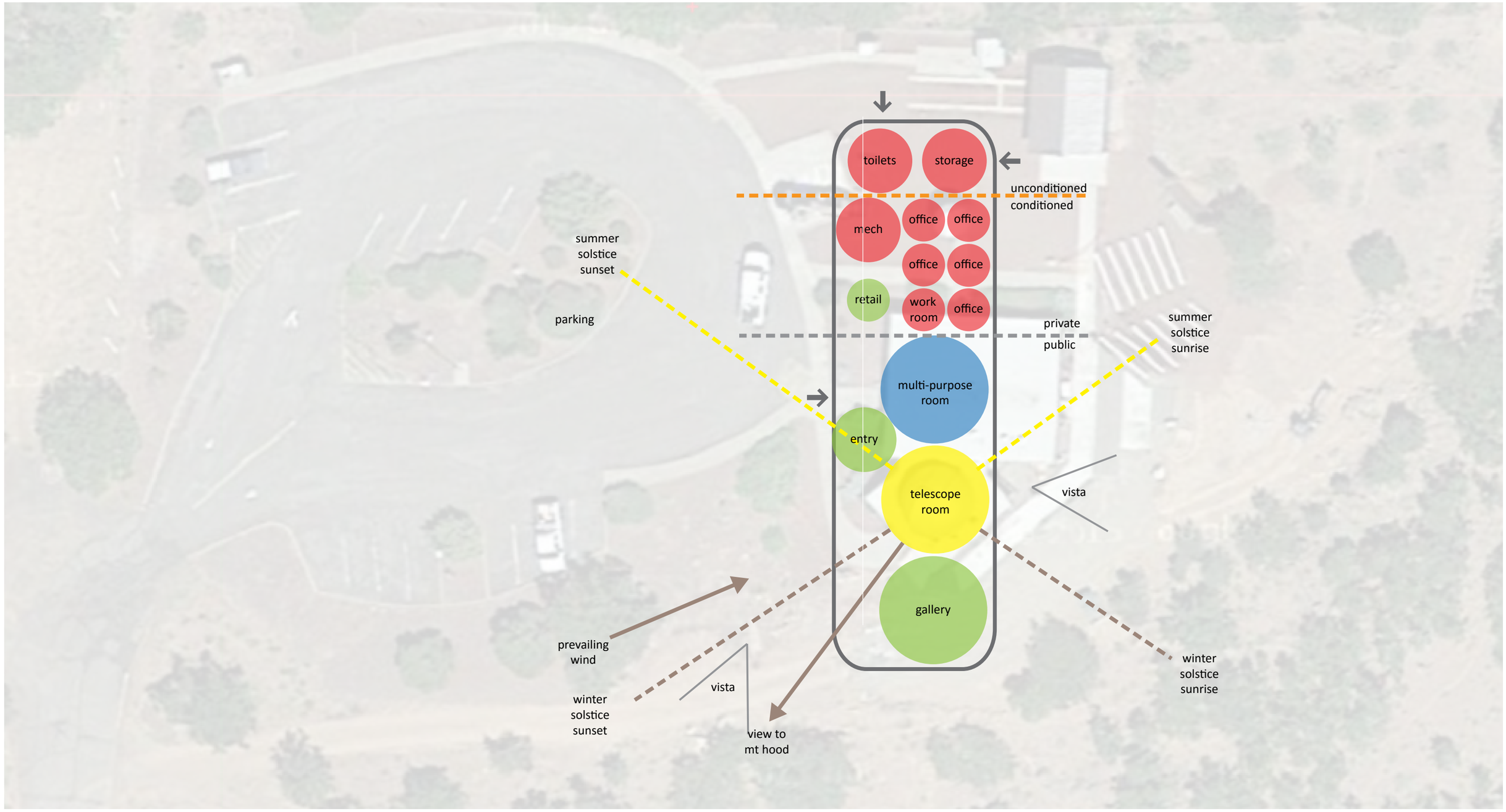
SCHEME A: BAR - PHASE 1

PATANO STUDIO ARCHITECTURE

WALKER|MACY

GOLDENDALE OBSERVATORY STATE PARK

GOLDENDALE, WASHINGTON | JUNE 2, 2016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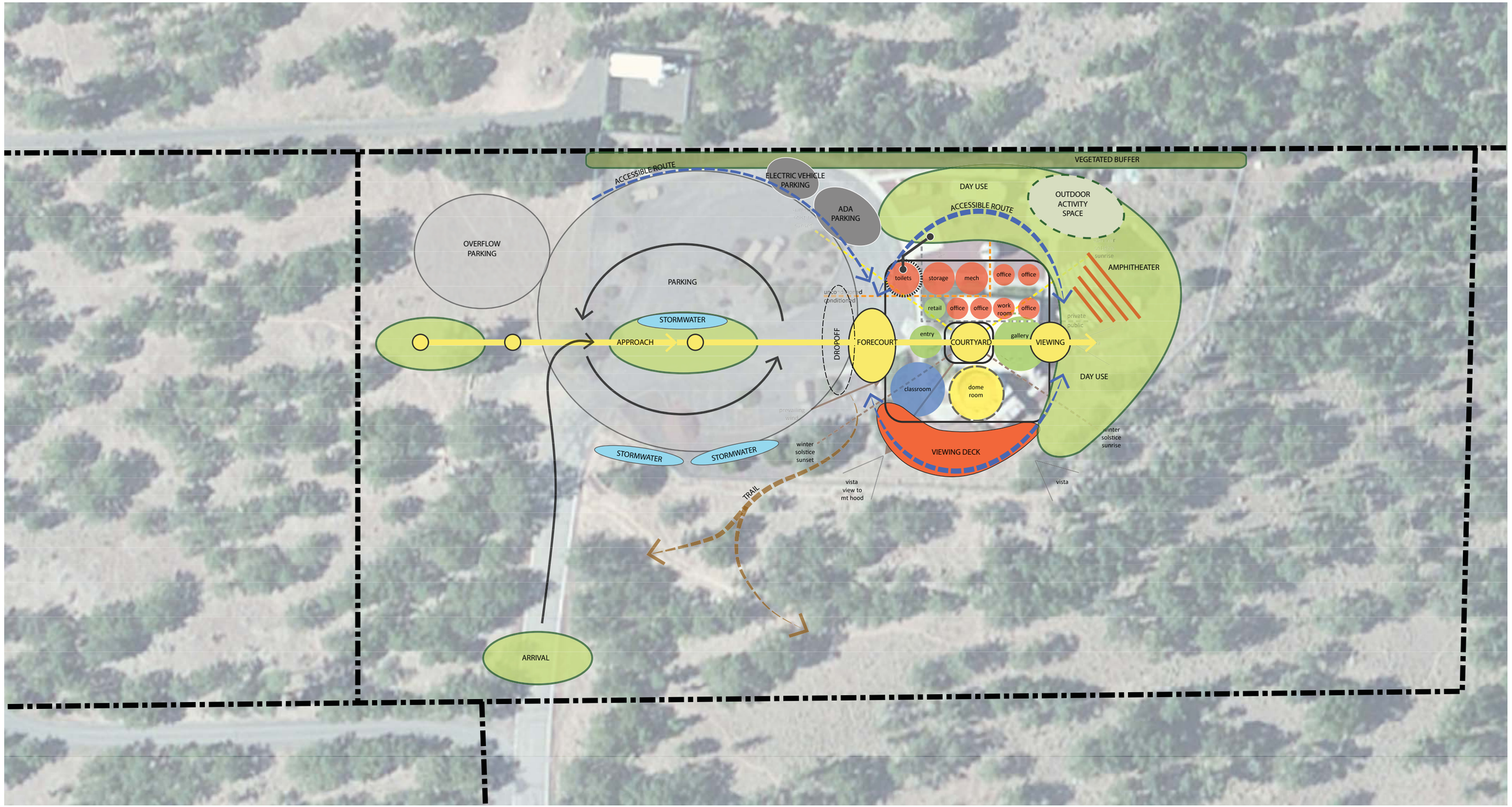
retail
work room
office
private
public
multi-purpose room
entry
telescope room
gallery
summer solstice sunset
parking
summer solstice sunrise
vista
prevailing wind
winter solstice sunset
vista
view to mt hood
winter solstice sunrise

SCHEME A: BAR



SCHEME B: COURTYARD

PATANO STUDIO ARCHITECTURE

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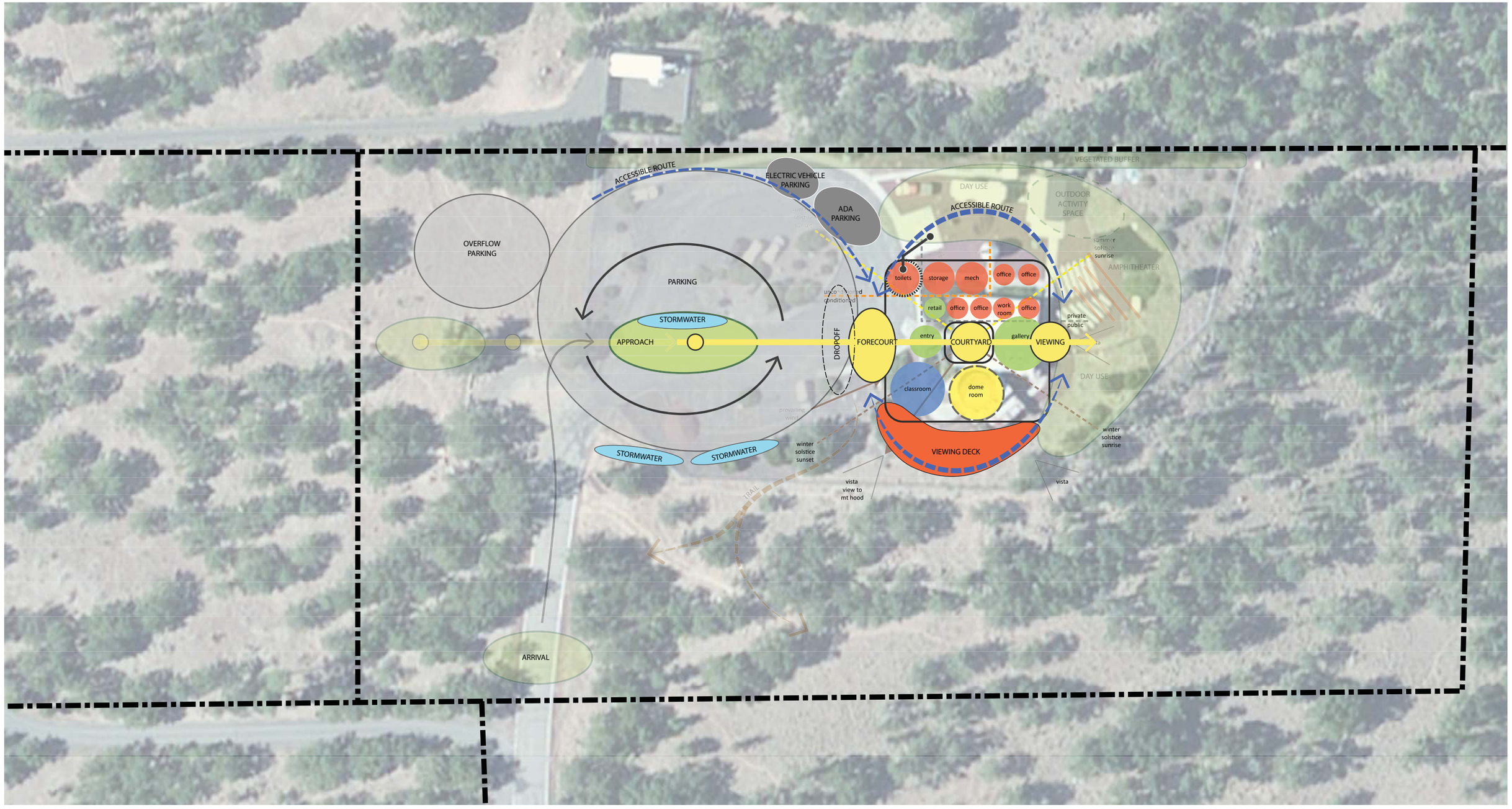
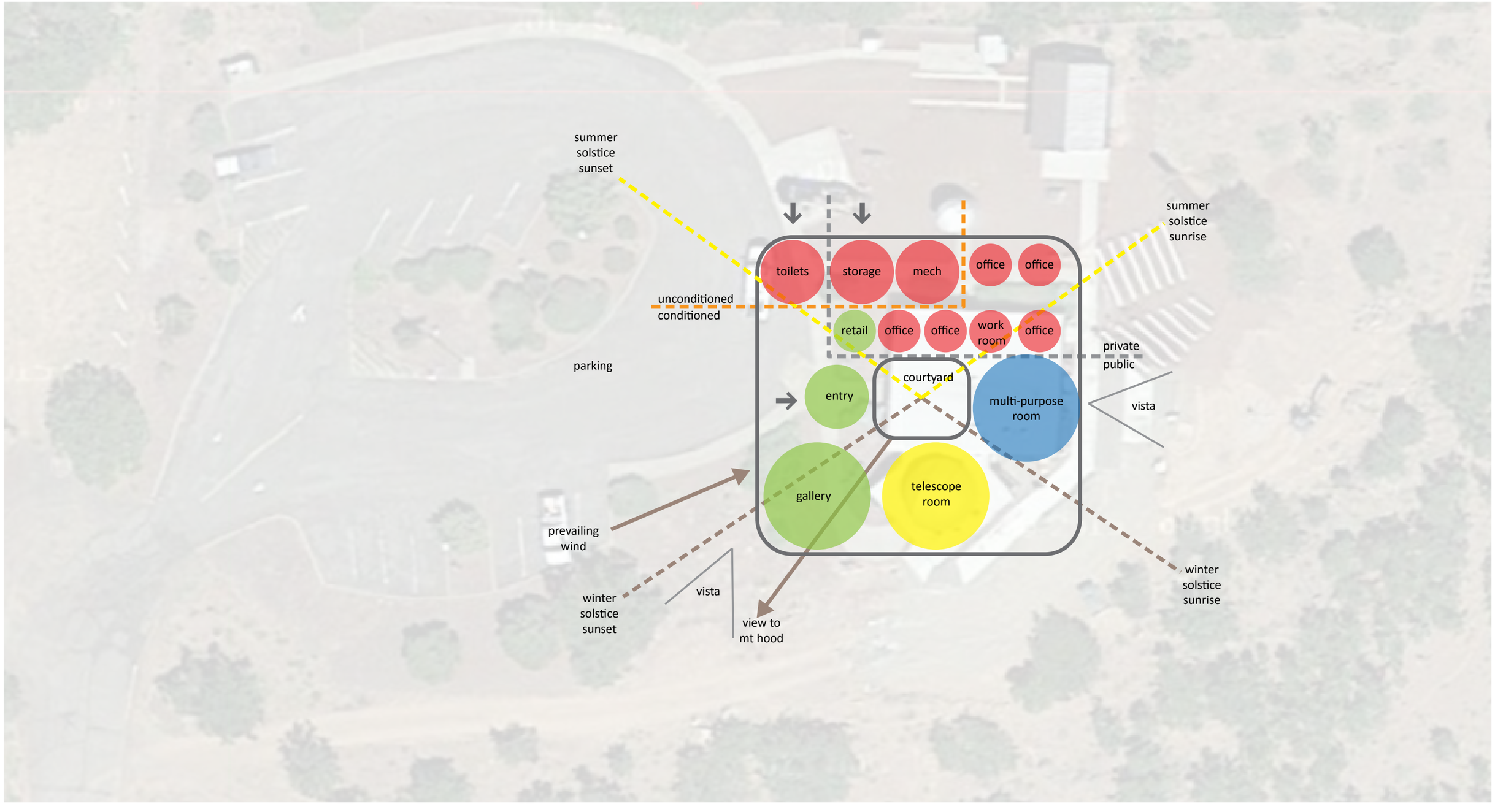
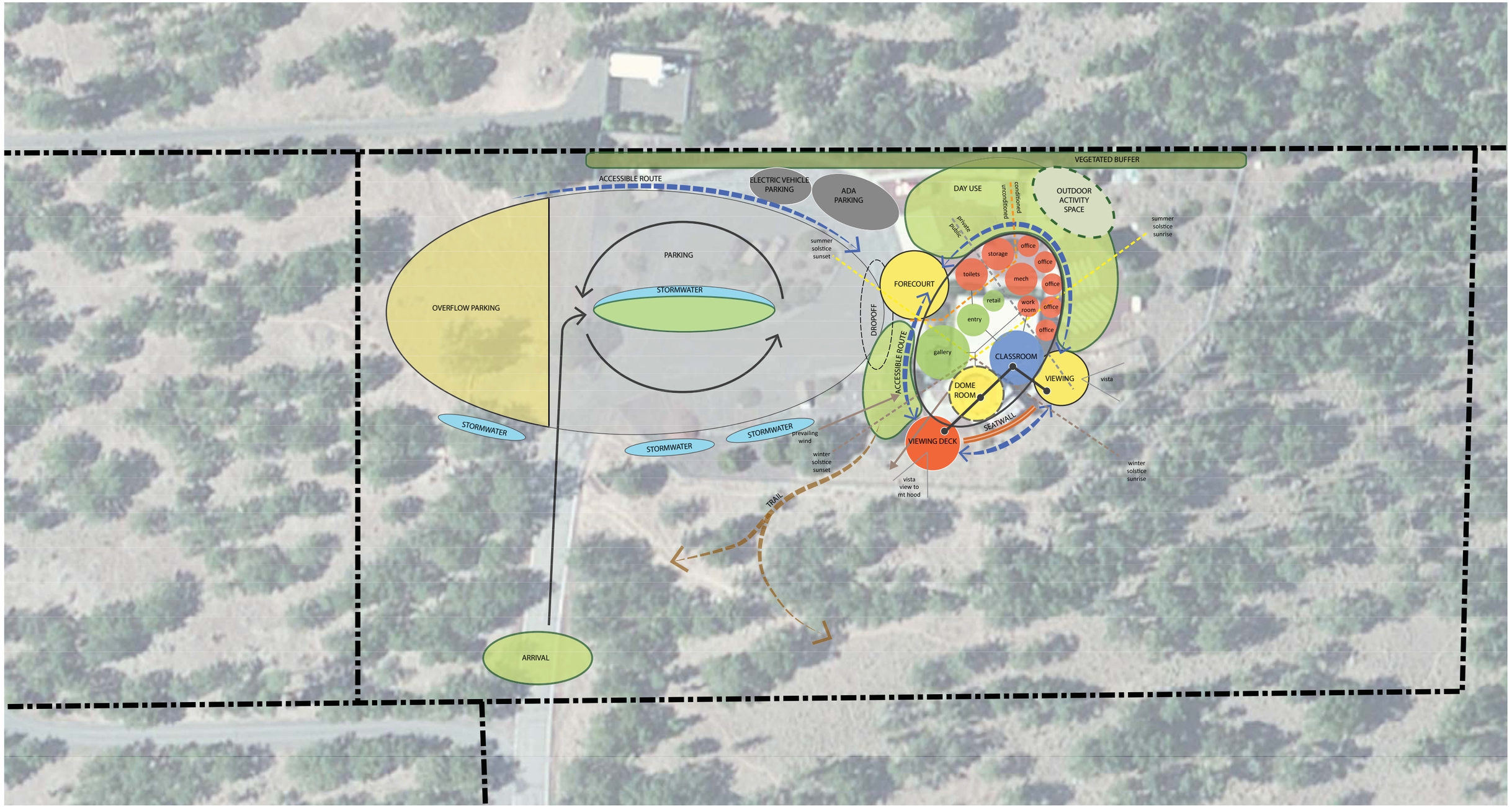
GOLDENDALE, WASHINGTON | JUNE 2, 2016



SCHEME B: COURTYARD- PHASE 1



SCHEME B: COURTYARD



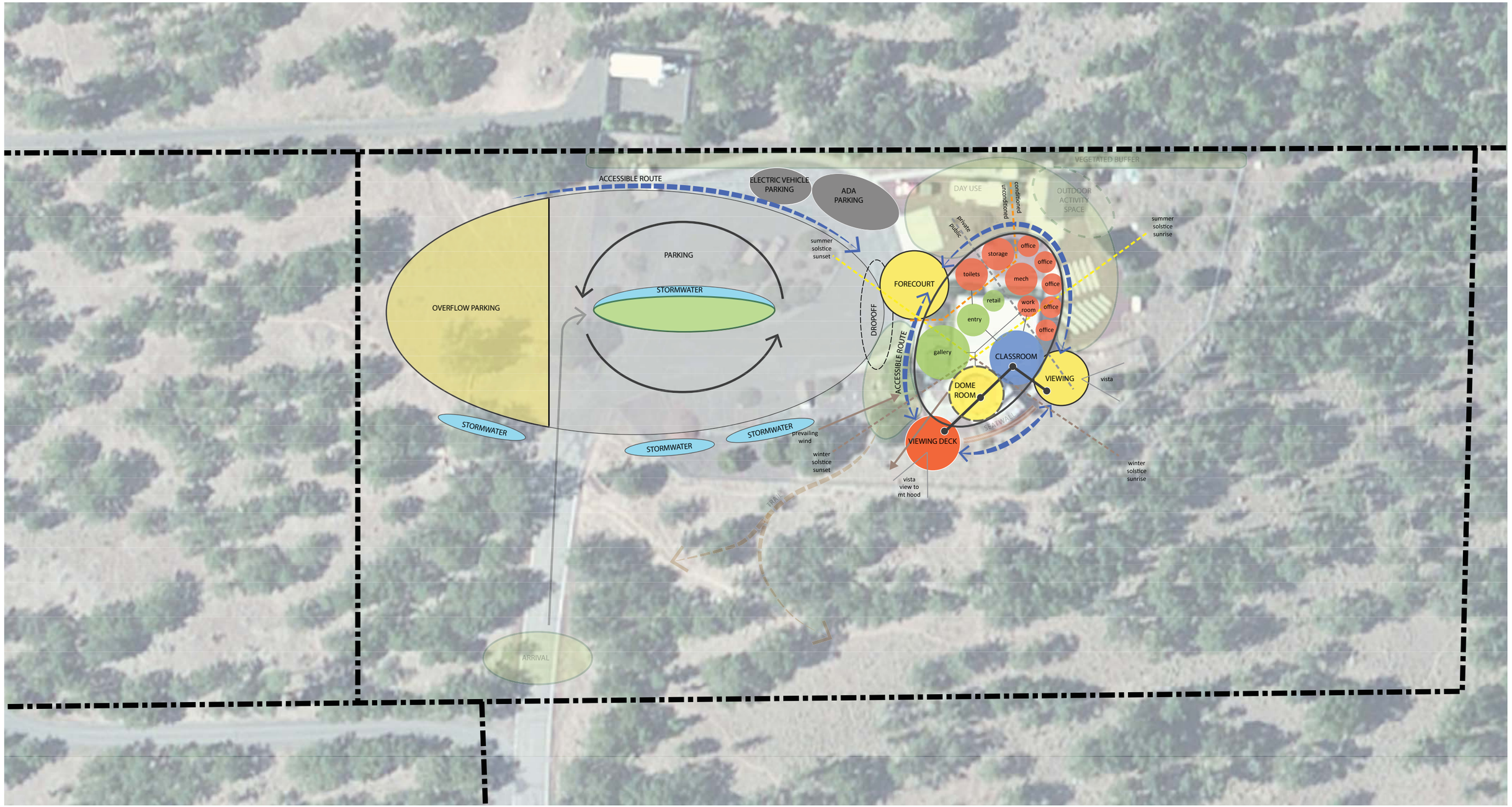
SCHEME C: ELLIPTIC ORBIT

PATANO STUDIO ARCHITECTURE

WALKER|MACY

GOLDENDALE OBSERVATORY STATE PARK

GOLDENDALE, WASHINGTON | JUNE 2, 2016



SCHEME C: ELLIPTIC ORBIT - PHASE 1

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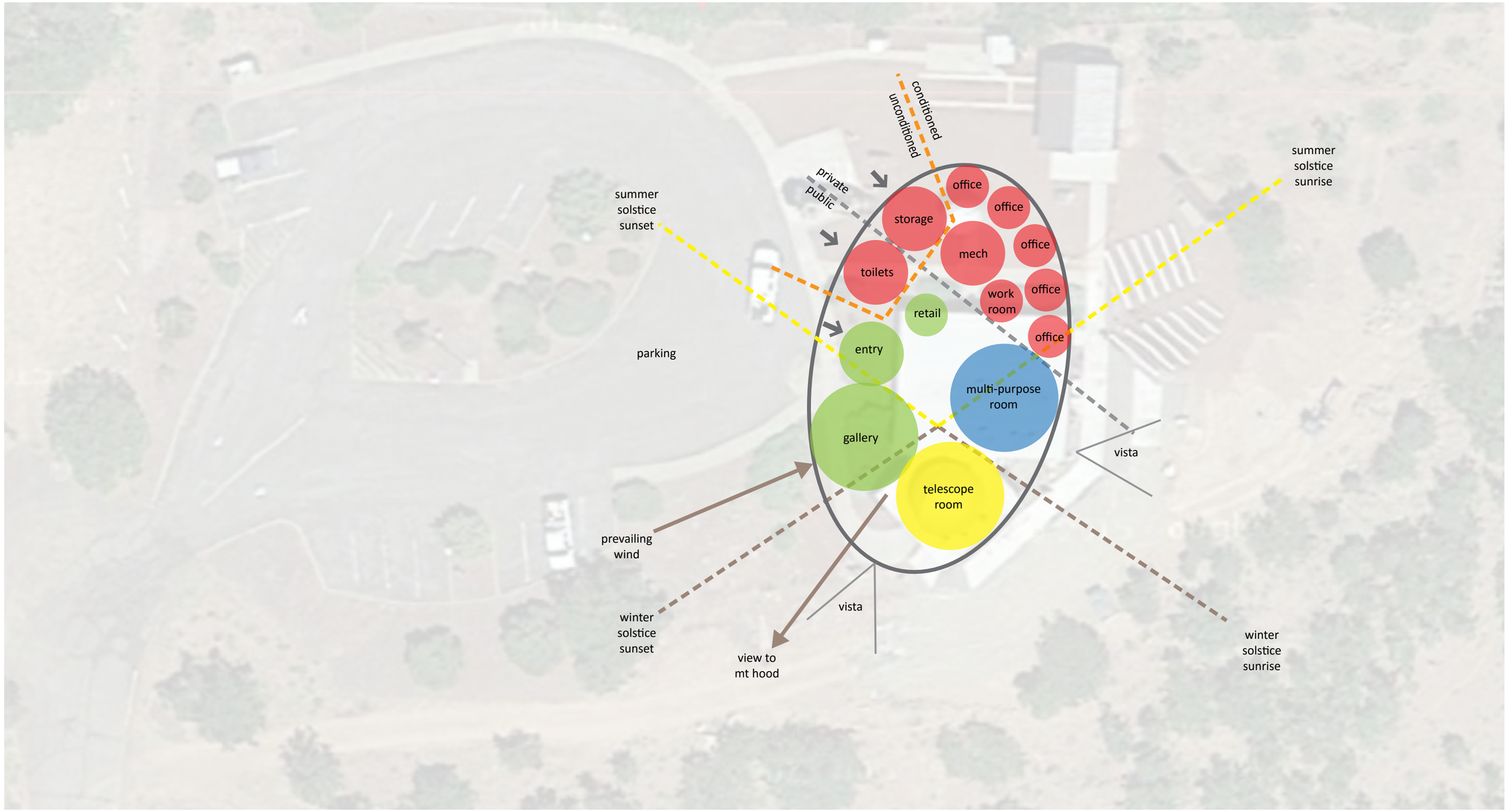
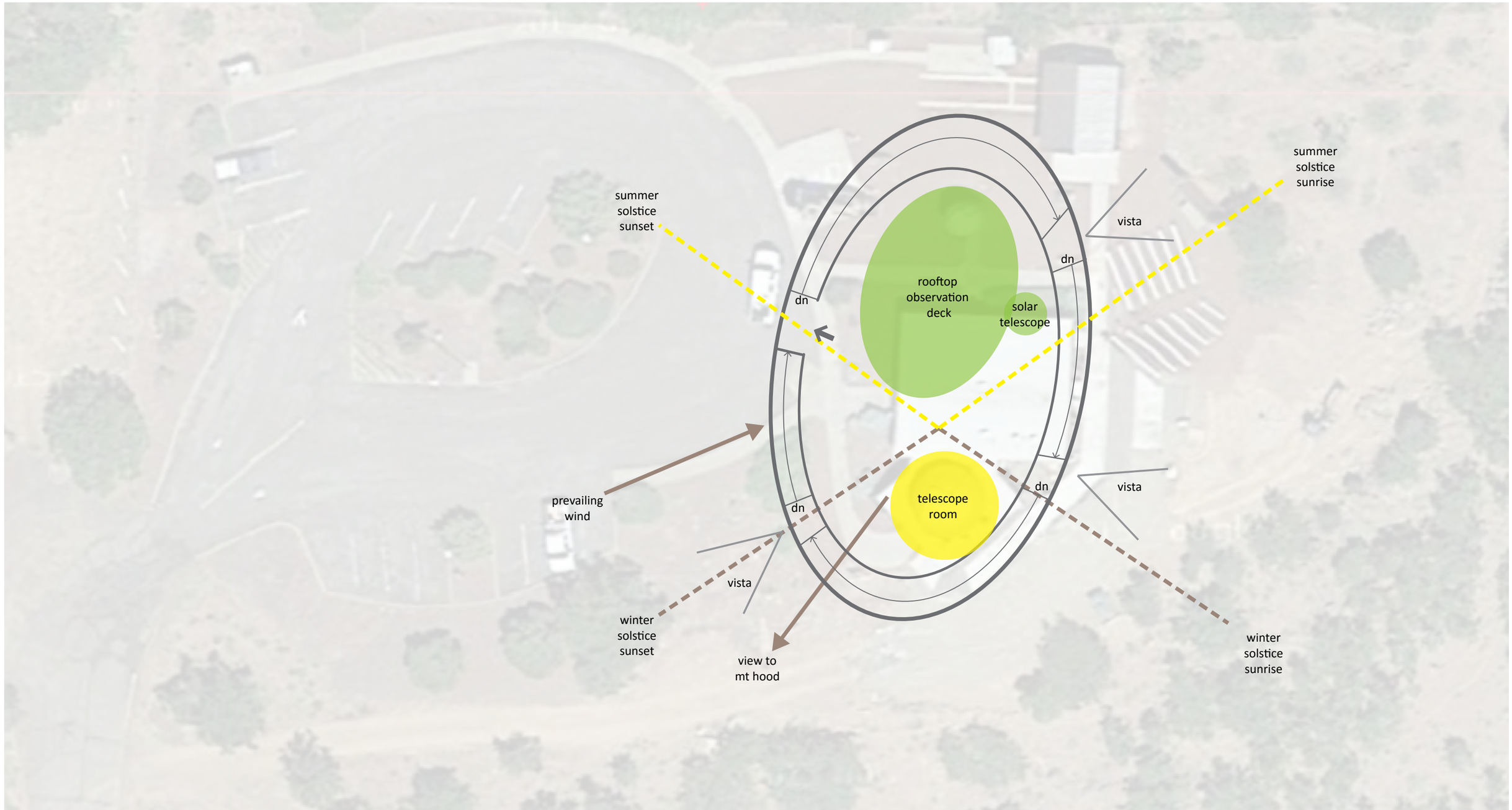


SCHEME C: ELLIPTIC ORBIT



SCHEME C: ELLIPTIC ORBIT ROOF PLAN

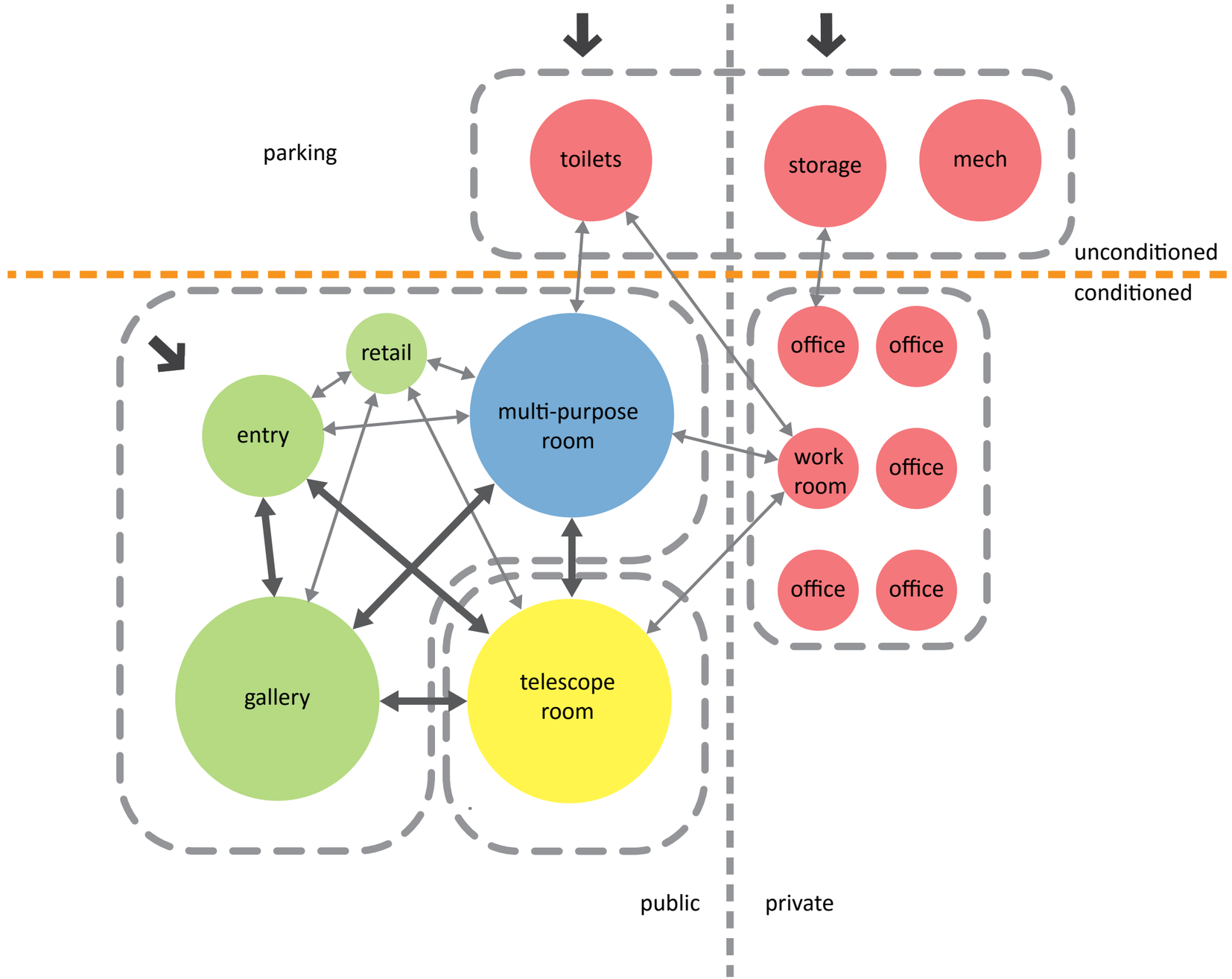
PLAY/INTERPRETIVE

STONE

WOOD

EARTH

AMPHITHEATER



ADJACENCY DIAGRAM

Goldendale Observatory Ph 3

Draft Estimate

6/2/2016

DESCRIPTION	UNIT COST		TOTAL
UTILITY UPGRADES			
SEWER / SEPTIC O.S.S.	$50/LF	$	200,000
WATER			
Verify adequacy allowance for 3" line and pressure tank	allowance	$	9,000
STORM WATER			
Verify requirements, allowance for tightline & dispersion trench	allowance	$	11,000
FIRE WATER			
Verify requirements	allowance	$	200,000
POWER			
Feed from transformer - allowance	allowance	$	5,000
	SUBTOTAL	$	425,000
PARKING IMPROVEMENTS			
DEMO 2" ASPHALT			
2" Asphalt	$40/CY	$	4,584
4" Stripping under new A.C.P.	$40/CY	$	1,955
GRADING			
Parking lot access and circulation	$0.20/SF	$	3,440
FILL			
A.C.P. areas (1' over entire site)	$20/CY	$	25,480
CONCRETE			
Parking lot retaining wall	$150/LF	$	40,000
8' access walks (3,600 S.F.)	$10/SF	$	33,500
NEW A.C.P.			
Parking lot asphalt	$3.50/SF	$	60,000
LANDSCAPING & IRRIGATION			
Parking and drop-off	$2/SF	$	21,400
	SUBTOTAL	$	190,359

Goldendale Observatory Ph 3

Draft Estimate

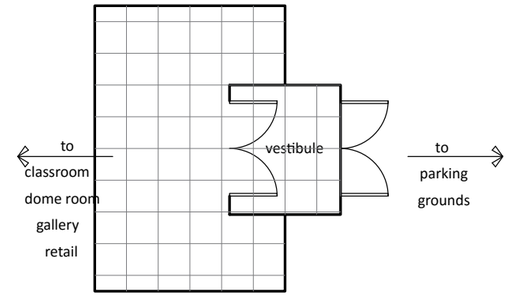
6/2/2016

DESCRIPTION	UNIT COST		TOTAL
STRUCTURES / FACILITY INPROVEMENTS			
INTERPRETIVE EXHIBIT HALL			
4000SF building shell	$350/SF	$	1,400,000
	SUBTOTAL	$	1,400,000
ACCESSIBLE PUBLIC RESTROOMS	$275/SF	$	110,000
	SUBTOTAL	$	110,000
UPGRADE MAIN BUILDING SYSTEMS	allowance		
(incorporated in new construction)	**SUBTOTAL**	$	-
LANDSCAPING & IRRIGATION	allowance	$	25,000
	SUBTOTAL	$	25,000
STORAGE (incorporated in new construction)			
ADDITIONAL ADMINISTRATIVE SPACE			
(incorporated in new construction)			
	SUBTOTAL	$	-
PROJECT COST BASE			
Construction costs (n.i.c. interpretive)		$	2,150,359
Landscape interpretive allowance		$	250,000
	SUBTOTAL	$	2,400,359
FEES & CONTINGENCIES			
5% construction cost contingency		$	107,518
A&E fees - construction cost with 1% design contingency + $10,000 consultant travel allowance		$	201,850
Parks administration at 10% of $2.64M		$	264,000
Sales tax on construction costs at 7.5%		$	161,277
HQ administration cost at 4% of $2.64M		$	105,600
Annual construction cost escalation at 3%		$	64,511
Permit fees - City and L&I allowance + $6,500 + $3,000 + $2,500		$	12,000
	SUBTOTAL	$	916,756
TOTAL PROJECT COST		**$**	**3,317,115**

Goldendale Observatory State Park
Room Area Matrix

Space name	Quantity	Room Dimensions	area	extension
Display Lobby	1	12 ft x 18 ft	250	250
Telescope Room	1	exist	665	665
Multi Purpose Room	1	34 ft x 50 ft	1700	1700
Gallery	1	32 ft x 62.5 ft	2000	2000
Retail	1	11 ft x 18 ft	200	200
Staff				
Offices	2	10 ft x 12 ft	120	240
Interpretives Staff	1	10 ft x 20 ft	200	200
Workroom	1	11 ft x 13 ft	145	145
Mechanical	1	15 ft x 20 ft	300	300
Storage	1	20 ft x 30 ft	600	600
Restrooms	2	8 ft x 25 ft	200	400
			total	6700 nsf

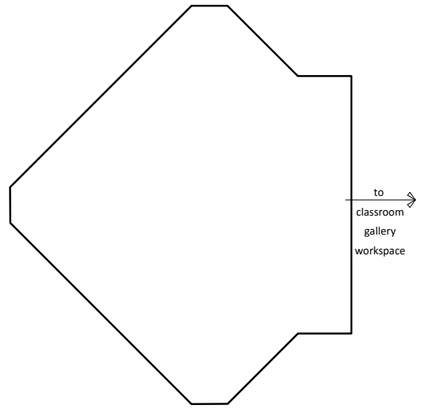
Display Lobby



2'x 2' grid

Space Requirements: Display Lobby			
ARCHITECTURAL		**MECHANICAL**	
Capacity	8	Heating/ Cooling	zoned mini-split heat pump
Min. Area	250 nsf	Ventilation	naturally ventilated
Adjacencies/ Location	grounds, gallery, telescope room, multi	Plumbing	
Floor	walk off mats	Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories		Data	
Acoustical		Comm.	
Fixed Equipment		Special	
Special Requirements			

Telescope Room

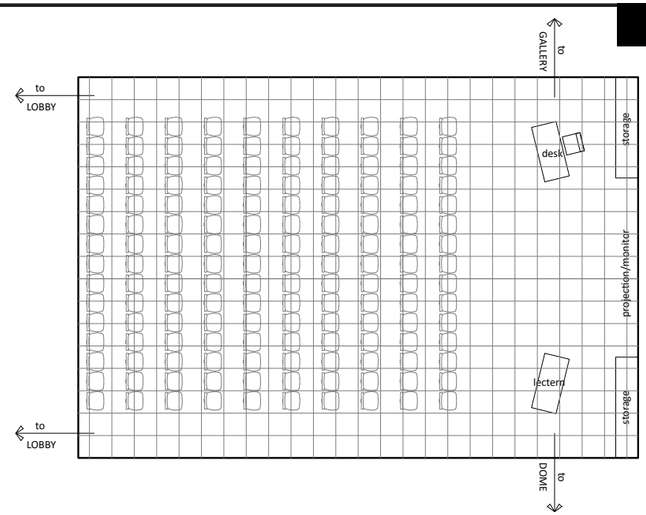


Space Requirements: Telescope Room			
ARCHITECTURAL		**MECHANICAL**	
Capacity	130	Heating/ Cooling	unheated
Min. Area	665 nsf	Ventilation	
Adjacencies/ Location	grounds, staff, gallery, multipurpose	Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories		Data	
Acoustical		Comm.	
Fixed Equipment		Special	
Special Requirements			

Goldendale Observatory
Programming

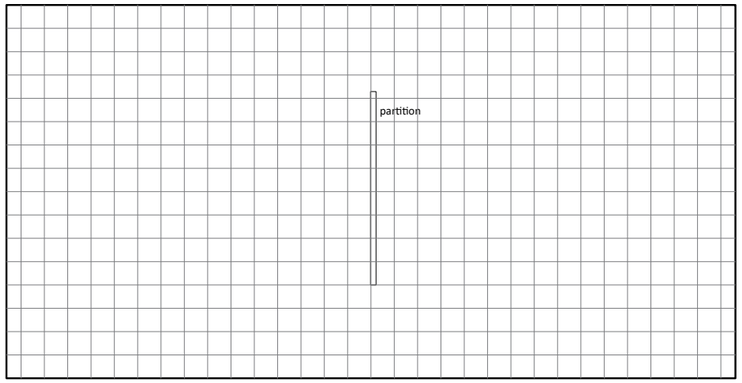
Program Document
Programming Phase 06-02-16

Multi Purpose Room



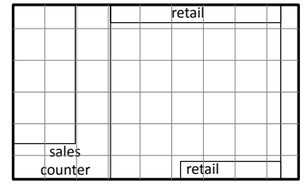
Space Requirements: Multi Purpose Room			
ARCHITECTURAL		**MECHANICAL**	
Capacity	150 max.	Heating/ Cooling	zoned mini-split heat pump
Min. Area	1700 nsf	Ventilation	naturally ventilated
Adjacencies/ Location	display lobby, gallery, telescope room	Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories	lectern, desk	Data	
Acoustical	requires acoustical control	Comm.	
Fixed Equipment	projector or OLED display, storage	Special	
Special Requirements	potential for half dome		

Gallery



Space Requirements: Gallery			
ARCHITECTURAL		**MECHANICAL**	
Capacity	30 visitors	Heating/ Cooling	zoned mini-split heat pump
Min. Area	1500-2000 nsf	Ventilation	naturally ventilated
Adjacencies/ Location	multi purpose room, telescope room,	Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories		Data	
Acoustical	requires acoustical control	Comm.	
Fixed Equipment		Special	
Special Requirements	room divider or multiple galleries		

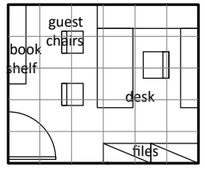
Retail



2'x 2' grid

Space Requirements: Retail			
ARCHITECTURAL		**MECHANICAL**	
Capacity	1 staff, 2-4 visitors	Heating/ Cooling	zoned mini-split heat pump
Min. Area	200 nsf	Ventilation	naturally ventilated
Adjacencies/ Location	telescope room, display lobby, staff	Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories	retail cabinets	Data	
Acoustical		Comm.	
Fixed Equipment	sales counter, storage	Special	
Special Requirements			

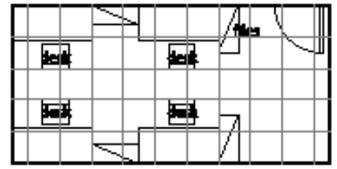
Offices



2'x 2' grid

Space Requirements: Offices			
ARCHITECTURAL		**MECHANICAL**	
Capacity	1 desk + 1-2 guest	Heating/ Cooling	zoned mini-split heat pump
Min. Area	120 nsf	Ventilation	naturally ventilated
Adjacencies/ Location	workroom, multi purpose room	Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories		Data	
Acoustical		Comm.	
Fixed Equipment		Special	
Special Requirements			

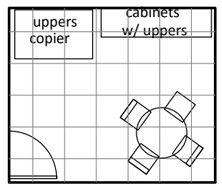
Interpretive Staff



2'x 2' grid

Space Requirements: Interpretive Staff			
ARCHITECTURAL		**MECHANICAL**	
Capacity	3-4 workstations	Heating/ Cooling	zoned mini-split heat pump
Min. Area	210 nsf	Ventilation	natural ventilation
Adjacencies/ Location	classroom	Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories		Data	
Acoustical		Comm.	
Fixed Equipment		Special	
Special Requirements			

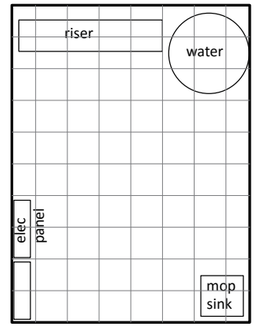
Workroom



2'x 2' grid

Space Requirements: Workroom			
ARCHITECTURAL		**MECHANICAL**	
Capacity	4-Mar	Heating/ Cooling	zoned mini-split heat pump
Min. Area	145 nsf	Ventilation	naturally ventilated
Adjacencies/ Location	staff offices	Plumbing	s.s. countertop sink
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories	copier, break table	Data	
Acoustical		Comm.	
Fixed Equipment	countertop, cabinets, uppers	Special	
Special Requirements			

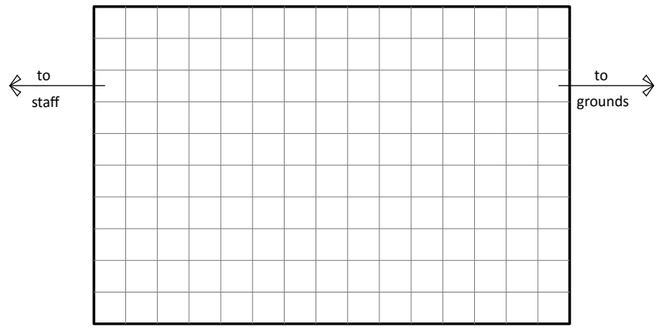
Mechanical Room



2'x 2' grid

Space Requirements: Mechanical Room			
ARCHITECTURAL		**MECHANICAL**	
Capacity	2	Heating/ Cooling	electric heat - wall or ceiling
Min. Area	300 nsf	Ventilation	naturally ventilated
Adjacencies/ Location		Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories		Data	
Acoustical		Comm.	
Fixed Equipment	DHW tank, electrical panels, mop sink	Special	
Special Requirements	sprinkler riser, if required		

Storage



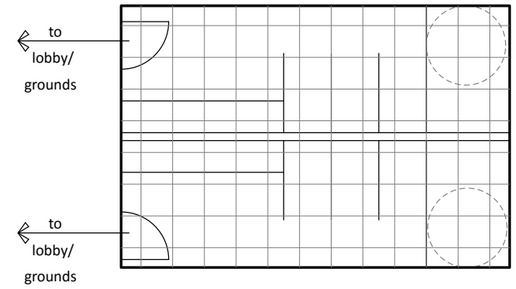
2'x 2' grid

Space Requirements: Storage			
ARCHITECTURAL		**MECHANICAL**	
Capacity	2	Heating/ Cooling	unheated
Min. Area	600 nsf	Ventilation	
Adjacencies/ Location	grounds, staff	Plumbing	
Floor		Special	
Walls		**ELECTRICAL**	
Ceiling		Power	
Doors	roll - up door	Lighting	
Room Accessories	storage racks/cabinets	Data	
Acoustical		Comm.	
Fixed Equipment		Special	
Special Requirements			

Goldendale Observatory
Programming

Program Document
Programming Phase 06-02-16

Restrooms



2'x 2' grid

Space Requirements: Restrooms			
ARCHITECTURAL		**MECHANICAL**	
Capacity	4 men + 4 women	Heating/ Cooling	electric heat - wall or ceiling
Min. Area	400 nsf	Ventilation	cabinet ventilation fans
Adjacencies/ Location	grounds, lobby	Plumbing	
Floor	tile or sealed concrete	Special	
Walls	tile or epoxy grout	**ELECTRICAL**	
Ceiling		Power	
Doors		Lighting	
Room Accessories	partitions, toilet accessories	Data	
Acoustical		Comm.	
Fixed Equipment	dryers, vitreous china fixtures	Special	
Special Requirements	accessible from indoors, outdoors with		