Alta Community Center

Feasibility Study

Draft Issued 01.21.2020

Document In Progress

ennead lab

Project Information

Dear Town of Alta,

While the summer and fall of 2020 has been full of hurdles of every type imaginable, it has been a joy to explore the potentials of a Community Center for the town of Alta with you. We have been inspired by the interconnected family of people who all work together diligently to ensure the safety and wellbeing of the community and protect its landscapes to ensure that this very special place is enjoyed for generations to come.

While our involvement has been for a short period of time and entirely virtual, we have learned so much and have been impressed at the care and passion that every person who participated in one of our many online meetings has had. Their thoughtful contributions have allowed our team to assist in defining an ambition for the center, create a functional space program that reflects these aspirations, and explore design alternatives. Studies that both meet the structural challenges of building within an avalanche path, as well as create an appropriate 'fit', and ultimately one that can function within this sometimes-volatile environment. It is our hope that this study will be an important next step towards making the Alta Community Center a reality.

From our team here at Ennead, the time that we have spent over the past several months learning from the many voices that make up Alta has reminded us of the importance of being human and the power of community. At a time in all of our lives when we needed that reminder, for that, we owe you a profound 'Thank You'.

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ennead

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01 Purpose

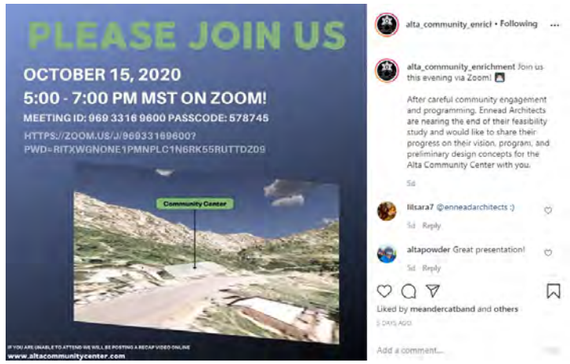
Community Center Feasibility Study

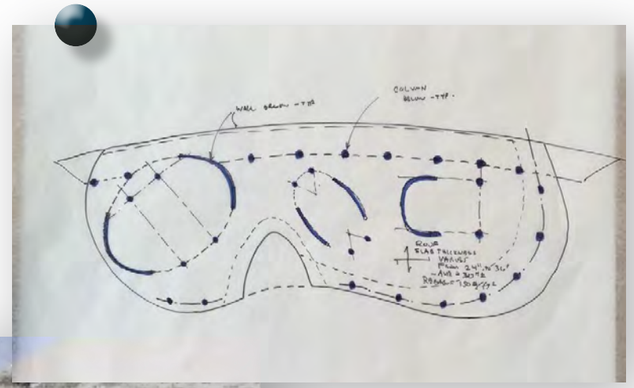
Brief History Of Project

For many years, developing a large, multi-purpose, public facility has been a goal for the Alta community. In 2015, the United States Forest Service conveyed parcels of National Forest System Land to the Town under the Town's municipal buildings and an undeveloped, 1.19-acre roadside parcel in central Alta.

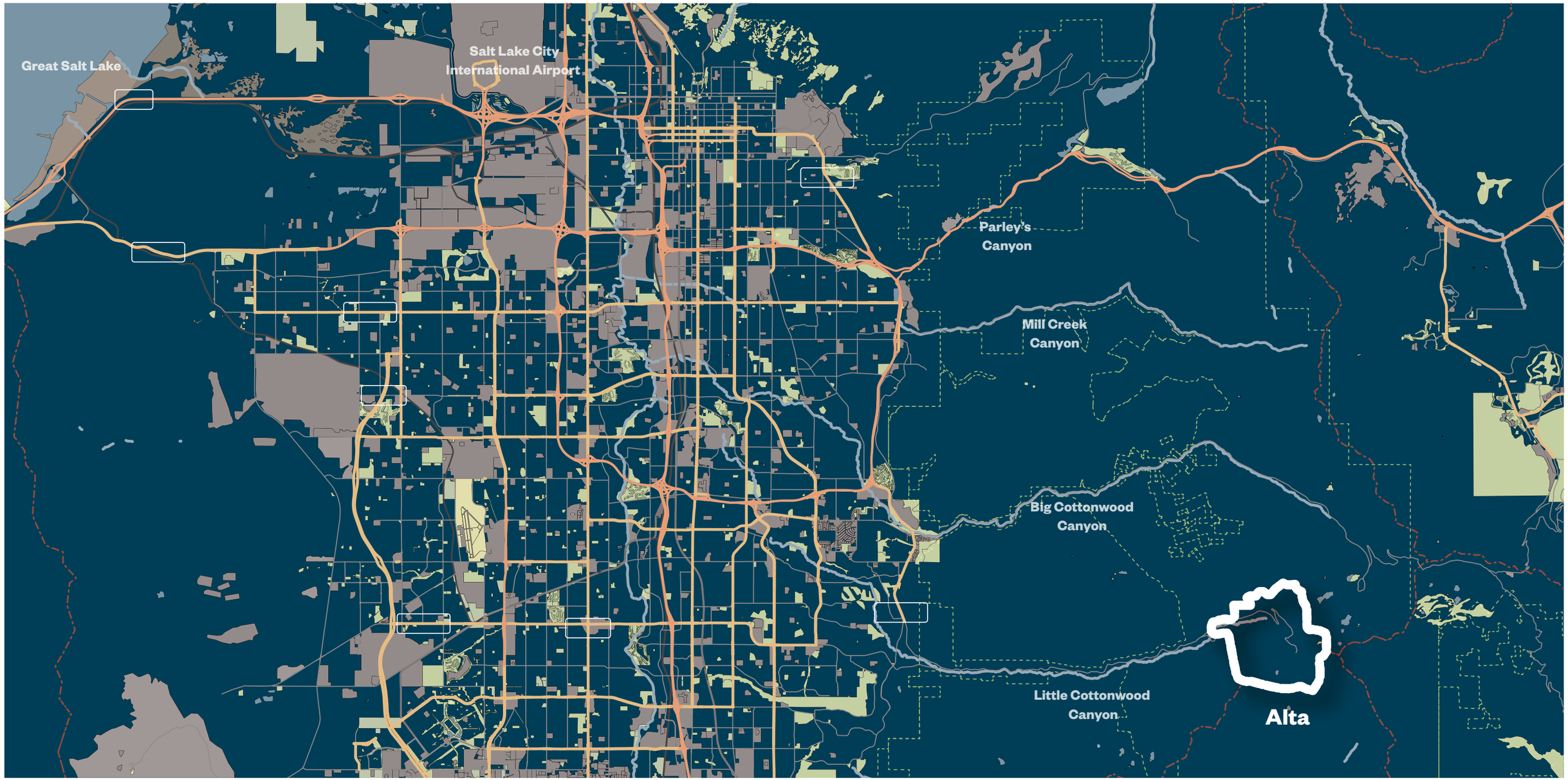
Why a Community Center in Alta?

The community center is intended to facilitate building community wellness and enrich those who live, work and play in the area. A principal motivation for developing a new community center here is that many of the proposed functions are currently distributed throughout the Town and are located in small, aging, minimally equipped buildings and in spaces that are difficult to access.





Alta, Utah



The Town of Alta is nestled into one of the world's most stunning canyon settings. Little Cottonwood Canyon provides unparalleled terrain for big mountain skiing and backcountry adventure. The Town was founded over 150 years ago, during an era of mining claims and frontier spirit, and benefits from being located only 12 miles from metropolitan Salt Lake City, Utah.

Alta is known primarily as a recreation destination, as it is home to Alta Ski Area, one of the world's most iconic winter sports destinations, as well as several privately owned lodging facilities and several neighborhoods of single-family homes. During a winter season, which often lasts from mid-November to early May, deep, natural snow blankets the Town of Alta, turning steep mountain slopes into an economic resource, which supports a strong local economy andconstitutes a major attraction for tourists to visit the State of Utah.

During the non-ski season, many businesses in the Town of Alta close for the summer, making Alta a very quiet place. It is during this season, when snowpack recedes and Alta's vast open landscape bursts with wildflowers that another important aspect of Alta's identity is perhaps more apparent: Alta encompasses the headwaters of Little Cottonwood Creek, a vital culinary watershed for the burgeoning population of the Salt Lake Valley. Dispersed recreation destinations such as hiking trails to Cecret Lake and Catherine's Pass, as well as a United States Forest Service Campground in Albion Basin, are primary attractions for locals of Alta and the Salt Lake Valley and tourists.

Town History

1864

Silver was discovered in Little Cottonwood Canyon Area

1868

First Building in Alta (steam powered sawmill and boarding house)

1870

Town of Alta established, populations exceeds 200

1872

Alta's summer population grows to several thousands

1878

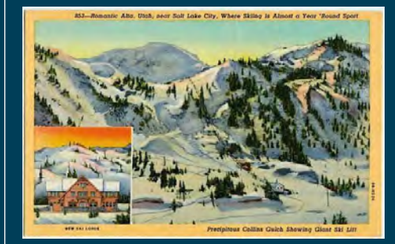
Fire destroys almost all of Alta. The town is never completely rebuilt

1920

Recessions Ceases almost all mining activity in the area

1937

1800 acres of surface rights deeds given to the US Forest Service for use as a ski area



1938

Alta becomes ski area

1968

Post office re-opens in Alta. Chamber of Commerce is established by local business owners

1970

Alta is incorporated as a town

1973

Alta's first library is started

1975

Alta Justice Court begins

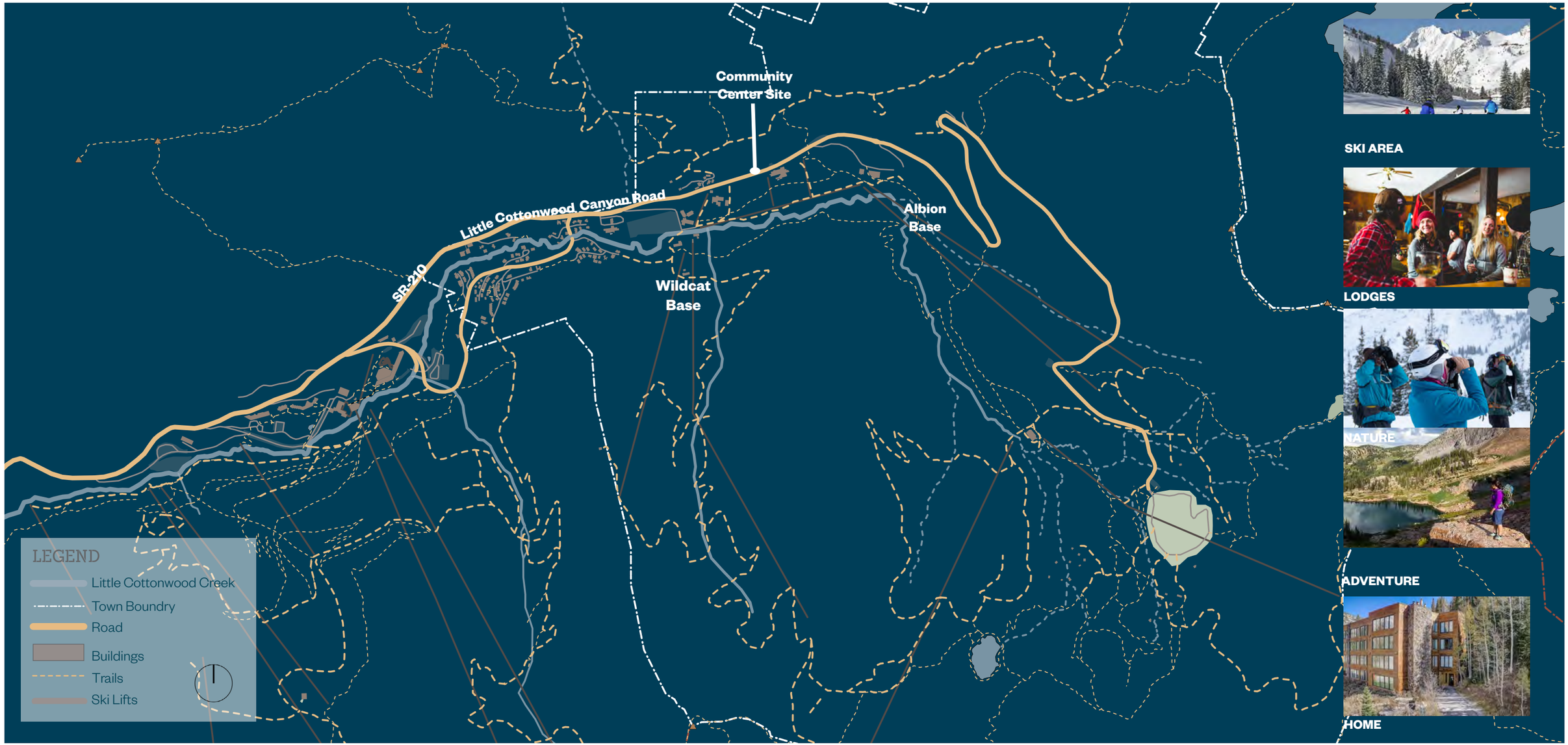
1978

Alta Fire station is built (current community center location)

1995

Alta Community Enrichment (ACE) is started

Community & Early Studies



The population of Alta fluctuates seasonally, and its community comprises both its 386 permanent residents as well as its 140 business owners, managers, and employees who work together to welcome as many as 1,600 overnight guests totaling upwards of 500,000 visitors a year.

While the community is richly diverse in backgrounds, age and economic circumstances, they come together in their love of this unique place. Outside of the lodges and ski areas, the community of Alta has very few physical spaces to come together for their individual and collective health and wellbeing. This lack of amenity can become especially trying during peak ski seasons when the seasonal employee population is at its highest and the workload most stressful.

Although physical spaces are limited non-for-profit organizations such as ACE work to create an engaged community by bringing people who live, work and play in Little Cottonwood Canyon together to share and experience the arts, culture and education.

The Town has engaged design teams on two other occasions to envision and evaluate the feasibility of creating a new community center. These projects have yielded provisional assumptions about the size of a community center facility, the uses it would satisfy, and rough order of magnitude costs.

In 2002 and 2003 a feasibility study was created to explore renovating or entirely rebuilding the current Alta Community Center in its current location. The study included analysis of the current facility, and analysis of public input leading up to that point, additional public input. In 2007 and 2008 a second study was created and included many of the same program elements.

In 2016, the Town of Alta conducted a planning project focused on developing a more concrete vision for Alta's "Commercial Core." The Commercial Core Plan, which was finalized in December Of 2016, established a short list of priorities for implementation, among which included the development of a new Town of Alta Community Center on land conveyed to the town by the US Forest Service. Given the acquisition of the Forest Service Parcel, as well as changes in the profile of the Alta community and other factors, have led the town to test historical assumptions about project feasibility and costs and determine a facility program that will satisfy the community's needs today and into the future.

Community

Interacting population of various kinds of individuals in a common location

“What makes Alta unique is the community.”

“You come for the snow, but you stay for the summer. **Alta has a soul, and the more you visit, the more you realize that.** People want to protect Alta.”

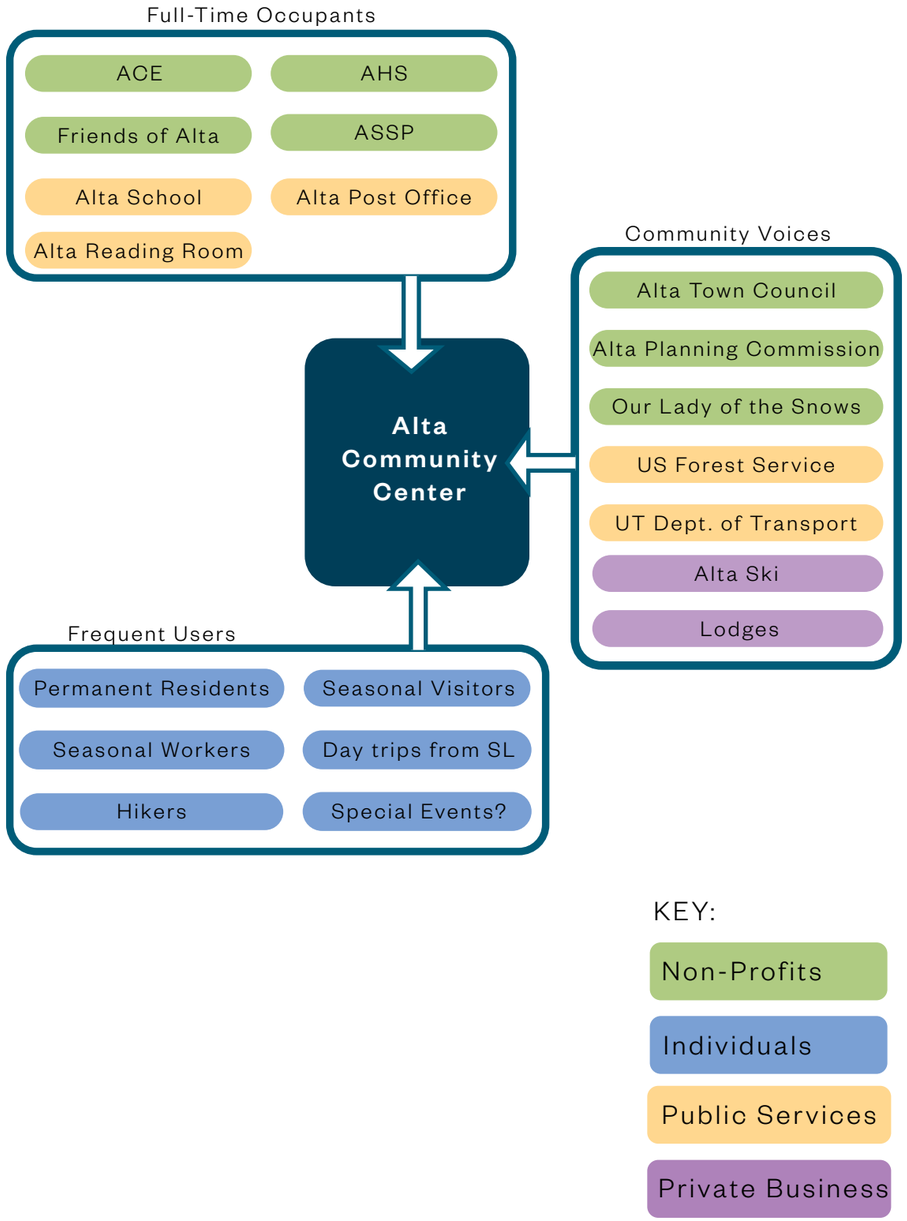
“Alta is home to more people than just the people that live there.”

02 Process

Process

Why Community Engagement?
In order to provide a design that accurately addressed the needs and aspirations of the Alta community, it was imperative to craft a process that allowed the design team opportunities to listen, learn, and respond to the community.

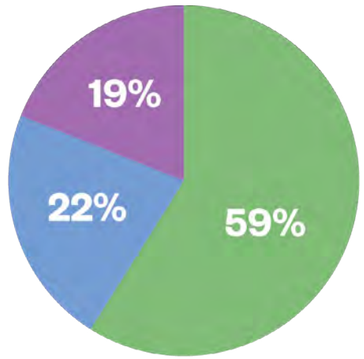
Why Virtual?
Due to the travel restrictions in place during the summer of 2020, this process was conducted in an entirely virtual format by using online meeting platforms, virtual whiteboards, websites, and social media platforms. We would like to offer a note of tremendous thanks to the community members who participated in our online workshops and who shared with us during this process.



Setting Up The Conversation

The design team worked with Alta's town to define a process that allowed for community stakeholders' input, ultimately to a consensus on community vision. An advisory committee of stakeholders that represented diverse perspectives within the community were selected by the Mayor to guide the design team on a regular basis. In Bi-weekly meetings with the Advisory committee, the design team charted a process for engaging the community, determining who to reach out to, how to reach out to them, and ultimately the questions to ask. Together, we developed a stakeholder map (see previous page) which identified the key groups of users who would play an important role in this process. After each of the community sessions, information was gathered with the committee and discussed to inform next steps.

Regular check-ins with the Town and the Mayor's office ensured that the team was staying on track. At key milestones, progress was presented for input at Town Council and Planning Commission meetings.



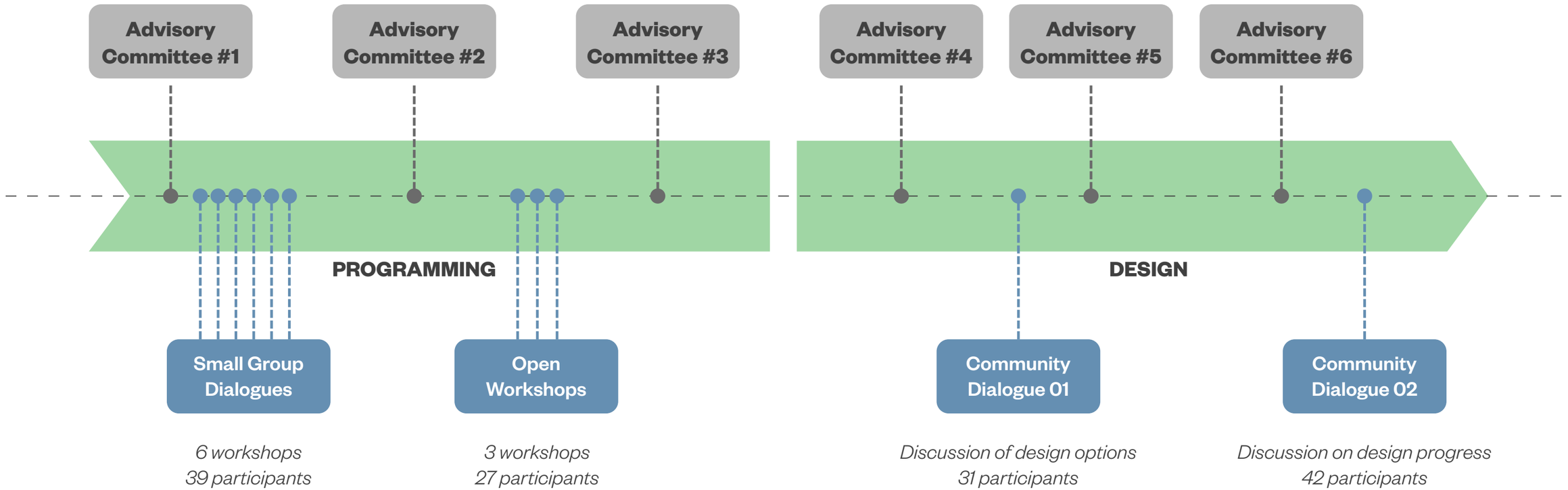
95 VOICES HEARD

54 UNIQUE SURVEY RESPONSES **37 SMALL GROUP PARTICIPANTS** **5 ADDITIONAL OPEN WORKSHOP PARTICIPANTS**

59% **Live** or **Work** in Alta **year round**

22% **Live** or **Work** in Alta **Seasonally**

19% are **Visitor / Other**



Outreach Methods

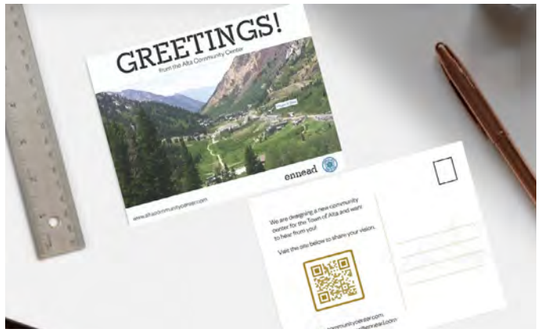
The design team employed several methods of outreach in order to share our work and invite participation in our conversations, the first of which was a project specific website: **www.altacommunitycenter.com.**

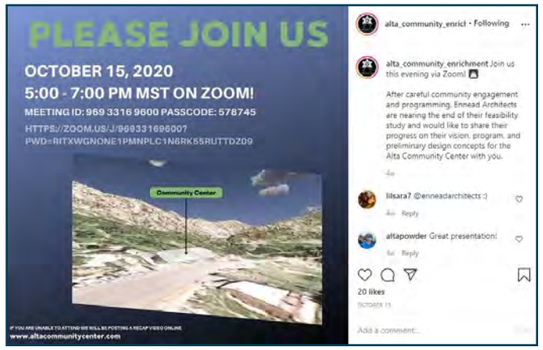
The website served a dual purpose: it was a repository of the design team's work, as well as a means to collect data and feedback. Initially, a survey was deployed which asked similar questions to the first round of workshops. This survey was intended to be an alternative means for the community to express their goals and aspirations for the center and an opportunity for the design team to reach out to an even broader group of interested persons. We received 70 survey responses from a variety of residents and non-residents, giving us a better understanding of the spaces and activities, they prioritized.

In addition to the survey function, the website offered information about the design team, the feasibility study process, and highlighted key dates and milestones.

Progress updates and recordings of presentations were uploaded so that viewers could provide additional feedback.

In order to let people know about the website and the study, the team used other forms of outreach to connect. A physical postcard was mailed to all the residents of Alta, spreading the word about the study. Social media posts (through ACE) and email announcements alerted community members regarding the virtual workshops and conversations and invited their participation.





Town of Alta Survey

We are working on a new community center, and we want to hear from you. Thank you in advance for your time and your input.

* First Name

* Last Name

Where is your primary residence?

- ○ Alta, Utah
- ○ Other

What brings you to Alta?

- ☐ I live in Alta year-round
- ☐ I live in Alta seasonally
- ☐ I work in Alta seasonally
- ☐ I work in Alta year-round
- ☐ Winter: day-trips
- ☐ Winter: multi-day-trips
- ☐ Summer: day-trips
- ☐ Summer: multi-day-trips
- ☐ Community events
- ☐ Alta School
- ☐ Other

How many days per year do you spend in the Town of Alta?

- Select -

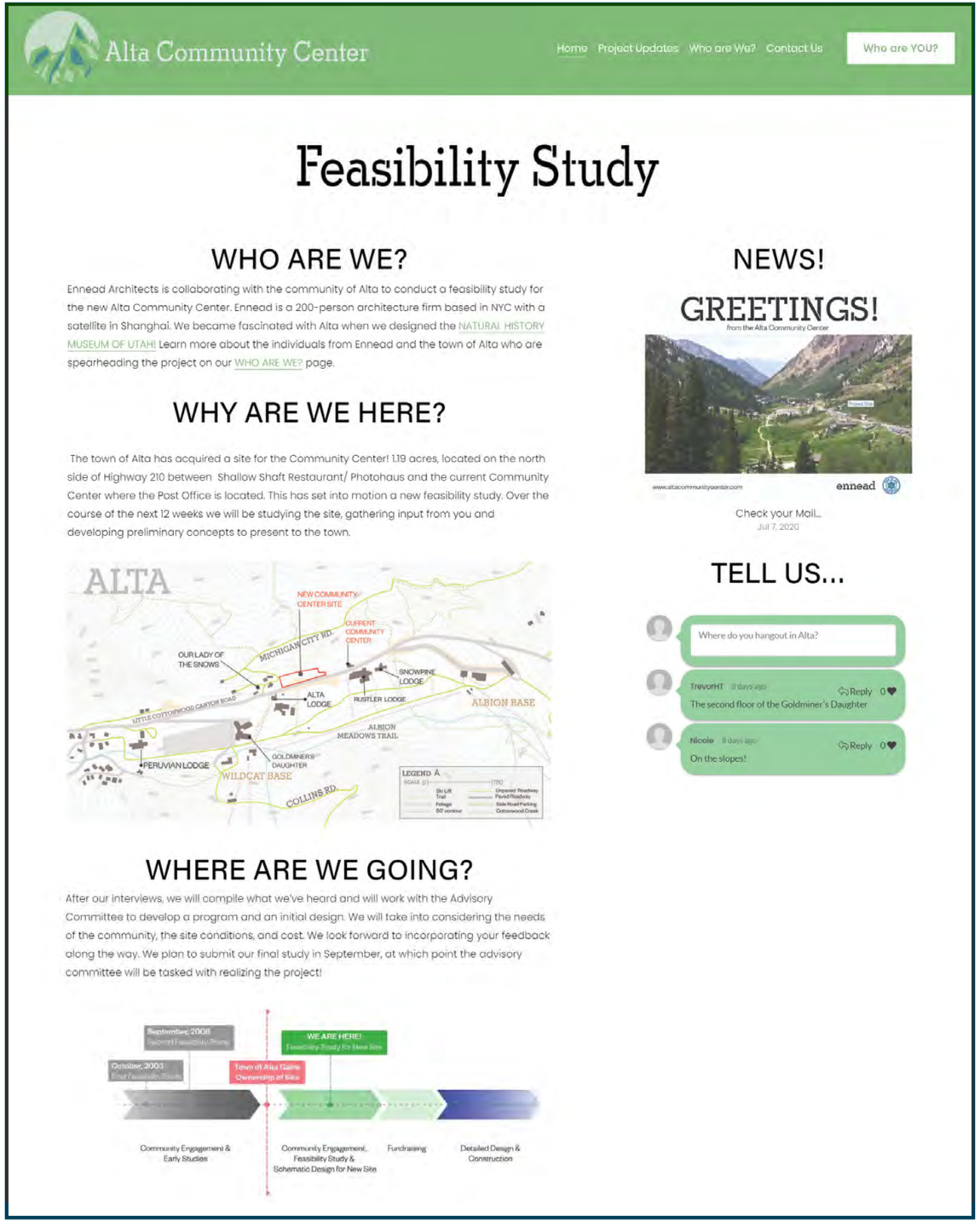
How many nights per year do you spend in the Town of Alta?

- Select -

When you are staying in Alta for more than 2-3 days, how often do you travel to the Salt Lake Valley?

- Select -

How would you describe Alta (in one word)?



Small Group Dialogues

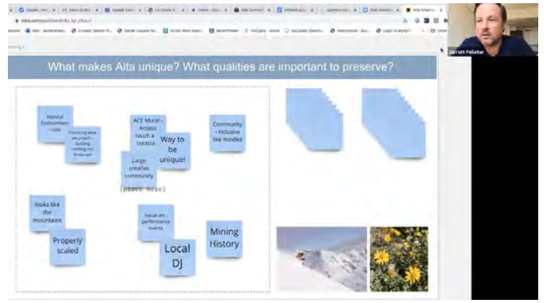
What makes Alta unique?

The design team began the public engagement process with a series of 'Small Group Dialogues'. We reached out directly via email to a list of over 120 community members that were recommended by the Advisory Committee in order to solicit participation and schedule the conversations. Each dialogue consisted of 5-10 people who came to the table having different perspectives and backgrounds, and the team utilized used 'Miro', an online workshopping tool, to document responses.

We began each dialogue with introductions and some big-picture questions: What do you love about Alta? What makes Alta unique? We wanted to learn from these dialogues what aspects of Alta needed to be preserved and celebrated with the community center. The conversation often centered around the Alta community and the exquisite natural environment.

What is the role of the community center?

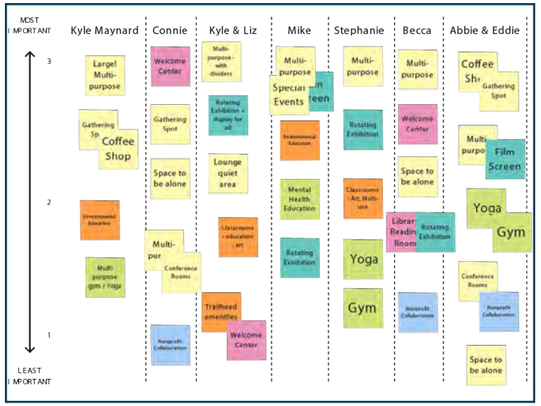
A second series of questions began to define the role of the community center to the town. What Resources should a community center provide? What role does the community center play? In addition to a space that held events, it was important for the center to be a welcoming and educational space. It was also important for many of the people we spoke with that the center promotes wellness, both physical and mental and that the center is a steward of the environment.



Small Group Dialogues

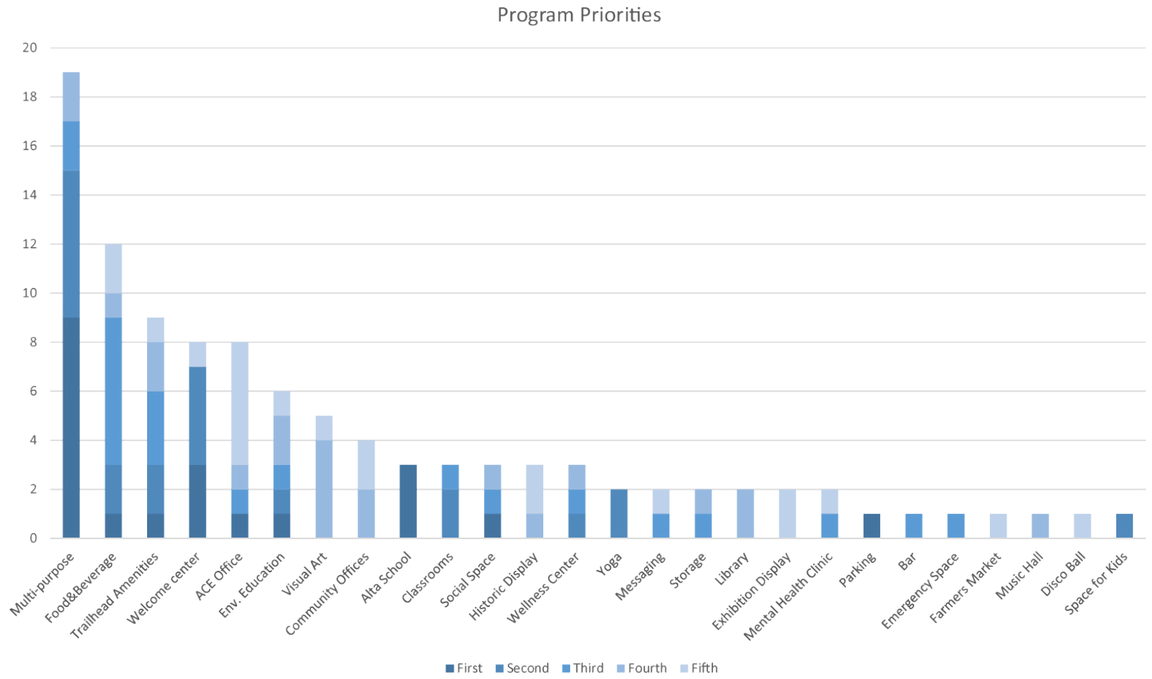
What programs are important to include?

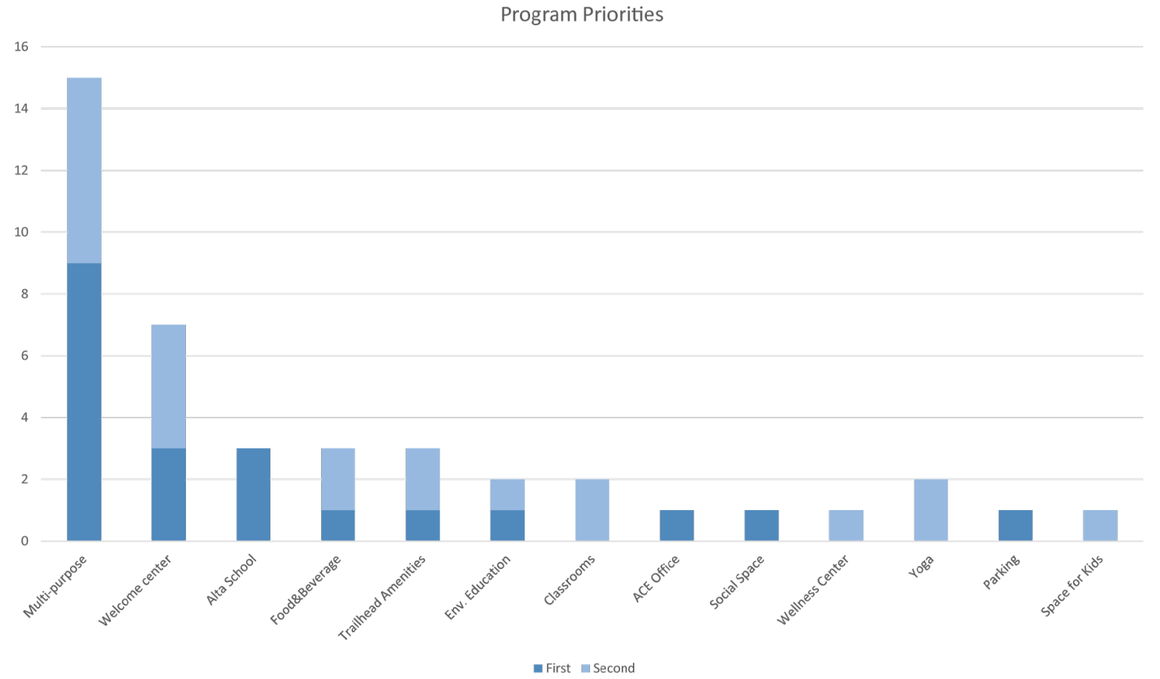
The following discussion was geared to begin to translate the goals and roles we heard in the previous conversation into a prioritized list of programs, ordered by priority. We provided a list of program spaces that we knew were popular or discussed earlier in the workshop, and we asked people to rank their top five spaces and/or suggest other programs. Due to future spatial and financial restrictions on the project, we wanted to identify a wish list and understand the priorities within that list and allow people to hear others' priorities.



priorities board from one of the workshops

Of the responses we received, a multi-purpose space was the highest-ranked space. The charts (page 32-33) show all the responses we received. The charts below show the space types ranked first and second places. We learned that, first and foremost, the community needed a space that was flexible and could accommodate a variety of uses. Also of high importance was an area that was unprogrammed and allowed for community members to drink a cup of coffee and relax. It was expressed to us that such a space doesn't currently exist in Alta. Also, we received several impassioned suggestions to provide space for the Alta school into a permanent, light-filled space.



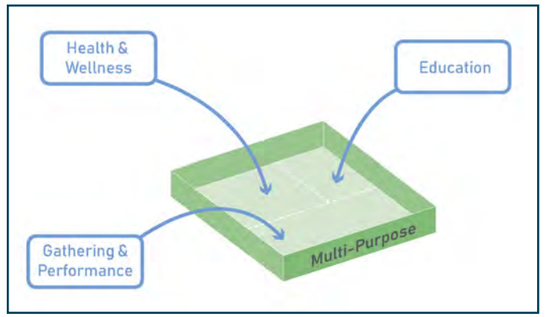


Open Workshops

What spaces are needed to support the main themes?

Using themes from the "Small Group Dialogues," we used the next series of workshops to provide an opportunity to gather further details through in-depth conversations. These "Open Workshops" were designed to ensure that the design program would meet the center's ambitions. The workshops (10-15 persons) were organized and community members could participate in those workshops in which they were most interested in.

Multi-Purpose Spaces
The most important characteristic of the multi-purpose space was its flexibility and ability to accommodate a wide variety of users, sometimes as the same time. It was reiterated to us that the space should not be dedicated to a programmed space but should be flexible. Some ideas for flexible space were sports spaces (yoga, volleyball), school field trip gatherings, film screenings, trainings, and a music venue. A critical supporting space to provide flexibility is storage.

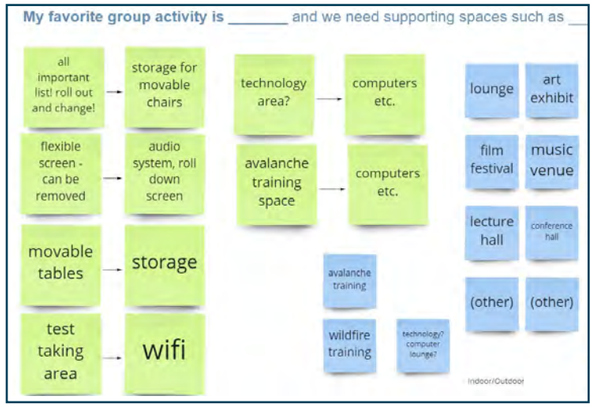


Trailhead
The trailhead will be visited during all seasons, and its most important role is to provide restrooms that are accessible 24/7. In addition, it should provide trash/recycling, a water refill station, and maps or other information. A great idea was to use the trailhead space as a "teaser" for more educational content within the center.

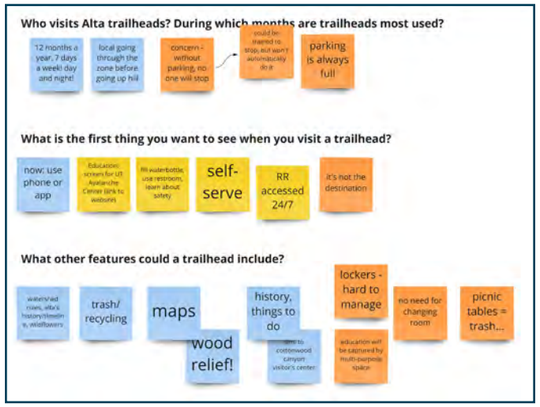
Emergency / Resources / Resiliency
Though we worked, we engaged with a professional avalanche consultant team; thanks to our conversations with the community, we learned a lot about the threat of avalanches and the corresponding interlodge, a time during which no one is allowed to be outdoors until the avalanche danger is mitigated. We wanted to host a workshop to better understand the community center's role within emergency responses. We learned that the center does not need to provide long-term shelter because most people interlodge within their residences. Instead, it was recommended that the center should act as a resource for emergencies with bathrooms, water, and a warm floor. The center could also be an emergency command center for dispatching people and resources.

Environmental Education
The environmental education conversation centered on the intent of the educational content. The value and strategy of informing the community about ecological respect are essential to the Alta community's desire to shift toward a more compassionate approach to education and stewardship. Important content included Alta's history, wildlife/ecosystem, safety, and stewardship rules.

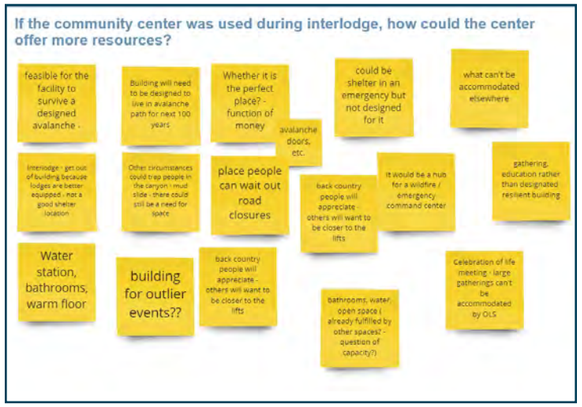
MULTIPURPOSE: GATHERING & PERFORMANCE EVENTS



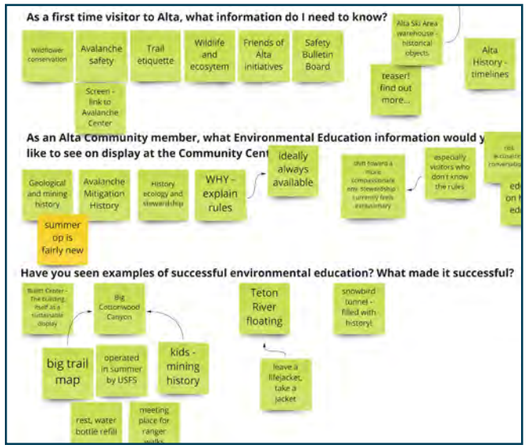
TRAILHEAD



EMERGENCY / RESOURCES



ENVIRONMENTAL EDUCATION



Open Workshops

What sustainable measures are important to include?

In addition to functional themes, community members expressed a strong desire for the community center to be built and maintained sustainably. In order to give this topic the focus it deserved and to better understand the local context, we invited A-10, our sustainability consultants to lead a workshop focused on sustainable design.

Materials

Specific materials highlighted in conversations included wood, granite, concrete, and glass. Each of these materials has a particular resonance in the community.
We discussed the appeal of wood and the potential to reuse trees damaged by beetle infestations. Granite has a history of use in Alta due to its availability at the bottom of the canyon, and we were recommended to find ways to incorporate it into our design. We also discussed concrete and glass as common materials, as long as they are designed to withstand avalanche forces.

Wind and Air

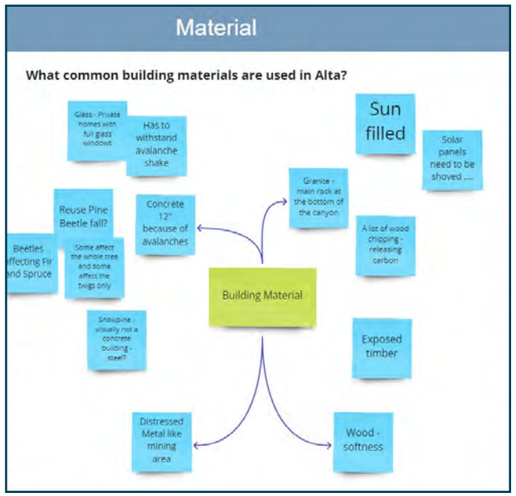
Air pollution is a pervasive problem in the Salt Lake City area and is exacerbated by idling cars. There is a growing initiative to "Keep Utah Idle-Free" but we were encouraged to be aware of our site's proximity to the air and noise of the highway. In addition, we learned about the need for humidifiers, which are currently provided by lodges.

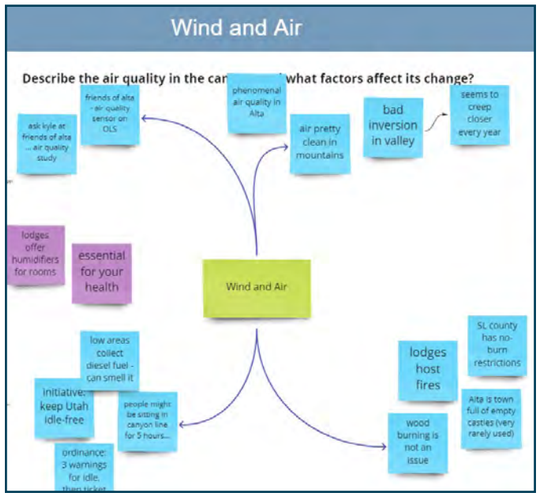
Energy

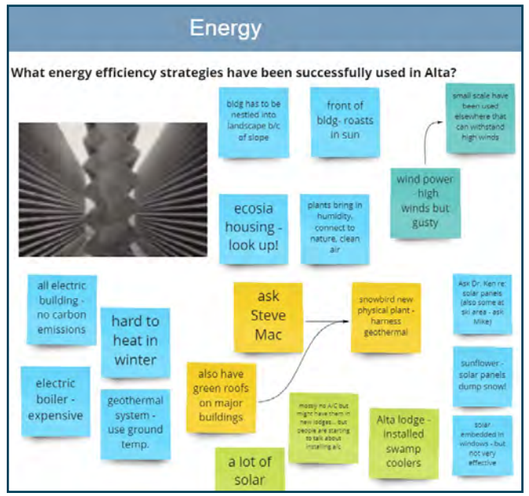
Knowing that the need to heat the building would be significant, we discussed alternative energy sources. Solar panels are possible, but they are difficult to maintain due to high snow fall. Geothermal was recommended, though we discussed restrictions on drilling. Nestling the building into the landscape was also recommended as a way to decrease heat loss.

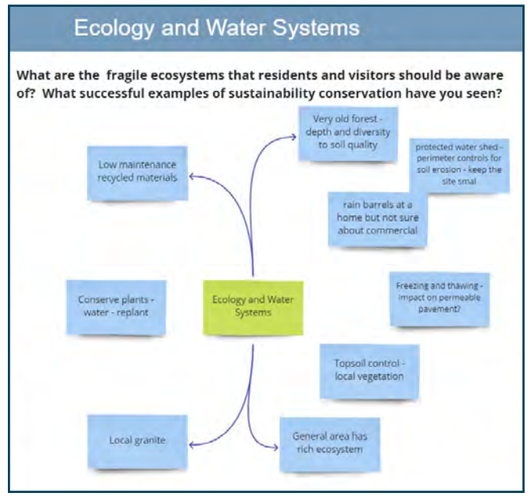
Ecology and Water Systems

We learned about the rich ecosystem that surrounds our site, including a very old forest. In addition, the site sits in a protected watershed, which requires good soil erosion controls. We also heard about Alta's annual program of replanting plants and discussed using our site for seasonal gardens.





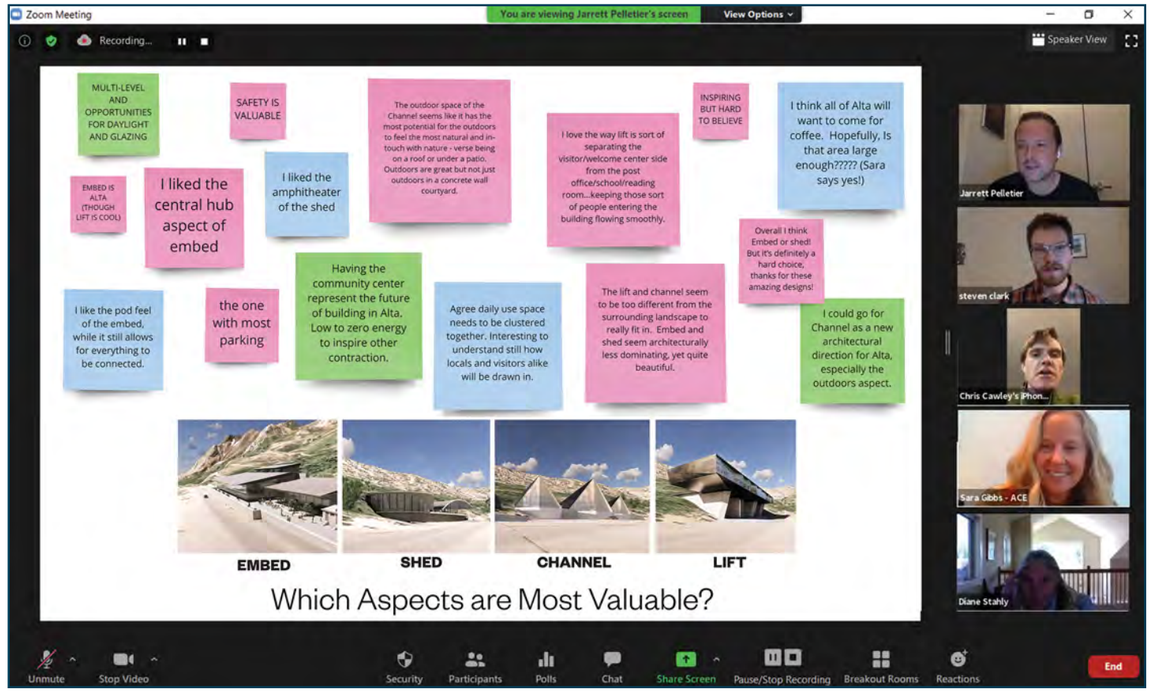




Community Dialogue 01

Community feedback on design options

Parallel to the programming process, the design team had been actively working with the team's structural, environmental, and construction experts to explore a building's potentials on the site. As ideas solidified, they were presented to the Advisory Committee for feedback and critique. Once an approach and several concepts emerged, the design team organized a public presentation and discussion where we shared initial design concepts and asked for feedback on several aspects: Which designs felt welcoming? Which ideas were most representative of Alta? Which aspects were successful of the various concepts? We received great commentary that provided us with direction to move forward and refine a scheme to become the preferred option. After hearing input from the community on the initial concepts, the design team went back to the Advisory Committee to discuss the next steps, selected a preferred direction, and develop a concept to address other design related and functional issues.

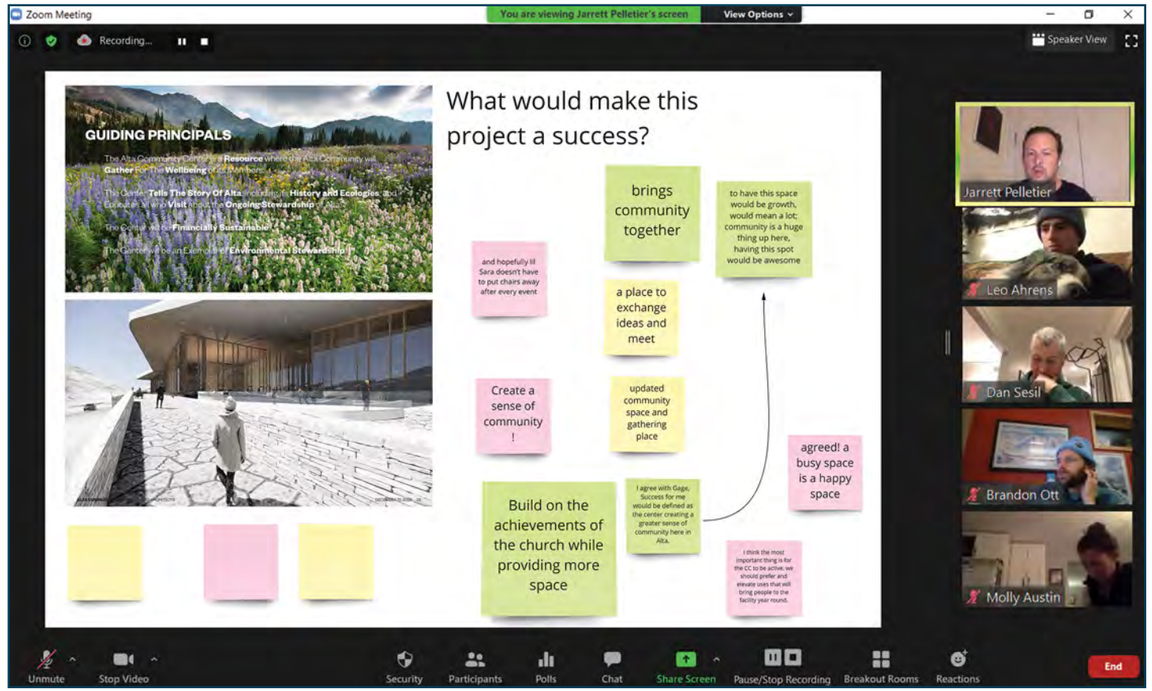


Community Dialogue 02

Second Design Presentation

An additional community design presentation occurred towards the end of the study to show and discuss what the team had done with all of the valuable feedback, and to collect comments and suggestions that could be incorporated in later stages of the center's design. Community members expressed appreciation for the various communal spaces within the design and its welcome-ness. Moving forward, we were urged to reconsider the parking layout to prevent

congestion, clearly address snow removal needs, and provide a clear vision for the information desk and non-profit displays. We also discussed the importance of the community center to bring the community together, provide a space to exchange ideas and meet, and create a sense of community in Alta.



03 Program

Program

Programmatic Themes
Themes were extracted from our early conversations with the Town, the 'Small Group Dialogues' with the community.

The individual themes each work together to meet the ambition and guiding principles established for the project.

Functional Details
More detailed conversations and the community' Open Workshops', informed the sizing, configuration, and general composition of each space.

Guiding Principles

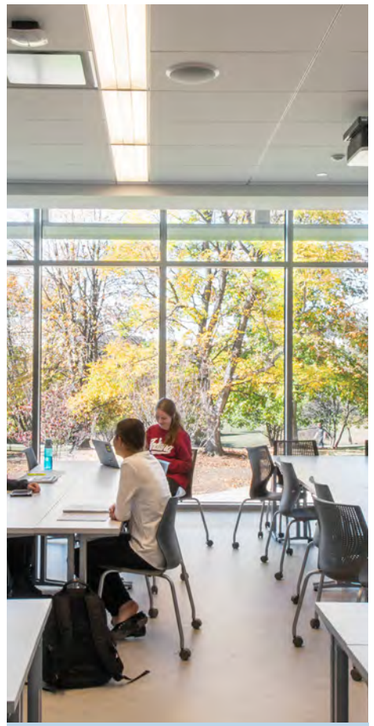
Community Center Programmatic Roles

Gathering

Large scale gathering spaces are intended to be flexible and dynamic, accommodate various indoor events which cannot be currently accommodated within the town's existing portfolio of space types. Functions within these gathering spaces can include meetings, educational programs, training programs, conferences, physical fitness, exhibitions, and other social type gatherings.

Wellness

Spaces for personal and community wellness was determined to be a need. While gathering spaces for social connections were discussed as a necessity for community wellness, more personal needs such as physical and mental health were discussed as an aspiration for the center.



Education

Educational spaces were defined very broadly to be inclusive for a range of community member needs and include historical and environmental education – teaching the community and visitors ways to be stewards of their landscape - in addition to a physical relocation for the Alta School and Reading Room.

Environmental Education

The community center was envisioned as an exemplar of environmental stewardship, both in terms of the educational programs it could support, as well as the building's physicality and sustainability. Environmental stewardship is an essential aspect of education. As a first-time visitor in Alta or even as an Alta resident, topics discussed included wildflower conservation, water preservation, trail etiquette, safety and the town history.

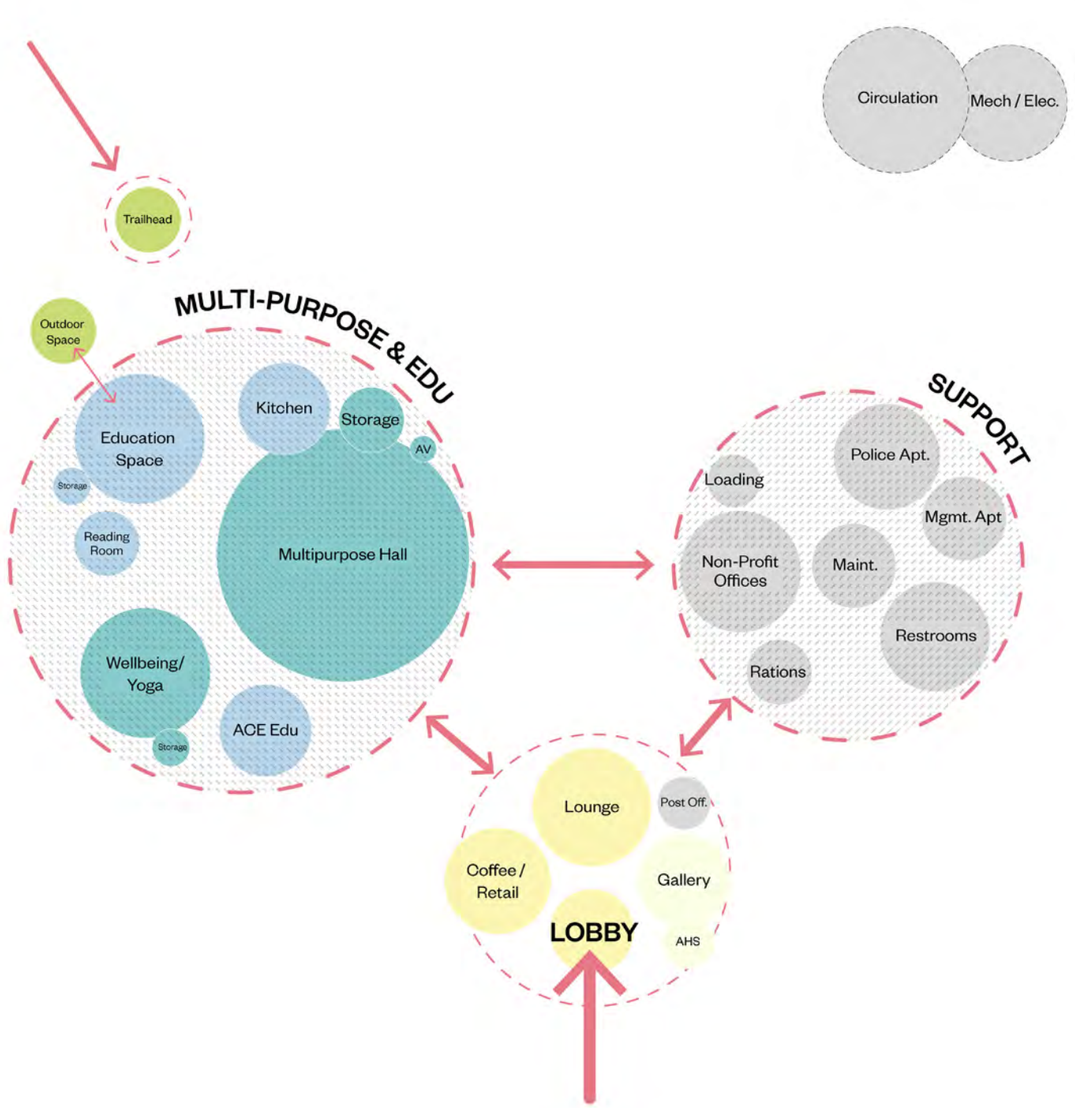
Trailhead

Providing resources and creating a new entry point to Alta's landscape was discussed as a priority. . Spaces were discussed to provide resources for visitors, hikers and back-country skiers including trail maps, environmental education, recycling and composting services, and restrooms.

Resilience & Support

Alta's landscapes, while monumental in their beauty, are subject to natural environmental challenges which include avalanches, wildfires and earthquakes. The community center was discussed as a resource for the town providing supplementary services that may assist in the event of any of these circumstances. The center was determined to not be a primary location for 'interlodge' though it should contain resources available in the event of an emergency. In addition, the center should provide support and information regarding environmental conditions, road closures and other emergency updates.

Detailed Space Program



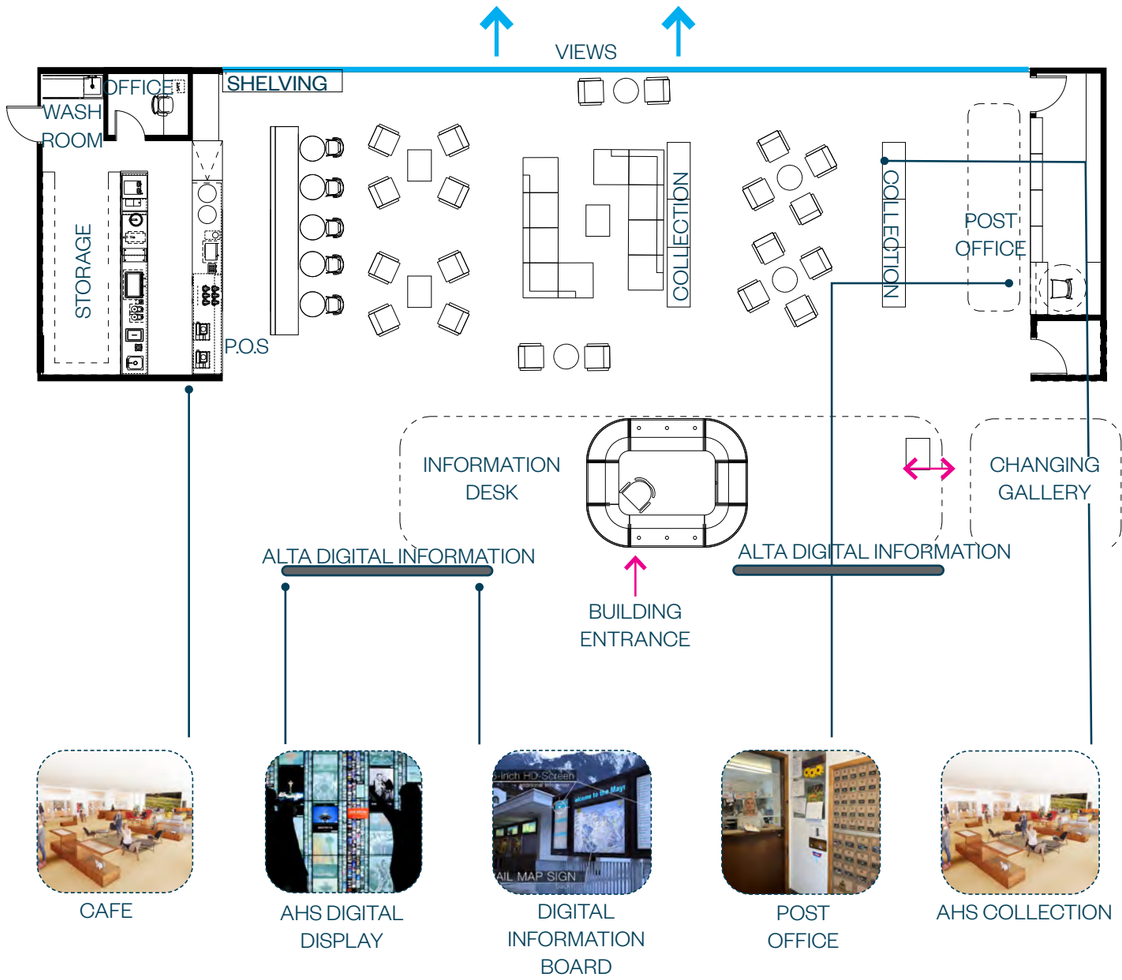
Through a series of conversations with the advisory committee, the town office, non-profit organizations, local industry advisors and focused community workshops the following functional space program was determined. Please note that several space types such as mechanical, electrical and building support spaces are provisional and subject to further evaluation as the project moves forward.

The diagrams above articulate areas and quantities of spaces determined and begin to suggest relationships and experience sequences.

ALTA COMMUNITY CENTER

	PROGRAM	NUMBER	SF / PER	TOTAL
GATHERING				
	Coffee Shop + Retail	1	800	800
	Lounge	1	1,000	1,000
	Lobby	1	500	500
WELLNESS				
	Multipurpose Hall	1	4,500	4,500
	flex into (3) - spaces			
	AV/ Projection	1	50	50
	Storage	1	300	300
	Wellbeing / Yoga Room	1	1,200	1,200
	storage	1	100	100
EDUCATION				
	Education Space	1	1,200	1,200
	storage	1	100	100
	Reading Room	1	300	300
	kitchen - seats 10-12	1	500	500
	ACE Education Space	1	600	600
ENVIRONMENTAL EDUCATION				
	Alta Historical Society - Display	1	200	200
	Changing Gallery	1	600	600
TRAILHEAD				
	Restrooms, Changing Area, Recycling	1	300	300
RESILIENCE & SUPPORT				
	Mechanical Space	1	600	600
	Electrical	1	100	100
	Loading	1	200	200
	Janitors Closet	1	100	100
	Building Management Office	1	160	160
	Facilities Workshop / Storage	1	200	200
	Managers Apartment	1	500	500
	Police Apartment	1	800	800
	Circulation	1	1,500	1,500
	Restrooms	1	850	850
	Emergency Rations Storage	1	300	300
	Post Office	1	200	200
NON-PROFIT OFFICES				
	ACE Office	1	160	160
	FOA Office	1	160	160
	Scheduled Flex Offices	2	120	240
	Conference	1	300	300
	Shared Print / Copy / Storage	1	50	50
	AHS Storage	1	200	200
	FOA Storage	1	200	200
TOTAL GSF				**19,070**

Lounge



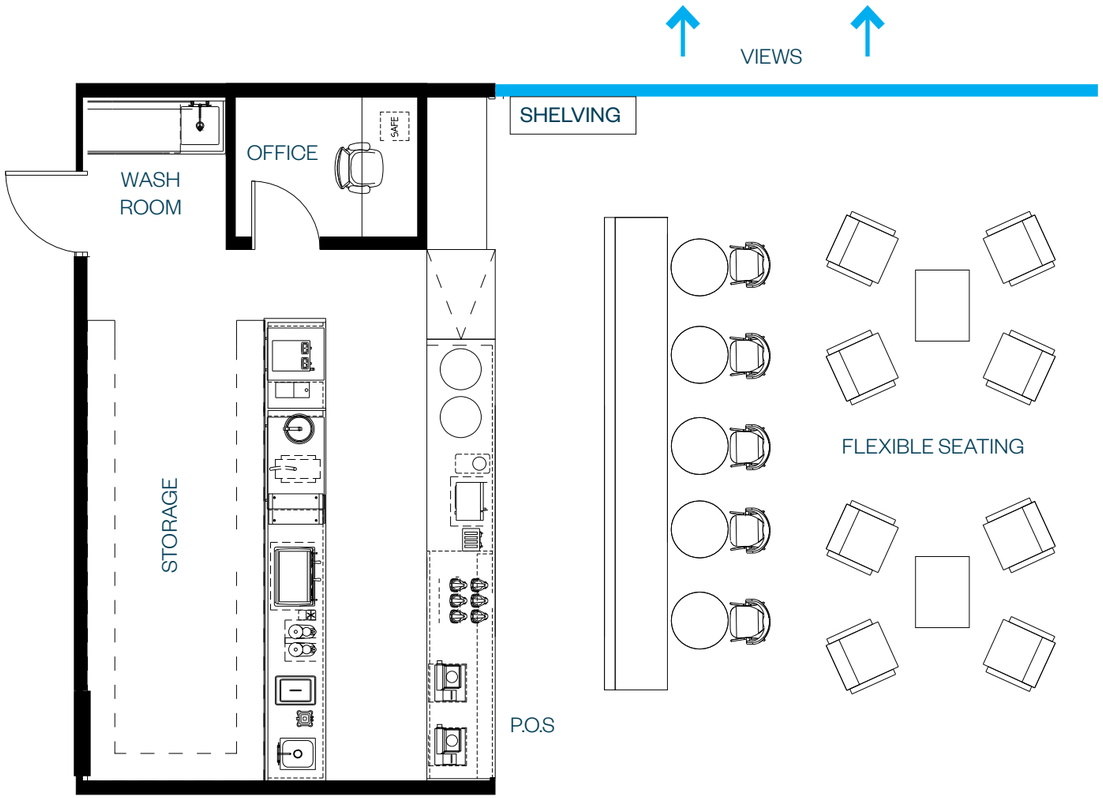
Our Lady of Snows, Alta, UT - The Lounge is similar in scale.

The lounge is a casual and relaxing social space where people can get away from home, engage with neighbors and community members, and enjoy Alta's breathtaking views with ample comfortable seating and a warm fireplace. This space is the center of day-to-day social activity in the community center. Within the lounge, millwork cases provide locations to store and display portions of the Alta Historical Societies collections giving residents and visitors alike the opportunity to explore the storied history of the place casually; an interactive digital display adds to one's ability to explore different aspects of Alta.

The lounge contains information for visitors via an information desk, a resource for those looking for printed resources or personal advice on where to go and what to do. Simultaneously, a large scale digital display screen provides up-to-date information on weather, environmental conditions, road and traffic conditions, avalanche control schedules, and other safety-related information. Adjacent to the building's entry, the town post office, Café, and changing exhibition hall, the lounge is a nexus of activity and the community center's social center.

Lounge	1	1,000	1,000
Lobby	1	500	500
			Gathering

Coffee Shop + Retail



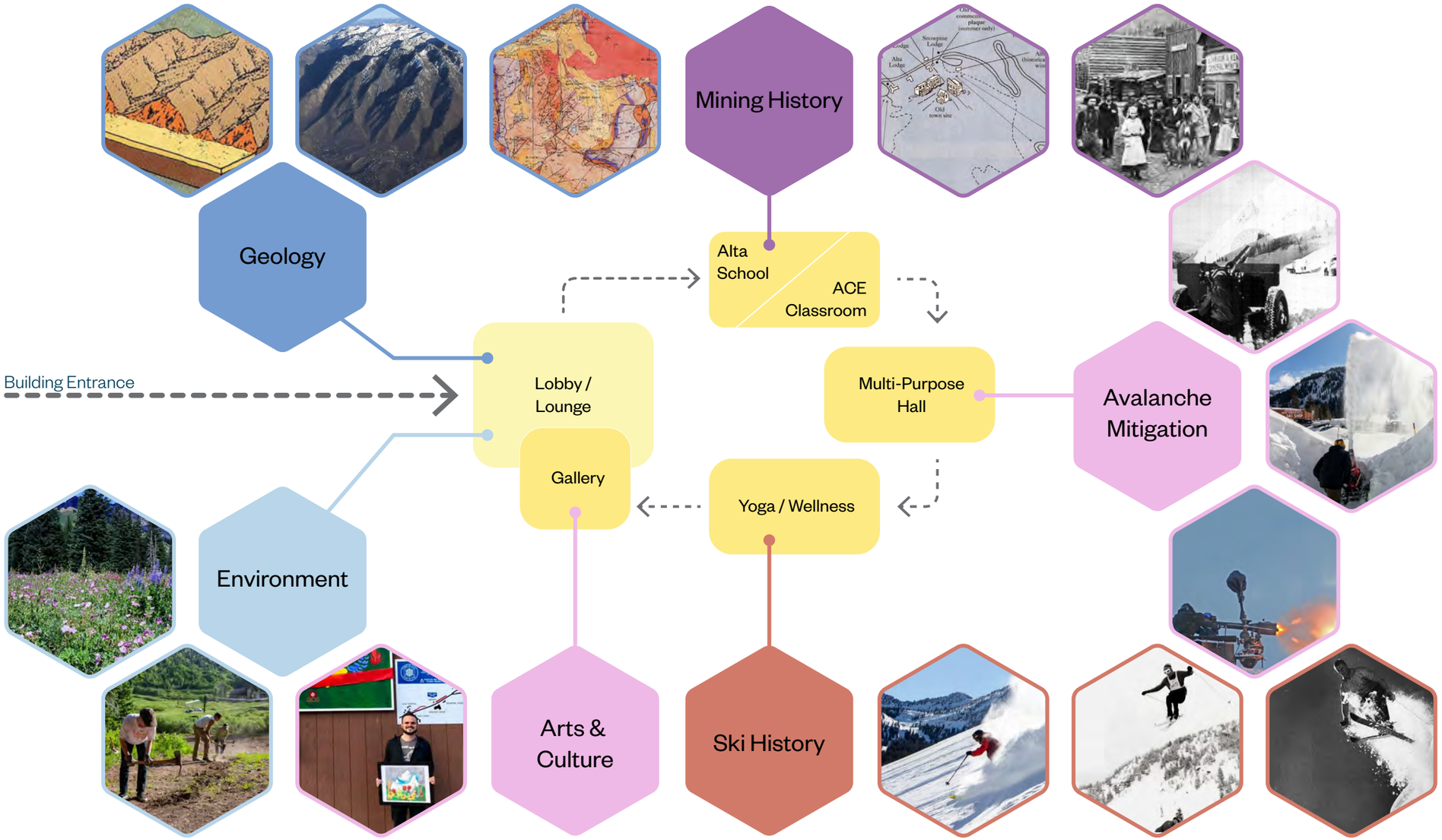
Vassar College, Integrated Science Commons, **Poughkeepsie, NY Ennead Architects**

A small 'grab and go' style food service and retail venue is envisioned to serve the community center, supported by a small prep kitchen and storage area. Designed for hot and cold pre-packaged foods, drinks and retail items, the space can be customized by a food service provider.

A mix of lounge and small café tables and chairs are envisioned. Located adjacent the lounge and lobby, the coffee shop can offer an additional food outlet to the community and encourage visitors and neighbors who may not necessarily be attending other functions in the center to stop by.

Coffee Shop + Retail	1	800	800
			Gathering

Changing Exhibition Space



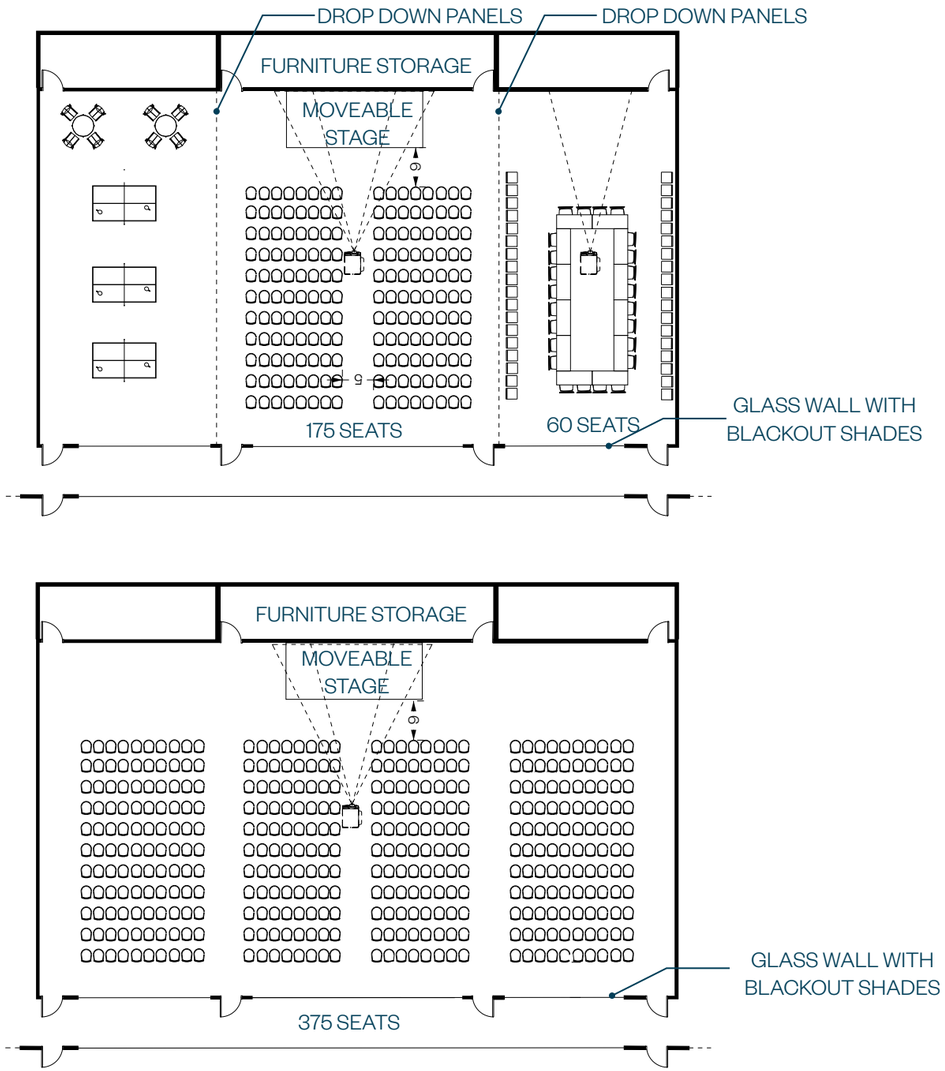
Immediately adjacent to the lounge is envisioned a changing exhibition space: A 'white box' space with reinforced walls with flexible lighting and power that can be used to display a variety of changing programs to be wall mounted, ceiling suspended, or floor supported. Exhibitions shall include works of art by local artisans and craftsmen, temporary informational displays, and historical exhibits.

In addition to this designated exhibition space, there will be an integral two dimensional and digital art program organized throughout the center. The diagram above illustrates how different themes can be woven throughout the spatial sequence of a visitor's experience. Circulation through the center will prompt visitors to engage and explore the town's rich history and culture while learning about environmental stewardship, avalanche mitigation, canyon geology, and Alta's mining and skiing history.

**Thank you to the Alta Historical Society for their insight and

	Alta Historical Society - Display	1	200	200
	Changing Gallery	1	600	600
				Enviromental Education

Multi-Purpose Hall



The multi-purpose hall is envisioned as a large flexible environment which can support a variety of types and scales of activities. Utilizing drop down or sliding partitions to subdivide the space, it can be used for simultaneous functions and a range of group sizes. Sized at 4,500 square feet, the space can accommodate in excess of 375 persons in a front-facing lecture format with stackable chairs. When divided into three sections, the central section can support up to 175 seats in a similar lecture format, and the smaller sections approximately 60 persons depending on the configuration.

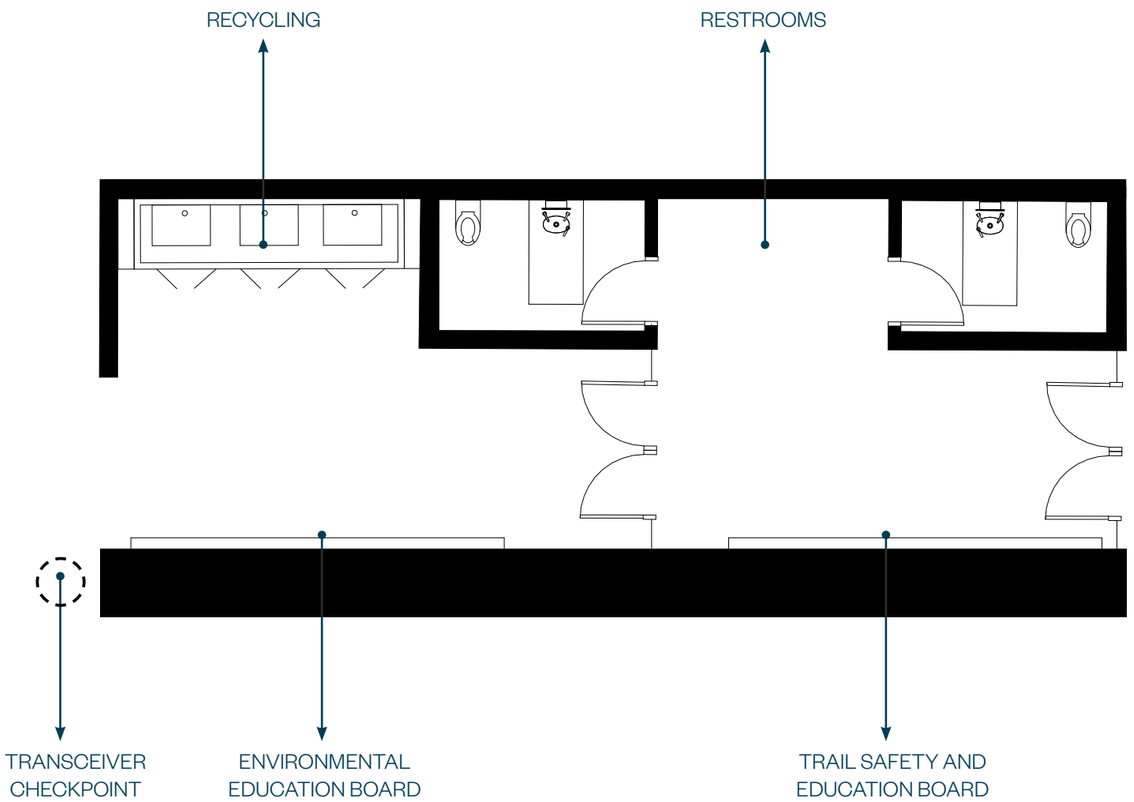
Adjacent spaces include ample furniture storage space for chairs, tables and moveable stages as well as local A/V equipment. The A/V requirements for the space have yet to be fully determined but should include (3) large-scale high-resolution projectors and motorized screens, integral sound system and cameras. The rear wall of the space is envisioned to be glass to allow for daylight and natural ventilation but should also offer the capability for black-out shades.

While designed primarily to support community functions, the multi-purpose hall can become an important source of rental income. Other potential functions: conferences, meetings, panel discussions, social gatherings, performances, film screening, educational events, and training sessions.

Stanford University, Denning House, Stanford, CA, Ennead Architects

Multipurpose Hall	1	4,500	4,500
flex into (3) - spaces			
AV/ Projection	1	50	50
Storage	1	300	300
			Wellness

Trailhead



The trailhead provides resources for summer hikers, winter back-country skiers and other visitors. It is envisioned to be the starting point – gathering place – for visitors looking to explore the area on foot. Located up-hill of the site, it is proximate to the existing trail infrastructure. Two family style, non-gendered restrooms are directly accessible from the exterior and open at all hours. Accommodations for trash and recycling disposal are available to visitors, as well as a wealth of printed and digital information including trail maps, environmental stewardship material, snow safety information, skinner routes and a beacon test / practice area.

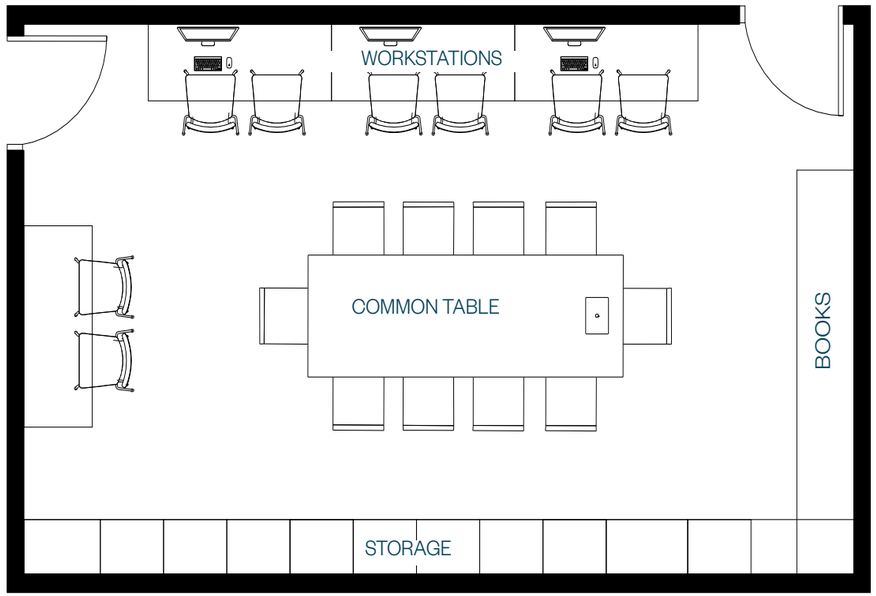
TRAIL ACCESS

TRANSCEIVER CHECKPOINT

Natural History Museum, Salt Lake City, UT, Ennead Architects

	Restrooms, Changing Area, Recycling	1	300	300
				Trailhead

Reading Room

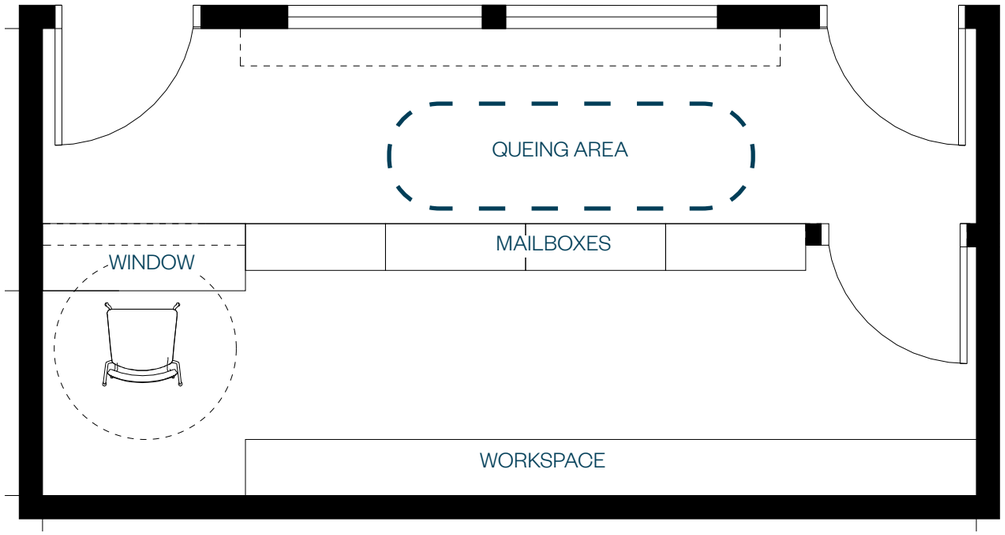


Frank Sinatra School of the Arts , Queens, NY , Ennead Architects

The new reading room will relocate the existing Alta Reading Room in the current community center and is a Salt Lake County Library System branch. Visitors can access the Internet using public computers or a wireless connection, find leisure reading materials, or browse the library system's catalog of 2 million items where holds can be placed on library materials from any 18 County libraries.
The room incorporates six open internet workstations and a common table for reading and quiet reflection in addition to book storage.

Reading Room	1	300	300
			Education

Post Office

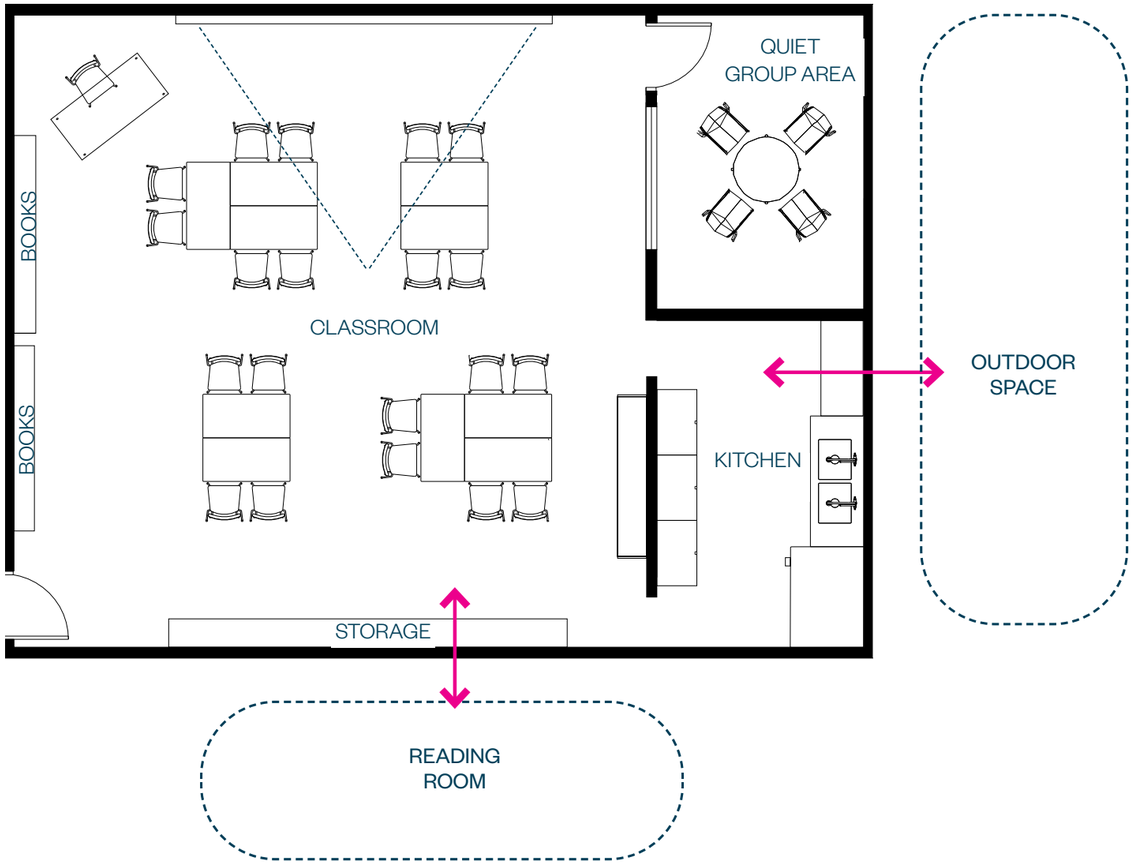


Existing Post Office, Alta, UT

The Alta Post Office is a contract post office and contains resident mailboxes as well as a workspace for postal employees who provide the town with mail services. The new post office will replace the existing facility and provide for modest expansion of box storage and workspace. The current space is known to be a place to serendipitously run into your neighbors and the vision for the new space is it to continue to do so.

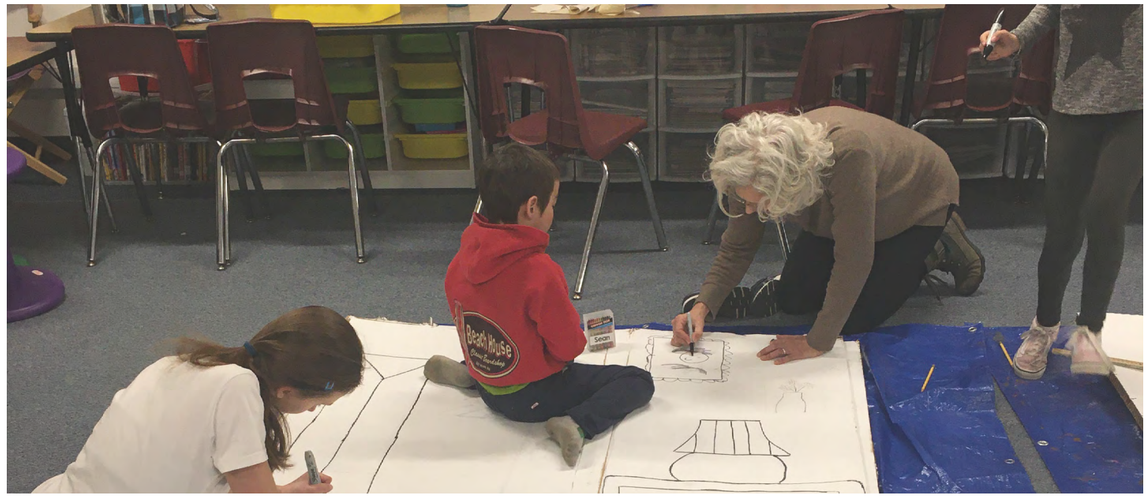
Post Office	1	200	200
			Resilence & Support

The Alta School



The existing Alta One Room School serving K-8th grade students is currently located in the north wing of the Goldminer's Daughter ski lodge and is operated by the Jordan School District. The school offers a place for children to 'grow up' where they live, and to not deal with the often-treacherous commute to the Salt Lake Valley, and to support parents who work within the Town.

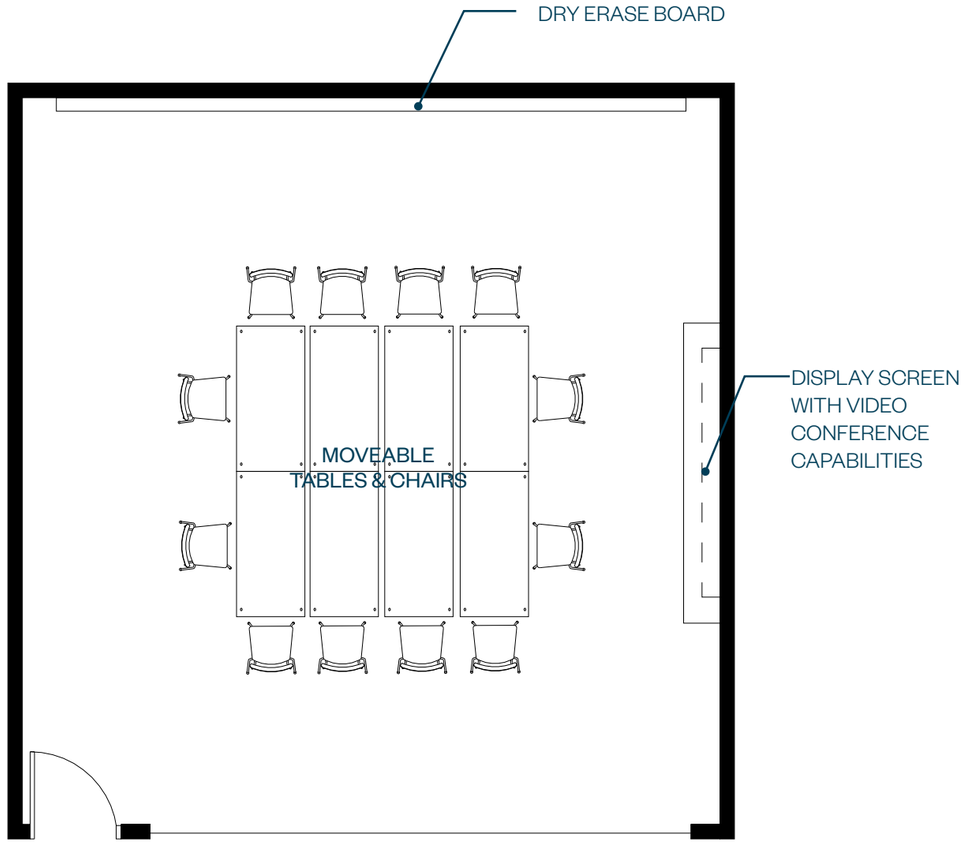
The new school is envisioned as a replacement facility supported by the school district with state-of-the-art technologies, direct access to light and views, as well as outdoor play spaces. The classroom is supported by a smaller breakout room and a kitchenette. It benefits from adjacencies to the reading room, restrooms and outdoor spaces.



The Existing Alta School, Goldminer's Daughter Alta, UT

	Education Space	1	1,200	1,200
	storage	1	100	100
				Education

ACE Education Room



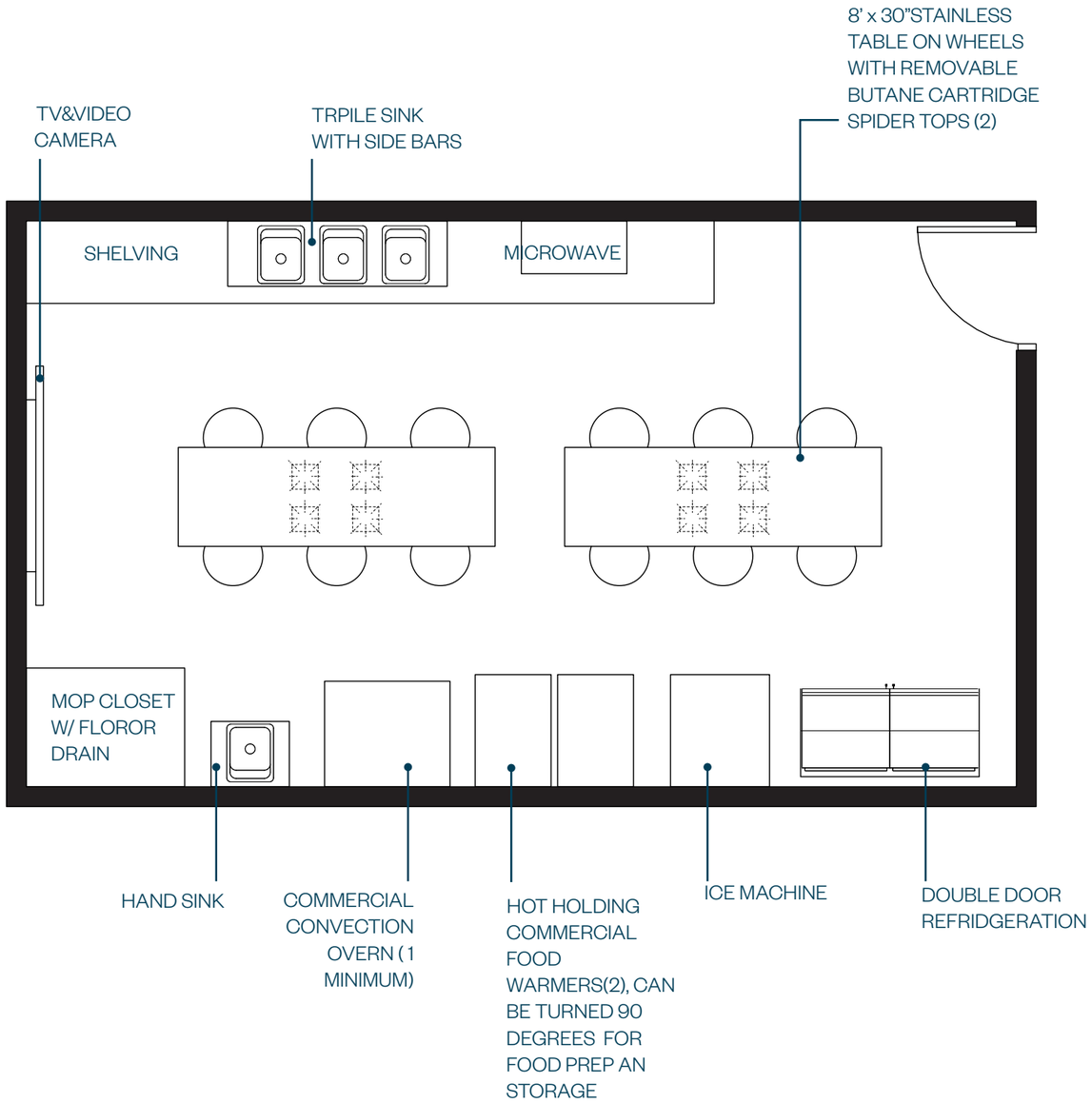
Seoul Foreign School, Seoul, South Korea Ennead Architects

The Gateway Center, Westchester Community College, Valhalla, NY, Ennead Architects

The ACE Education Room directly supports community education programs offered to smaller groups of 8-12 persons at a time, and it is fit out with A/V technology and supports videoconferencing. In addition to ACE's programs, the space is available to support other programs such as training, gathering, and workshops.

	ACE Education Space	1	600	600
				Education

ACE Education Kitchen



TEACHING KITCHEN

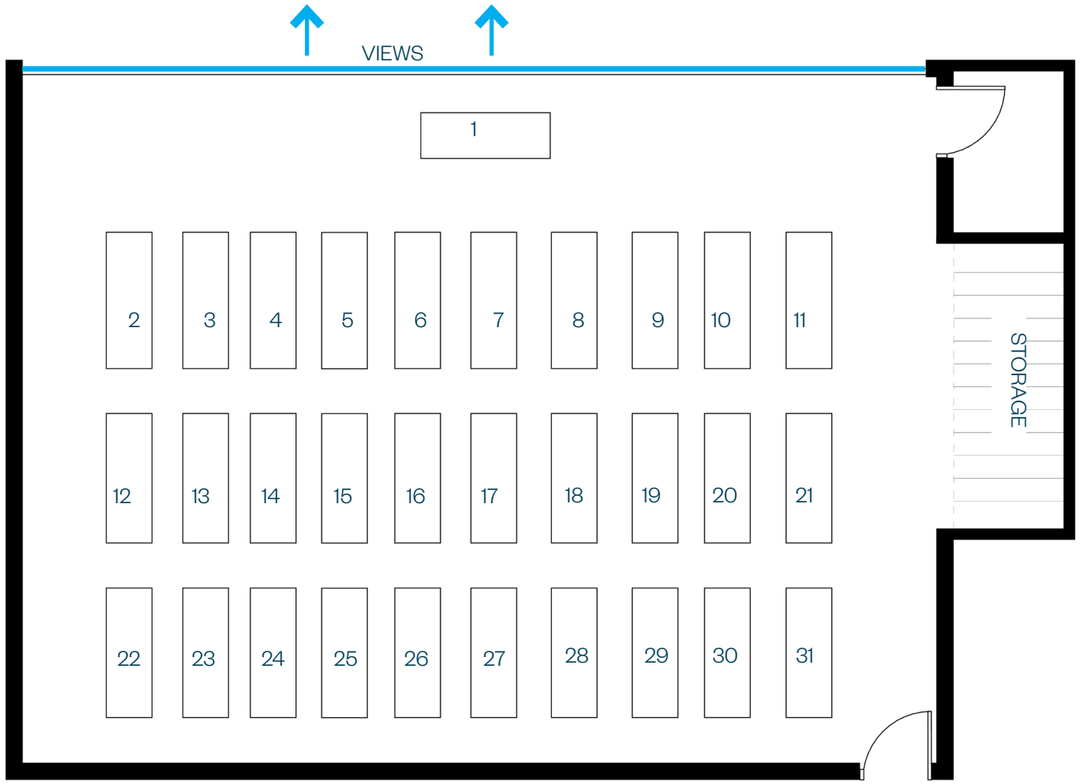
Vermont College of Fine Arts, New York, NY , Ennead Architects

The ACE Education kitchen supports educational programs in the culinary arts, and it is fit out with A/V technology and supports videoconferencing. In addition to ACE's programs, the space is available to support catering services for other event spaces in the facility. It is envisioned to be a re-heat kitchen with moveable fixtures to support the needs of various catering functions.

** Thank you to Robert Sullivan of Utah Food Services for his consultation.

kitchen - seats 10-12	1	500	500
			Education

Wellbeing / Yoga Room

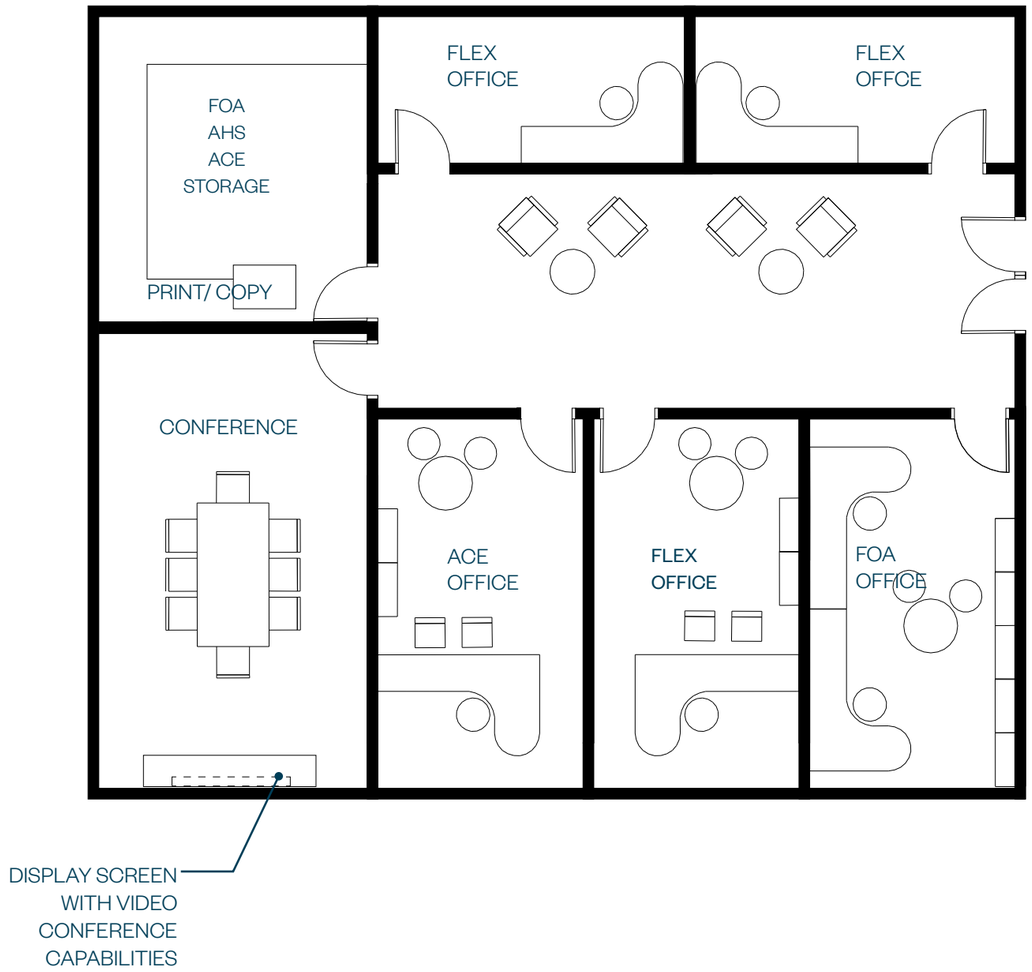


The Brooklyn Museum, Brooklyn, NY, Ennead Architects

The wellbeing / yoga room is a flexible space to support physical activity and wellness for up to 30 persons at a time. Ample storage, easily cleanable and durable surfaces and an integrated sound system support a variety of exercise programs including stretching, dance, yoga and other instructor-led programs. A dedicated space was discussed for fitness due to its high utilization, and its ease of maintenance and cleaning.

Wellbeing / Yoga Room	1	1,200	1,200
storage	1	100	100
			WELLNESS

Non-Profit Office Suite



Bard Graduate Center, New York, NY , Ennead Architects

Supporting the Non-Profit Community in Alta, the office suite provides dedicated office and storage space for ACE (Alta Community Enrichment) and FOA (Friends of Alta), in addition to several smaller 'Flex' office spaces and a conference room. The smaller 'flex' offices are envisioned to be for temporary use to support the activity of the non-profit community including the Alta Historical Society (AHS) and the Amazing Snow and Ski People, as well as offer a private alternative for scheduled and drop-in use. 'Flex' offices are envisioned to support clinical services including providing a quiet and private space for mental health consultations.

	ACE Office	1	160	160
	FOA Office	1	160	160
	Scheduled Flex Offices	2	120	240
	Conference	1	300	300
	Shared Print / Copy / Storage	1	50	50
	AHS Storage	1	200	200
	FOA Storage	1	200	200
				Resilence & Support

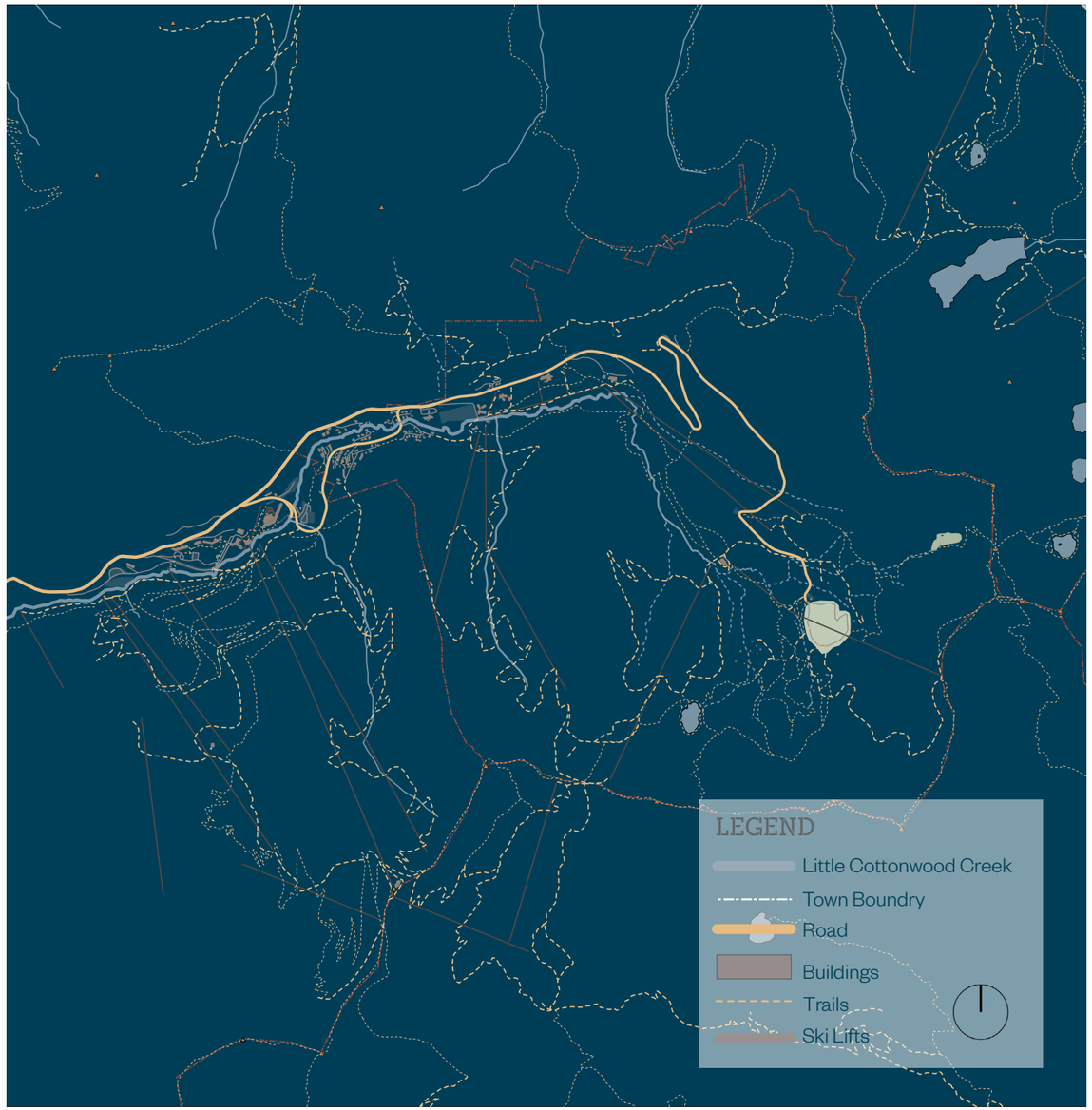
04 Site Analysis

Context

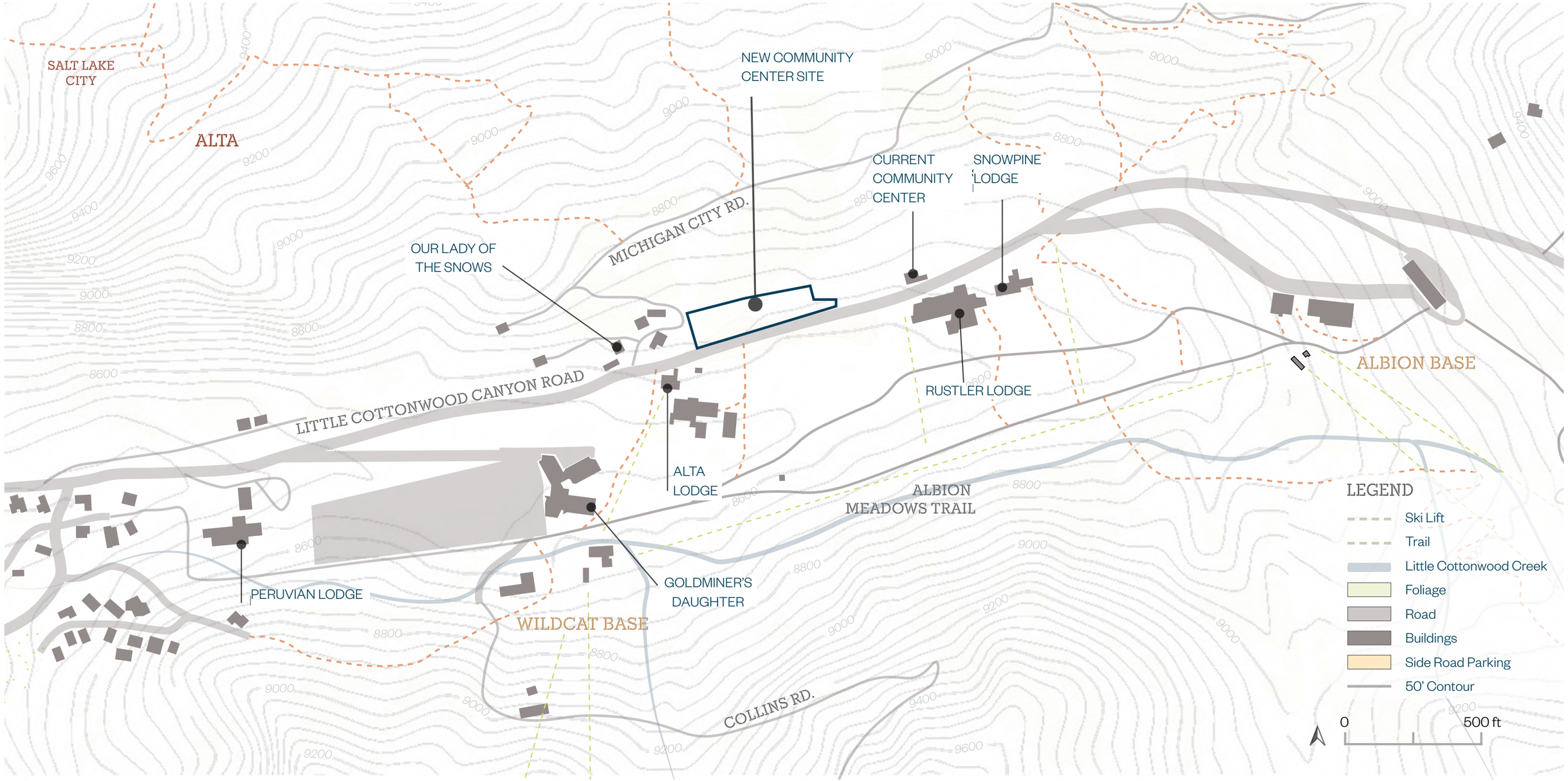
Alta, Utah
Alta is a small town centered around the Alta Ski Area in eastern Salt Lake County, Utah. Alta Ski Area is located in the heart of Utah's Wasatch Mountains at the top of Little Cottonwood Canyon. It exists within a network of ski resorts in that Utah is celebrated worldwide for its legendary deep-powder skiing. Alta, in particular, is celebrated for having the best, driest and softest powder.

Location
The parcel is located on the north side of S.R. 210 and is located near the center of the town. To identify opportunities and constraints for the design of a community center at this location, the design team sought to better understand the place by analyzing the larger networks and systems within which it sits.

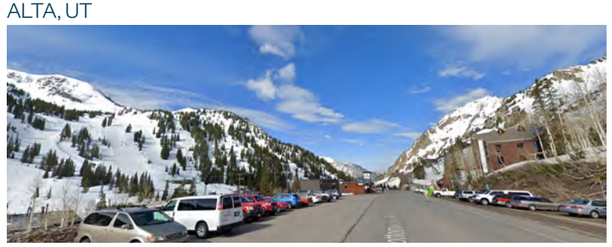
Systems
The following pages highlight the sites location within each of these networks to understand how a community center's design might respond and engage those networks.



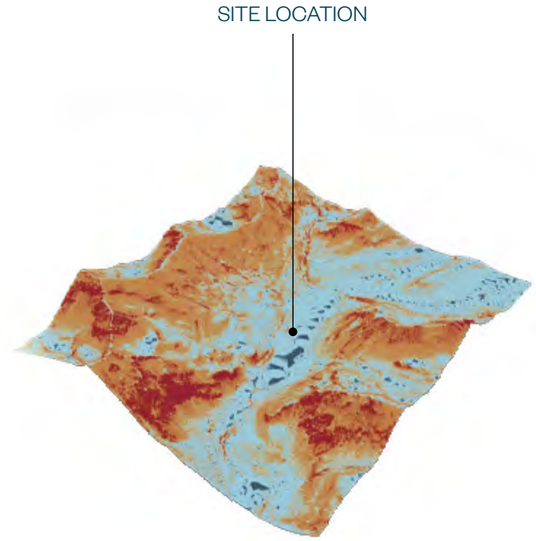
Site Plan

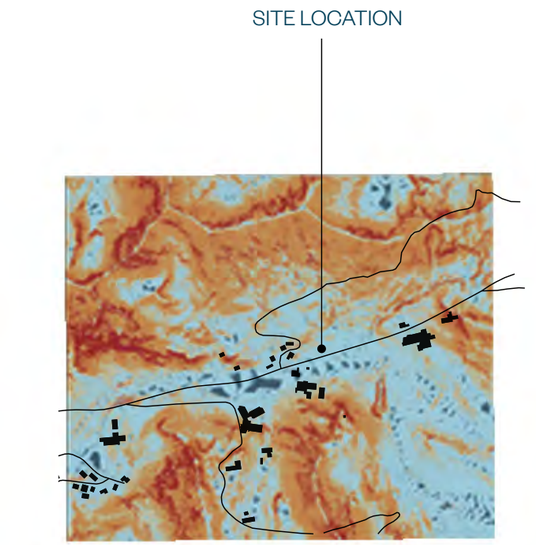


ALTA, UT




Topography



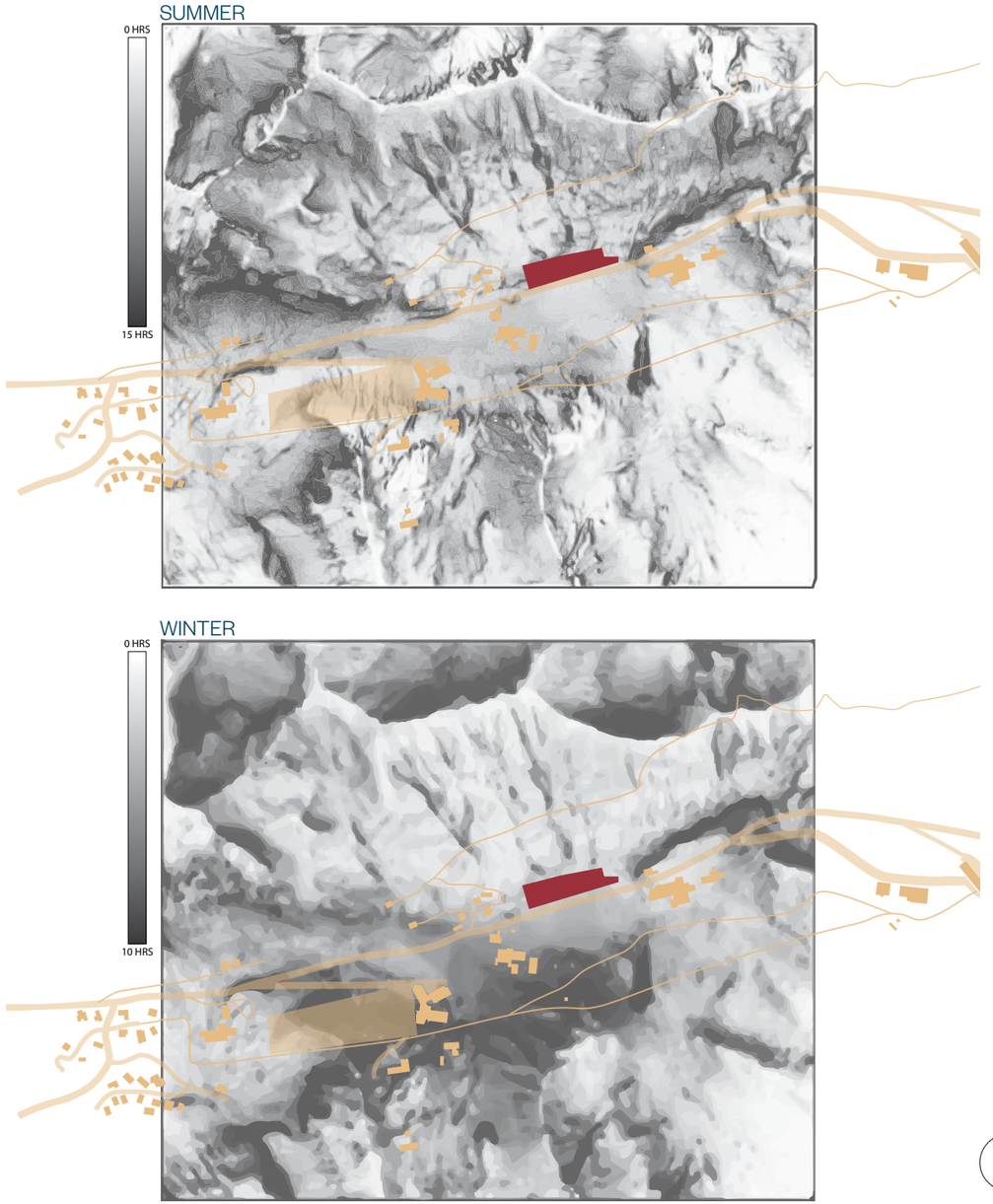


Around 30,000 years ago, a 12-mile-long glacier spread through Little Cottonwood Canyon, starting at Albion Basin going beyond the mouth of the canyon down to the shore of Lake Bonneville. This glacier was the longest glacier in the Wasatch Range with a depth ranging from 450 feet to 850 feet. Little Cottonwood Canyon is known for its U-shaped valley carved from rocks scraping through and being carried out. Over tens of thousands of years ago, large repeated earthquakes created the steep slopes at the mouth of the canyon. 10,000 to 30,000 years ago, glacial ice filled the canyon.

At the uppermost extent of the canyon, Alta's base elevation is 8,530 ft and rises to 11,068 ft, it is one of the highest cities in Utah, and one of the highest in America. Centrally located within the town, the community center site is located on the north side of S.R. 210, at the base of Flagstaff Mountain which rises 1,444 feet above it to the north. While only 125 feet deep the site slopes approximately 21% in the North / South Direction and 5% in the East / West direction.

Dramatic slopes make the any building located there vulnerable to the effects of soil erosion, water infiltration, sliding snow and the powerful forces of Avalanches.

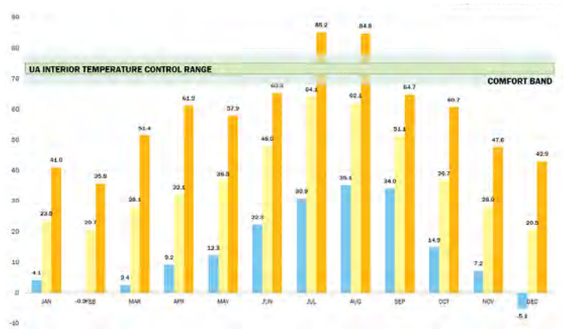
Daylight



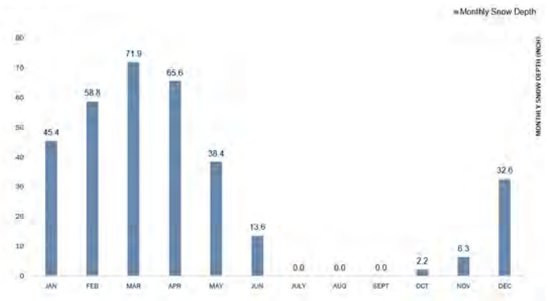
With such high peaks, the surrounding mountain-scape forming Little Cottonwood Canyon overshadows portions of the valley landscape creating different micro-climates based on access to light through-out the year. The position of the community center site on the northern slope facing south ensures that it has access to ample daylight throughout the year. Its southern facing orientation afford opportunities to capitalize on daylight, and solar radiation as passive sustainability strategies.

The above overshadowing studies show the impact of shadow-movement on the community center site and quantifies the number of daylight hours the site is anticipated to receive during the summer and winter seasons.

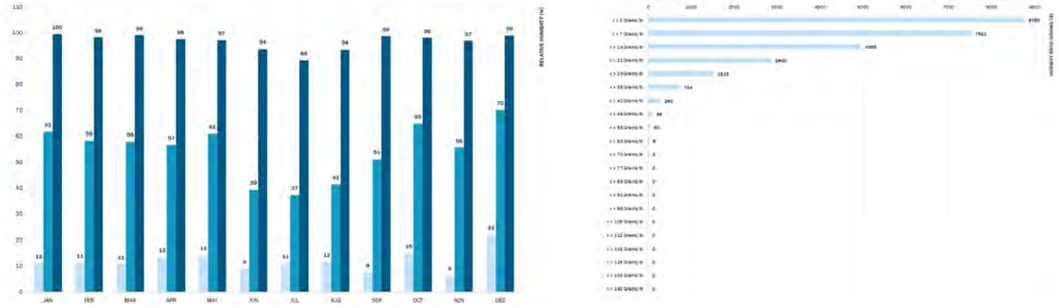
Climate Analysis



TEMPERATURE



MONTHLY SNOW DEPTH



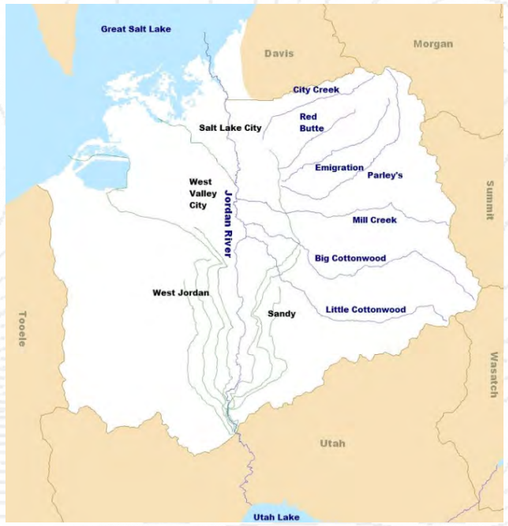
HUMIDITY

The comfort band indicates the acceptable range of operative temperatures (68-78 F). All monthly average temperatures are below the comfort band. The winter period indicates a high heating demand with minimum temperatures as low as -5F in December.

The relative humidity level is relatively consistent, with average humidity ranging between 40% to 65%.

The average annual percipitation is +/- 64 inches. Winter months receive the highest levels of percipitation. Alta receives significant snowfall for a majority of the year (November through June), though first snowfall tends to occur in October or November and typically melts by June.

Watershed



JORDAN RIVER WATER SHED

Keeping Alta's water clean is an imperative which extends beyond the boundaries of the community. The Town of Alta and Little Cottonwood Canyon are extremely important "protected watershed areas" supplying high quality and high quantity drinking water to the Salt Lake Valley. As the Salt Lake Valley has grown over the last 100 years, water managers have turned to the Alta area and the Little Cottonwood Creek to provide culinary water. Alta's Albion Basin is the headwaters of the Little Cottonwood Canyon watershed, which provides: 100% of Alta and Snowbirds Water, 33% of Sandy City's Culinary water and 12-14% of the culinary water needed to serve the Salt Lake City service area.

Many watershed regulations in Alta and Little Cottonwood Canyon are intended to protect the public's health and access to clean drinking water. These regulations range from not allowing public use at all to limiting the public's use in various ways, and commonly restrict dogs, livestock, and other domesticated animals within watersheds. Restrictions social activities such as Swimming, Camping, and Mountain Biking, as well as restrictions on construction including land use, proximity to waterways, use of chemicals and disposal of sewage.

The Town recognizes the importance of educating the public regarding natural resource issues and the proposed community center can play an important part in the preservation of this precious natural resource.

Ecology

VEGETATION (TREES)

CREEK

WETLAND (NEAR CREEK)

Situated within the Wasatch and Uinta Mountainseco-regions, these mountain forests are part of a distinct block of high montane habitat stretching from southeastern Idaho and extreme southwestern Wyoming to the isolated ranges of the Colorado Plateau in southern Utah. The Wasatch and Uinta Rockies differ climatically from other Rocky Mountain ecoregions in their relative aridity, a function of the extensive rain shadow cast by the Sierra Nevada 500 miles to the west.

Perched at the top of Little Cottonwood Canyon, the town of Alta and the Albion Basin during the summer months of July-August, becomes a magnet for visitors drawn to its spectacular wildflower displays, unique wetland and geological features, as well as its ample recreational and wildlife viewing opportunities. This area is one of Salt Lake City's recreational havens, a multi-seasonal destination offering some of the best skiing, hiking, bike riding, tram rides, camping, and wildlife viewing in Utah. A number of rare and endemic plant species are found here.

Most of the region has been impacted by grazing, logging, mining, and recreational use. Non-profit and community-based programs in the area, actively work to undo damage caused by human impact through erosion control initiatives, planting programs active monitoring and educational programs.

Preservation and protection of this unique environment, including its watershed, wetland areas, forests, and wildlife habitat areas is of utmost importance to those who call this area home. The community center can participate in preserving Alta's unique character and heritage; both through its sustainable architecture, as well as encouraging environmental stewardship though education.

Hazards

Hazard	Location	Magnitude, Strength	Probability of Future Events	Overall Significance
Avalanche	Extensive	Severe	Highly Likely	High
Dam Failure	Negligible	Weak	Unlikely	Low
Drought	Negligible	Weak	Occasional	Low
Earthquake	Significant	Moderate	Occasional	Moderate
Flood	Limited	Moderate	Unlikely	Moderate
Infestation	Negligible	Weak	Likely	Moderate
Landslide	Negligible	Moderate	Occasional	Moderate
Pandemic	Negligible	Moderate	Unlikely	Low
Problem Soils	Negligible	Weak	Unlikely	Low
Radon	Negligible	Weak	Unlikely	Low
Severe Weather	Significant	Severe	Highly Likely	High
Wildfire	Significant	Severe	Occasional	Moderate

Numerous hazards exist in the Town of Alta, which can cause injury, loss of life, damage to infrastructure, restrict access to and from the community, and impair outside agencies' ability to respond and assist the Town. Those hazards include, but are not limited to drought, landslides, earthquakes and wildfires.

The most common and highest frequency hazard that the community center site will have to manage is that of an avalanche. The town has a prominent history of avalanches, which continue to impact recreation opportunities and the ingress and egress from our community. With each storm cycle, Utah Department of Transportation (UDOT) performs avalanche control work on the north side of Little Cottonwood Canyon to reduce avalanche risks along highway 210. As a result of Alta's unique location and legendary snow, some of the country's most notable avalanche professionals have trained at Alta.

Planning and building structures in avalanche terrain need to adequately consider impact pressures, negative pressures, flow heights, and velocity of an anticipated 100-year avalanche event. The community center building site, like many others in the town, is located within an avalanche path. As such, the town has retained The Contour Group to create a detailed Avalanche Hazard Analysis for this site to inform potential design solutions. Please see the Avalanche Hazard Analysis report dated 11.25.2020 for additional information.

Any structure built on the community center site will experience the extreme forces of avalanches over its lifetime, both is structure and programs contained need to address these challenges to support the community during such an event.

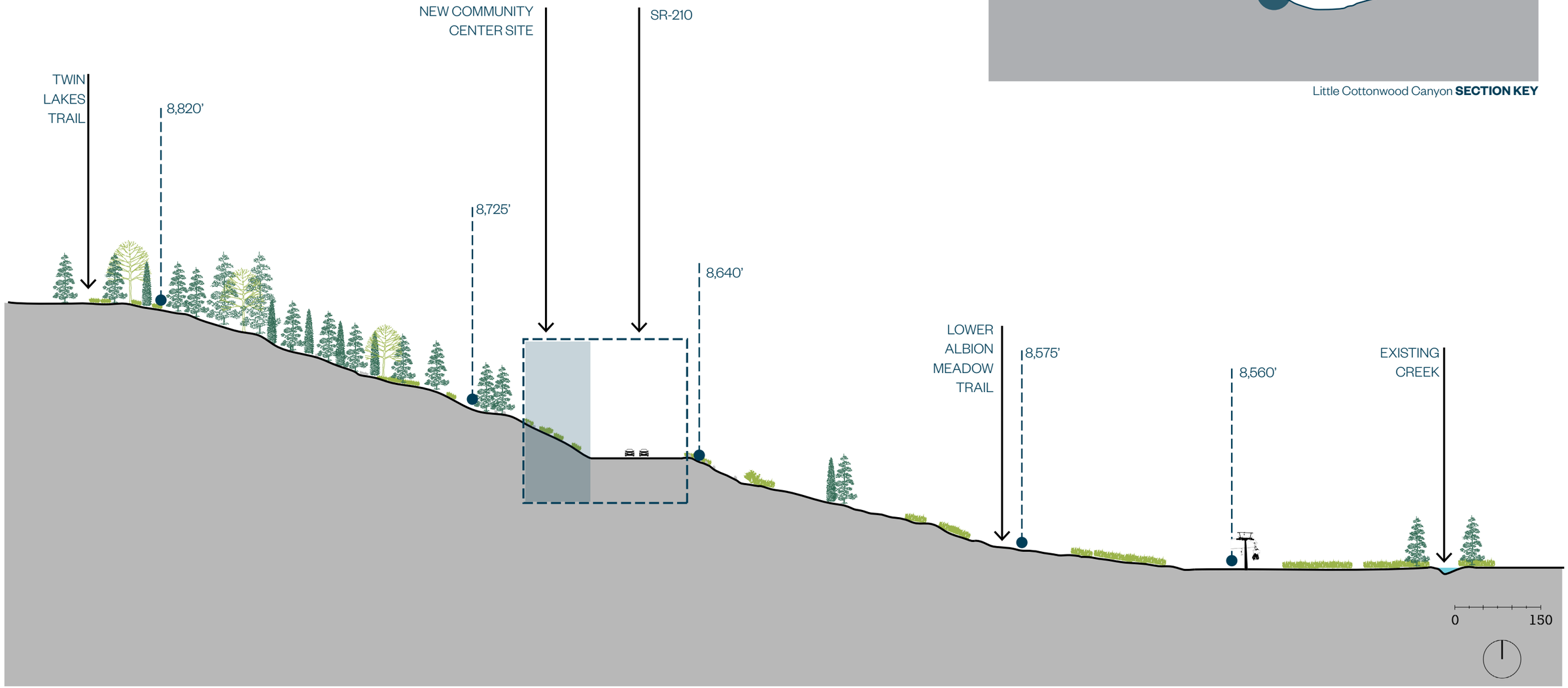
History

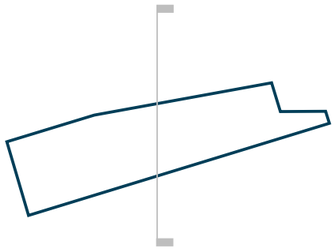
THOMAS MOORE BUILDING

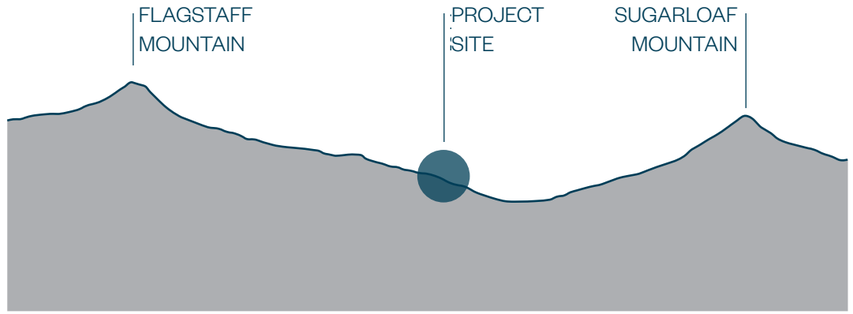
Alta was founded about 1865 to house miners from the Emma mine, and other silver mines in Little Cottonwood Canyon. Other mines that produced ore in the early history of the district include the Flagstaff, Albion, and Emily. The Flagstaff mine was the most productive, yielding approximately 100,000 tons of high-grade silver ore from 1869 to 1880. Between 1901 and 1940, the largest producers of the district were the Michigan-Utah, South Hecla, Emma, Columbus-Rexall, and Sells. Since that time, all mining in the district was suspended due to low metal prices, high cost of mining, or depletion of mineable ore bodies.

A network of remnants of the mining history of the area can be found scattered throughout the landscape of Alta and the Albion Basin and include equipment, tunnels and shafts. The Tom Moore Toilet, located on the community center site, is one such remnant of that time period built in the 1930's by the Civilian Conservation Corps.

Site Section

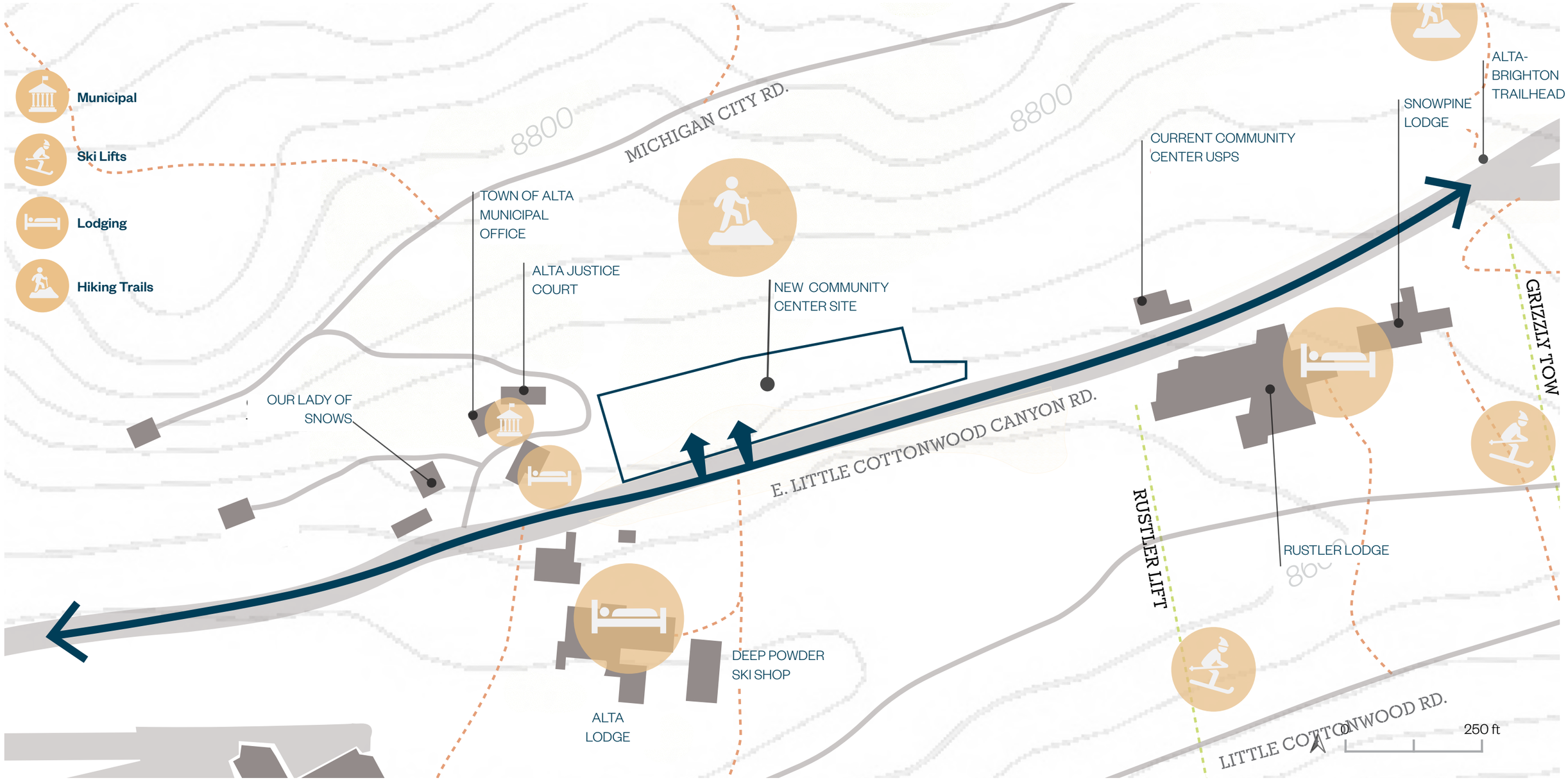






Little Cottonwood Canyon **SECTION KEY**

Urban Systems



The community center site is located in an ideal position relative to the other structures and functions within the town located mid-way between the Wildcat Base and Albion Base Ski areas. While most people travel by car, the community center's location in the center of the town begins to create a new hub for pedestrian oriented activity. Located within minutes walking distance to the Town Municipal buildings, Our Lady of Snows Church, the Alta and Snowpine Lodges, a new public facility in that location can begin to suggest more robust pedestrian and urban network. In addition, the site is located within a robust hiking and backcountry ski trail network can could accommodate a trailhead, replace the "Cardiff Pass" and "Twin Lakes Pass" trailheads in a centralized location with trailhead amenities including signage and restrooms accessible 24 hours per day.

In the spring of 2018, the Utah Department of Transportation (UDOT) began an Environmental Impact Statement for Little Cottonwood Canyon to provide an integrated transportation system that improves the reliability, mobility, and safety for all users on S.R. 210. While the study is still early in its development, options for accommodating a high-speed bus network or gondola network to reduce the vehicular burden on the town during peak visitor seasons are being considered. The EIS may include an effort to identify a location and preliminary design for an Alta transit center, which would potentially function as the primary, or only Alta station for a mass transit system in the canyon. One potential location for the facility is directly across S.R. 210 from the community center parcel.

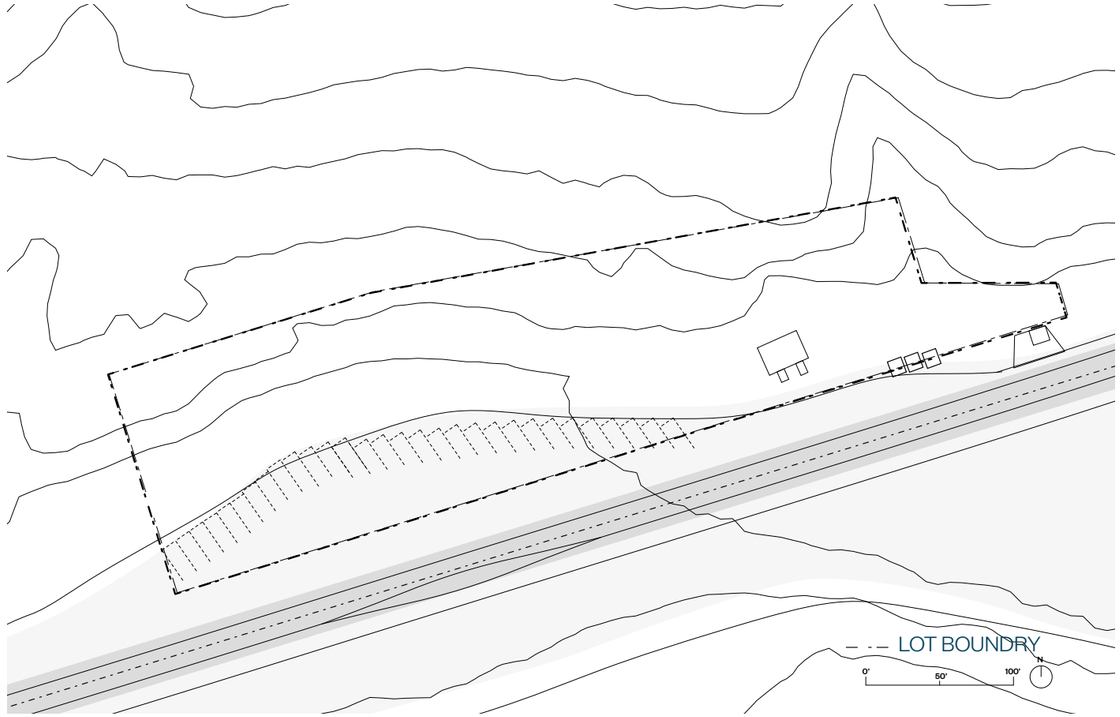
05 Technical Considerations

Technical Considerations

Opportunities

The specific constraints and opportunities provided by this site, place and climate drive the fundamental building direction. Major drivers include: parking accommodation, energy performance, avalanche impact and site grading.

- What does it mean to be net zero water at this scale and location?
- How does the design respond to the extreme climate?
- How does the structural design respond to site specific avalanche hazard design criteria, recommendations, and guidance such that the proposed facility can withstand a 100-year (1% annual probability) avalanche?



EXISTING PARKING

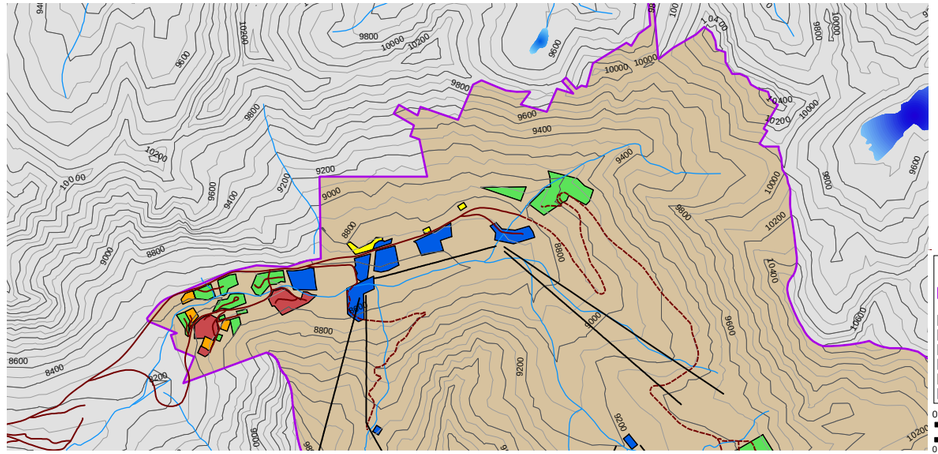
Zoning Map

ZONING CALCULATIONS BF-10

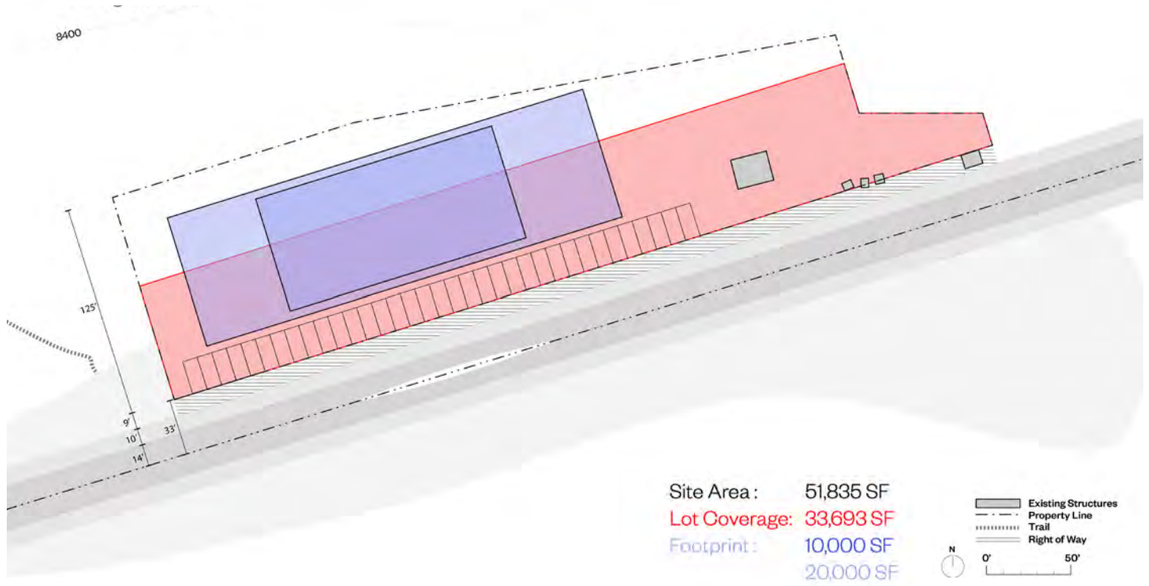
ZR-Sec	ITEM	PERMITTED / REQUIRED
10-6D-4	**USE GROUPS** Permitted Uses	Hotels, Retail commercial service, Storage, Parking, Parks, Designated employee housing units
10-6D-8	**LOT REQUIREMENTS** Lot Area Lot Width Buildable Slope	Minimum Lot area : 1 acre□ Minimum 100' Less than 30%
10-6D-11	**FLOOR AREA** 65% including : buildings, structures, graded surfaces, paved areas, overhangs, driveways, decks, parking areas and walkways.	1.19 acres x 65% = 33,730 SF
10-6D-10	**HEIGHT** Max Height	Determined by land use authority based on the following : Natural setting, View Sheds, Topography, Vegetation, etc.
10-6D-12	**Step Back**	As seen from transfer town or southern side of canyon : Buildings higher that 4 stories or 48' high must have a 25' step back in the
10-6D-9	**YARD REGULATIONS**	Determined by the town council on the recommendation of the planning commission. Based on : View sheds, Topography, Vegitation, waterways, snow removal and storage requirements, emergency and general
10-6D-13	**Mechanical Penthouse**	Architecturally Screened. Limited to 6' above the lower of the maximum building height as allowed or built. Elevator Penthouse limited to 8'
10-6D-14 (D)	**Building Materials**	Only those building materials which will blend harmoniously into the natural environment shall be permitted. The use of wood and stone and other harmonious materials is encouraged and the use of bland, unpainted concrete blocks and unpainted metal is
10-12-4 (A)	**PARKING** Assembly halls, etc. without fixed seats Assembly halls, etc. with fixed seating Restaurants and nonprofit clubs Retail stores and shops ***NOTE**	3 spaces for each 100 square feet of GFA ** 1 space / 3.5 seats of max seating capacity 1 space / 2.5 seats or 3 spaces / 100 square feet of GFA 1 space / 200 SF of retail space GFA
10-12-6 (B) 10-12-6 (B)	**SPECIAL REQUIREMENT** OFF STREET LOADING CONNECTION TO EXISTING ROAD	1 min plus 1/20,000 SF of GFA Connections to existing roads subject to DOT approval

*** NOTE:** For any use of a building or structure not specified herein, the off street parking requirements shall be determined by the planning commission, being guided where appropriate by the requirements set forth herein for uses or buildings

**** NOTE:** This number is subject to the review and approval of the planning commission.

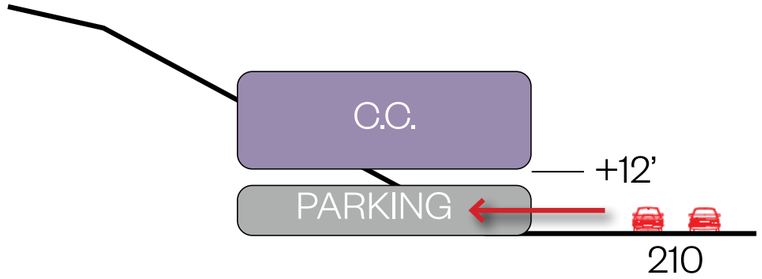


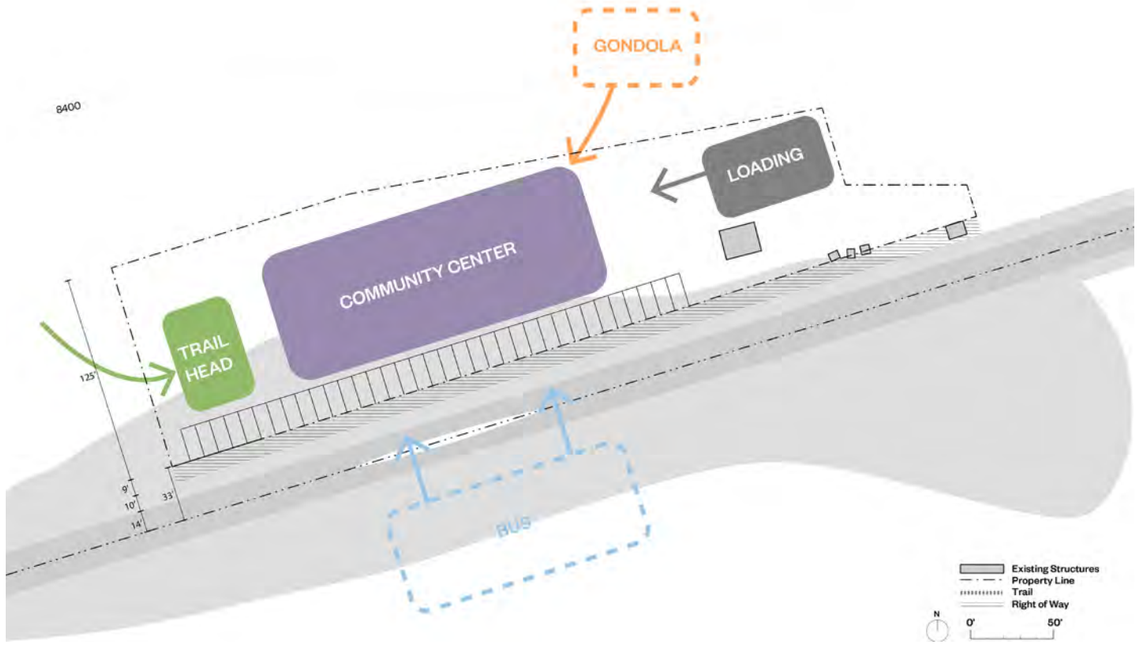
ZONING: Alta, UT
Source : https://townofalta.com/wp-content/uploads/2016/01/Zoning-map.pdf



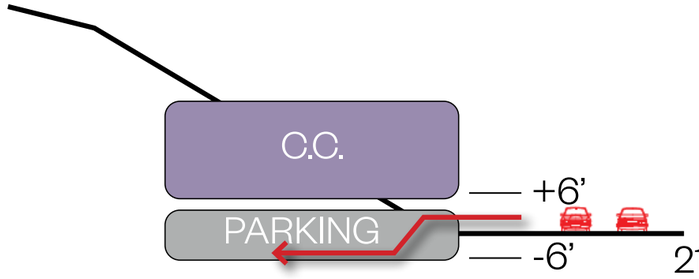
The 1.19-acre parcel of land acquired by the town of Alta in 2015, intended as the site of the community center, is currently zoned as part of the Forestry and Recreation zone (FR-50.) The FR-50 zone is characterized by compatible town uses that complement the natural, scenic beauty of the town and the nearby mountain vistas. FR-50 sites are 50 acres minimum with a maximum lot coverage of 2% of the net developable acreage. The community center site does not fit neatly into these parameters; therefore the city is considering rezoning to a Base Facilities Zone (BF-10.) The General Plan supports both the Community Center and identifies a "Commercial Core Area" which includes the Community Center Parcel and supports rezoning. BF-10 zoning targets the town's commercial hub and privileges retail and service commercial establishments, accommodating the Community Center program. Base Facilities only requires a minimum of 1 acre and allows for up to 65% site coverage. This rezoning gives the site the potential to build up to 33,730 SF (including site modifications) which accommodates the town's general assumptions about a target Community Center area of 20,000 SF. Parking is a priority zoning issue for the town and the residents of Alta. The area in front of the town site is currently a parking lot with an approximate space count of 35. The design team and the town have established a parking goal for the Community Center that not only maintains existing parking counts but also accommodates critical Community Center staff parking.

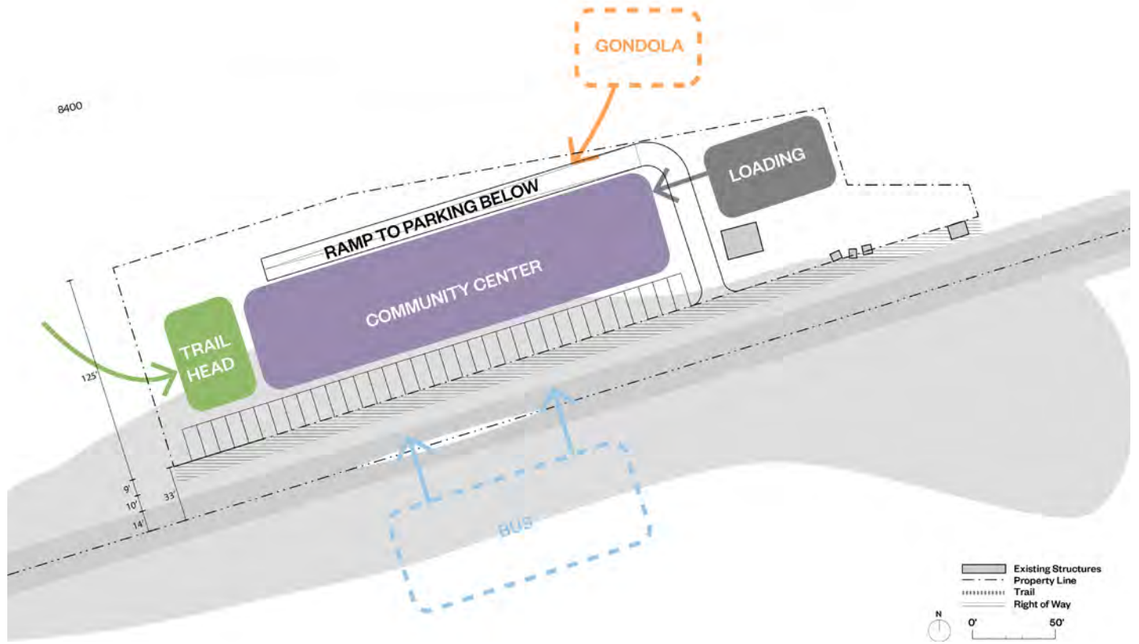
Entry Points + Parking





ON GRADE PARKING





HALF LEVEL DOWN

The intention is to keep the same number of parking spots today [**54**] and include an additional **+/-20** spots to serve Community Center staff and regular users. Thus, the approximate proposed number of parking spots to be accommodated on site is **74**.

Sustainability

Energy

A range of strategies will help the project achieve a high level of energy savings and establish an energy conservation goal.

Water

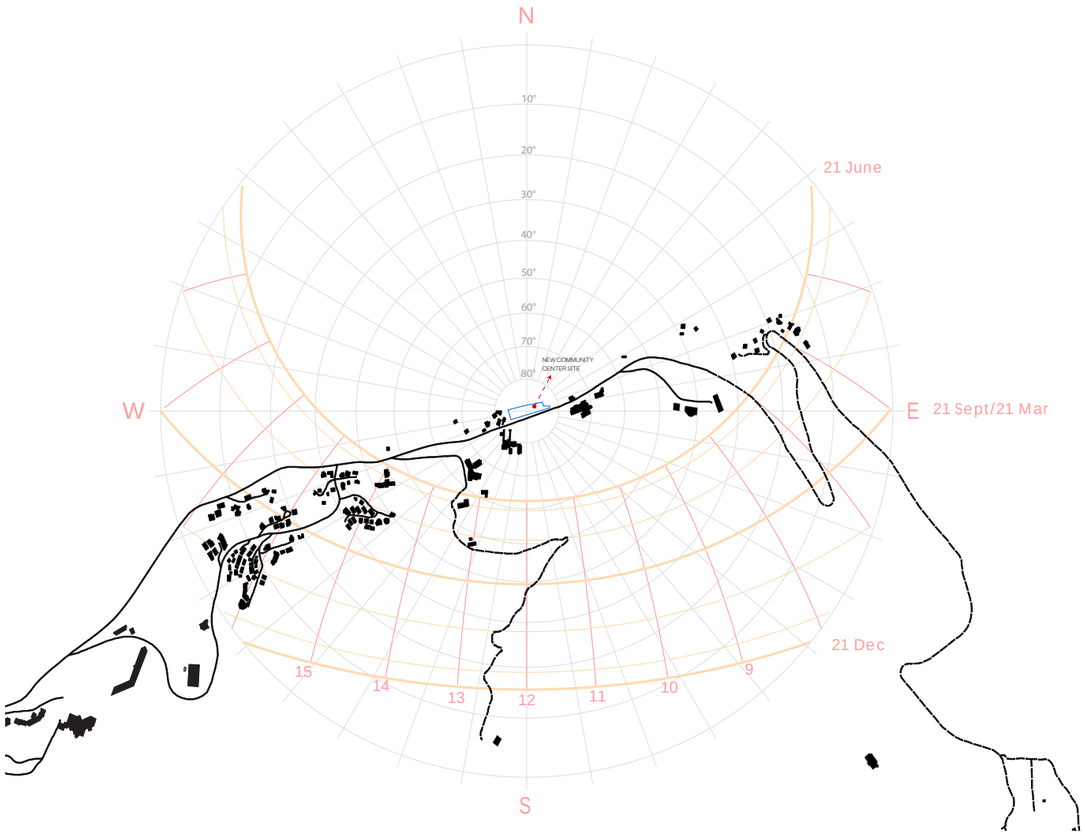
By conserving potable water and reusing rainwater/greywater, the project could relieve pressure on the existing infrastructure and be a water conservation model.

Carbon

Embodied carbon reduction strategies are provided through architectural design, building material selection, and site design strategies.

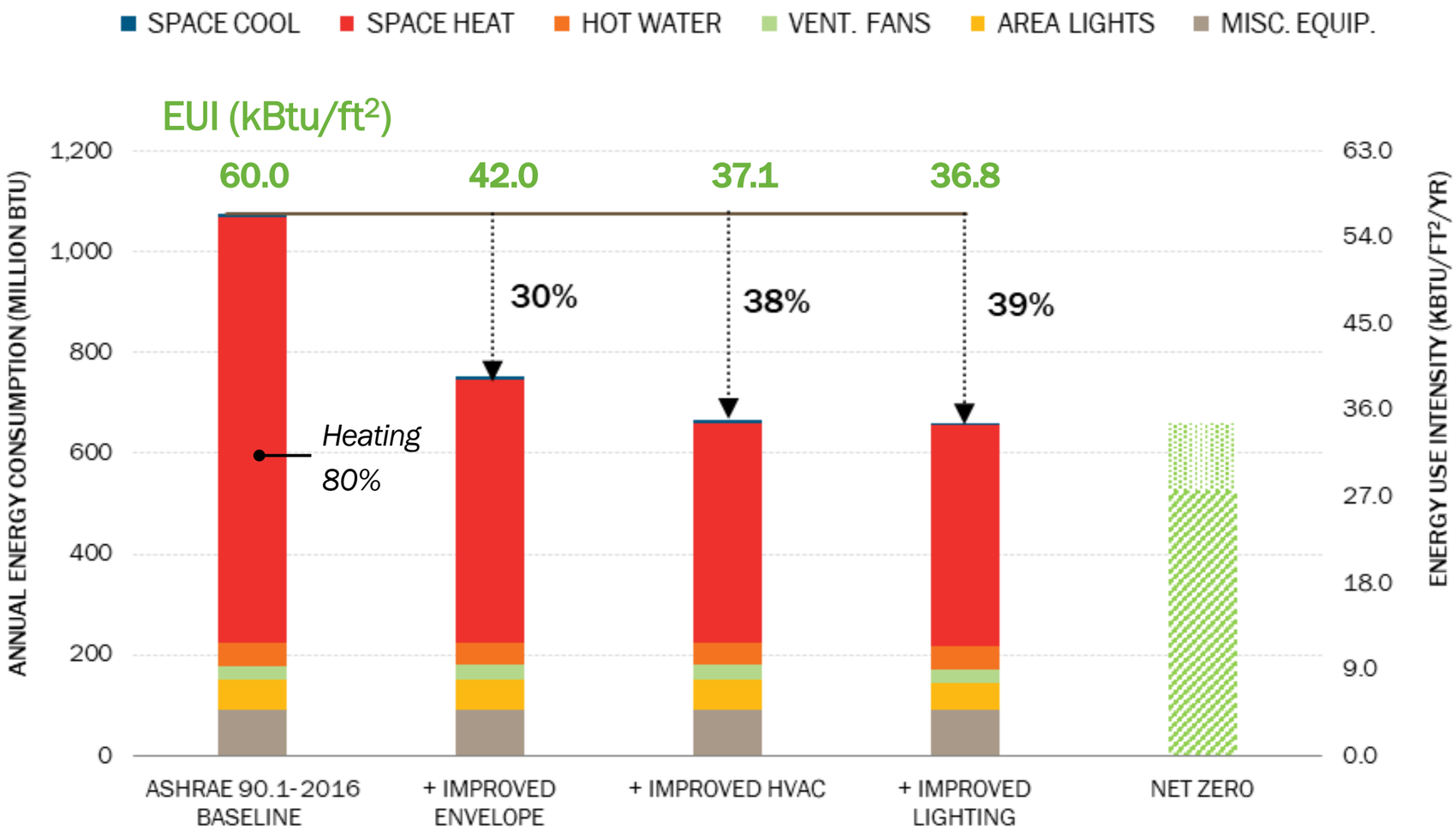
Resiliency

Resiliency strategies are meant to help the building sustain an avalanche, earthquake, or power outage event.



Alta receives approximately 8,300 hours, 94.5% of the year is below the thermal comfort band, indicating that this is a heating dominant climate. A well-insulated, air-tight building envelope will keep internal gains within the structure, reducing winter heating loads.

Energy Target Energy Consumption: Path to Net Zero



- Code Baseline: ASHRAE 90.1-2016 (Climate Zone 5B)
- High performance goal: 20%-40% energy use reduction over code baseline
- Stretch goal: all electric, net zero energy and carbon

FINDINGS

- The preliminary shoebox energy model result shows an approximately energy use intensity of 60 kBtu/ft², for which 80% is heating energy.
- Improving the envelope by adding more insulation to the roof and wall, and use triple pane glazing will achieve 30% reduction in total energy use.
- Improving HVAC system by using condensing gas heating hot water boiler and VRF system will achieve 38% reduction.
- Reducing lighting power density has marginal impact on total energy use reduction.

The Alta Community Center is intended to be an exemplar of energy efficient design. In this heating-dominated climate, the building must first take utmost advantage of solar passive design and be well insulated. Orienting the building along the east-west axis and locating glazing on the south facing façade will maximize passive solar heat gain and thus reduce heating energy demand. The project should target annual energy savings of 20-40% over ASHRAE Standard 90.1-2016.

Atelier Ten conducted an initial energy study using a preliminary block energy model of the proposed project to characterize the project's energy components, or end uses, develop a baseline energy use intensity (EUI) for a minimally compliant ASHRAE 90.1-2016 baseline building, and evaluate the effectiveness of various energy efficiency measures (EEMs). The energy model estimates energy uses for heating, cooling, pumps, fans, lighting, equipment, and hot water. Space heating comprise the largest energy end use at 80%. A highly insulated building envelope and HVAC system with energy recovery is the best way to reduce heating energy use, and therefore the effective means of reducing overall energy use. A highly insulated wall (R-25), roof (R-60), and triple panel glazing will reduce the total building energy use by 30%. Minimizing infiltration is also critical to achieving high energy savings, therefore the envelope design and construction. Additionally, using high efficiency mechanical equipment such as condensing hot water boilers for heating and variable refrigerant flow (VRF) for cooling will further reduce the energy use.

Achieving net zero site energy use is the stretch goal for the Alta Community Center project. To make this goal possible, the design team should make every effort to minimize building energy demand. For an all-electric design, the project should replace the condensing boilers with air or water source heat pumps to take advantage of a decarbonizing grid and to reduce operational greenhouse gas GHG emissions. It is recommended that the design consider an "all-electric" (day one) or "all electric ready" (future integration with emerging HVAC technologies) building. The project team also explored the opportunity to incorporate photovoltaics (PV) on the nearby site. These systems would need to be sized to produce enough electricity to reach the target of net zero site energy use when calculated on a yearly basis.

Energy Owner's Project Requirements

Pricing note:
Include column 1 (good/code) as baseline in cost estimate. Please identify average premium for columns 2 (better) and 3 (best/zero net).

* Big D to make recommendation from list of options (one or multiple) for cost estimate based on local precedent.

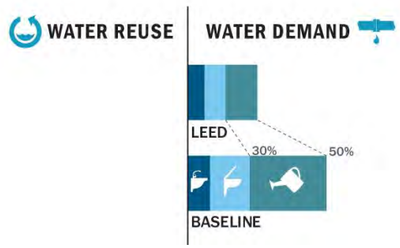
** For rigid insulation use EPS instead of XPS for better environmental performance.

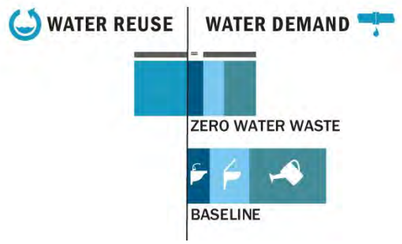
	GOOD	BETTER	BEST
	Energy Code Compliant • ASHRAE 90.1-2016 • Passive House Design Standard Principles	**Better than Code** • Target 20-30% savings over ASHRAE 90.1-2016 • Passive House Envelope • LEED Silver	**Net Zero Energy and Carbon** • All-electric fully (no gas on site) • On-site and off-site renewables • carbon offsets • Passive House Certification • LEED Platinum
Envelope	- Roof R-30 - Walls above grade R-11.4 - Walls below grade R-7.5 - Slab-on-grade floors (heated) R-20 for 48 in. - Insulated Glazing, standard aluminum framing, U-0.38, SHGC-0.38 (assembly) - Overhanging Floor Slabs R30 - Air-tightness 0.40 cfm/ft2	- Roof R-60 - Walls above grade R-25 - Walls below grade R-15 - Slab-on-grade floors (heated) R-20 for 48 in. & R-8 for remainder - Vertical fenestration U-0.30, SHGC-0.40 (assembly) - Overhanging Floor Slabs R35 - Air-tightness 0.06 cfm/ft2	- Roof R-60 - Walls above grade R-30 - Walls below grade R-20 - Slab-on-grade floors (heated) R-30 for 48 in. & R-16 for remainder - High efficiency triple glazing, wood/non-conductive framing, U-0. 50, SHGC-0.50 (assembly) - Overhanging Floor Slabs R40 - Air-tightness 0.06 cfm/ft2
Lighting	ASHRAE 90.1-2016 lighting power densities (LPD)	10-20% LPD reduction	20-30% LPD reduction
Ventilation	Packaged rooftop air conditioner - constant volume Active Humidification	Dedicated outdoor air system (DOAS) 80% Efficiency Energy recovery Passive House, Humidification	Dedicated outdoor air system (DOAS) 80% Efficiency Energy recovery Passive House, Humidification
Heating	Natural gas connecting to local infrastructure Natural gas fireplace Hydronic radiant heating in floor in lobby & circulation; radiators elsewhere	Condensing gas heating hot water boiler Natural gas fireplace Hydronic radiant heating in floor in lobby, circulation & classrooms; radiators elsewhere	Horizontal ground loop system Water-to-water heat pump Electric heating hot water boiler Hydronic radiant heating in floor in lobby, circulation & all assembly places; radiators elsewhere
Cooling	Packaged rooftop air conditioner - direct expansion	Natural ventilation Ceiling fans for emergency use Variable refrigerant flow (VRF)	Natural ventilation Ceiling fans Variable refrigerant flow (VRF)
Renewable	None	BIPV (building-integrated PV) as demonstration	Protected PV panels at 40degree rotation on roof: 52kWh system, approx. 40'x116' Offsite renewable purchase
Cost	Construction $ Maintenance $$$ Utility $$$ Operational Carbon (Good)	Construction $$ Maintenance $$ Utility $$ Operational Carbon (Better)	Construction $$$ Maintenance $ Utility $ Operational Carbon (Best)
Resiliency Contribution	24 hour	36 hour	72 hour

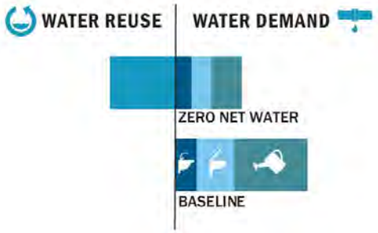
Water Owner's Project Requirements

Pricing note:
Include column 1 (good/LEED) as baseline in cost estimate. Please identify average premium for columns 2 (better) and 3 (best/ zero net).

	GOOD	BETTER	BEST
	LEED Water Credits • Stormwater pollution prevention • Low flow & flush fixtures	**Optimize Potable Water Use** • On site stormwater treatment • Reuse water for flushing & irrigation	**Zero Net Water** • Offset 100% of non-potable demands with recycled water
	Good	**Better**	**Best**
Water fixtures	EPA baseline: - Water closets 1.6 gpf - Urinals 1.0 gpf - Public lavatory faucet 0.5 gpm - Kitchen faucet 2.2 gpm - Showerhead 2.5 gpm	Low flow fixtures: - Water closets 1.28 gpf - Urinals 0.125 gpf - Public lavatory faucet 0.35 gpm - Kitchen faucet 2.0 gpm - Showerhead 2.0 gpm	Low flow fixtures: - Water closets 1.1 gpf - Urinals 0.125 gpf - Public lavatory faucet 0.35 gpm - Kitchen faucet 1.5 gpm - Showerhead 1.5 gpm
Greywater reuse	None	None	Greywater collected from hand washing and reuse for toilet flushing
Stormwater	Stormwater goes to sewer	Stormwater managed through vegetation and site pavement Rainwater captured for irrigation	Stormwater managed through vegetation and site pavement Rainwater collected and reused for toilet flushing and irrigation
Costs	Construction Cost $ Operations Cost $ Utility Cost $$$	Construction Cost $$ Operations Cost $ Utility Cost $$	Construction Cost $$ Operations Cost $$ Utility Cost $







Water conservation and watershed stewardship is an important environmental goal for this project. Water conservation is the first step in reducing potable water demand for the building, and water reuse is the second step. The easiest way to conserve potable water is to use water-saving fixtures. Sinks, toilets, urinals, and irrigation that are designed to use less water than typical fixtures are widely available and, particularly when combined with conscientious occupant use patterns and controls, can result in a large reduction in water use.

Water reuse can take two forms: stormwater harvesting (which filters stormwater from the site for future use in irrigation) or greywater harvesting (which filters water from sinks and showers for use in flushing and/or irrigation). Water reuse takes advantage of the fact that much of the building's water does not need to be potable. A proposed addition to the design is a greywater or stormwater reuse system. A greywater system would greatly reduce potable water consumption for flushing water closets, by reusing sink and shower water for flushing. While it would greatly reduce potable water use on site, a greywater system would add both cost and complexity. Additional space would be needed for plumbing equipment, and filtration equipment and a storage tank would also be required. A second proposed option for the project is a stormwater reuse system for toilet flushing and irrigation. Stormwater could be captured, filtered, and stored in a cistern or tank, and used to supply toilet flushing and irrigation.

Stormwater management strategies such as providing a diverse selection of vegetation and a more robust landscape design are considered to help eliminate stormwater runoff, enhance and expand habitat, and promote biodiversity.

We recommend a landscape design that requires minimal or no irrigation beyond the establishment period.

Carbon Owner's Project Requirements

Numerous scientific studies and governmental reports have established the importance of reducing carbon emissions within the next few decades to avoid irreversible climate change. According to Architecture 2030, embodied carbon is responsible for 11% of global GHG emissions and 28% of the global building sector emissions. This section of the report discusses preliminary recommendations for low carbon architecture and site design practices.

Pricing note:
Include column 1 (good/code) as baseline in cost estimate. Please identify average premium for columns 2 (better) and 3 (best).

	GOOD	BETTER	BEST
	Typical Baseline Values • 50% Superstructure • 30% Envelope • 20% Interiors - Site	**Reduced Carbon**	**Net Zero Carbon**
Superstructure	Standard concrete & recycled steel *	Low-Carbon Concrete * + Recycled Steel	Low-Carbon Concrete * + Recycled Steel
Envelope	Wood/Non-Conductive Framed Glazing	Heat mirror glazing - Alpen Glass Wood/Non-Conductive Framed Glazing	Reduce Aluminum in Glazing Systems - Heat mirror glazing - Alpen Glass - Wood/Non-Conductive Framed Glazing - High Efficiency Triple Glazing Insulation - Avoid Foams Cladding - Recycled / On-Site Materials, such as - Local Stone / Rammed Earth / Wood
Interiors	Steel Studs for Interior Partitions	Use Wood Framing for Interior Partitions Maximize Stud Spacing Specifiy Long Life / Durable Materials Specify Flexible Use Furnishings Specify Eggshell Paint Finish in lieu of flat	Recycled Content Drywall Maximize Local / Regional Products FSC Certified Woods and/or reclaimed wood Recycled / Agri-Based Finish Materials
Site			Specify Low carbon materials for paving Use carbon sequestering materials: vegetation, wood, local stone / earth Recycled-content unit pavers with high recycled content Decomposed granite or light-colored asphalt as a substitute for concrete Aggregates and/or recycled materials from the site ground into a base as a substitute for concrete, stone, and asphalt materials and pavers

The majority of the embodied carbon associated with the construction of a building lies in the structure and building enclosure. . Of these, structural systems are generally the largest carbon contributors for a project and, in some project types, can account for up to 80% of a building's carbon footprint. Reducing the structural material quantity is one project-relevant effective strategy to reduce embodied carbon. The shed design scheme significantly reduces the amount of concrete thus has lower overall embodied carbon emissions profile compared to other design schemes. *Additional strategies to reduce embodied carbon emissions in concrete include Portland Cement replacement with slag, fly ash, lime; use high quality aggregate and CarbonCure technology. Also the design should prioritize the use of materials with low embodied carbon, including exterior and interior products such as gypsum board, metal framing, insulation, metal fabrications, carpentry and woodwork, glazing etc. For instance, regionally produced and sourced materials have a lower embodied carbon value by minimizing transportation distances. Next, using recycled materials or those with minimal processing will also have lower embodied carbon. In addition, specifiers should prioritize materials with end-of-life options for recycling and reuse to reduce carbon emissions.

Additionally, small adjustments in material and vegetation selection in site design can have a large impact in reducing the site's overall carbon impact. Consider strategies such as minimized paved areas and incorporating recycled content from the demolition of existing concrete and paving into on site building materials; opt for alternatives to the precast concrete, stone paving, and cast in place concrete for the pedestrian paving that have lower carbon profiles; and use reused or salvaged material whenever possible.

Resiliency Owner's Project Requirements

	Power	Ventilation	Water	Heat
Facilities	●	●	●	●
Offices	○			
Public Services	●	●	●	●
Multi-purpose	○	●	●	●
Trailhead	●		●	
Exhibition	○			
Gathering	○	●	●	●
Common	○	●	●	●
	60%	90%	92%	90%

● maintain full demand

○ maintain partial demand (50% used for preliminary assumptions)

	GOOD	BETTER	BEST
Survivability Target	**72 hours** **potential event: avalanche**	**1 week** **potential event: significant avalanche**	**2 weeks** **potential event: earthquake**
Emergency lighting & Power to gathering spaces 60% program load	Generator (propane) Alt: battery size to support 72 hours of use	Community Generator (a mobile unit that can be "checked out" from the center, but is parked there, and sized for 50-100% load)	Dedicated Generator & Fuel Storage Battery Storage (alternate)
Emergency Cooling 90% program load	Exhaust system + draw - 72 hours	Exhaust System + draw on power - 1 week	Exhaust System + draw on power - 1 week
Emergency Water 92% program load	Bottled	Bottled	Bottled
Emergency Heating 90% program load			Onsite fuel source (ie propane)
Emergency Resources	Dry Goods for 100 people (TBC) Blankets	Dry & Cold Storage for 50 people (TBC) Blankets	Dry, Cold Storage Electric Cooking Blankets

Resiliency is an important consideration for the Alta Community Center project due to frequent avalanches, potential earthquakes, or power outage events in the area. The project is meant to provide benefits to the larger community during these unfortunate events. The project will target resilience in the following aspects:

Avalanche – Avalanche is a key consideration for the project. While this will be accounted for the building itself through its structural design, given its location, the project will plan to be openfor various community needs and act as a community resource storage facility.

Earthquakes – Seismic activity is another issue of regional priority. While this will be accounted for the building itself through its structural design, given its location the project will aim to provide shelter to occupants from other buildings and act as a community resource.

Power or gas shut-offs – In the past, avalanches have triggered public-safety power and gas shutoffs in Alta. The building would aim to maximize hours of comfort in the event of power or gas outages, while being able to provide essential services and non-essential services to the greatest extent possible.

Several design strategies already discussed in this narrative can double up as resilience strategies to address the issues listed above. Resilience criteria for energy and water systems, such as the duration for which building service autonomy can be sustained (e.g. backup power and water for 2 weeks), will be discussed with the community. This definition of 'passive survivability' can then be factored into design choices and system sizing as applicable.

Architectural Strategies – Solar-passive elements such as south facing glazing and a highly insulated envelope will assist in maintaining thermal comfort for longer periods of time in the absence of mechanical heating. Increased daylight access will make up for the absence/reduction of electric lighting. Operable windows will provide ventilation and cooling in the absence of mechanical conditioning.

Energy Strategies – Energy storage in electric batteries can provide power and sustain operations for a certain duration. Battery storage can also play a role in shifting electric loads to reduce peak demand utility charges and limit the power draw from the grid at times when power production is more carbon-intensive.

Water Strategies – Greywater and blackwater re-use as described in the water section may be able to provide water for non-potable demands. Treatment and storage and can be advanced to make the system more resilient if needed.

Structure

Constraints

The community center's design will be heavily influenced by snow and avalanche risk, both from a structural and non-structural perspective. The design options studied have been investigated using the community center's overall massing and shape to mitigate avalanche effects. Structural loading due to snow accumulation and snow flow events are significant and strongly influence project cost. Earthquake resistant design due to the high seismic region and below-grade requirements for the sloping mountainous site are also important factors.

Building Codes

The structural work will be designed in accordance with the 2018 Utah State Building Code, which references the 2018 IBC and ASCE 7-16, as well as the Town of Alta building ordinances. Depending on the date of filing, future editions of the Codes may be applicable. We understand the community center, which includes various public use spaces and parking, would classify as a Risk Category II building per the Building Code.

Avalanche Considerations

Previous structures designed to resist avalanches have often been designed to function as a bunker partially embedded within the ground. These typically concrete structures resist the direct impact of an avalanche as well as the loading from significant amounts of snow overhead. An alternative approach to a building providing its own direct protection has consisted of building landscape or free-standing structures uphill and independent of the building that resist and deflect the avalanche. We understand for this project that modifying the up-mountain terrain owned by other parties is not permitted and likewise may result in increased avalanche risk for nearby properties.

While the sizeable static snow loading need be resisted by roof structures, the direct dynamic impact from a snow avalanche can be mitigated by both shielding the building within the sloping profile of the mountain site terrain and organizing roof elements within the avalanche flow layers so they deflect and avoid the various avalanche directions instead of directly resisting them.

For the Alta Community Center, the design team has studied incorporating concepts of shielding, deflecting, and avoiding into the building design to mitigate avalanche effects. as the loading from significant amounts of snow overhead. An alternative approach to a building providing its own direct protection has consisted of building landscape or free-standing structures uphill and independent of the building that resist and deflect the avalanche. We understand for this project that modifying the up-mountain terrain owned by other parties is not permitted and likewise may result in increased avalanche risk for nearby properties. While the sizeable static snow loading need be resisted by roof structures, the direct dynamic impact from a snow avalanche can be mitigated by both shielding the building within the sloping profile of the mountain site terrain and organizing roof elements within the avalanche flow layers so they deflect and avoid the various avalanche directions instead of directly resisting them.

For the Alta Community Center, the design team has studied incorporating concepts of shielding, deflecting, and avoiding into the building design to mitigate avalanche effects.

Mitigation Strategy

Where the community center massing can be organized to be within the general profile of the mountain topography, then the dynamic avalanche effects can pass over the structure and the building avoids its impact (Embed Option). Alternatively, providing a roof structure that transitions the uphill slopes and directions to smooth out an avalanche path mitigates the impact (Shed Option).

Extending portions of the building mass to enhance downhill exposure can be achieved by organizing pop-up roof shapes to channel avalanches around them thereby deflecting impacts (Channel Option).

Finally, elevating the structure above the flow of oncoming avalanches as shown in Figure 1, or at least above the highest pressure flow zones, allows for the best avoidance as well as least impact on the existing terrain.

Where building options require excavation below the grade line, it is recommended to provide an independent support of excavation wall outboard of the building. Robust systems for drainage resulting from snow melting, rain, and ground water are also required for below grade spaces. Given the mountainous terrain, it is expected that rock and other suitable bearing subgrades may be located relatively close to the ground surface to allow for shallow footing foundations.

The structural related aspects of these options are discussed further in Section 3 while the next section highlights the unique structural loading and related design criteria for this site.

Snow and Avalanche

The Utah Building Code and local ordinances for the Town of Alta require site-specific studies to determine snow and avalanche risk and related structural loadings. The Contour Group has conducted an avalanche hazard analysis for the feasibility phase of this project with preliminary recommendations for the design team. The analysis is based on historical avalanche and climatology data as well as preliminary avalanche site analysis. Recommendations cover preliminary impact pressures and negative (suction) pressures as well as flow heights and velocities for avalanche 10-year, 30-year, and 100-year return events with the understanding that the 100-year event is to be used for building design. In addition, snow accumulation depths and densities recommended for design are provided.

We have summarized the Contour Group's recommendations in the tables below:

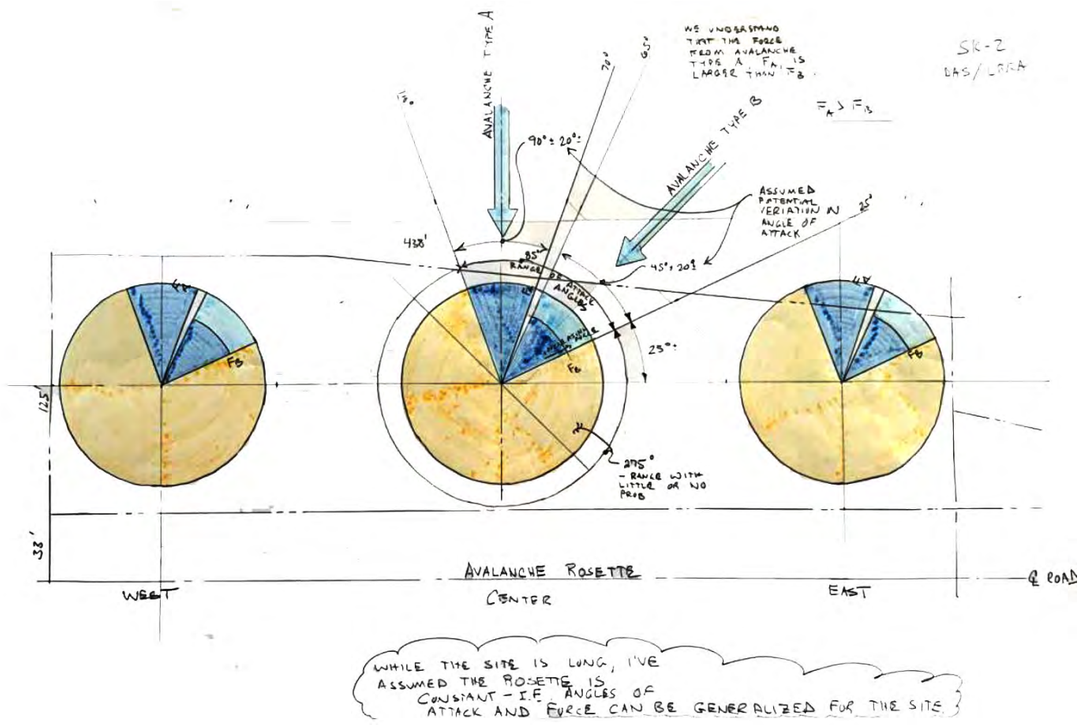
SITE SPECIFIC STATIC SNOW LOADING CRITERIA (per historical data – identified in Contour report page 2)	
Maximum Snow Depth	170 inches
Maximum Snow Density	500 kg/m^3
Static Ground Snow Load (p_g per ASCE 7)	443 psf

SITE SPECIFC DYNAMIC AVALANCHE CRITERIA
(per simulations and empirical data for 100-year avalanche – Contour report Table 5)

Flow Components	Impact Pressure Range (kPa)	Flow Height Range (m)	Velocity Range (m/s)	Negative Pressure Range (kPa)
Core	310-370	3.0- 3.8	28-36	
Transition	8.0 - 40.0	2.0 - 5.0	28-40	
Powder	1.2 - 12	10.0 - 30.0	28-40	7.8 - 9.72

We understand avalanche loading is to be considered concurrent with static snow accumulation as a design scenario for the new community center building. Negative suction pressures occur as a result of the avalanche flow passing over a building and generating suction on the downhill vertical surfaces. These will be design pressures for any downhill glazing systems.

The Contour Group report also discusses expected avalanche paths/directions based on the uphill terrain and previous avalanche records (see their report for maps). A rosette diagram can be developed based on this data to summarize major avalanche impact direction. See Figure 2 for a preliminary version. Knowing primary avalanche directions can assist in the orientation of roof structures to deflect and avoid direct snow impacts. This approach was used to develop the orientation of the Channel Option's pop-up roof elements.



Earthquake and Wind

The Alta Community Center is in a zone of moderate to high seismic activity that is near historical faults. However, based on a review of the USGS maps there are no known recent active faults. See Figures 3A and 3B for a map overlay of faults and Building Code ground motion parameters for this site. Based on a Risk Category of II and the Code Ss and S1 parameters, the Community Center will be a Seismic Design Category D structure unless a site-specific study in the future determines lower ground motion parameters.

A SDC D structure will in general require special concrete and steel detailed structural systems be utilized and that the building design consider penalties resulting from structural irregularities of geometry, mass, and stiffness. A site-specific study would be recommended to determine if a lower Seismic Design Category of B or C with less requirements would be permitted.

Based on the Building Code, the main structural system wind loads for the community center will be approximately 20 psf based on a Risk Category II ASCE 7-16 Basic Wind Speed V = 103 mph. It is expected that impact resistant glazing systems will be required due to the avalanche conditions.

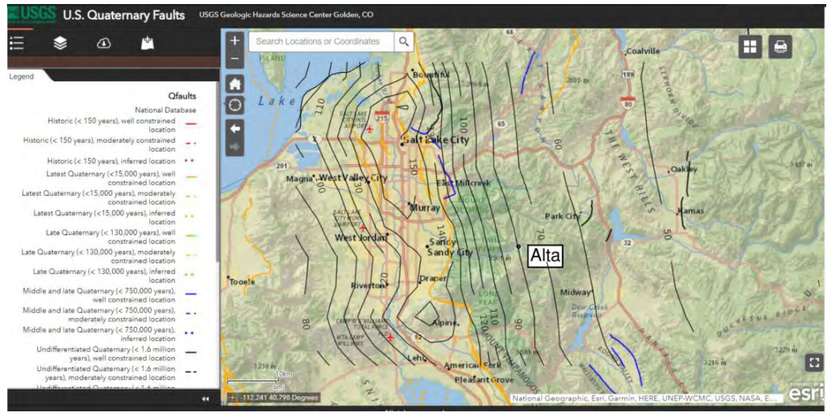


Figure 3A: Alta Mapped S_s x 100 Contours for MCE_R per ASCE 7-16 with Historical Faults (S_s = 0.775)

Figure 3B: Alta Mapped S1 x 100 Contours for MCE_R per ASCE 7-16 with Historical Faults (S_1 = 0.281)

Further Studies

The preliminary structural design criteria developed during this concept phase will benefit from additional studies as the project design progresses. With respect to snow and avalanche loading, we understand the site-specific study conducted by Contour would be expanded upon to include the effects of the actual building massing and structure on avalanche response. Studies involving the effects of wind and snow drift may more accurately determine the snow drift loading for the actual building design as well as façade and glazing design pressures and performance requirements.

In addition, a geotechnical study to determine subgrade conditions and provide foundation recommendations will be required. As part of this effort, a site specific seismic geotechnical study would be recommended to better understand the local seismicity design parameters, which may bring savings through reducing earthquake base shear forces and structural detailing requirements.

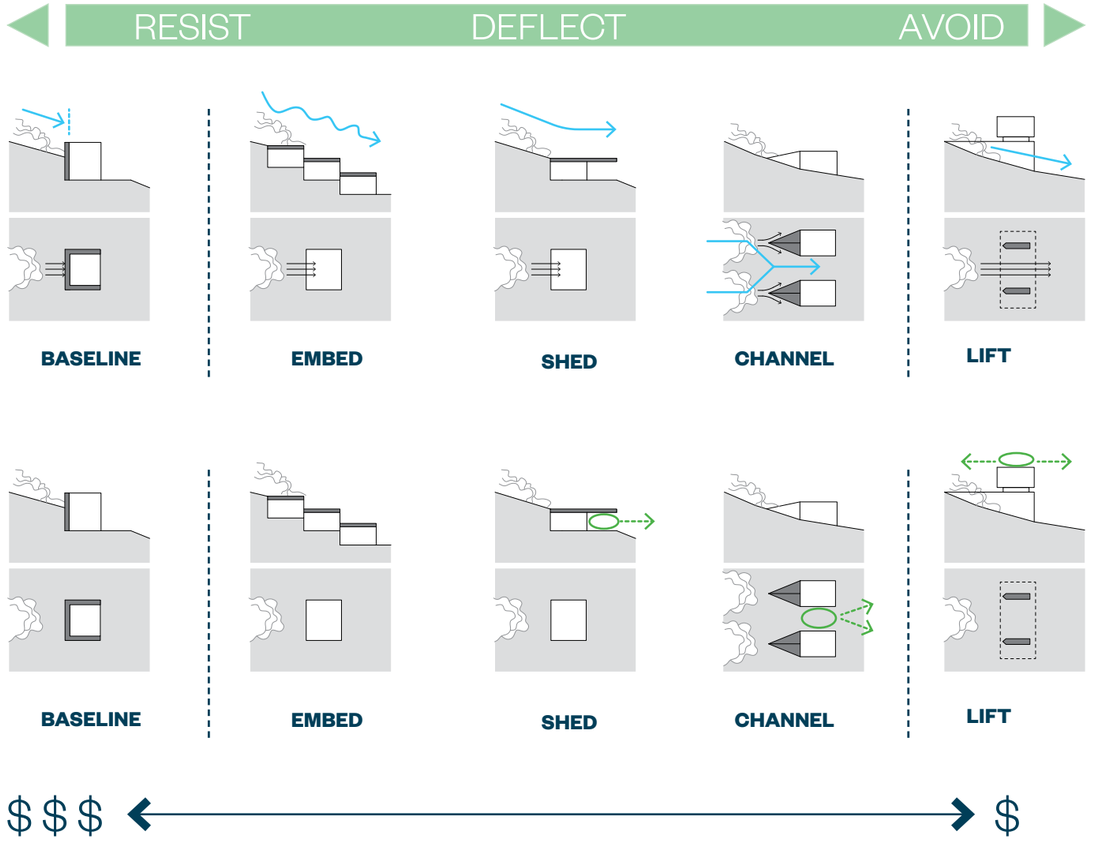
06 Design Explorations

Design Approach

Process
During collaborative charettes with the team's structural, avalanche, sustainability and construction experts, the team sought to better understand the issues that would drive cost and complexity in the design.

Design Alternates
Design strategies were developed based on how the structure was responding to the avalanche.

Outdoor Spaces
Each structural concept resulted in a unique architectural form, and each form was developed to create protected outdoor spaces that could be utilized be the community.



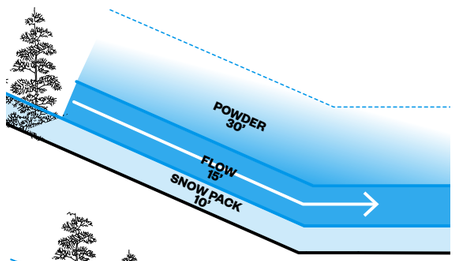
Embed

Concept

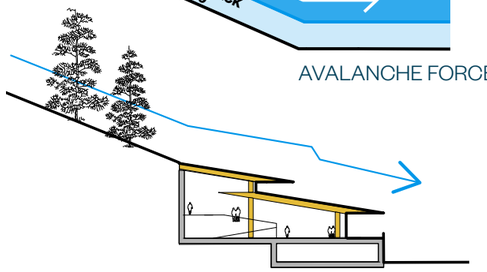
The ‘Embed’ concept pushes the community center structure into the slope of the hillside, breaks the massing apart into small volumes and protects each volume with an inclined roof that matches the slope of the hillside. By breaking the building apart into different volumes, it creates a ‘village’ like experience around a series of outdoor terraces where the community can gather

Structural Response

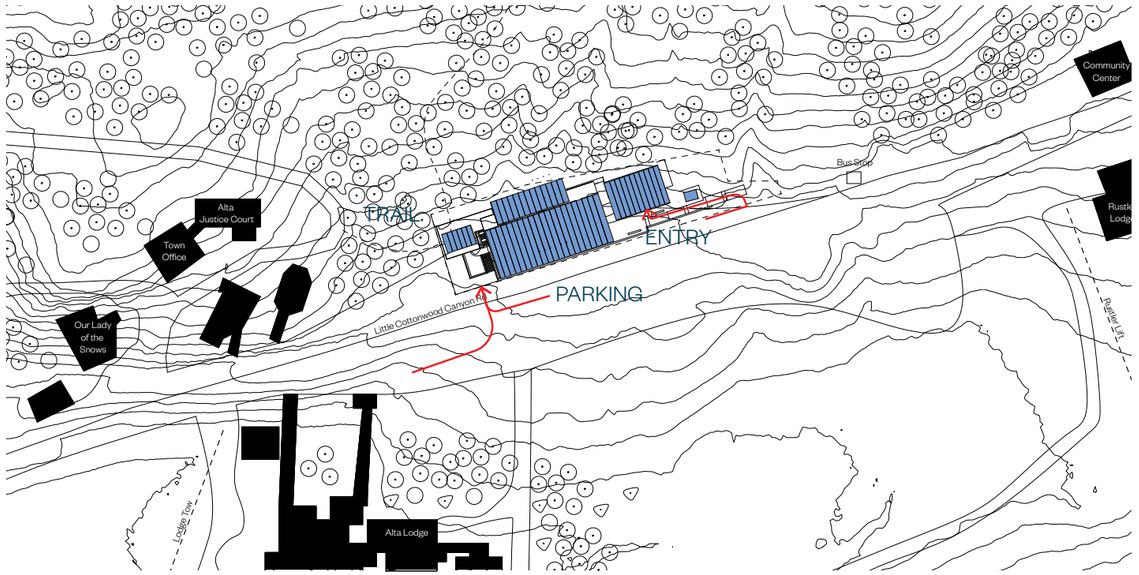
Embedding the building into the earth and allowing avalanche forces to flow over the top of the building is a common approach utilized in volatile mountain regions. Since the building’s superstructure does not receive the full impact of the forces, rather supporting the shear weight of the snowpack, there is a reduction in required structural mass and carbon.



AVALANCHE FORCES



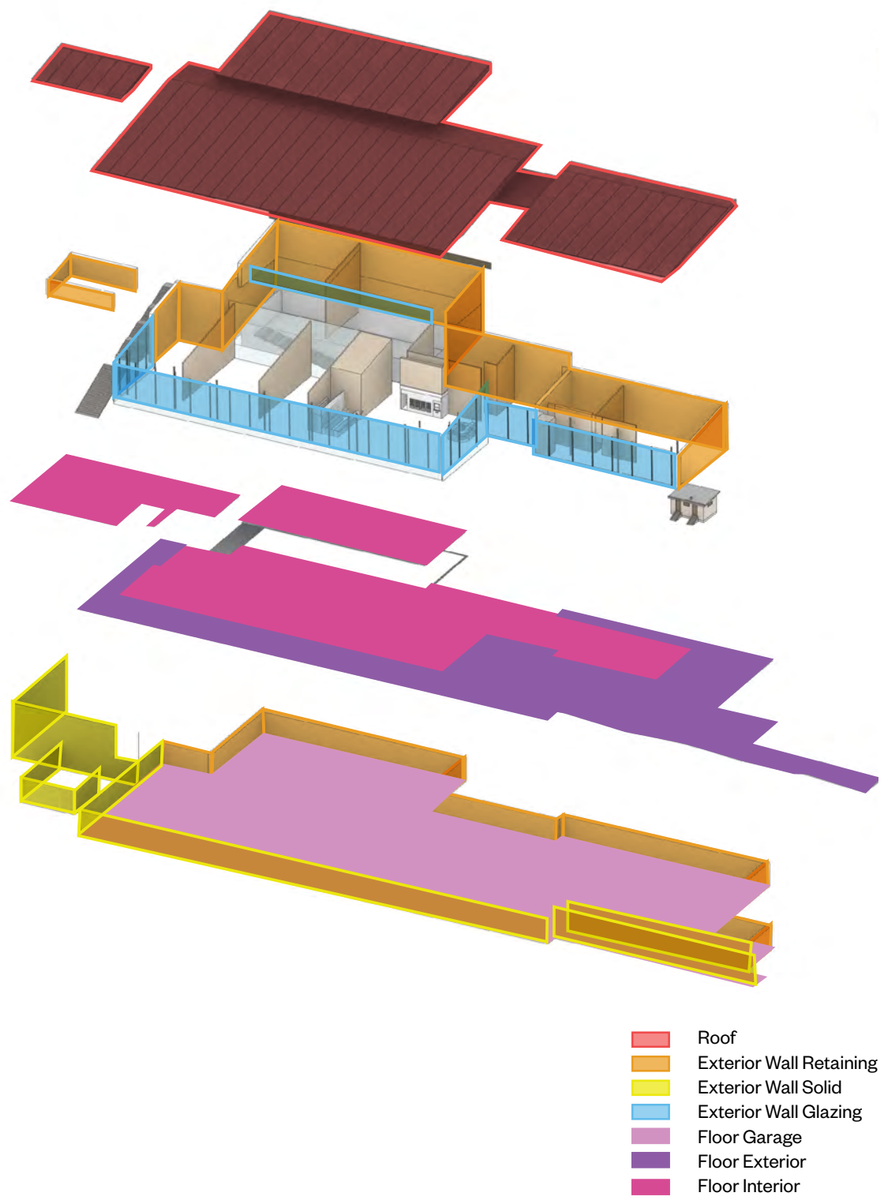
EMBED CONCEPT



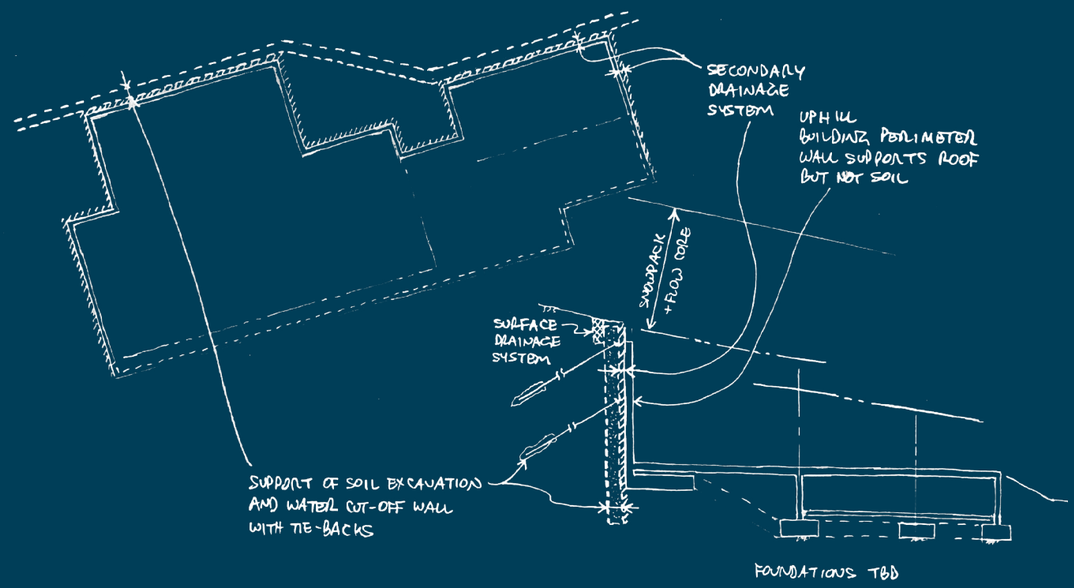
SITE PLAN

GROUND LEVEL FLOOR PLAN

Embed Structure



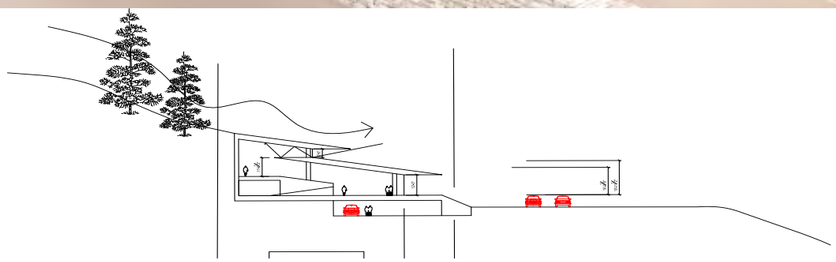
- Roof
- Exterior Wall Retaining
- Exterior Wall Solid
- Exterior Wall Glazing
- Floor Garage
- Floor Exterior
- Floor Interior



The Embed Option consists of sloping roofs that resist significant snow pressures, either due to static snow fall or an avalanche flowing across. As a result, the roof structures will be robust, likely consisting of structural steel framing supporting slabs on deck or formed concrete structures. The below grade structure will consist of perimeter reinforced concrete walls that also act as shear walls to resist lateral load. However, it is recommended to have permanent support of excavation (SOE) walls to resist the uphill and surrounding lateral earth and hydrostatic pressures, including soil earthquake pressures.

An independent SOE allows for the initial excavation required to construct the community center. The SOE walls will need have tensioned tie backs grouted into the soil and could consist of secant or soil mix walls that also cut off ground water. Systems to drain away uphill surface water runoff from rain and snow melt will be needed outside the SOE while back-up drainage and waterproofing systems would be needed between the SOE and the building perimeter subgrade walls.

Much like the form of the historic Tom Moore stone shed on the site, the quiet aesthetic of the 'Embed' concept allows the natural environment to flow around it and take center stage, while the building recedes into the hillside. The use of local stone and warm wood materials reinforce the soft and welcoming qualities of the center.



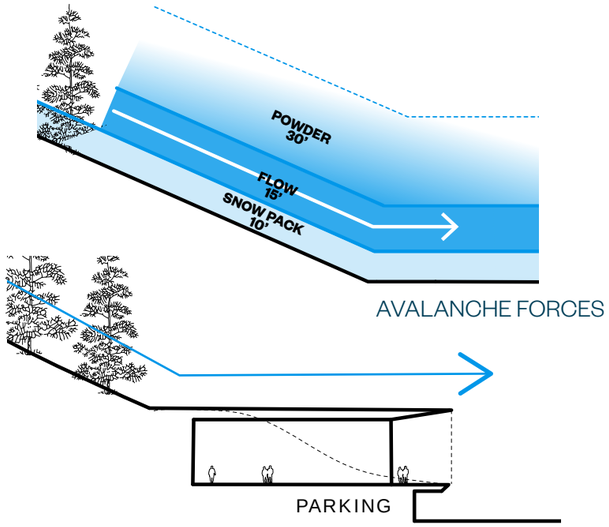
Shed

Concept

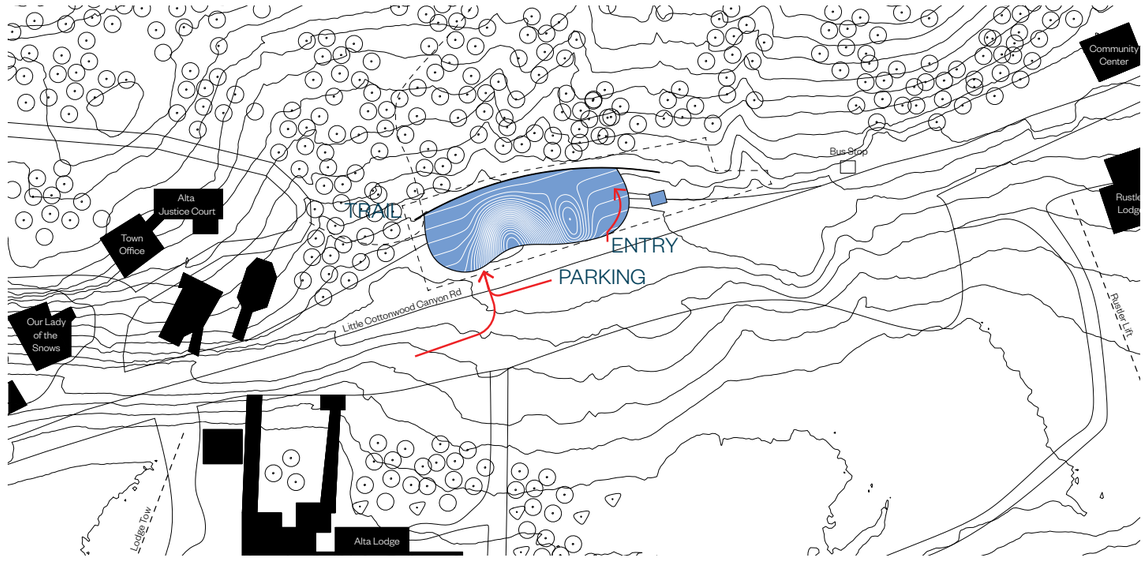
The ‘Shed’ concept also pushes the community center structure into the hillside. Here the roof takes on a more curvilinear shape mimicking the landscape. One large roof protects multiple programmatic volumes below it, including an outdoor porch. The lobby entrance formed by curved glazing house organic pod shapes which house each of the primary programmatic components of the center.

Structural Response

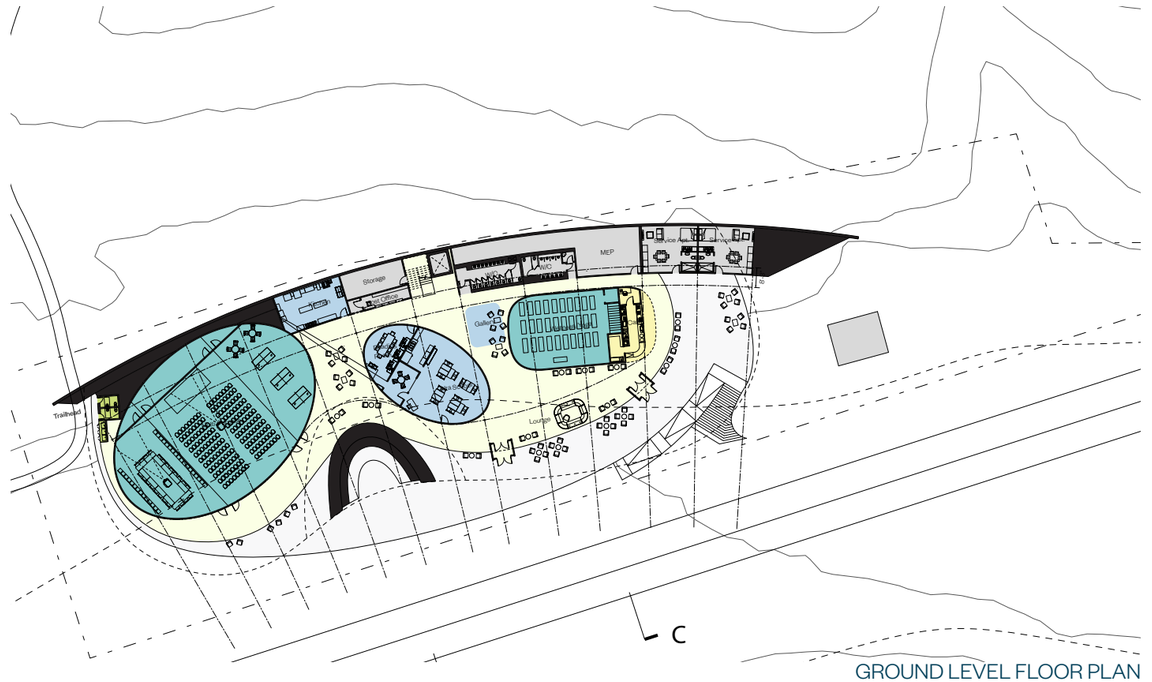
Like the previous concept, the structural strategy is to allow avalanche forces to flow over the top of the building reducing its structural demands, and overall mass of concrete. This simplified shape offers economies over the embedded concept due to a simplified retaining wall on the uphill side of the structure.



SHED CONCEPT

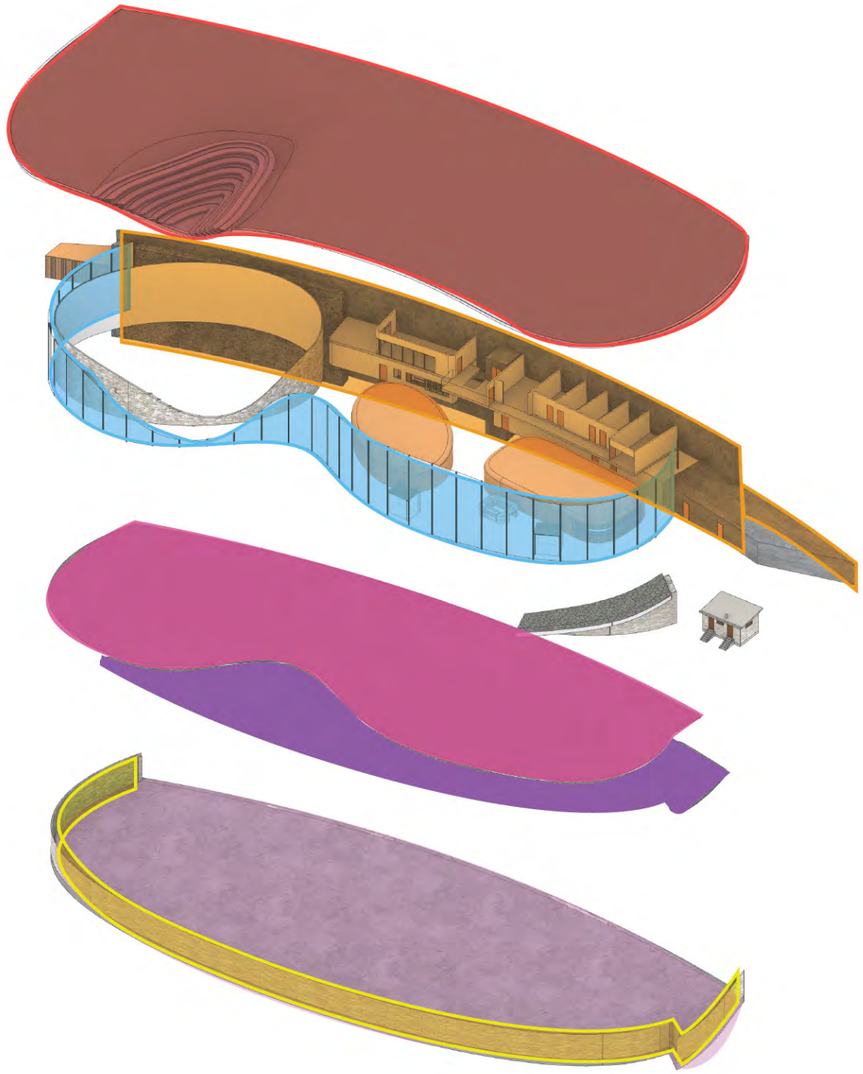


SITE PLAN



GROUND LEVEL FLOOR PLAN

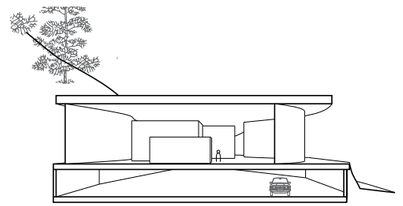
Shed Stucture

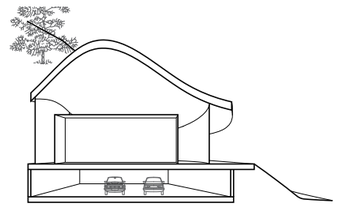


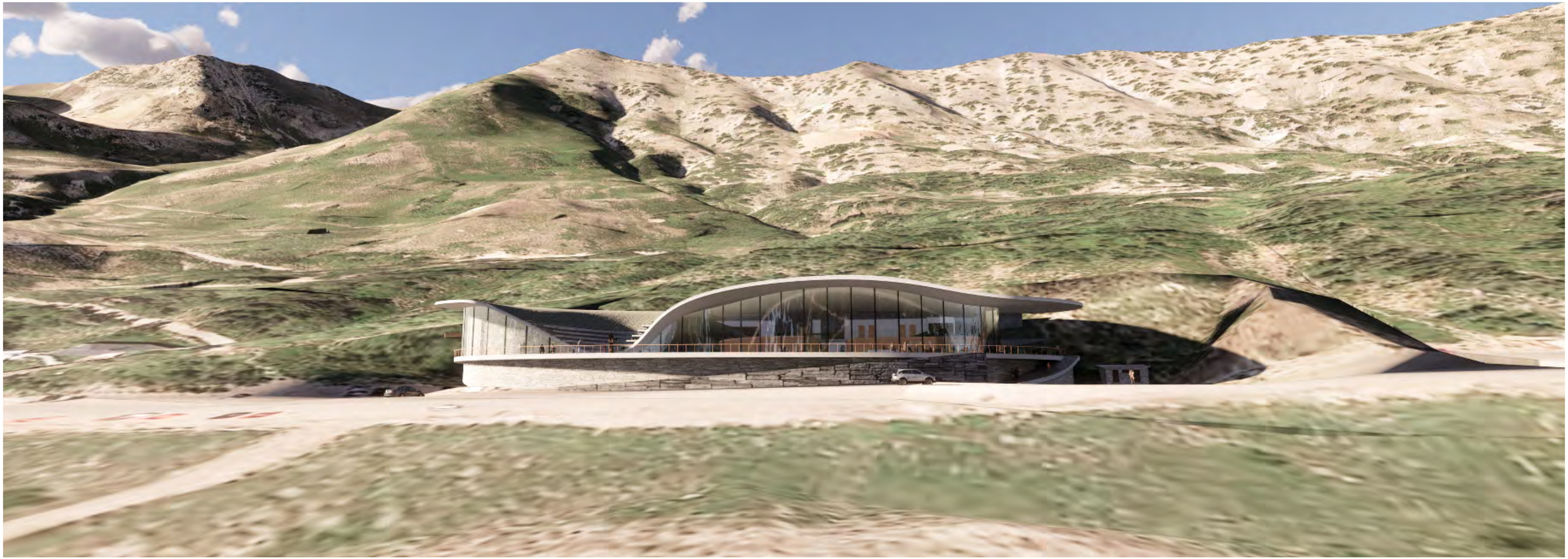
- Roof
- Exterior Wall Retaining
- Exterior Wall Solid
- Exterior Wall Glazing
- Floor Garage
- Floor Exterior
- Floor Interior

The Shed Option consists of a roof with an organic shape profile intended to allow the avalanche to flow over and be channeled to where the roof touches down to grade. Because the avalanche layer will be forced to change its slope as it encounters the roof, the roof will resist an angled impact force as well as friction forces. The roof will consist of concrete shell construction supported by concrete walls and columns. See Figure 5 for a concept layout with material estimates.

The roof's curvilinear and organic form undulates to create an outdoor amphitheater for community function and access Alta's valley views. The top also extends toward the east of the site to provide cover for the entry plaza.







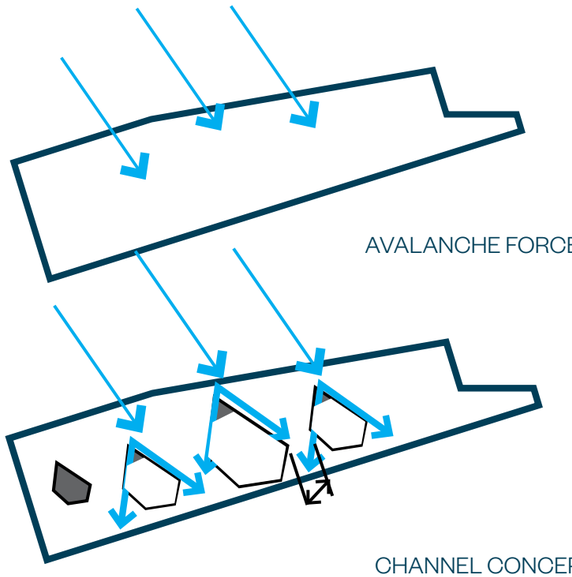
Channel

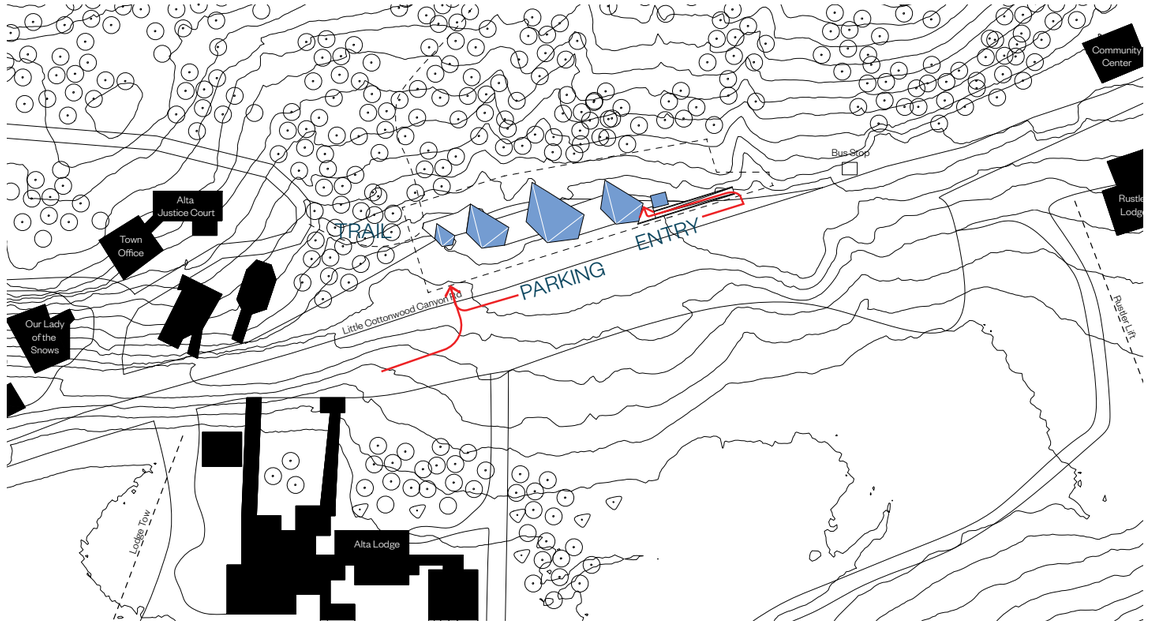
Concept

The ‘Channel’ Concept breaks the primary building functions into four distinctive crystalline wooden sheds. The sheds are clad in a resilient Corten Steel and are connected below grade by a programmatic spine of common spaces. Each shed is oriented to the south west to maximize daylight and direct views into the canyon.

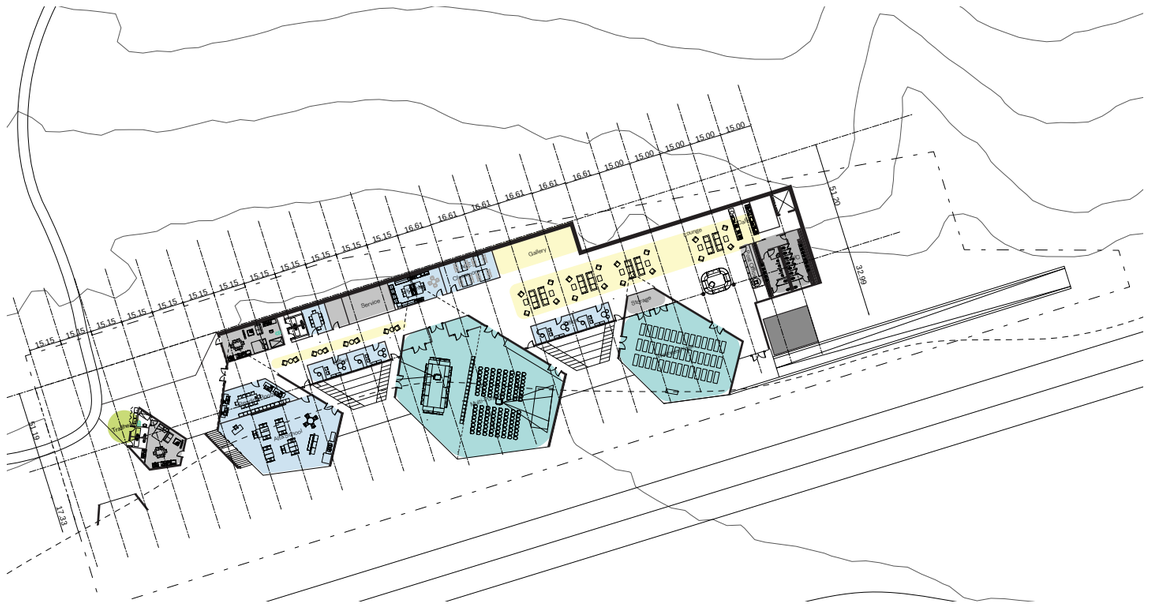
Structural Response

Here the avalanche forces are encouraged to flow between the structures. The crystalline sheds’ uphill peaks are reinforced wedge forms that divert the avalanche forces along the sides of the sheds, allowing their overall structure to be lightweight.
In order to prevent debris getting caught between the building forms during an avalanche event, the forms were separated at a minimum of 25’.



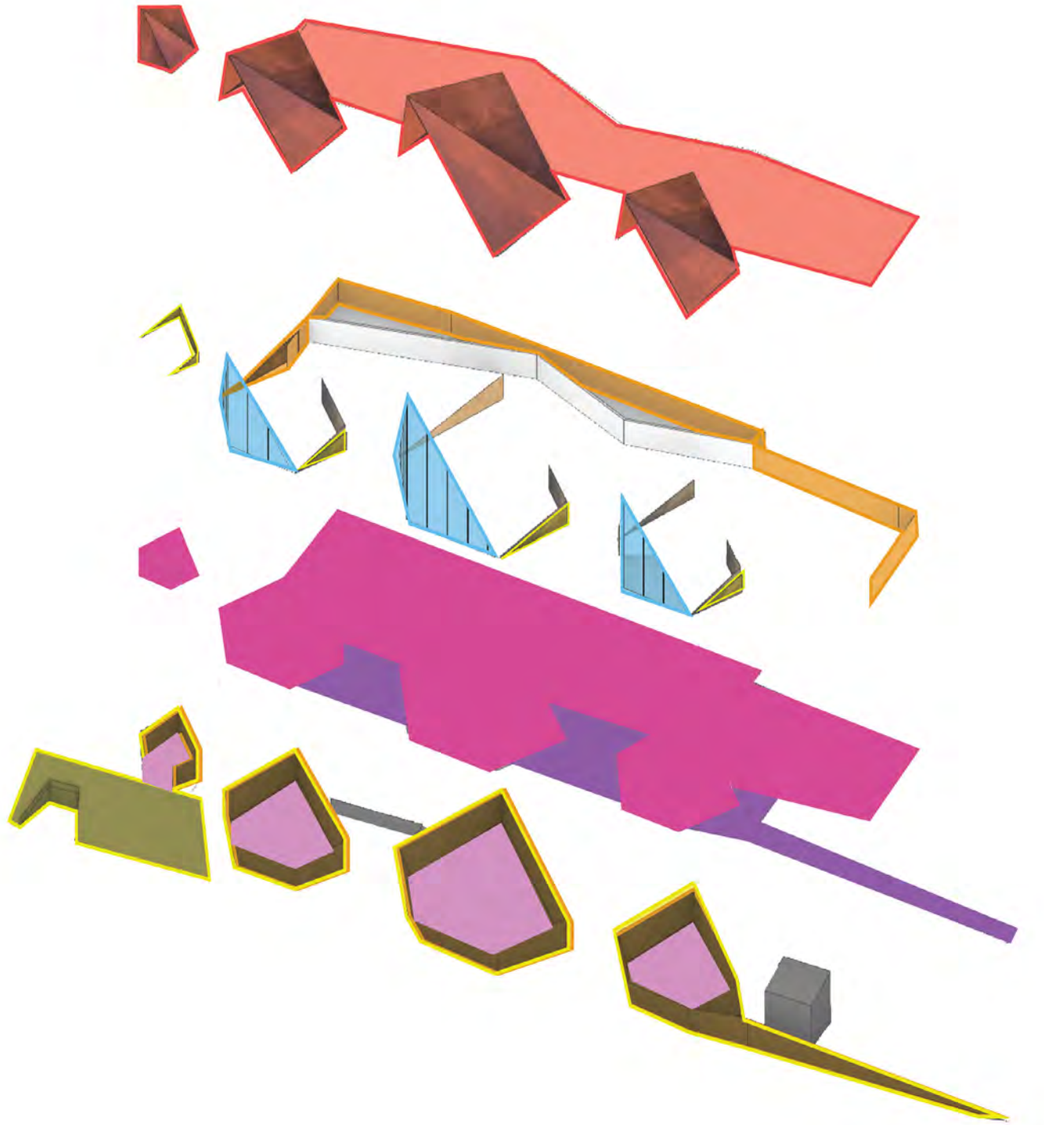


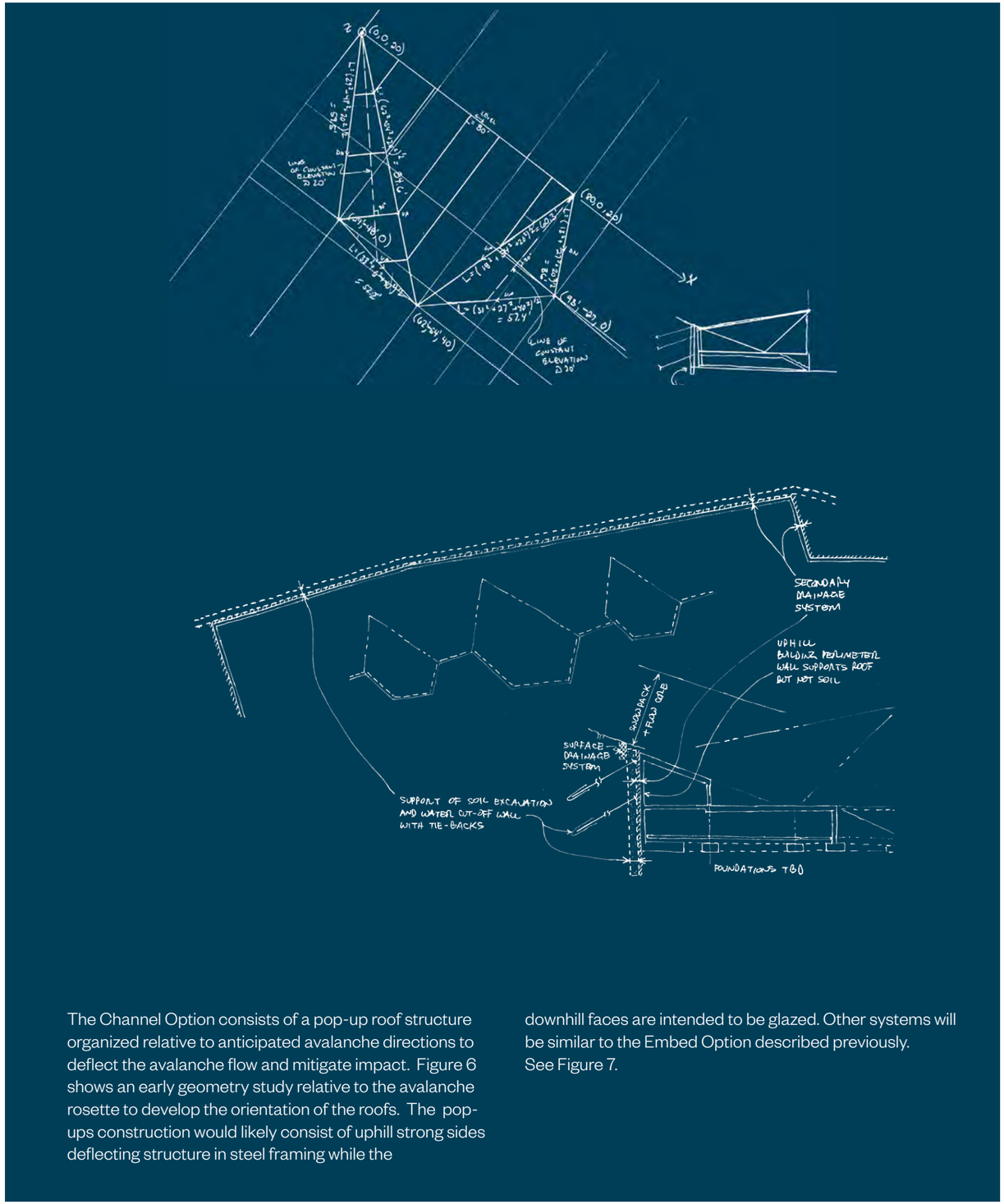
SITE PLAN



GROUND LEVEL FLOOR PLAN

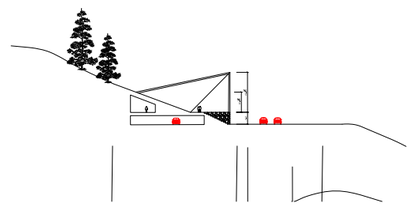
Channel Structure





The Channel Option consists of a pop-up roof structure organized relative to anticipated avalanche directions to deflect the avalanche flow and mitigate impact. Figure 6 shows an early geometry study relative to the avalanche rosette to develop the orientation of the roofs. The pop-ups construction would likely consist of uphill strong sides deflecting structure in steel framing while the downhill faces are intended to be glazed. Other systems will be similar to the Embed Option described previously. See Figure 7.

The glass crystalline facades face north and south of the canyon. The building's juxtaposition reads as an assemblage of different pavilions; however, the building program is all connected. Between each of the pavilions is an intimately scaled outdoor space which can be used for outdoor community gatherings.



Avalanche Forces

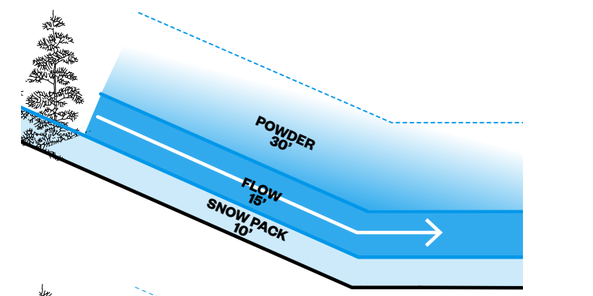
LIFT

Concept

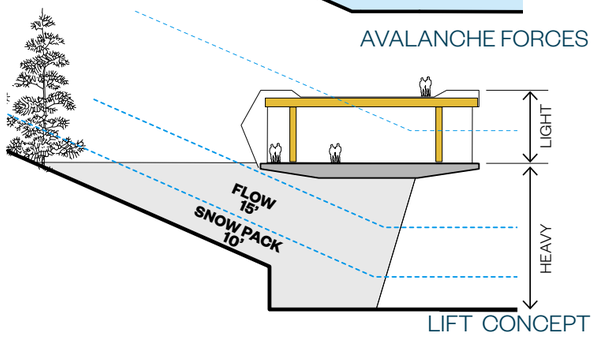
The ‘Lift’ concept, much like its name, creates a singular architectural expression that is lifted out of the path of the predicted avalanche. Sitting on four shaped stone piers, the community center’s volume is lifted 35’ above grade. Providing access to the center from the street level is both a stair and elevator.

Structural Response

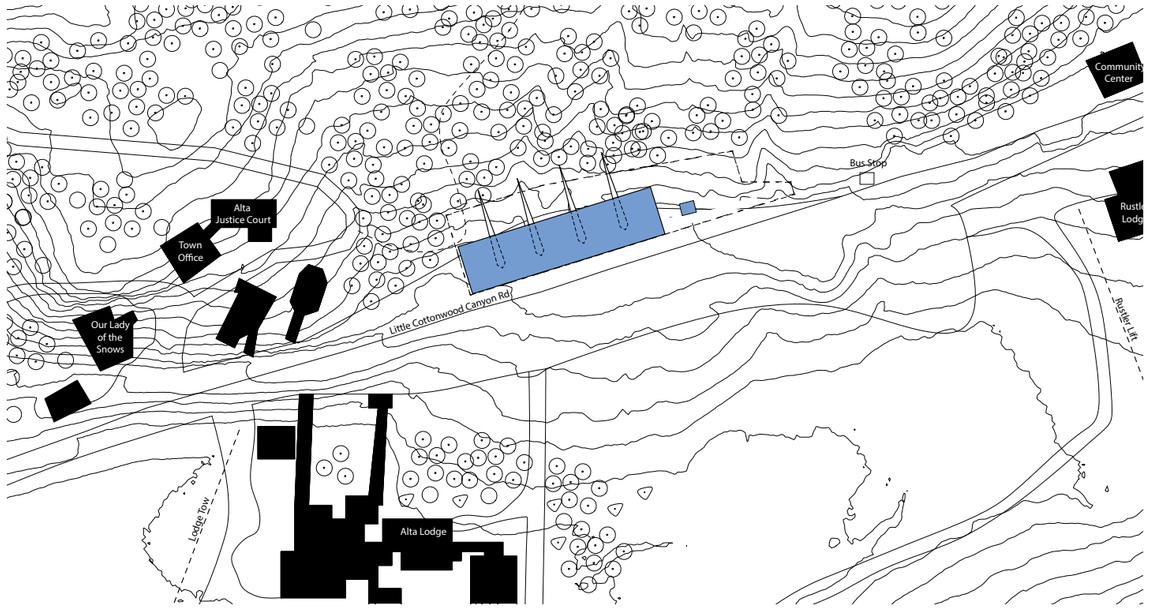
Here the structural strategy is to lift programmatic spaces out of the predicted flow of the avalanche path. While the volume still sits within the predicted powder layer of the avalanche, those forces are greatly reduced. Sitting atop of four resilient piers, the community center’s volume can be simply constructed out of lightweight and more sustainable construction materials (wood).



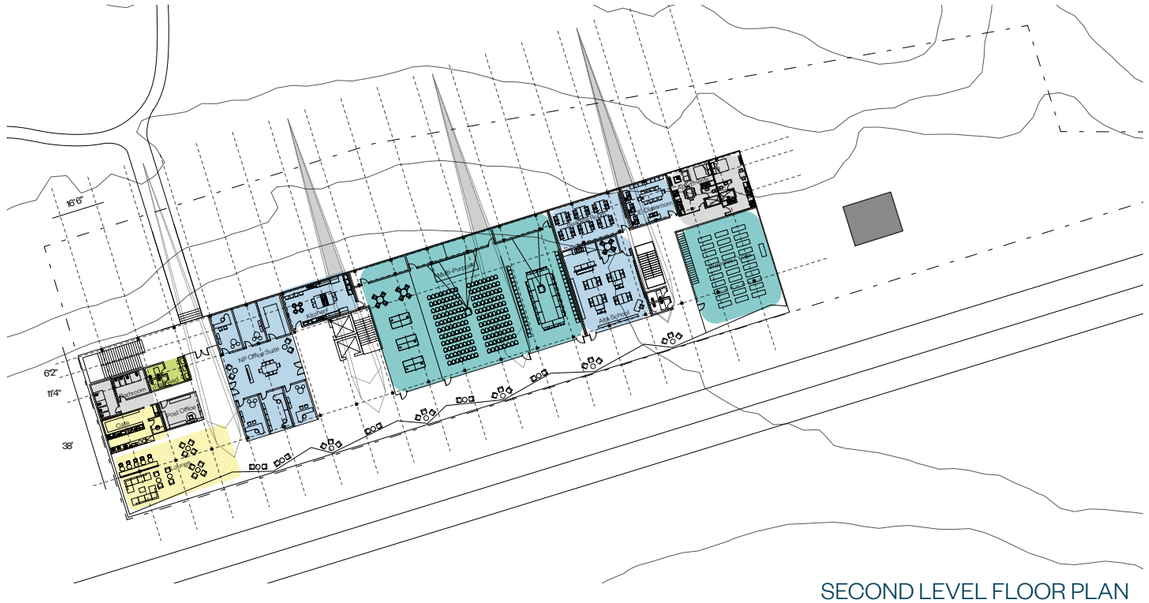
AVALANCHE FORCES



LIFT CONCEPT

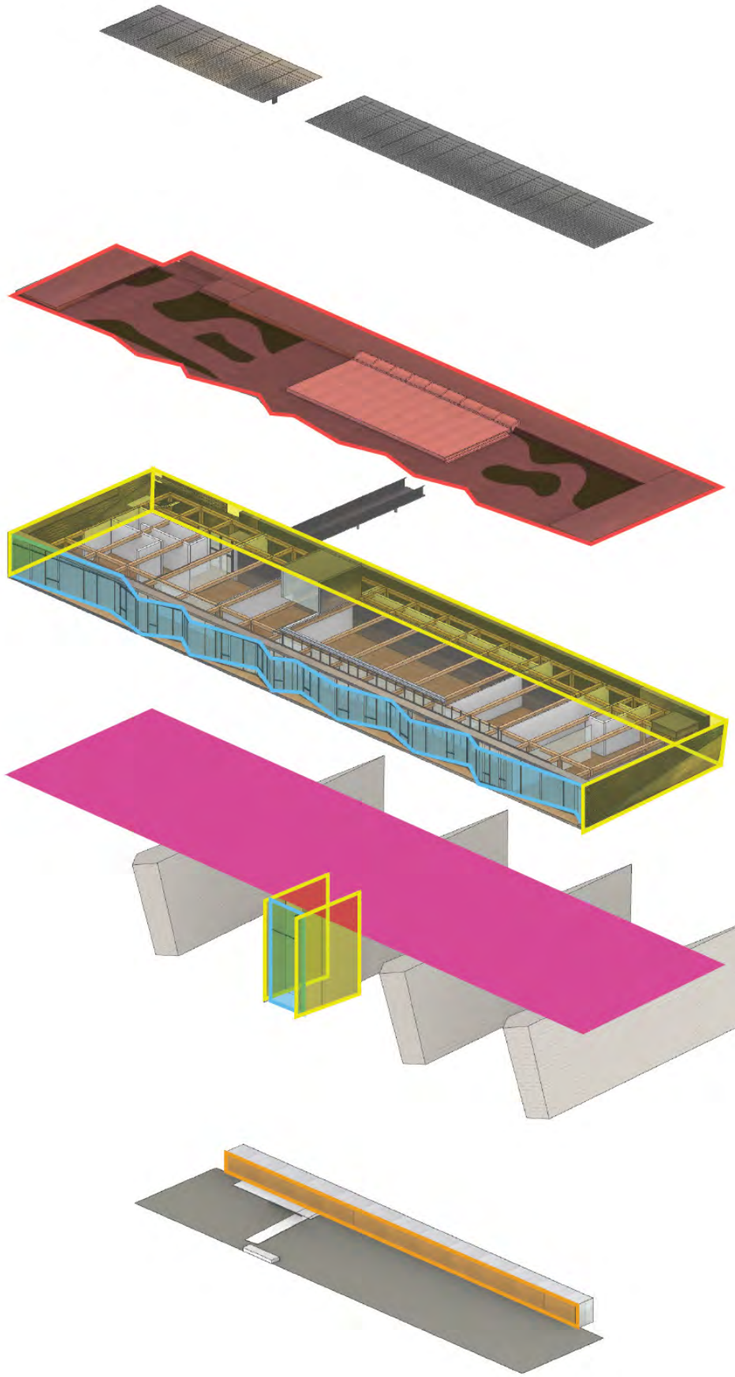


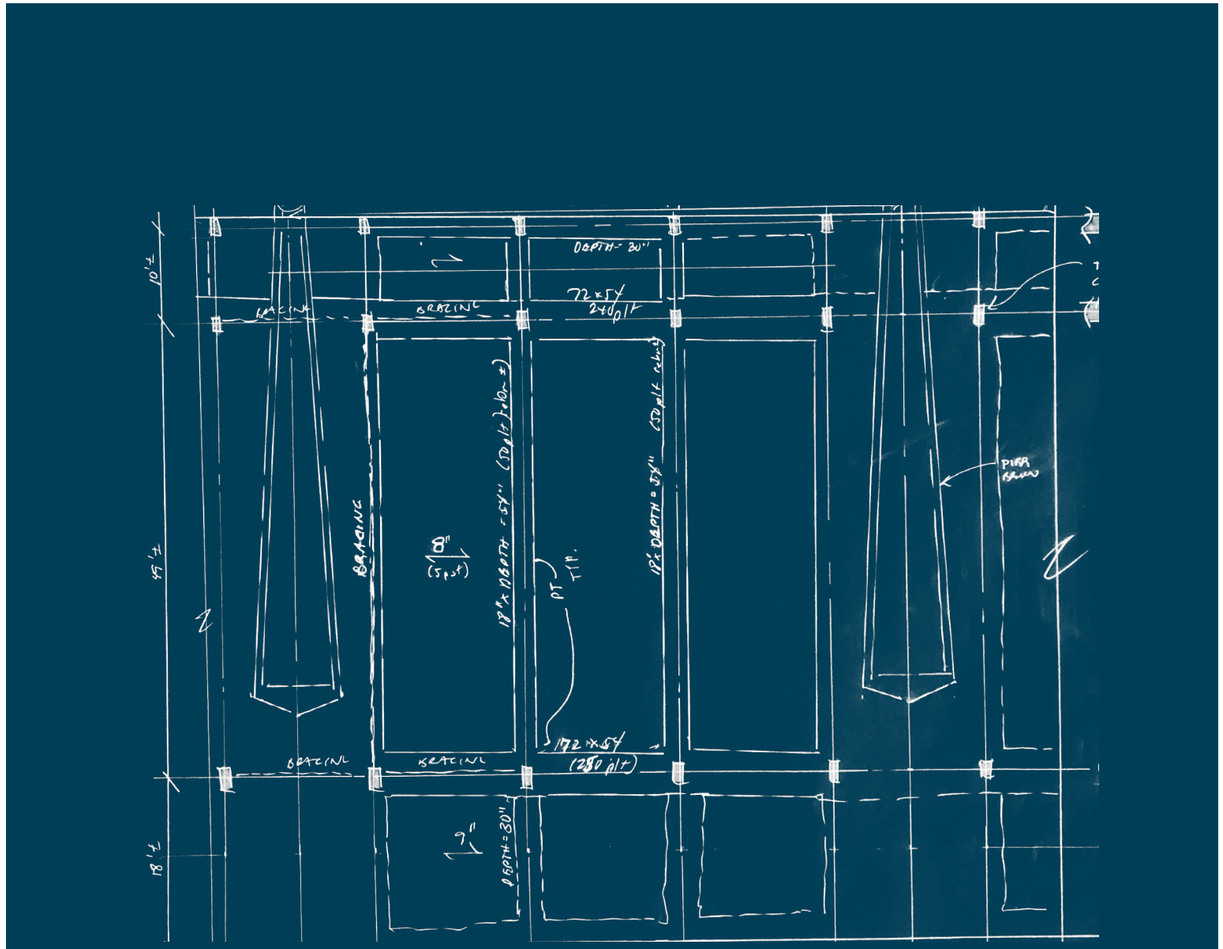
SITE PLAN



SECOND LEVEL FLOOR PLAN

Lift Structure

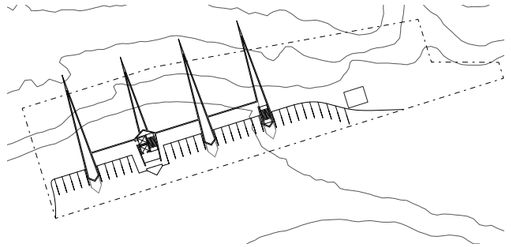


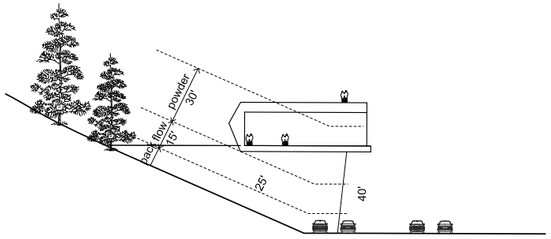


The Lift Option differs from other approaches by elevating the community center above the main zones (core and transition) of high avalanche impact pressures to avoid large forces. It is envisioned as a strong table supported on a minimal number of tapered concrete piers. The main platform would then support columns for the roof above it and would need only resist avalanche powder zone pressures resulting in a significant decrease of structural material and a more economical building. The roof could consist of structural steel or mass timber.

The piers would have their own foundations below the frost line but extensive excavation into the mountain side with the all the systems described for the other options would not be required. Parking would exist outside at grade below the community center.

While primary access from the street level occurs from within a central structural pier, the westernmost pier is designed to support a lightweight bridge providing uphill access from local trails.





Cost Analysis

BASELINE

EMBED

SHED

CHANNEL

LIFT

RELATIVE COST	FOUNDATION $$$ SUPERSTRUCTURE $$$$ WATERPROOFING $$$ FACADE $$	FOUNDATION $$$$ SUPERSTRUCTURE $$$ WATERPROOFING $$$$ FACADE $$$	FOUNDATION $$$ SUPERSTRUCTURE $$$ WATERPROOFING $$$ FACADE $$$	FOUNDATION $$$ SUPERSTRUCTURE $$$ WATERPROOFING $$$ FACADE $$$	FOUNDATION $$ SUPERSTRUCTURE $$ WATERPROOFING $ FACADE $
TIME			**1 -2 Seasons**		**1 Season**
RANGE	**$7-900 / sf**		**$650-750 / sf**		**$5-700 / sf**

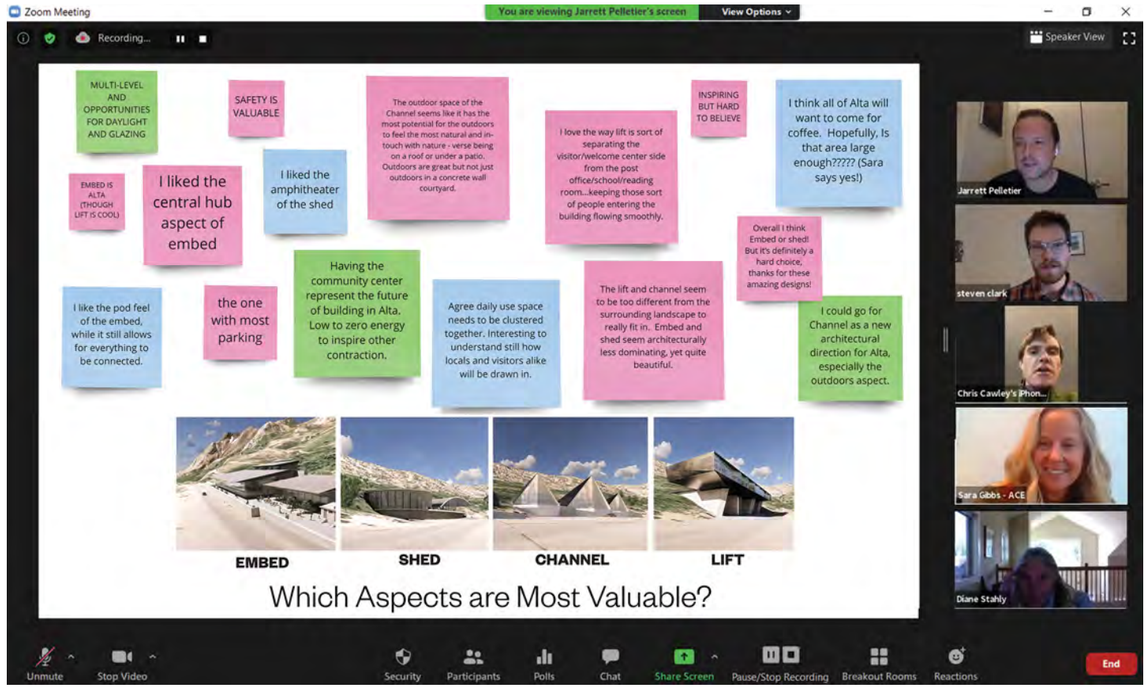
Each of the design explorations were evaluated based on complexity, constructability and cost in order to better understand drivers which may inform the selected design concept. Key aspects of the potential construction budget were evaluated including foundation, waterproofing, superstructure and façade.

The primary cost driver was determined to be the bulk of the building's superstructure driven by constructing the facility to resist avalanche forces. Alternate means of mitigating avalanche forces on site including diverting the forces around the building and lifting the building above the avalanche flow were proven to have a positive impact to the overall weight, cost and constructability of center. For these reasons' concepts such as channel and lift were proven to be more cost effective because their superstructure was moved out of the avalanche path and could therefore be lighter, less complex, and less costly.

Secondary drivers included costs incurred by building the center into the hill such as the embed and shed concepts, which generated higher complexity and costs in the foundation and waterproofing designs.

Concepts were also evaluated based on their relative construction times, understanding that the town of Alta has a relative narrow window to build structures based on the inclement weather, and an advantageous approach would be to enable the facilities superstructure and enclosure to be erected within one season so that interior would could continue during winter months. Similarly concepts which diverted or avoided avalanche forces and did not build into the hillside could be constructed in a faster timeline.

Scheme Selection Criteria



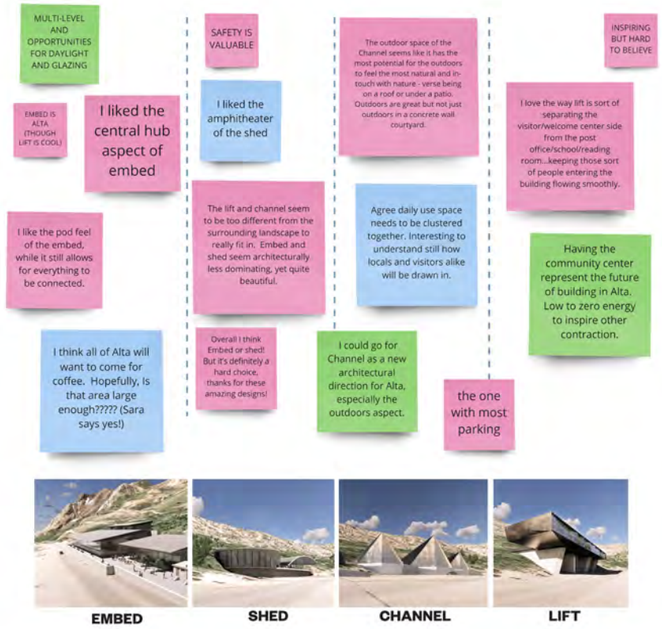
This image is from the Alta community Design presentation in October of 2020. To watch community meetings, please visit our website https://www.altacommunitycenter.com/project-updates/designpresentation.

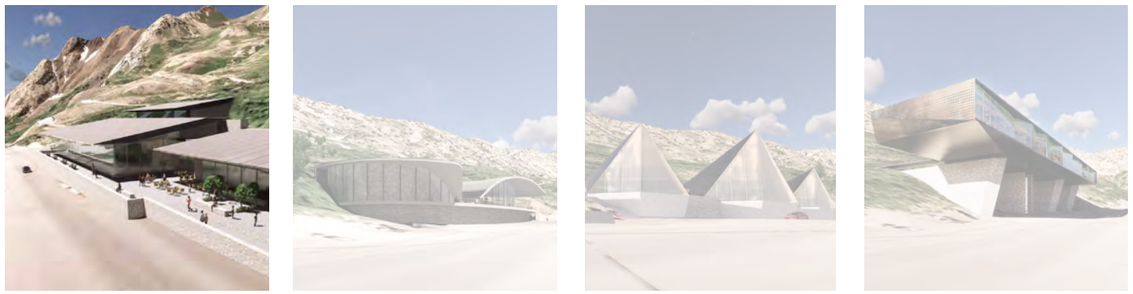
The schemes were presented in an Alta community meeting to 40+ attendees. Our team posed a series of questions to understand what design elements Alta's community members appreciated most from each scheme

The community design presentation prompts included the questions below.

- What ideas best represent Alta?
- Which ideas feel the most welcoming
- Which has the most inspiring outdoor space?
- Which aspects are most valued?

During the community design presentation, the Alta team recorded feedback in real-time. Community feedback was reviewed to decide which scheme best fit the vision of the Alta community.





EMBED | SHED | CHANNEL | LIFT

Of the initial concepts, elements of the embed scheme were preferred by the Alta community in attendance.

Snow shed from roof is a problem

Campus design provides "a welcoming, living room type gathering spot"

least intrusive on Alta's greatest strength - the natural setting

Less dominating, yet quite beautiful

Street view is welcoming won't impede iconic view looking down canyon

Multiple levels provide daylight and glazing opportunities

Feel inviting looks the most natural Subtle more in keeping with the rest of Alta

> We want to practice what we preach by incorporating the sustainable and natural design.

I like the pod feel of the embed, while it still allows for everything to be connected.

EMBED IS ALTA

Street view is welcoming won't impede iconic view looking down canyon

Most welcoming

Building too close to road

The low rise roof is more human scale

Street View is welcoming

Interesting because reflects the ski area topo

Interior organization is inefficient

covered space is useful in winter

safety aspect of the roof is valuable

less dominating, yet quite beautiful

Overall I think Embed or shed! But it's definitely a hard choice, thanks for these amazing designs!

Amphitheater is too close to road

Feels inviting

"Alta has a big mountain with a small-town feel. When people connect, you connect in a huge way with Alta."

I could go for Channel as a new architectural direction for Alta, especially the outdoors aspect.

Opportunity for best spatial addjacencies

Impedes on down canyon view

Most inspiring outdoor space

"When it comes to other skiers, the geography of little cotton wood canyon is unique. Narrow ravine which is more exposed to the elements because of this it has caused Alta residence to work closely with each other. Historically Alta was a mining town which is def worth mentioning"

Outdoor spaces may trap snow

Looks really mountain-like

Outdoor Space too close to the road

Village Concept is appealing

Convenient parking

Memorable

Sorts visitors effectively

seems difficult to execute

Potential to represent the future of low to zero energy building in Alta

Impedes views

Lift is cool

“ I feel like everything that is there that I enjoy is experienced at a pace that lets you connect to nature. The buildings never prevent me from connecting to nature. It’s a relaxed and openness to the building that allows you to appreciate the natural environment. The lift system is my favorite aspect and it allows me to see the shape of the mountain. In the Rustler you can walk through the space and see what is going on outside. ”

INSPIRING

BUT HARD TO BELIEVE

Lift could be great if there was no visible cement which would differentiate it from the Orwellian structures of Snowbird.

Fantastic Roof Space

Community Feedback

Of the initial concepts, the embed scheme was prefered by the community. Strenghts and challenges were identified from community feedback to develop the next iteration of the embed scheme for community review.

Benefits

- Most Welcoming
- Most Representative of Alta
- Outdoor space has 'community feel'
- Less dominating, yet quite beautiful
- Human scale (low rise roof)
- Doesn't obstruct down canyon views
- Village/Campus design = living rooms
- Doesn't take away from natural beauty
- Quiet & Subtle
- **Looks the most natural**
- **Outdoor space adjacencies**
- **Village feel of pods but still connected**
- **Multi-level; opportunities for daylight**

Concerns

- Too Close to the Road
- No Exterior Parking
- Sloped Roofs
- Difficult to Maintain
- Shedding Snow onto Street / Path
- Access to Daylight
- Develop Amphitheater / Play Space away from the road

- How does the building Perform in Winter?

07 Schematic Design

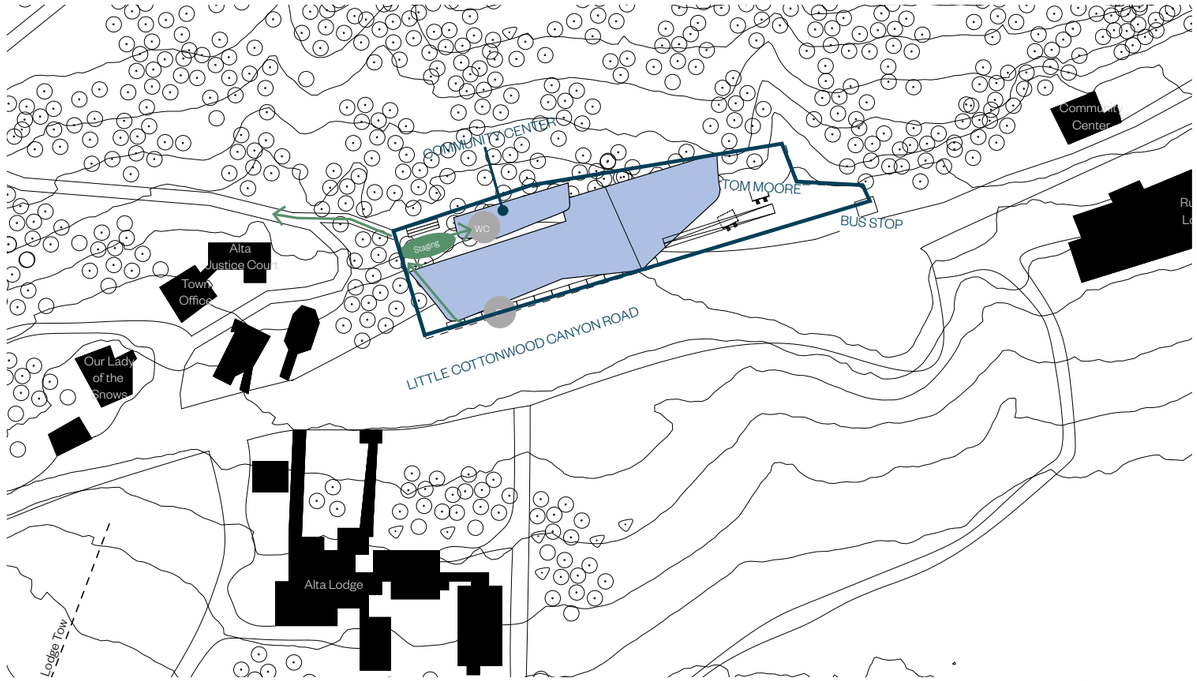
Schematic Design

Selected Concept

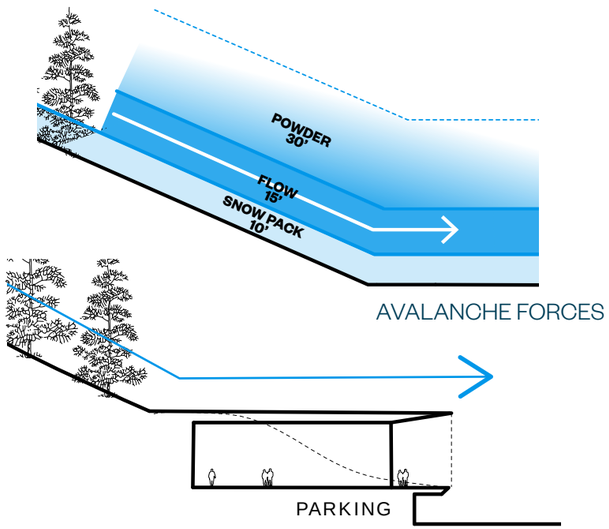
The alternate selected for development and utilization as the basis of design for the cost analysis evolved from the ‘embed’ concept described in the previous section.

Process

The alternate was developed to respond to several issues, including complexity, cost, snow removal, daylight access, the acoustic separation between SR-210 and the outdoor amphitheater space.



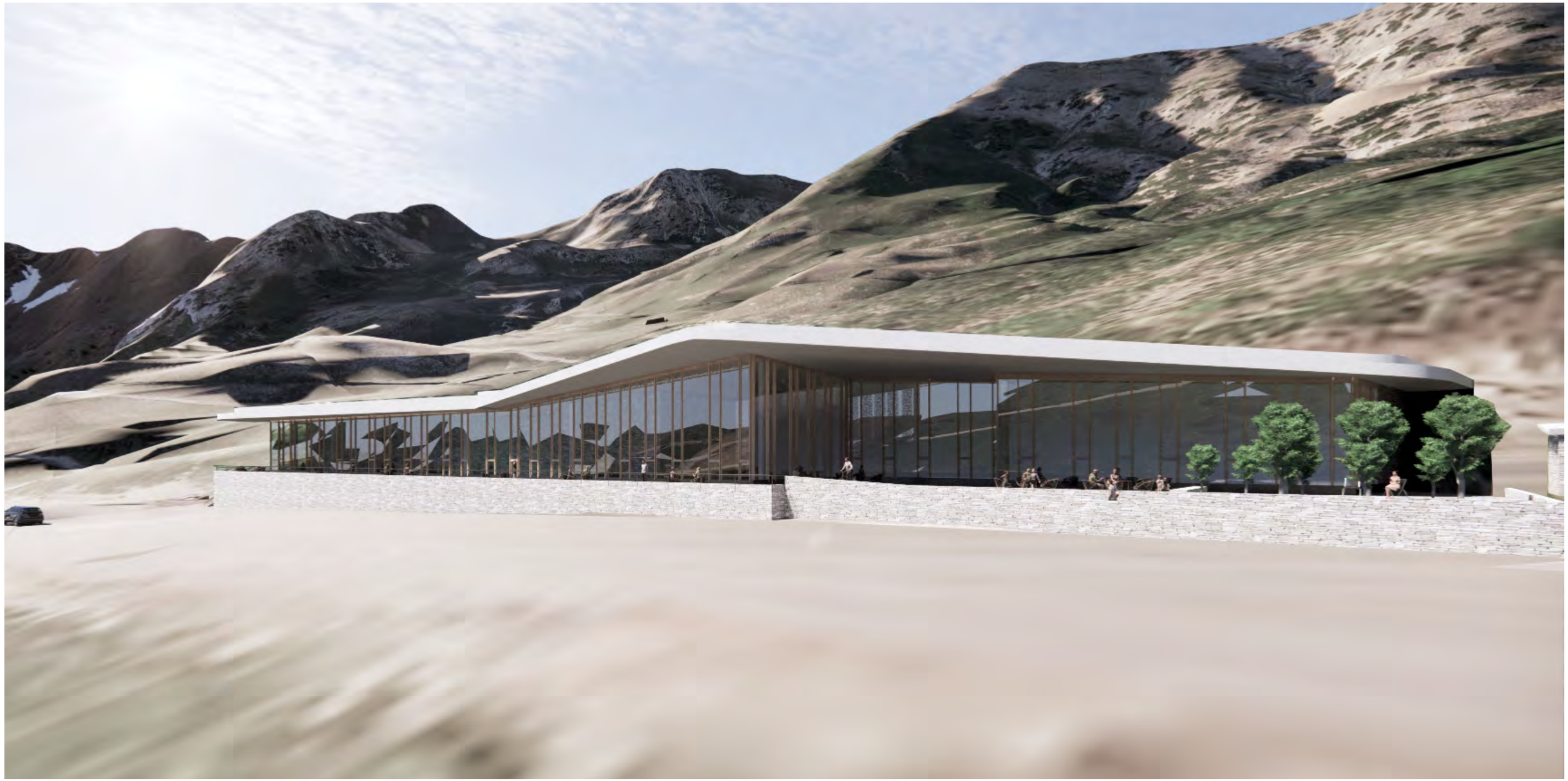
SITE PLAN



AVALANCHE FORCES

REFINED CONCEPT

COMMUNITY CENTER APPROACH



This refined concept is built into the hillside and uses a simplified and organically shaped roof as a protective covering for the community center and outdoor programs located below it. The simplified roof form is largely flat except for a single undulation which marks the building's entry, and is planted both to be used as an education tool, but also to further blend the building into the hillside allowing the architecture to recede.

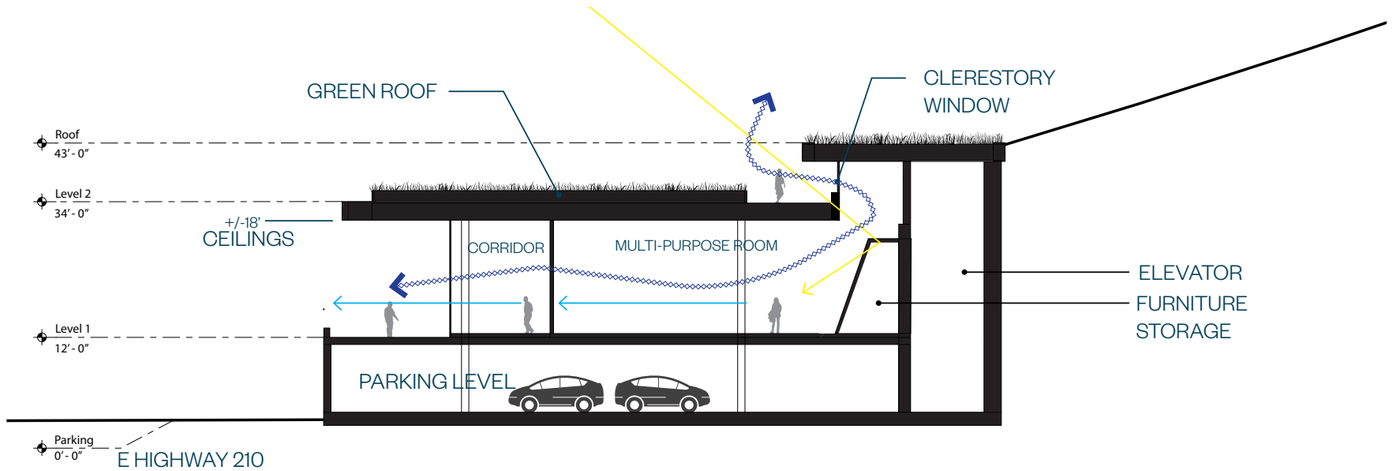
The center is set back from the property line apx. 12' further receding it into the hillside while providing for a single row of outdoor parking and is lifted 14' above the level of SR 210 to provide an at-grade and covered parking deck. Access to the center is provided via a gently sloping pedestrian ramp accessed from the east as well as a monumental stair to the west offering convenient pedestrian connections on both sides. The western stair continues up slope connecting to an upper level of the center, and ties into the existing hiking trail network.

Stretching almost the entire width of the site, the center suggests a more walkable community by improving pedestrian experience along the north side of SR 210 connecting the 'Our Lady of Snows', the Town Municipal buildings, towards the Fire House and Rustler Lodge.

Sectional Design Strategies

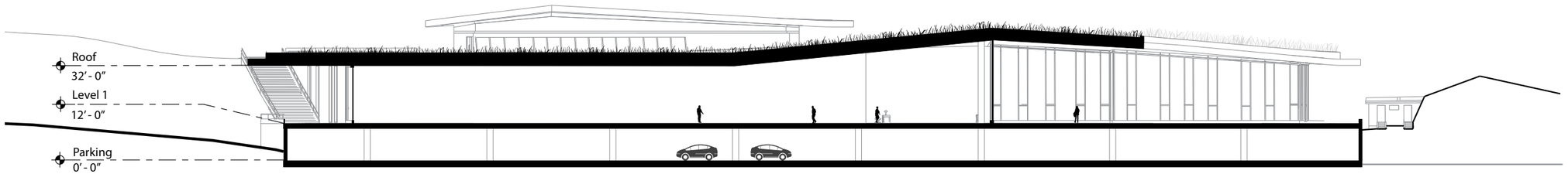
PERMEABLE PAVEMENT

ALPINE WILDFLOWERS



PERMEABLE STONE PAVING AT GREEN ROOF ALLOWS FOR GRASSES AND WILDFLOWERS IN THE SUMMER ... WHILE **DURABLE FOR SNOW REMOVAL IN WINTER**

NORTH SOUTH SECTION



EAST WEST SECTION

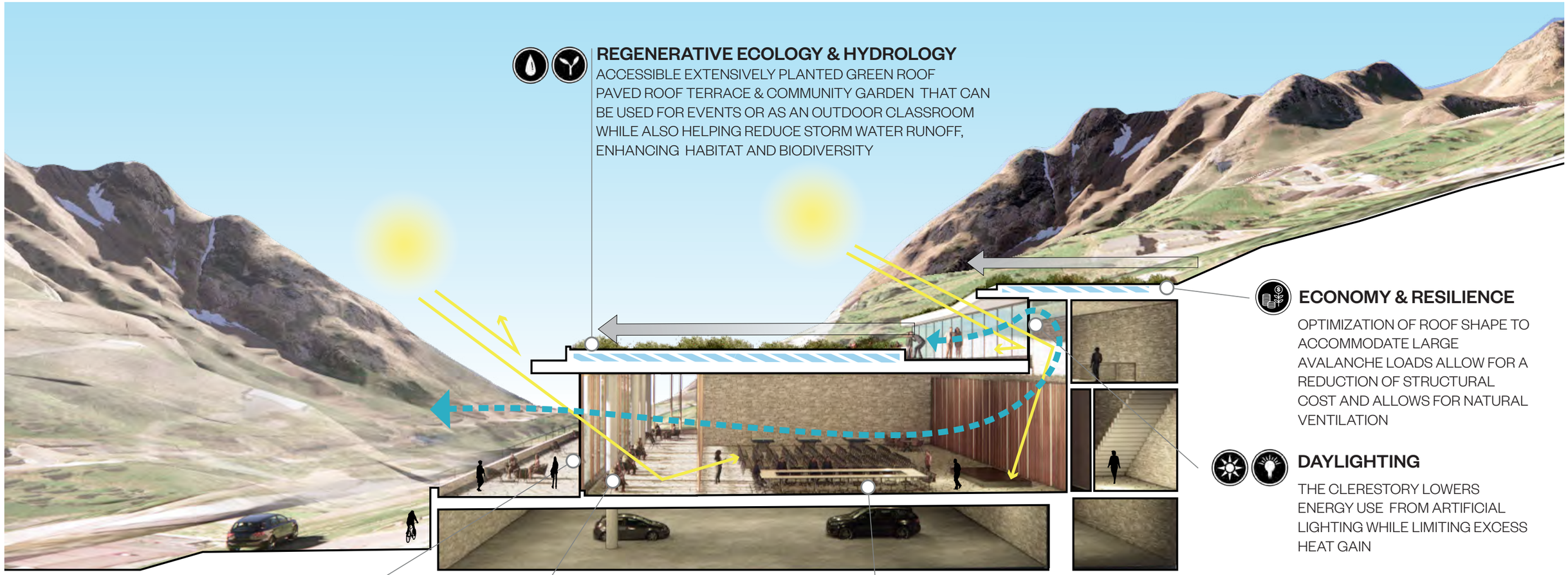
Sectional strategies explore sustainability possibilities surrounding daylighting and airflow. A clerestory window connected to the buildings upper volume allows daylight deeper in the center's large gathering spaces, while its operable allow natural ventilation cooling during the summer months.

The community center's first level is lifted 14' above SR 210 to allow for covered parking. Visitors can find electric vehicle charging stations, docks, and entry into the community center. Lifting the building also enables elevated views into the Canyon from spaces at the center's main level.

The section shows the flat roof form, which allows avalanche forces to flow over top, while allowing the roof surface to be easily maintained during more predictable snow events, and allows it to be used as an outdoor gathering space separated acoustically from the vehicular traffic along SR 210.

The east-west section cut shows how the roofline undulates to blend into the landscape, mark the buildings entry, and drive daylight deeper into the center. The section also articulates how the roof covers over the outdoor plaza, providing shade in the summer and protection from snowfall in the winter.

Sustainability Section



REGENERATIVE ECOLOGY & HYDROLOGY

ACCESSIBLE EXTENSIVELY PLANTED GREEN ROOF
PAVED ROOF TERRACE & COMMUNITY GARDEN THAT CAN BE USED FOR EVENTS OR AS AN OUTDOOR CLASSROOM WHILE ALSO HELPING REDUCE STORM WATER RUNOFF, ENHANCING HABITAT AND BIODIVERSITY

ECONOMY & RESILIENCE

OPTIMIZATION OF ROOF SHAPE TO ACCOMMODATE LARGE AVALANCHE LOADS ALLOW FOR A REDUCTION OF STRUCTURAL COST AND ALLOWS FOR NATURAL VENTILATION

DAYLIGHTING

THE CLERESTORY LOWERS ENERGY USE FROM ARTIFICIAL LIGHTING WHILE LIMITING EXCESS HEAT GAIN

NATURAL VENTILATION

OPERABLE WINDOWS IN EXTERIOR FACADE ALLOW FOR MORE EFFICIENT BUILDING MAINTENANCE AND UTILIZES THE SITES NATURAL AIRFLOW

DESIGNED FOR COMMUNITY

INTERIOR AND EXTERIOR GATHERING SPACES ENCOURAGES SOCIAL DIVERSITY AND PROVIDES USERS SPACE TO INTERACT WITH THE SURROUNDING COMMUNITY..
ENGAGES WITH THE COMMUNITY TRIAL SYSTEM

MULTI-PURPOSE PROGRAM FLEXIBILITY

MULTI-FUNCTIONAL SPACES ALLOW FOR VARIOUS TYPES OF PROGRAMMATIC EVENTS FROM LARGE CONFERENCES TO INDOOR WELLNESS

ENHANCED THERMAL COMFORT

WALL ASSEMBLIES ACHIEVES HIGHER INSULATION VALUES BY USING ADDITIONAL LAYERS OF CONTINUOUS INSULATION & MINIMIZING THERMAL BRIDGES IN THE ENVELOPE ASSEMBLY

The design of the community center is organized around the aspiration that the building should be optimized to exist in the surrounding environmental context and take advantage of natural systems in passive ways to provide a more enjoyable and sustainable building design.

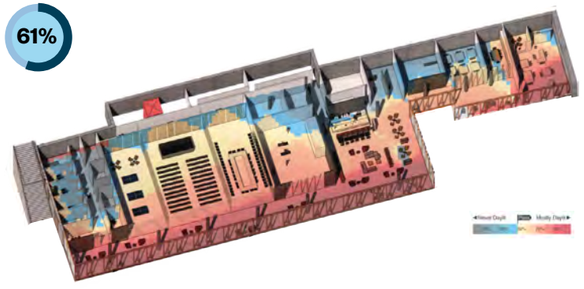
Building into the mountain side prevented the use of windows on the North façade, creating the challenge of getting daylight into the entirety of the public spaces. Designing the South façade to be composed of large amounts of high-performance glazing along with the addition of a clerestory lightwell, allows for daylight penetration through the corridor into the gathering spaces.

By existing in a highly active avalanche zone, protection from the path of sliding snow and debris is critical to the overall sectional design. By creating a “shed” like roof structure, snow and debris can easily flow over the volume alleviating hazards to the occupants below.

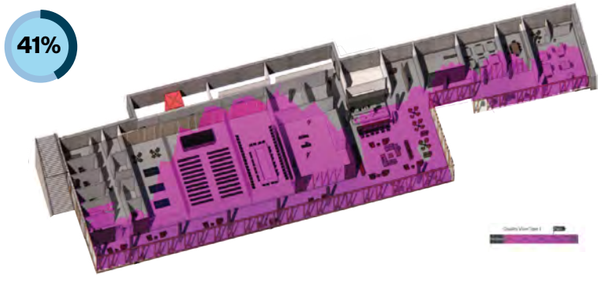
Being exemplary of environmental stewardship and education were defined as goals for the center. The optimized green roof of native wildflowers will become an ecological catalyst by encouraging biodiversity and creating additional pollinator habitats and will serve as a community educational opportunity.

Environmental Analysis

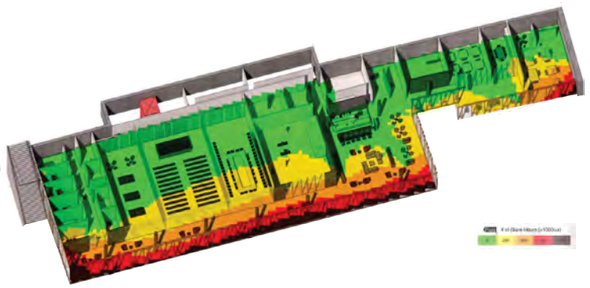
sDA 61%
Spatial Daylight Autonomy



90˚ Sightline 41%



ASE
Annual Sunlight Exposure



With an eye towards achieving a design that is highly sustainable, computational tools were used for environmental analysis of the selected concept, depicted above. Allowing the concept to be analyzed against established benchmarks (daylighting, views, water use, etc.) assisted the design team in identifying potential opportunities for optimization.

Utilizing a combination of the South glass facade and the clerestory windows, the design achieves a spatial daylight autonomy (sDA - the percentage of space that receives 300 lux for at least half of all daylight hours available), of 59% which allows for occupants even in the deepest spaces of the project to have considerable access to natural daylight (Fig. 1).

The design aims to draw the viewer's eye out to capture the surrounding mountain landscape. Computational analysis determined the sightline percentage, (percentage of building area that a standing person can see out of the building volume), has been optimized for creating mountain views. With 41% of the floor area being within this range, the project is one that allows occupants to feel a connection with the mountains of Alta specifically in the public corridor and large gathering spaces (Fig. 2).

ASE is a very stringent metric (% of hours more than 1000 lux) which is typically used just for LEED compliance purposes. For this community center, the threshold for acceptable illuminance levels can be much higher.

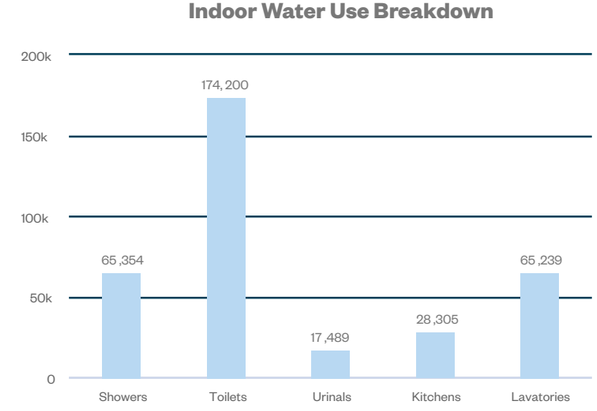
Indoor and outdoor WUI (Water Use Intensity) were defined to be 13.92 and .17 respectively. Based on comparing these metrics to similar building sizes and types, the Community Center design has an indoor water reduction of 56% and outdoor water reduction of 75% displaying how passive design strategies translate into reducing water consumption and building maintenance.

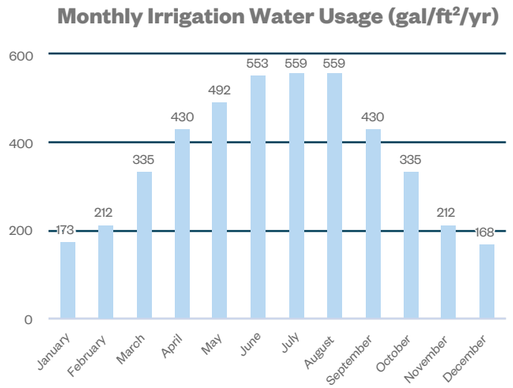
Water Usage 350,586 gal/yr

Outdoor Indoor

Stormwater Managed Onsite 45%

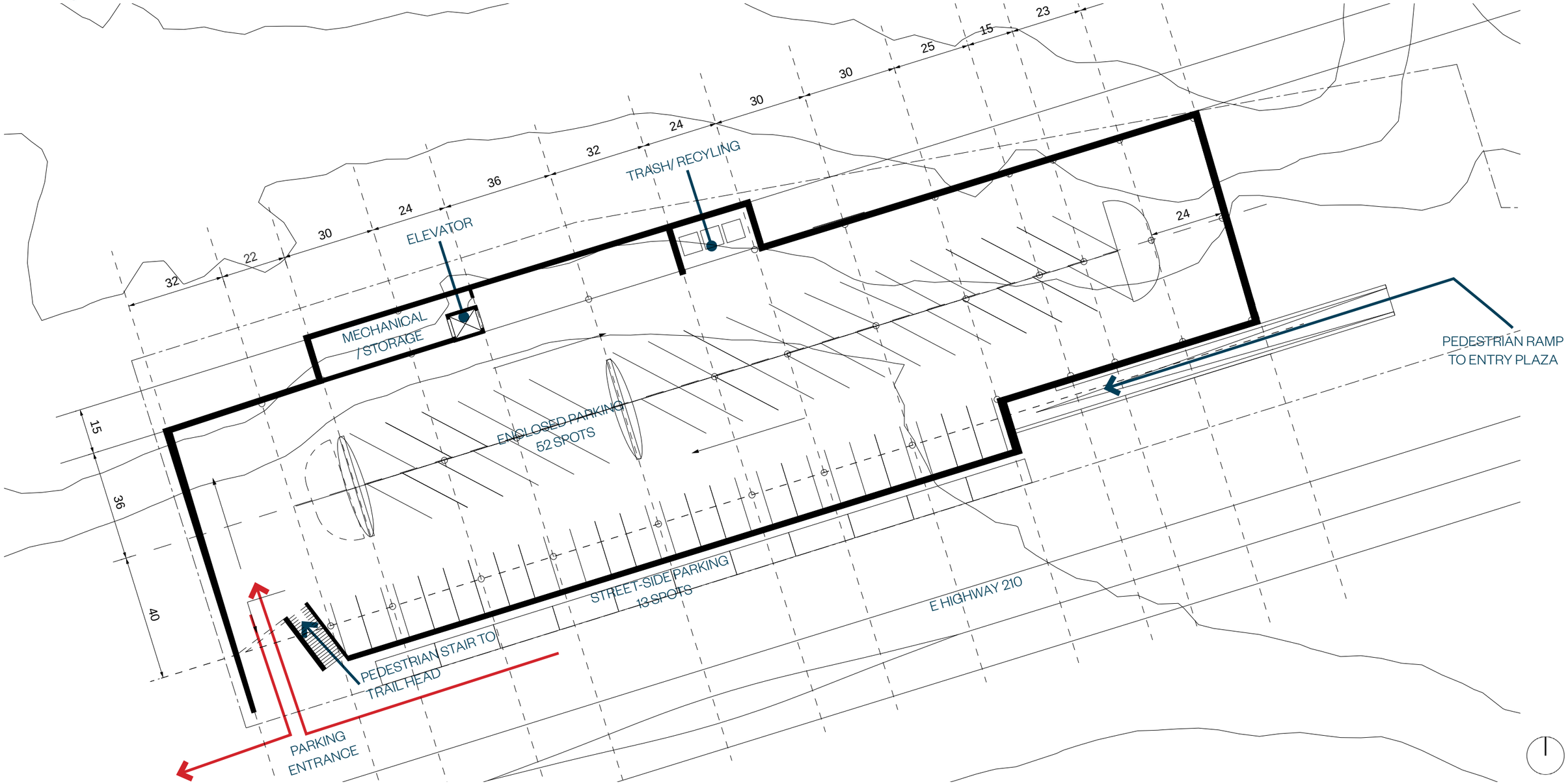
Indoor WUI (gal/ft²/yr) 13.5





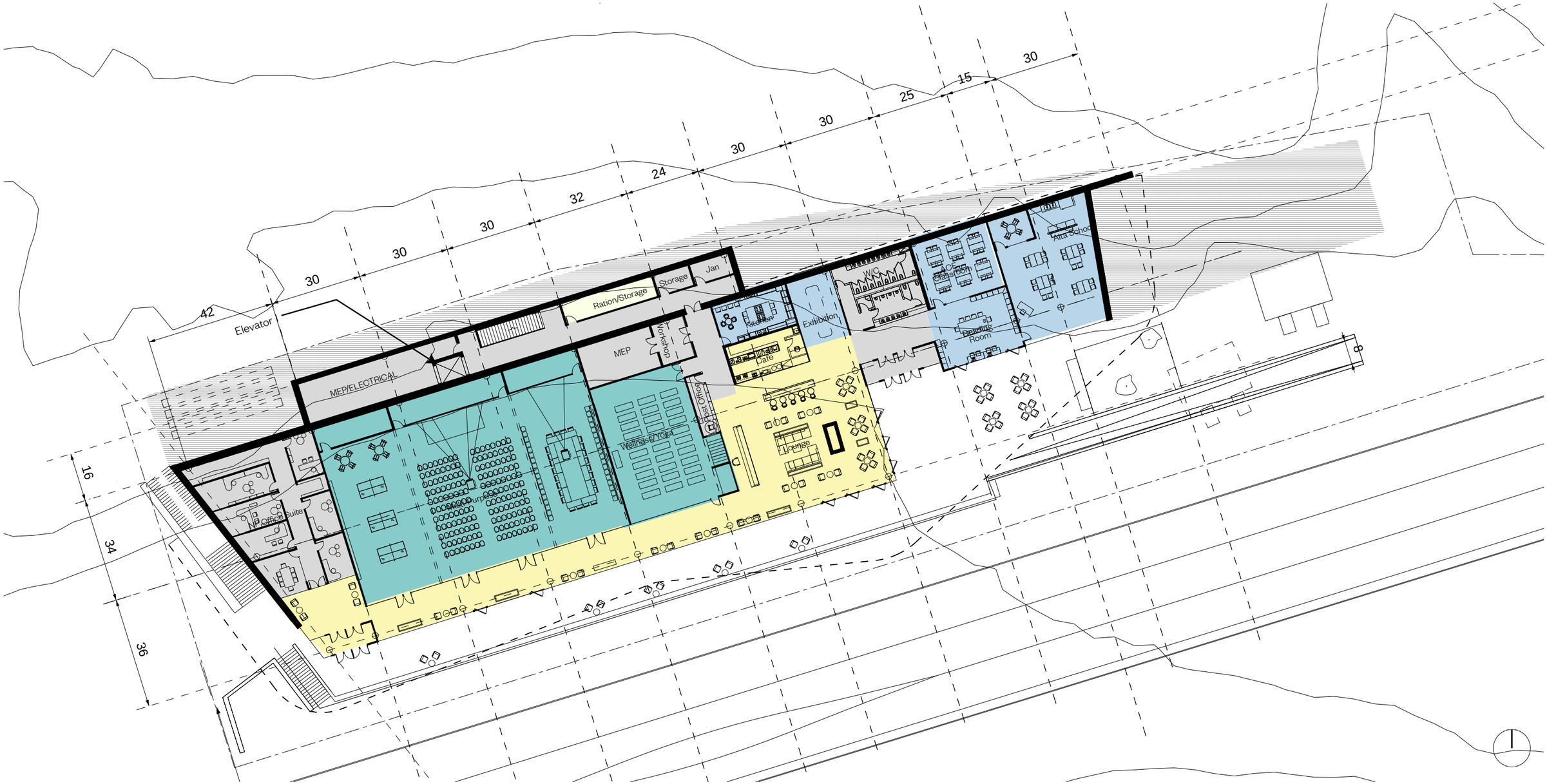
0.17 **Outdoor WUI (gal/ft²/yr)**

Parking Level Plan



Entry to the parking level is embedded on the west side of the site adjacent to the stair leading to the trailhead. The parking deck contains 65 parking spots—a total of 52 enclosed parking spots and 13 parking on the street in front of the community center. The parking level is insulated and provides access to the first level of the community center, electric car charging, mechanical space, loading, and storage. A passenger and service elevator provides and additional accessible route between the parking level and the upper levels of the center.

First Level Floor Plan

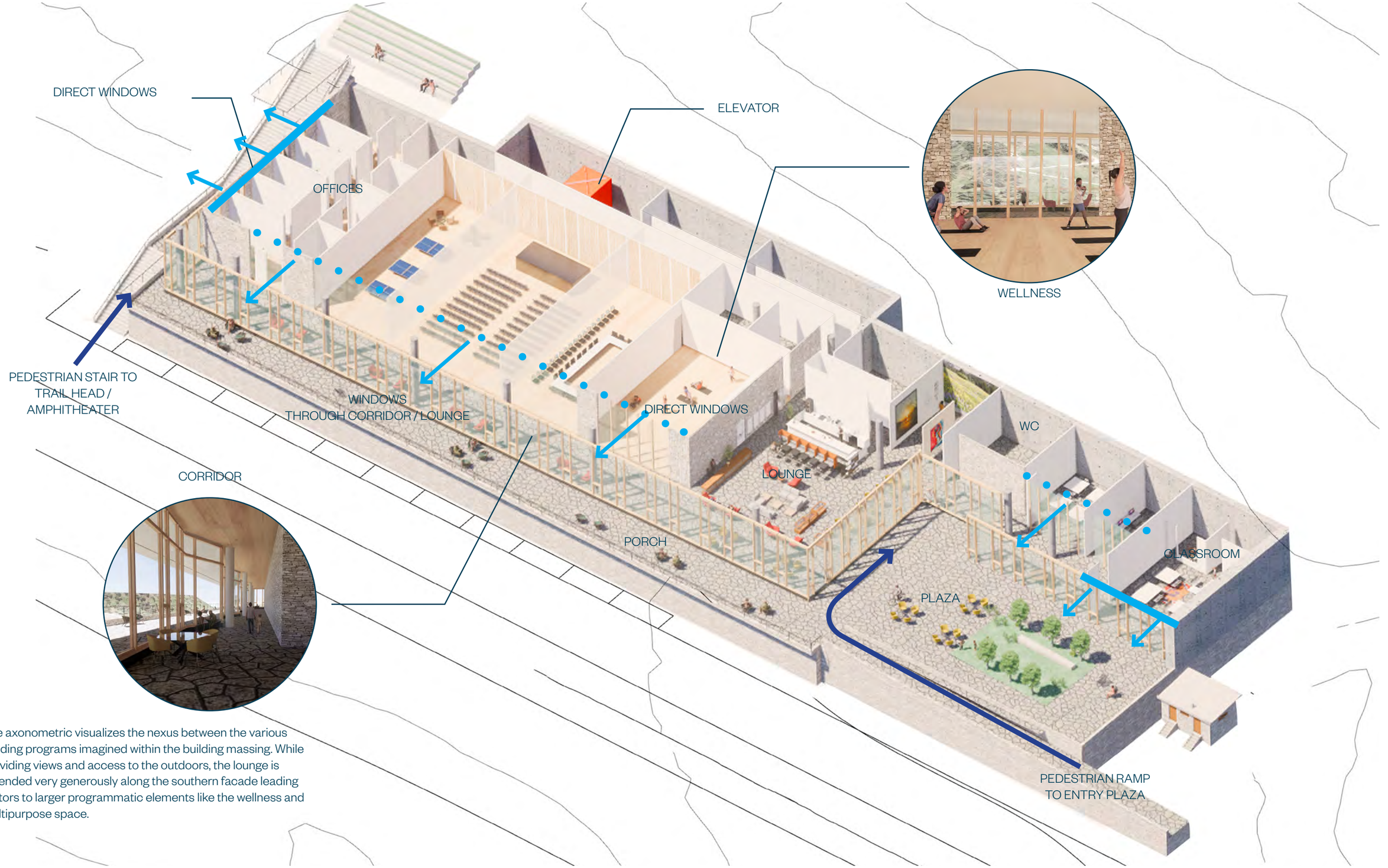


Visitors enter the community center from the east along a gently inclined pedestrian ramp. This ramped entry raises the visitor approximately 6' above grade (on the north side of the site) which runs along the hillside slope leads to an open and covered multi-use outdoor plaza.

The buildings main entry is clearly defined by an incline in the roof as well as a separation between the center's programmatic volumes. Upon entry one is confronted with a choice – left to the lounge and gathering spaces, or right to the Alta School and educational spaces. Centrally located, the is active and serves as an armature for the cafe, post office, information desk, the, access to the changing gallery display, in addition to lounge seating. As visitors circulate to the west of the lounge, they will find the community center's gathering spaces and Non-for-profit offices.

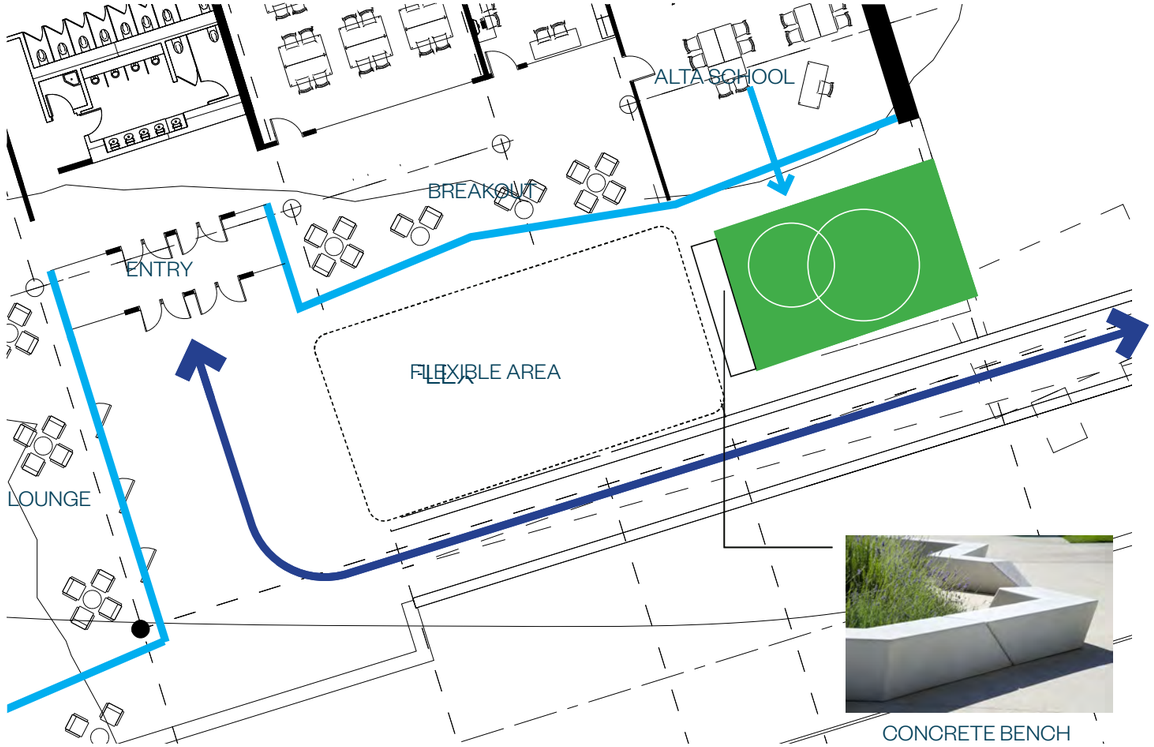
To access the center's upper level, an elevator and small lobby and stair located on the north side of the plan allow for access up to the caretaker residence, trailhead, outdoor amphitheater and green roof. The elevator also provides service and accessible access from the parking deck below.

First Level Axonometric



The axonometric visualizes the nexus between the various building programs imagined within the building massing. While providing views and access to the outdoors, the lounge is extended very generously along the southern facade leading visitors to larger programmatic elements like the wellness and multipurpose space.

Plaza - Summertime Uses



CONCRETE BENCH

MOVEABLE TABLES AND CHAIRS

FARMERS MARKET

TEMPORARY ART INSTALLATIONS

The community center plaza in envisioned to be a dynamic asset for the Alta communities' various outdoor activities during the summer months. It is organized so upon entry visitors are met with a flexible paved area which can support movable tables and chairs, or other outdoor community based activities such as a farmer's market, art installations, and music. In addition, a small planted area in front of the Alta School limits distractions from plaza activity for students during class.

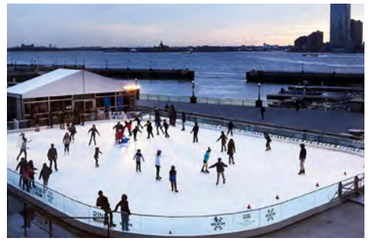
COMMUNITY CENTER ELEVATION

PLAZA ENTRY

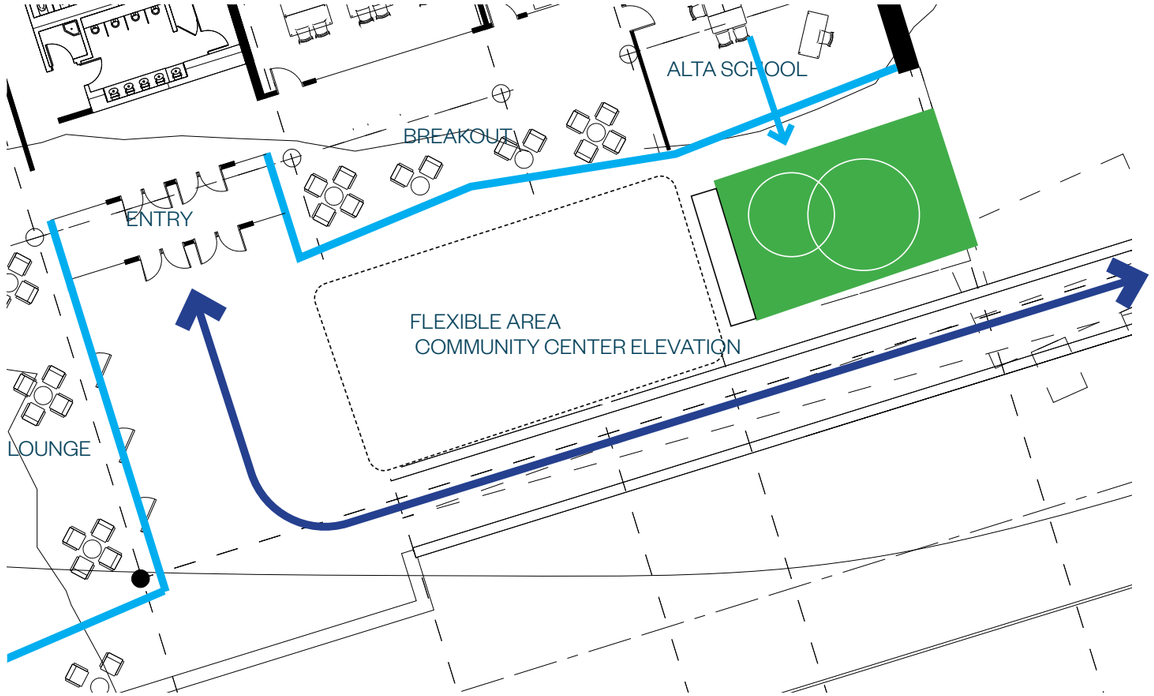
Plaza - Wintertime Uses

IGLOO JUICE BAR??

SKI SWAP

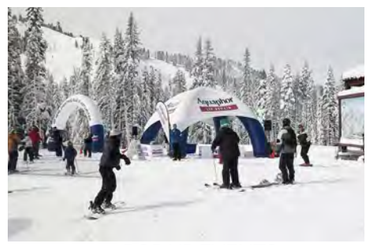


TEMPORARY SKATING



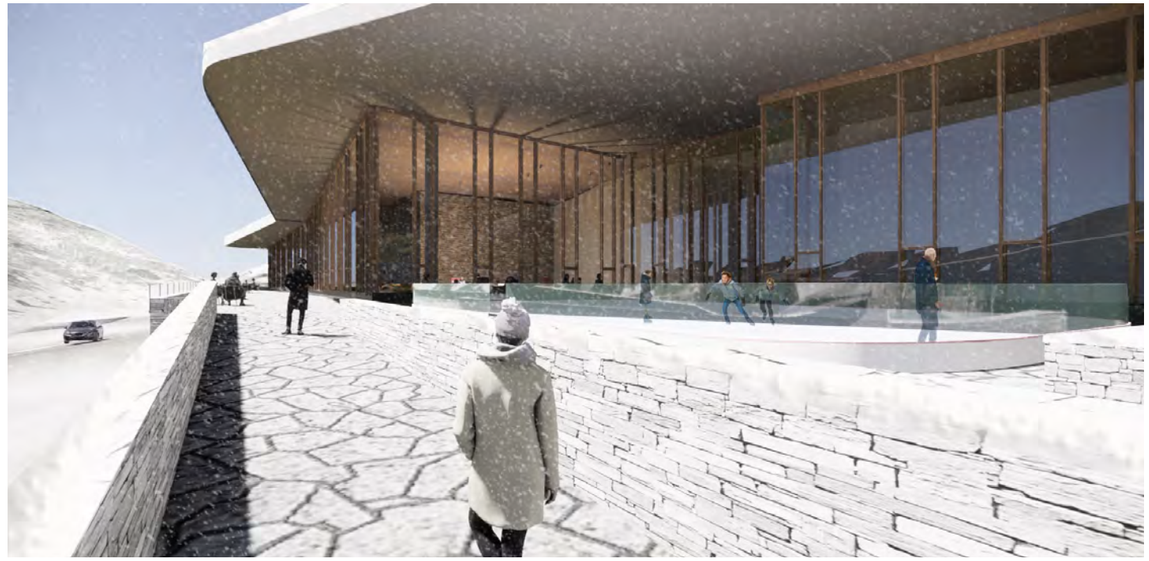
TEMPORARY ART INSTALLATION

POP UP FOOD KIOSK



POP UP EVENTS

The center's plaza is also envisioned to be highly useful during the winter months for outdoor gatherings and celebrations. The plaza's flexible paved area is organized to support pop-up events, pop up food kiosks, a temporary skating rink, and art installations.



COMMUNITY CENTER ELEVATION

PLAZA ENTRY

The Lounge

Multipurpose Room

Wellness Room

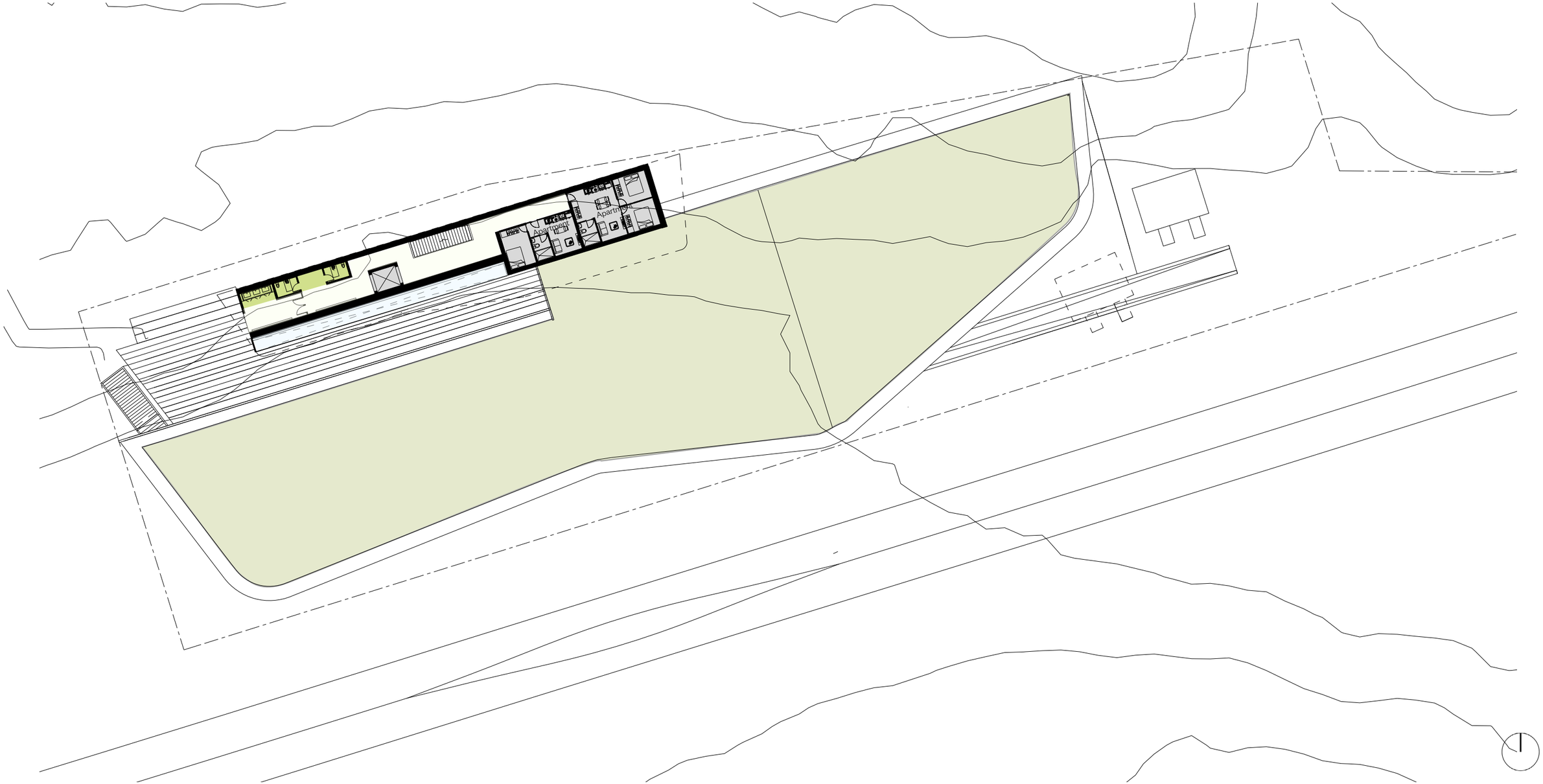
Reading Room

The Alta School

The Trailhead

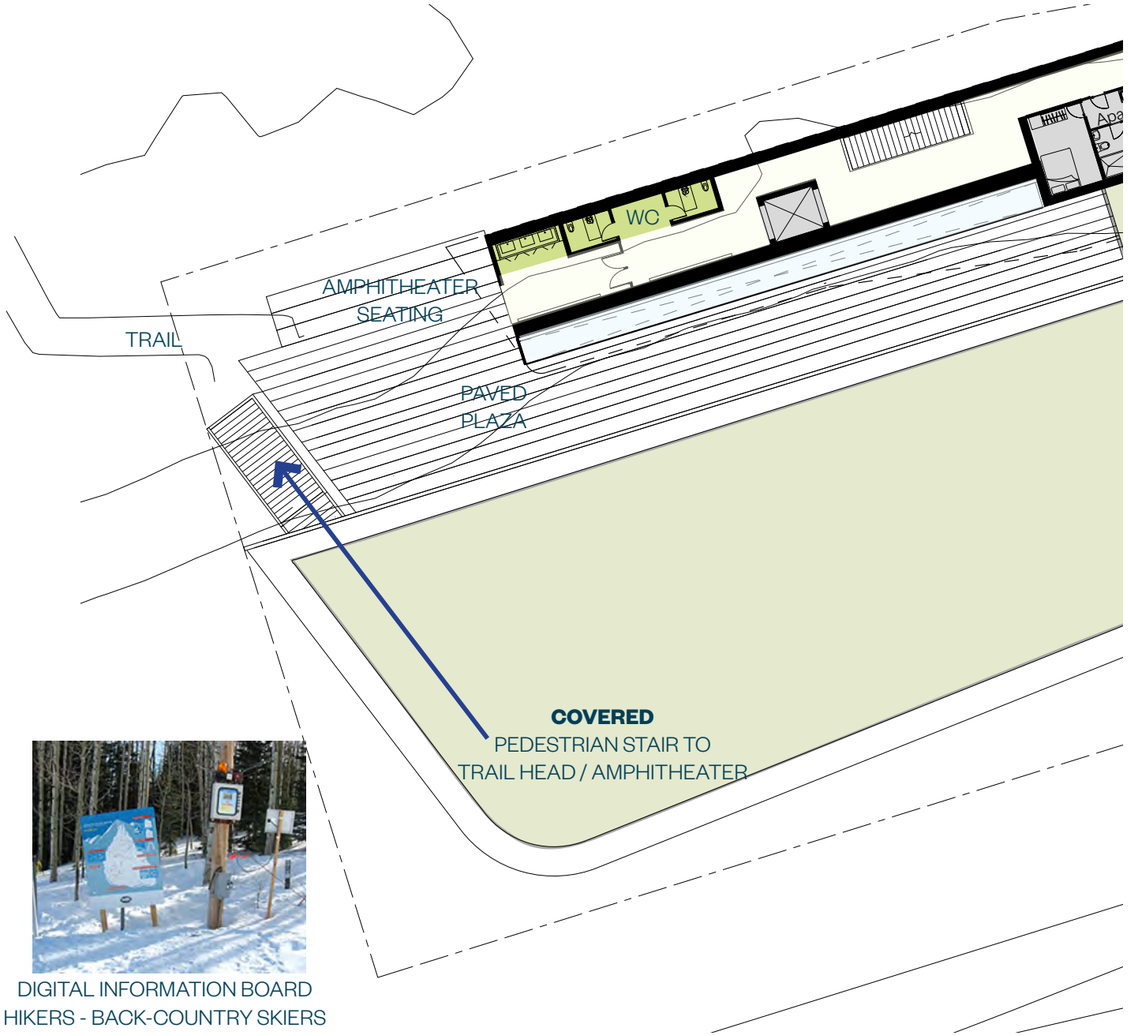
Amphitheater

Second Level Plan



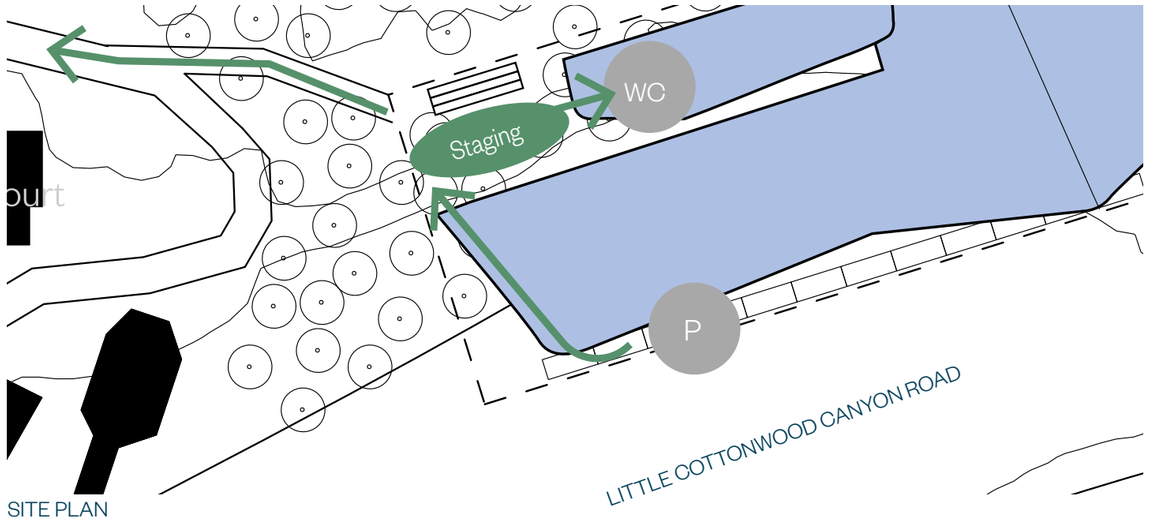
On the western side of the community center, a monumental stair leads to the center's upper level and the planted roof deck. Located at this level is an outdoor meeting area and trailhead to support hikers and back-country skiers. In addition, this level contains an outdoor amphitheater roof deck, and play area. Access to this level from the interior is provided by elevator and stair.

Trailhead- Wintertime Uses

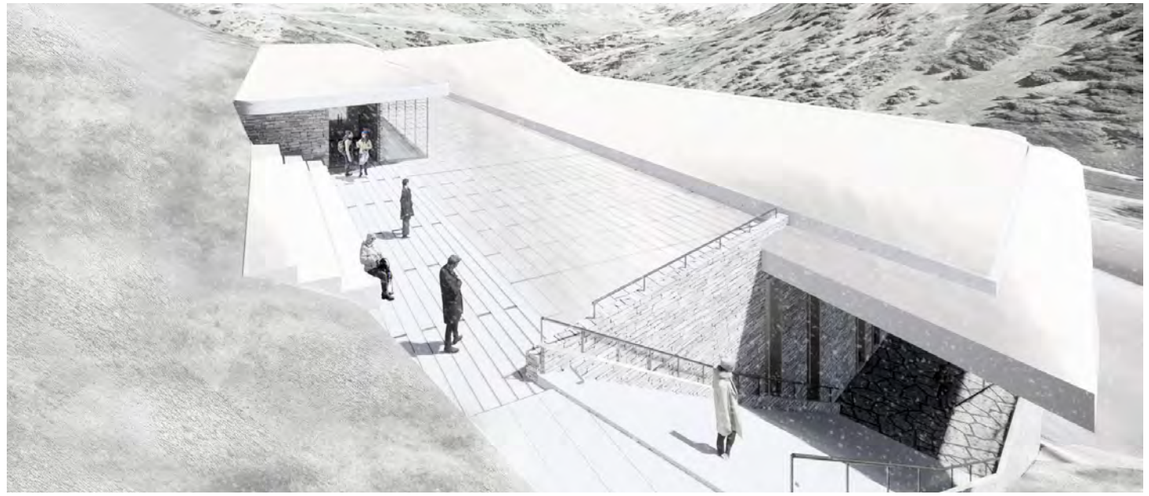


DIGITAL INFORMATION BOARD
HIKERS - BACK-COUNTRY SKIERS

During the winter months, the trailhead can support backcountry skiers by providing a gathering or meet-up space with access to similar educational signage, recycling bins and restrooms. Up-to date digital information can keep skiers informed regarding weather and avalanche mitigation, it can also serve as a safe place to test avalanche beacons.

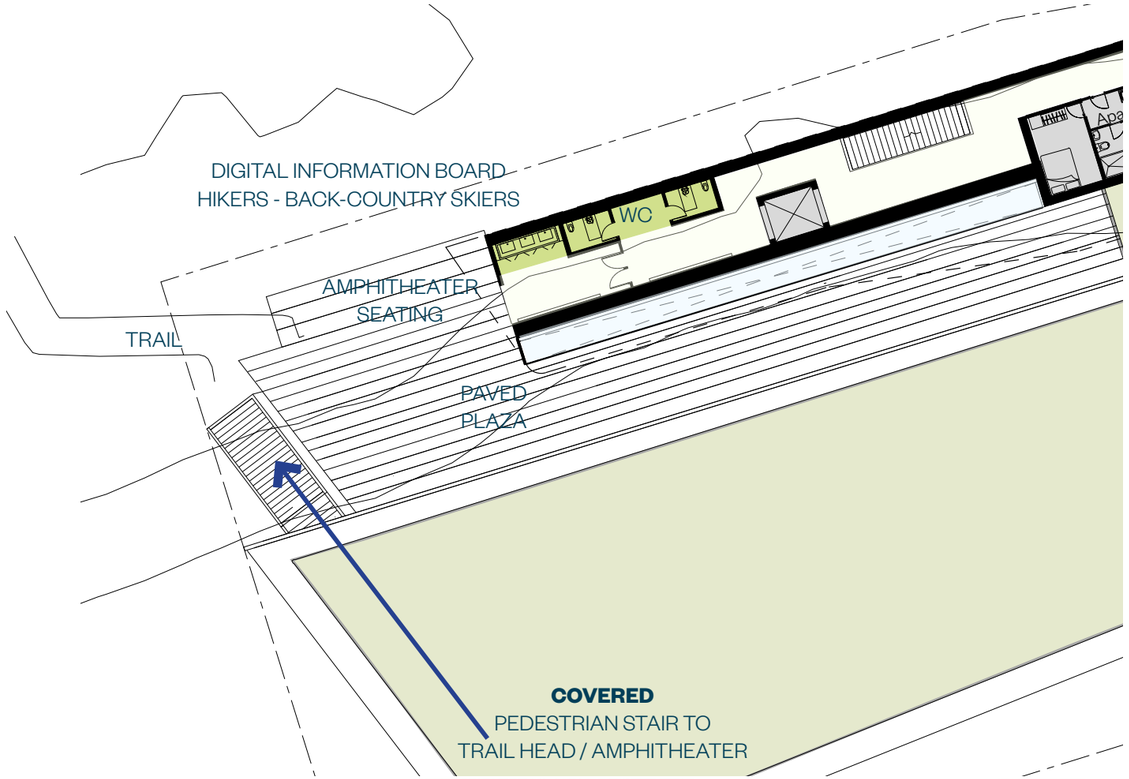


SITE PLAN



TRAILHEAD

Trailhead- Summertime Uses

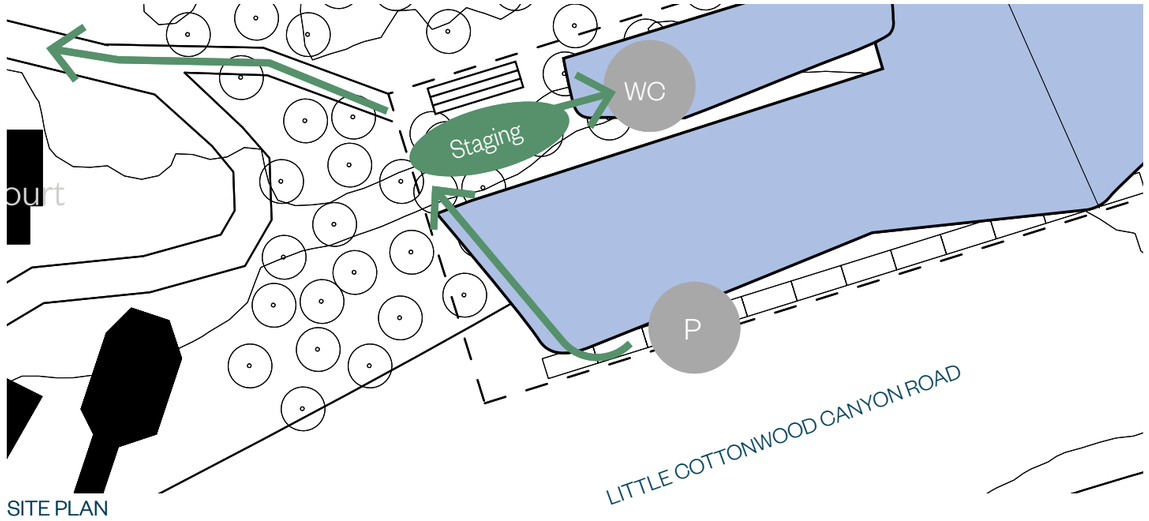


RECYCLING

TRAIL INFORMATION

EXCERCISE CLASS / ACTIVITIES

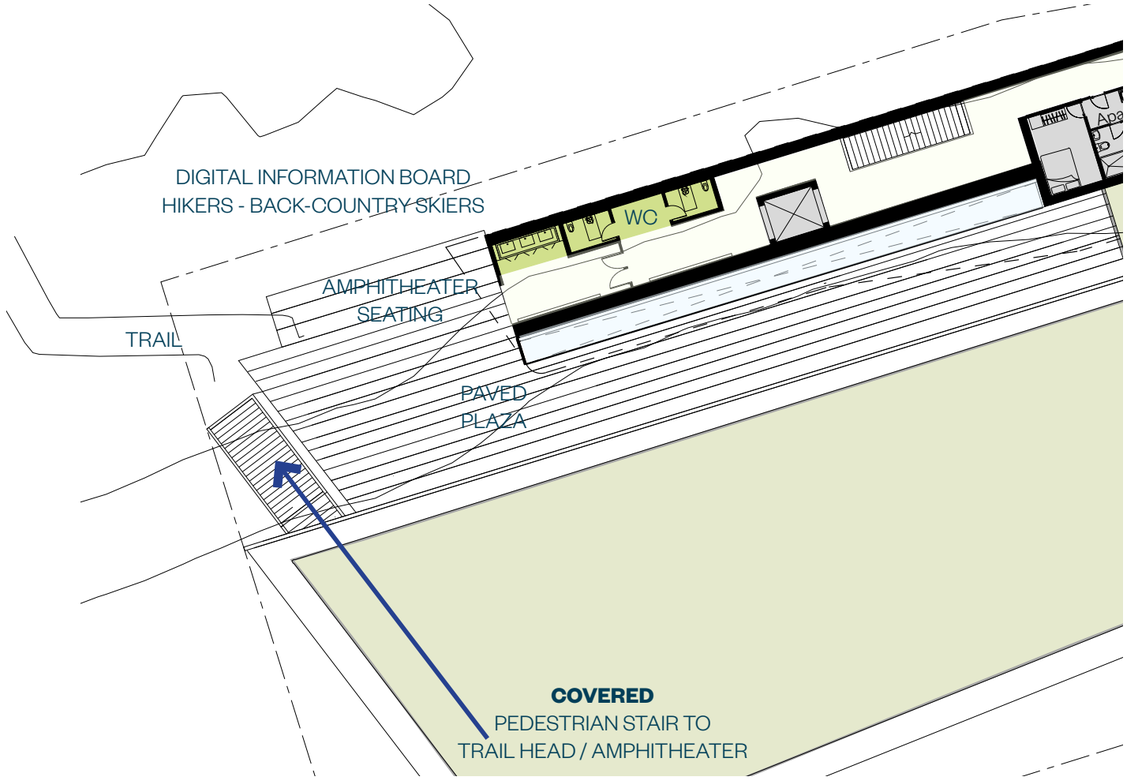
During the summer months, the trailhead can support visitors and hikers, with a centralized location with amenities, including educational signage, recycling bins, and restrooms which are accessible 24 hours per day. This proposed trailhead could replace the “Cardiff Pass” and “Twin Lakes Pass” trailheads.



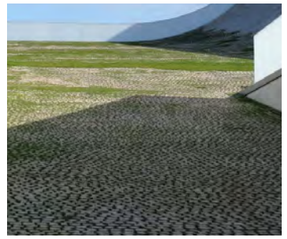
SITE PLAN

TRAILHEAD

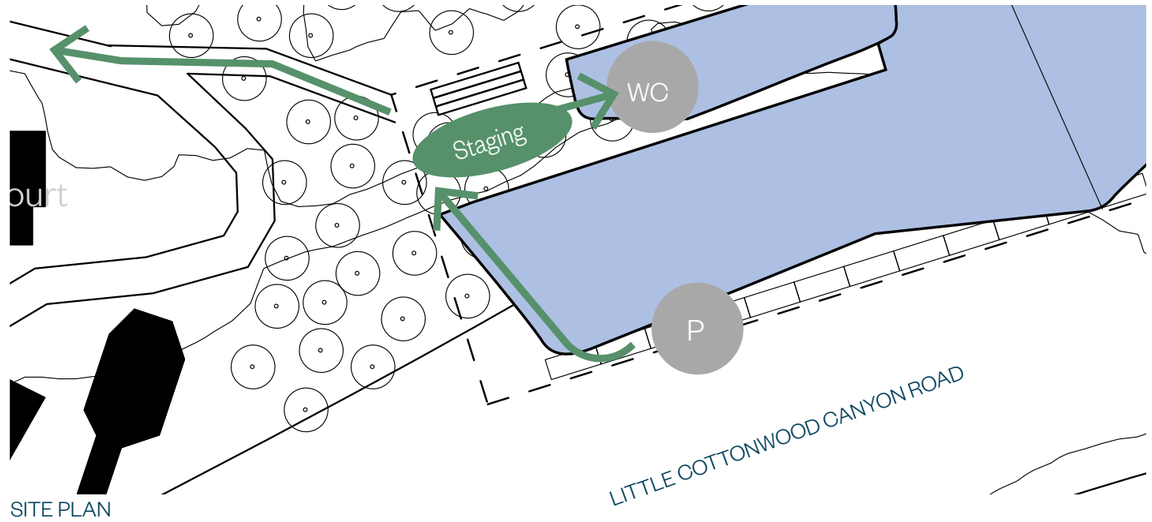
Planted Roof Plaza




WILDFLOWERS


PERMEABLE PAVED ROOF

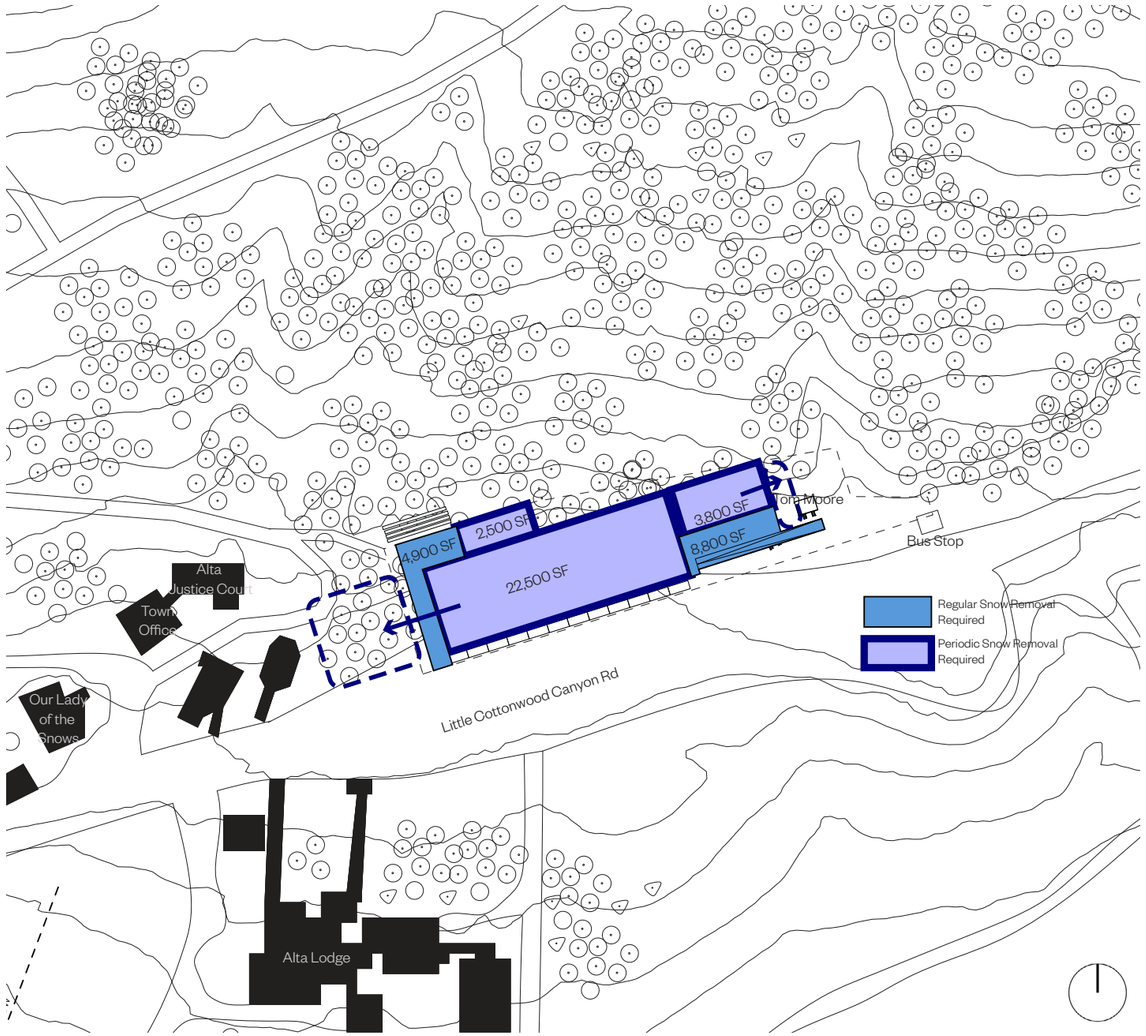
The roof's planted area extends the entire length of the roof plane and seamlessly blends into the slope's landscape. Covered with permeable paving and designed to support native grasses and wildflowers, the roof can be used as a community garden and support educational programs that can educate visitors regarding the local ecology, including over 120 species of alpine wildflowers. The proposed design reduces water runoff and increases the site's net vegetated area from 50% to upwards of 90%.

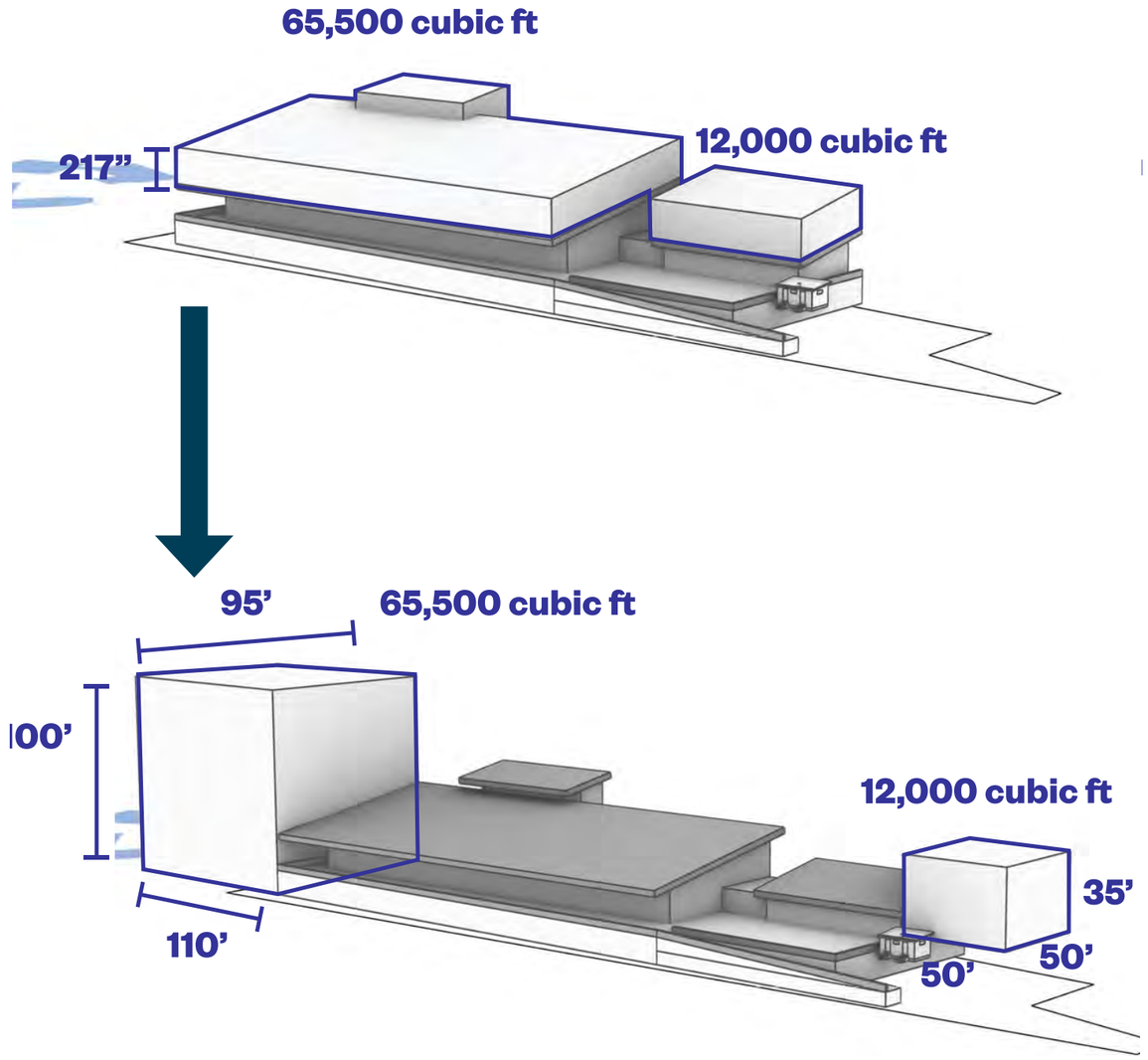


SITE PLAN

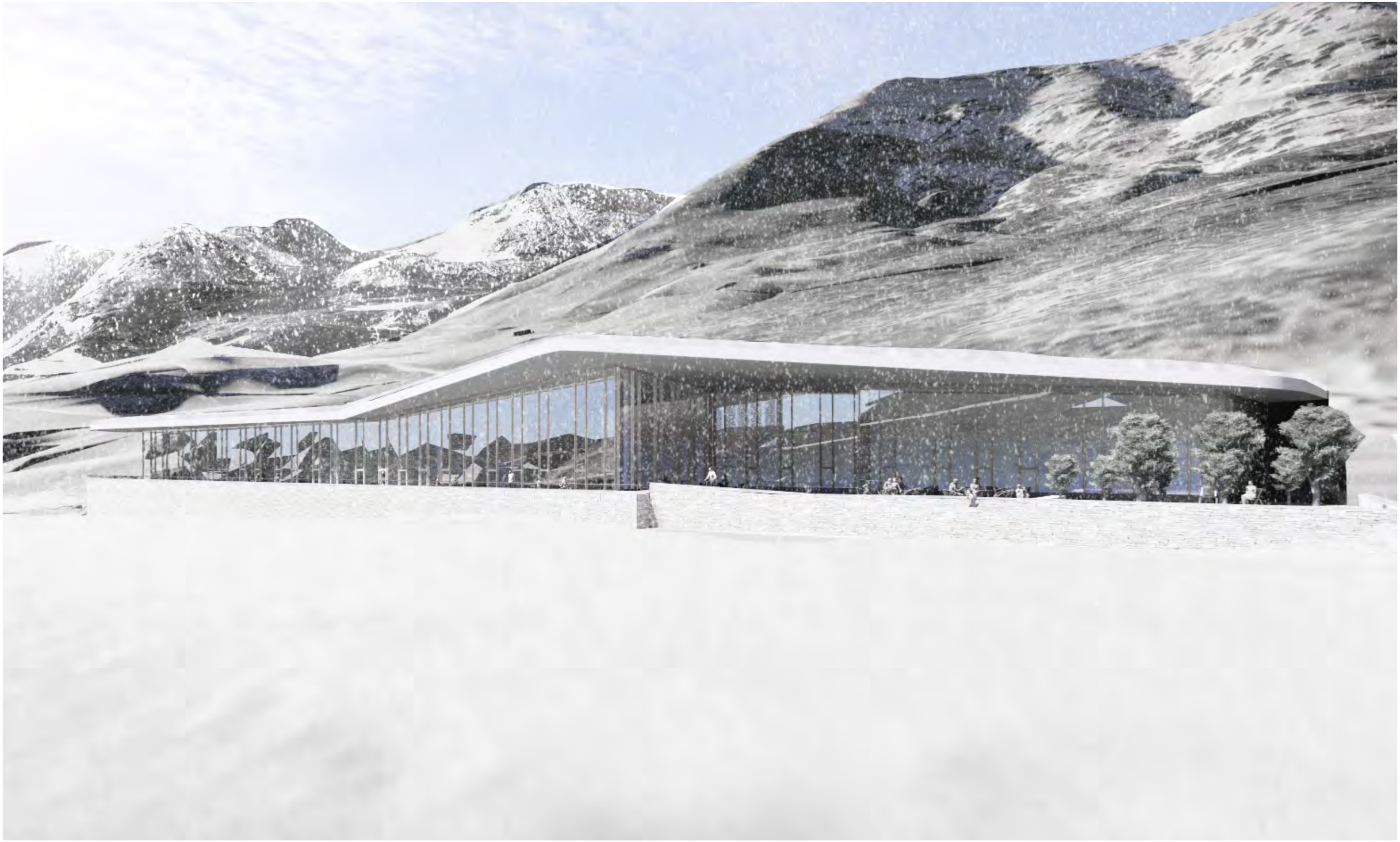

TRAILHEAD

Snow Removal Strategies





Receiving an average of 550” of snowfall per season, wintertime maintenance is a key consideration for the community center’s design. Roof and terrace spaces are to be designed to support regular snow removal, and surfaces are designed to be durable to resist impact from shovels and snow blowers. Heat tracing within paved surfaces should be kept at a minimum and reserved for use for only very regularly used surfaces. Water and ice buildup are of key concern, and awnings and copings should be designed to drain away from pedestrian spaces and prevent buildup over time.



08 Statement of Probable Costs

Statement of Probable Cost

Appendix

Cost Estimate | BIG D Construction

Cost Estimate

Alta Community Center
Embedded Option
01/19/2021

Component	Cost
01 Site	$2,651,298
02 Building	$23,632,692
03 Staffing & General Requirements	$1,021,251
04 Off-Site Work	$80,000
Subtotal Direct	$27,385,241
Indirect Costs	
Subtotal Bonds & Insurance	**$796,625**
Subtotal Contingencies	**$1,880,881**
Subtotal Other	**$31,348**
Subtotal Indirects	$2,708,854
Fees	**$1,253,921**
Project Total	$31,348,016

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 01 Site

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
02 - SITE WORK				**$2,651,298**
312000 - EARTH MOVING				**$1,316,813**
Dust Control - Site	14.00	MO	$350.00	$4,900
Mobilization	1.00	LS	$50,000.00	$50,000
Clear and Grub	1,008.00	CY	$30.00	$30,240
Excavate and Haul Off	22,220.00	CY	$29.99	$666,378
Cut and Fill	1,027.00	CY	$7.50	$7,703
Backfill for Shoring with Gravel	3,092.00	CY	$75.00	$231,900
Vertical Grading for Shoring	1.00	LS	$40,000.00	$40,000
Backfill Footings with Import	1,270.00	CY	$50.00	$63,500
Street Sweeping - Earthwork Scope	1.00	LS	$75,000.00	$75,000
Erosion Control	1.00	LS	$5,000.00	$5,000
Curb and Gutter Prep	450.00	LF	$7.00	$3,150
Gravel Under Slab	395.00	CY	$65.00	$25,675
Ramp Wall Ex/Backfill	240.00	LF	$35.00	$8,400
Excavate Footings and Haul Off	1,841.00	CY	$38.00	$69,958
Traffic Control	1.00	LS	$16,000.00	$16,000
Concrete Flatwork Prep	6,200.00	SF	$1.75	$10,850
Site Grading	54,400.00	SF	$0.15	$8,160
314100 - SHORING				**$1,086,054**
Soil Nail Wall with Shocrete	17,429.00	SF	$62.31	$1,086,054
321623 - SIDEWALKS				**$10,701**
Sidewalk - 4"	1,189.00	SF	$9.00	$10,701
331200 - WATER SYSTEMS				**$67,630**
6" DI	20.00	LF	$88.00	$1,760
8" DI	70.00	LF	$96.00	$6,720
2" Copper Service	70.00	LF	$34.00	$2,380
Fittings	1.00	LS	$10,000.00	$10,000
Fire Hydrant	1.00	EA	$4,500.00	$4,500
2" Meter and Vault	1.00	EA	$8,500.00	$8,500
Hot Tap and Valve	3.00	EA	$2,400.00	$7,200
Traffic Control (Road Tie In)	6.00	DY	$2,000.00	$12,000
Haul Off Utility Spoils	101.00	CY	$27.00	$2,727
Import Utility Trench Backfill	71.00	CY	$33.00	$2,343
Asphalt Patch	350.00	SF	$10.00	$3,500
Fire Riser	1.00	EA	$6,000.00	$6,000
333313 - SANITARY UTILITY SEWERAGE				**$36,611**
Import Utility Trench Backfill	182.00	CY	$33.00	$6,006
60" Sewer Manholes Cast in Place	1.00	EA	$8,500.00	$8,500
8" Cleanout	1.00	EA	$650.00	$650

Cost Estimate

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 01 Site [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
8" Sewer Pipe	70.00	LF	$110.00	$7,700
Dewater Trench	70.00	LF	$7.00	$490
Haul Off Utility Spoils	195.00	CY	$27.00	$5,265
Traffic Control (Road Tie In)	4.00	DY	$2,000.00	$8,000
334000 - STORM DRAINAGE UTILITIES				**$133,489**
3' Catch Basins	5.00	EA	$3,500.00	$17,500
12" ADS	608.00	LF	$50.00	$30,400
Foundation Drain	910.00	LF	$36.00	$32,760
Tie-on to Existing	1.00	EA	$1,800.00	$1,800
Haul Off Utility Spoils	938.00	CY	$27.00	$25,326
Import Utility Trench Backfill	491.00	CY	$33.00	$16,203
Asphalt Patch	150.00	SF	$10.00	$1,500
Traffic Control (Road Tie In)	4.00	DY	$2,000.00	$8,000
TOTAL 01 Site				**$2,651,298**

DETAILED ESTIMATE: 02 Building

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
02 - SITE WORK				**$11,370**
323000 - SITE IMPROVEMENTS				**$11,370**
Hearth and Homes Fireplace	1.00	EA	$11,370.00	$11,370
03 - FOUNDATIONS				**$709,277**
033060 - SPREAD FOOTINGS				**$162,627**
Spread Footings	333.00	CY	$488.37	$162,627
033100 - CONTINUOUS FOOTINGS				**$546,650**
Continuous Footings	9,073.00	SF	$60.25	$546,650
04 - SUBSTRUCTURE				**$273,538**
035000 - SLAB ON GRADE				**$273,538**
Slab On Grade	30,106.00	SF	$9.09	$273,538
05 - SUPERSTRUCTURE				**$17,253,508**
033120 - WALLS				**$1,187,625**
Concrete Walls	51,322.00	SF	$23.14	$1,187,625
033160 - COLUMNS				**$350,256**
Concrete Columns - Rectangular	135.00	CY	$1,405.80	$189,783

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 02 Building [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
Concrete Columns - Round	104.00	CY	$1,543.01	$160,473
035000 - SLAB ON GRADE				**$192,127**
Curbs to Slab	1,239.00	LF	$61.66	$76,399
Stairs on Grade	695.00	SF	$166.52	$115,728
035080 - SUSPENDED PT SLAB				**$4,270,938**
L2 PT Slab	35,509.00	SF	$77.99	$2,769,361
L1 Slab	33,053.00	SF	$45.43	$1,501,577
035300 - CONCRETE TOPPING				**$341,608**
Topping Slabs	30,566.00	SF	$11.18	$341,608
051200 - STRUCTURAL STEEL FRAMING				**$10,910,954**
Structural Steel - Plate Girders	623.00	TON	$2,363.23	$1,472,290
Structural Steel - Fabrication	2,305.00	TON	$2,848.50	$6,565,787
Misc Metals	26,765.00	LB	$18.50	$495,153
Structural Steel - Erection	2,305.00	TON	$1,031.55	$2,377,725
06 - EXTERIOR CLOSURE				**$862,000**
040000 - MASONRY				**$288,000**
Masonry Stone Wall	9,000.00	SF	$32.00	$288,000
079200 - JOINT SEALANTS				**$4,500**
Joint Sealants - Caulking & Joint Sealants	9,000.00	SF	$0.50	$4,500
084100 - ENTRANCES & STOREFRONTS				**$569,500**
Aluminum Door - Storefront 3070	11.00	EA	$1,500.00	$16,500
Aluminum Door - Storefront 6070	11.00	EA	$3,000.00	$33,000
Curtainwall System	8,000.00	SF	$65.00	$520,000
07 - ROOFING				**$1,102,320**
075000 - MEMBRANE ROOFING				**$1,102,320**
Ext Pavers	18,000.00	SF	$15.00	$270,000
Kemper Systems Waterproofing	25,500.00	SF	$7.64	$194,820
Roof Landscaping	25,500.00	SF	$25.00	$637,500
08 - INTERIORS				**$1,567,231**
055200 - METAL RAILINGS				**$139,050**
Railing - Steel Wall-Mounted Handrail	927.00	LF	$150.00	$139,050
061000 - ROUGH CARPENTRY				**$20,074**
Misc Rough Carpentry	26,765.00	SF	$0.75	$20,074
064100 - ARCHITECTURAL WOOD CASEWORK				**$17,665**

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 02 Building [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
Cabinets - Custom Base	55.00	LF	$145.00	$7,975
Cabinets - Custom Upper	15.00	LF	$135.00	$2,025
Finish Carpentry - Shelving	56.00	LF	$20.00	$1,120
Common Area Countertops	139.00	SF	$35.00	$4,865
Restroom Lav Tops	56.00	SF	$30.00	$1,680
064200 - WOOD PANELING				**$467,500**
Wood Ceilings	17,000.00	SF	$27.50	$467,500
064600 - WOOD TRIM				**$12,431**
Interior Trim - Door Trim	1,617.00	LF	$3.25	$5,255
Interior Trim - Floor Base	3,588.00	LF	$2.00	$7,176
079200 - JOINT SEALANTS				**$13,383**
Joint Sealants - Interior Joint Sealants	26,765.00	SF	$0.50	$13,383
081400 - WOOD DOORS				**$53,850**
3070 HM Doors, Frames and Hardware	3.00	EA	$1,100.00	$3,300
3070 Wood Doors, Frames and Hardware	44.00	EA	$750.00	$33,000
6070 Wood Doors, Frames and Hardware	10.00	EA	$900.00	$9,000
Install Doors and Hardware	57.00	EA	$150.00	$8,550
088300 - MIRRORS				**$2,000**
Restroom Mirrors	8.00	EA	$250.00	$2,000
092116 - GYPSUM BOARD ASSEMBLIES				**$420,000**
3 5/8 Metal Studs, Gyp, and Sound Insulation	15,149.00	SF	$27.72	$420,000
096000 - FLOORING				**$329,722**
Flagstone Floor	10,064.00	SF	$15.00	$150,960
Rubber Base	1,330.00	LF	$2.53	$3,365
Rubber Flooring	4,282.00	SF	$9.89	$42,333
Wood Flooring	8,356.00	SF	$15.92	$133,065
096119 - CONCRETE STAINING				**$43,345**
BOH Sealed Concrete	2,906.00	SF	$1.96	$5,683
Parking Garage Sealed Concrete	32,034.00	SF	$1.18	$37,662
099000 - PAINTING & COATINGS				**$21,501**
Paint - Doors	57.00	EA	$45.00	$2,565
Paint - Interior Walls	15,149.00	SF	$1.25	$18,936
Paint - Touch Up Painting	0.00	SF	$0.50	$0
101400 - SIGNAGE				**$0**
Signage & Wayfinding - Building Signage	0.00	NIC	$0.00	$0
102113 - TOILET COMPARTMENTS				**$14,000**
Toilet Partitions / Stall - Stainless Steel	10.00	EA	$1,300.00	$13,000
Urinal Screens - Stainless Steel	4.00	EA	$250.00	$1,000

Alta Community Center
Embedded Option
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DETAILED ESTIMATE: 02 Building [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
102813 - TOILET ACCESSORIES				**$8,510**
Toilet Accessories - 36" Grab Bar	6.00	EA	$150.00	$900
Toilet Accessories - Hand Dryer	2.00	EA	$1,000.00	$2,000
Toilet Accessories - Soap Dispenser	14.00	EA	$215.00	$3,010
Toilet Accessories - Toilet Paper Holder Double	10.00	EA	$100.00	$1,000
Toilet Accessories - Towel Dispenser & Waste Receptacle	2.00	EA	$800.00	$1,600
104400 - FIRE PROTECTION SPECIALTIES				**$4,200**
Knox Box	1.00	EA	$700.00	$700
Fire Extinguishers w/Cabinets	10.00	EA	$350.00	$3,500
09 - CONVEYING				**$144,500**
015413 - TEMPORARY ELEVATORS				**$18,000**
Elevator Temp Use	15.00	MO	$1,200.00	$18,000
142000 - ELEVATORS				**$126,500**
Elevator Cab Protection	10.00	MO	$150.00	$1,500
Elevator Finish Allowance	1.00	LS	$5,000.00	$5,000
Elevator Hydraulic	3.00	STOP	$40,000.00	$120,000
11 - FIRE PROTECTION				**$73,604**
211313 - WET-PIPE SPRINKLER SYSTEMS				**$73,604**
Fire Sprinkler System	26,765.00	SF	$2.75	$73,604
12 - PLUMBING				**$1,175,000**
220000 - PLUMBING				**$1,175,000**
Plumbing/HVAC System	26,765.00	SF	$43.90	$1,175,000
14 - ELECTRICAL				**$460,344**
260000 - ELECTRICAL				**$460,344**
Electrical System	26,765.00	SF	$16.75	$448,300
Temp Lighting	26,765.00	SF	$0.25	$6,691
Temp Power - Set-Up & Distribution	26,765.00	SF	$0.20	$5,353
TOTAL 02 Building				**$23,632,692**

DETAILED ESTIMATE: 03 Staffing & General Requirements

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST

Cost Estimate

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 03 Staffing & General Requirements [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
02 - SITE WORK				**$17,187**
323100 - FENCES & GATES				**$17,187**
Swing Gate	2.00	EA	$1,200.00	$2,400
Temp Barricades	505.00	LF	$15.00	$7,575
Temp Fencing - Site	1,202.00	LF	$6.00	$7,212
15 - STAFF				**$553,514**
011010 - PROJECT MANAGEMENT				**$339,636**
Project Engineer	6.00	MO	$10,920.00	$65,520
Quality Control	0.00	MO	$13,693.00	$0
Assistant Project Manager	0.00	MO	$12,480.00	$0
VDC Coordinator	1.00	MO	$9,880.00	$9,880
VDC Manager	0.00	MO	$11,440.00	$0
Estimator	0.00	MO	$11,440.00	$0
Preconstruction Manager	0.00	MO	$17,333.00	$0
Project Accountant	4.00	MO	$9,187.00	$36,748
Preconstruction - Director	0.00	MO	$21,493.00	$0
Project Administrator	3.00	MO	$7,973.00	$23,919
Project Director	0.50	MO	$21,493.00	$10,746
Project Manager	12.00	MO	$14,213.00	$170,556
Schedule Director	0.00	MO	$16,813.00	$0
Schedule Manager	1.00	MO	$13,687.00	$13,687
Sr. Estimator	0.50	MO	$17,160.00	$8,580
Sr. Project Manager	0.00	MO	$17,160.00	$0
011040 - FIELD SUPERVISION				**$198,550**
General Superintendent	0.50	MO	$18,547.00	$9,274
Apprentice	0.00	MO	$6,356.00	$0
Area Superintendent	0.00	MO	$14,387.00	$0
Crane Operator	0.00	MO	$9,812.00	$0
Crew Leader	0.00	MO	$8,287.00	$0
Journeyman	0.00	MO	$7,559.00	$0
Superintendent Sr	0.00	MO	$17,160.00	$0
Superintendent	12.00	MO	$15,773.00	$189,276
Field Engineer	0.00	MO	$11,223.00	$0
Senior Foreman	0.00	MO	$12,555.00	$0
Foreman	0.00	MO	$12,000.00	$0
Laborer	0.00	MO	$5,172.00	$0
011320 - SAFETY COORDINATOR				**$15,328**
Safety	1.00	MO	$15,328.00	$15,328

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 03 Staffing & General Requirements [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
16 - GENERAL REQUIREMENTS				**$450,550**
003146 - PERMITS				**$0**
Employee Parking Fee	0.00	MO	$800.00	$0
013050 - PHOTOGRAPHS				**$3,000**
Aerial Project Photos	0.00	MO	$350.00	$0
Project Photos	12.00	MO	$150.00	$1,800
Project Photos By Professional	0.00	MO	$250.00	$0
Struction Site	1.00	EA	$1,200.00	$1,200
013230 - DRAWING REPRODUCTION				**$2,000**
Plan & Spec Reproduction	5.00	EA	$400.00	$2,000
013316 - DESIGN				**$0**
Special Consulting Fees	0.00	LS	$0.00	$0
015050 - MOBILIZATION & SETUP				**$2,500**
Job Mobilization / Demobilization	1.00	EA	$2,500.00	$2,500
015100 - TEMPORARY UTILITIES				**$10,000**
Office Power - Consumption	12.00	MO	$125.00	$1,500
Set Up Office Temp Electric	1.00	EA	$2,500.00	$2,500
Temp Power - Consumption	12.00	MO	$500.00	$6,000
015116 - TEMPORARY FIRE PROTECTION				**$1,550**
10 Lb Fire Extinguisher	10.00	EA	$155.00	$1,550
015120 - RADIOS				**$0**
Jobsite Radios	0.00	EA	$125.00	$0
015129 - TEMPORARY NATURAL GAS				**$0**
Temp Gas - Building	0.00	MO	$1,000.00	$0
015133 - TEMPORARY TELECOMMUNICATIONS				**$2,800**
Network Installation (DSL Only)	1.00	EA	$1,000.00	$1,000
Network Monthly Fee (DSL)	12.00	MO	$150.00	$1,800
015136 - TEMPORARY WATER				**$3,000**
Temp Water - Consumption	12.00	MO	$125.00	$1,500
Temp Water - Set Up	1.00	EA	$1,500.00	$1,500
015140 - DRINKING WATER				**$900**
Office Drinking Water	12.00	MO	$75.00	$900
015219 - SANITARY FACILITIES				**$9,000**
Temp Toilets	12.00	MO	$750.00	$9,000
015300 - SAFETY / WEATHER WEAR				**$900**

Cost Estimate

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 03 Staffing & General Requirements [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
Safety Wear / Equipment	12.00	MO	$75.00	$900
015310 - SAFETY - JOBSITE				**$3,420**
First Aid Supplies	12.00	MO	$35.00	$420
Jobsite Safety	12.00	MO	$250.00	$3,000
015450 - PROJECT SIGNS				**$1,300**
Project Signs	1.00	EA	$1,300.00	$1,300
015460 - SHIP & POSTAGE/COURIER				**$2,400**
Postage & Courier Services	12.00	MO	$200.00	$2,400
015470 - DAILY CLEANUP				**$6,600**
Progress Cleaning	12.00	MO	$550.00	$6,600
015510 - DUMP FEES				**$11,925**
40 Yard Dumpster Pull	53.00	EA	$225.00	$11,925
015530 - WEATHER PROTECTION				**$250,000**
Weather Conditions - Template Item	5.00	MO	$50,000.00	$250,000
015750 - SECURITY - SERVICES				**$0**
Alarm Systems	0.00	MO	$0.00	$0
Site Security	0.00	MO	$0.00	$0
015910 - FIELD OFFICE				**$18,160**
Deliver Trailer	1.00	EA	$3,500.00	$3,500
Office Steps (2/Per)	2.00	EA	$80.00	$160
Office Trailer (60 X 12)	12.00	MO	$1,000.00	$12,000
Setup Office Trailer (60 X 12)	1.00	EA	$2,500.00	$2,500
015930 - OFFICE FURNITURE / EQUIP				**$10,500**
Copy Machine	12.00	MO	$600.00	$7,200
Office Furniture	12.00	MO	$275.00	$3,300
015940 - OFFICE - SUPPLIES				**$2,400**
Consumable Office Supplies	12.00	MO	$200.00	$2,400
016060 - FORKLIFT/BOBCAT/MANLIFT				**$38,400**
All-Terrain Forklift	12.00	MO	$3,200.00	$38,400
016170 - PICK UP & DELIVERY				**$6,000**
Pickup & Delivery	12.00	MO	$500.00	$6,000
016180 - EXPENDABLE TOOLS				**$4,800**
Consumable Tools	12.00	MO	$400.00	$4,800
016200 - FUEL, OIL & GREASE, MAINT				**$3,000**
Fuels, Oil, & Grease	12.00	MO	$250.00	$3,000

Alta Community Center
Embedded Option
01/19/2021

DETAILED ESTIMATE: 03 Staffing & General Requirements [CONTINUED]

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
016340 - SMALL TOOLS				**$3,000**
Small Tools	12.00	MO	$250.00	$3,000
017310 - OPERATING MANUALS				**$1,200**
Operating Manuals	1.00	LS	$1,200.00	$1,200
017320 - AS-BUILT DRAWINGS				**$1,500**
As Built Drawings & Records	1.00	LS	$1,500.00	$1,500
017423 - FINAL CLEANING				**$50,295**
Final Cleaning - Site	52,873.00	SF	$0.85	$44,942
Final Cleaning - Building	26,765.00	SF	$0.20	$5,353
TOTAL 03 Staffing & General Requirements				**$1,021,251**

DETAILED ESTIMATE: 04 Off-Site Work

DESCRIPTION	QTY	UOM	UNIT PRICE	TOTAL COST
01 - DEMOLITION				**$80,000**
024100 - DEMOLITION				**$80,000**
Remove and Relocate Tom Moore Shed (allowance)	1.00	LS	$80,000.00	$80,000
TOTAL 04 Off-Site Work				**$80,000**

Subtotal Direct	$27,385,241
Indirect Costs	
Subcontractor Default Insurance	$329,540
General Liability Insurance	$297,806
Builders Risk Insurance	$169,279
Subtotal Bonds & Insurance	**$796,625**
Contractor Contingency	$940,440
Design Contingency	$940,440
Subtotal Contingencies	**$1,880,881**
Warranty Reserve	$31,348
Subtotal Other	**$31,348**
Subtotal Indirects	$2,708,854
Contractor Fee	$1,253,921
Fees	**$1,253,921**
Project Total	$31,348,016

ennead lab

Draft Print for Internal Circulation 01/21/2021