



Pre-development, Planning & Community Resilience Report

Navajo Townsite Community Development Corporation

Final Deliverable | updated December 12, 2024

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00 Introduction

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Land Acknowledgement

MASS recognizes that the land on which we work and live and is now called North America was originally the land of Indigenous communities.

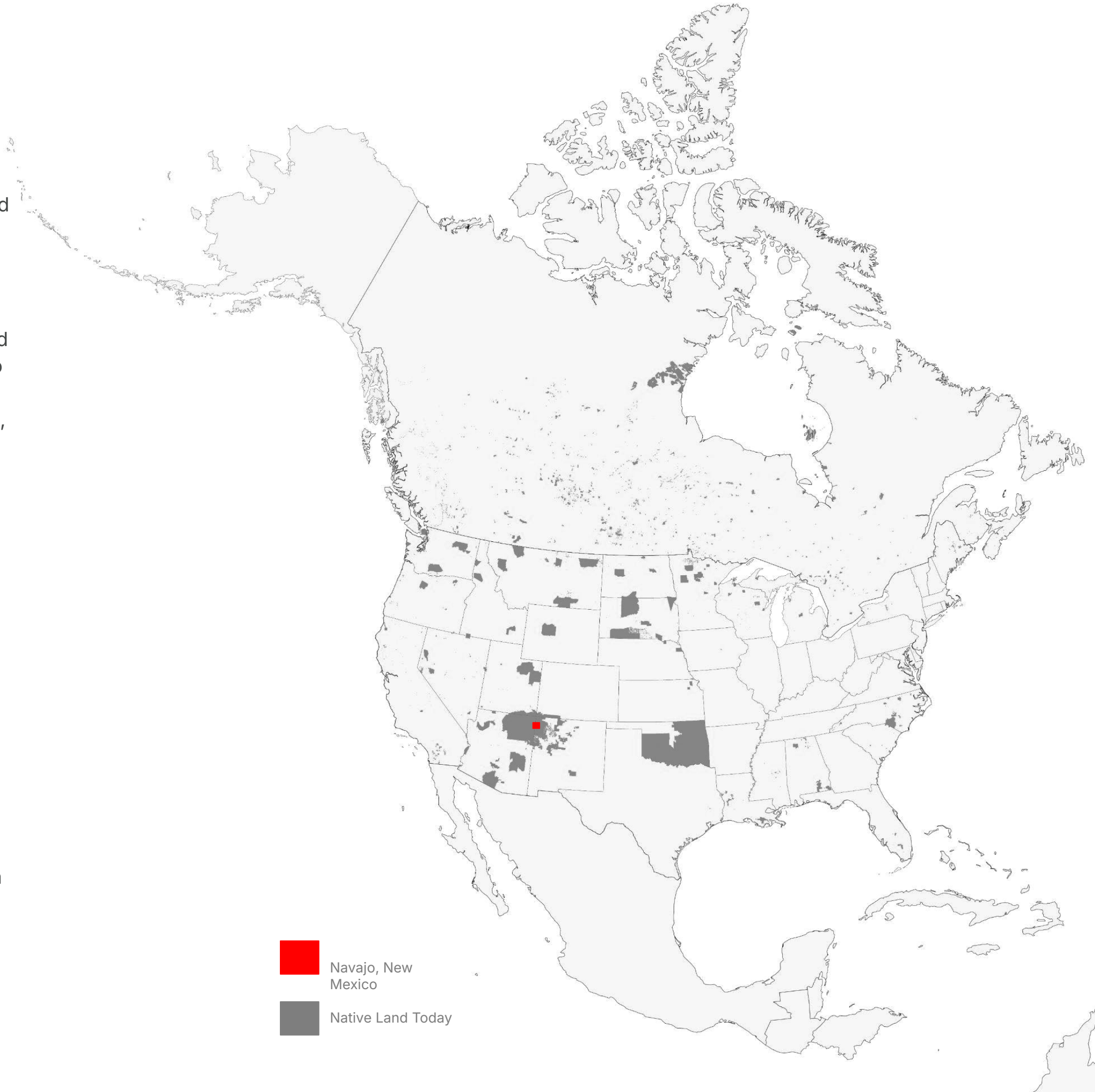
We acknowledge that our MASS Design Group *O’ga P’ogeh Owingeh* Santa Fe Studio is located on the ancestral, unceded lands of the Tewa people who have an ongoing connection to this special place. The present day Tewa speaking communities include the Tesuque, San Ildefonso, Santa Clara, Pojoaque, Ohkay Owingeh, and Nambe Pueblos.

We thank our Tribal partners for their unwavering dedication and commitment to cultivating relationships with us, and seeking reconciliation through mutual learning and sharing.

We acknowledge that each of the Native communities mentioned in this report is an ancestral, present, and future caretaker of these lands.

We also acknowledge the role played by these Indigenous Peoples in preserving and sharing the wisdom of their ancestors, and in this way safeguarding the land, water, and air, particularly from the consequences of climate change.

The objective of this report is to facilitate this preserving and sharing, and to collaborate with Tribal communities towards a more inclusive, resilient, and equitable future.



This design collaboration aims to **promote sustainable development and resilience** in the Navajo community.

This project focuses on planning 28 - 36 units of affordable housing and creating a Community Resiliency Plan. The project work and plan are crucial steps in addressing the critical housing needs of the Navajo community and serve as a model for healthy and sustainable development.

MASS and Navajo Townsite CDC (NTCDC) are working to address community challenges and opportunities in two focus areas:

- Housing Affordability and Homeownership – addressing the existing lack of housing opportunities and barriers to Navajo families wishing to return or remain in the community
- Accessibility and Well Being – enhancing accessibility to essential services like quality food, education and healthcare as well as cultural facilities and outdoor spaces

Navajo Townsite CDC
A 501(c)(3) community development non-profit focusing on housing management and production of housing in the community of Navajo, New Mexico on the Navajo Nation

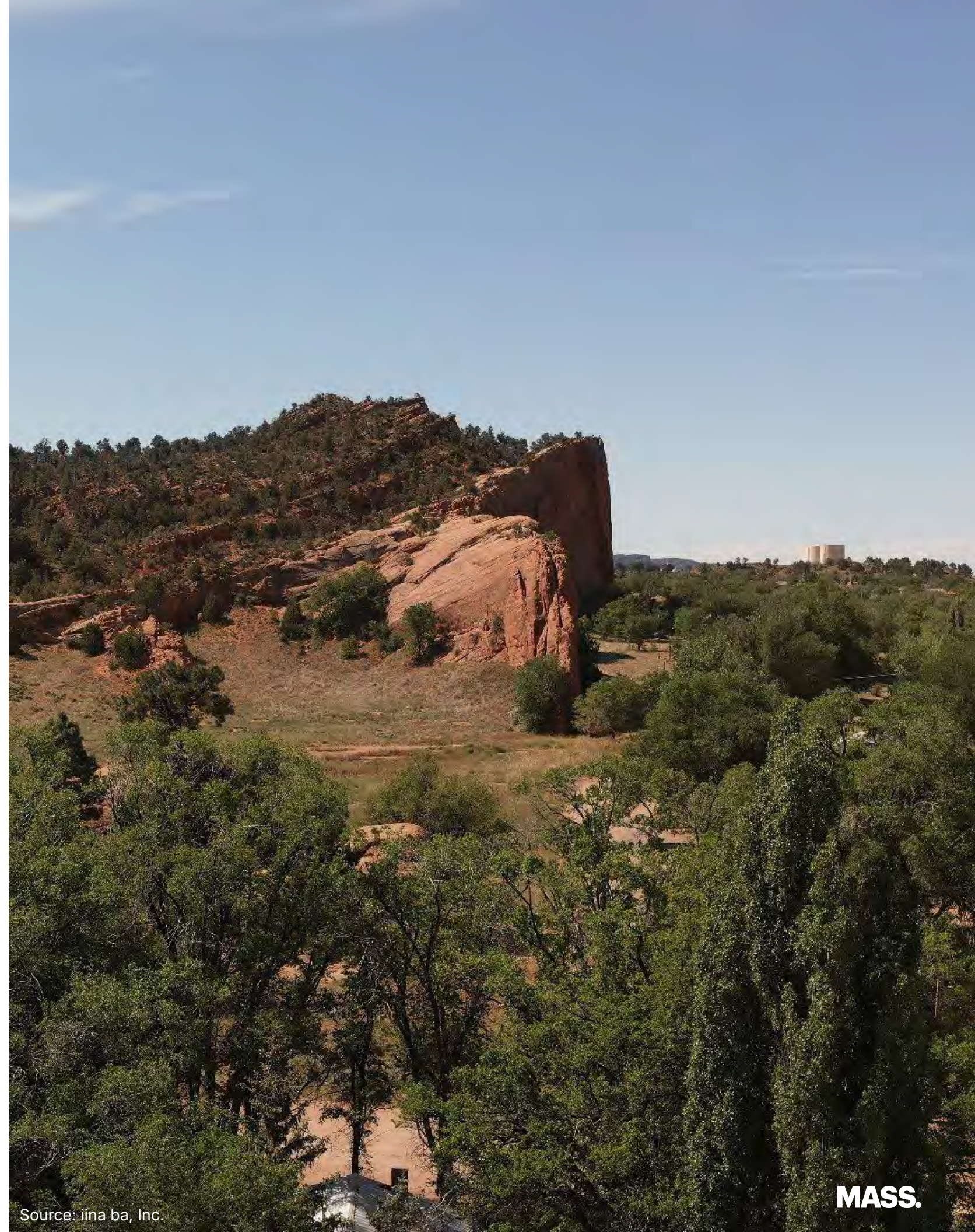
Navajo Townsite CDC team:

- Prestene Garnenez
- NTCDC staff and participating Navajo community members

MASS Design Group
A not-for-profit design firm focused on researching, building, and advocating for architecture that promotes justice and human dignity.

MASS project team:

- Joseph Kunkel
- Nathaniel Corum
- Taylor Klinkel
- & other MASS team members who provided creative feedback



MASS and Navajo Townsite CDC worked together from 2022 through 2024 on multi-family housing development for the Red Clay Hill area of Navajo, NM.

The Red Clay Hill multifamily development Pre-Development report outlines a mixed-income housing development including pocket parks and community spaces. The mission of the report is to support Navajo Townsite CDC as they work towards creating a model of culturally-responsive, equitable housing development in Navajo Nation across a range of income levels.

This goal can be achieved through:

- Forming mutually beneficial public - private partnerships between NGOs, cultural organizations, and local governments
- Identifying priorities and needs across types of housing
- Understanding and relating to cultural and geographic contexts
- Design multi-family, attached homes and landscapes that preserve the 'Spirit of Home' and K'e with the environs

Our hope is that the Red Clay Hill Development becomes a model for design engagement, multifamily housing, and community building in Indian country.



01

The Vision + Impacts

Project Vision
Mission, Methods, Impacts, & System Change
Community Mapping



Project Vision

Navajo Townsite CDC stands ready to improve the lives of the people of the Navajo community through the creation of homes and parks within a revitalized Lone Pine neighborhood.

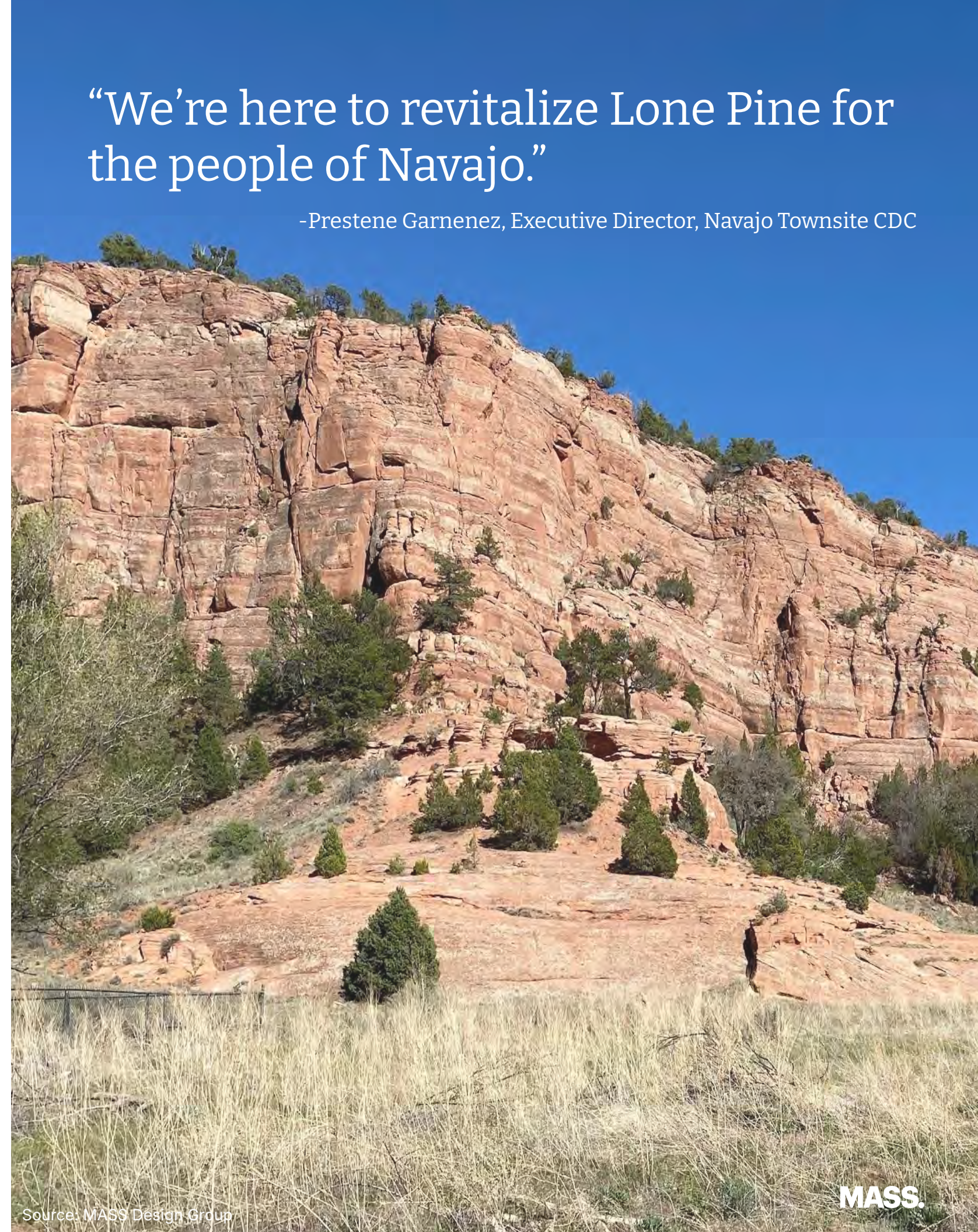
Community engagement feedback and market research points to a need for affordable housing within reach of elders, workforce members and, crucially, the 'missing middle' those who do not qualify for housing assistance but are unable to rent or purchase appropriate housing within the Navajo community.

There is demand for a range of home opportunities in Navajo today – future homes that would suit a variety of needs from multigenerational families, to elders and professionals who want to move back to Navajo Nation. Meeting these needs can stem and help reverse the population decline due to the closing of the former Navajo Forest Products Industry (NFPI) sawmill in the area.

The work of Navajo Townsite CDC is critical now, when community youth and elders are in overcrowded and otherwise substandard housing conditions and while working members of the community cannot find healthy affordable housing for their families. Navajo Townsite CDC stands ready to plan and develop a phased development plan featuring homes, parks and natural spaces that relate to Navajo culture while also repurposing old and damaged homes that are past their service life.

“We’re here to revitalize Lone Pine for the people of Navajo.”

-Prestene Garnenez, Executive Director, Navajo Townsite CDC



Project Vision

A community-informed reclaiming of the Lone Pine neighborhood will allow Navajo Townsite CDC to grow and support their community with healthy Navajo homes.

After carrying out a community engagement plan and goal setting activities with MASS Design Group in 2024, Navajo Townsite CDC and MASS are visioning and planning of a revitalized Lone Pine neighborhood featuring street improvements, parks and culturally-responsive homes and outdoor spaces that will set a new standard for local planning and development.

What is needed now, is a plan and a process, based upon recent surveying, engineering and design work to advance the neighborhood planning process across the approximately 40 acres of the Lone Pine Project site under Navajo Townsite CDC's site control. Within this revitalized neighborhood, CDC efforts will be able to mitigate existing site and structural issues, and work with the Navajo community and development team members to:

- Provide **healthy homes** that meet the diverse needs of Navajo community members and their families
- Identify opportunities for **cultural connections and healing spaces**
- Activate **outdoor activities** including recreation, play, gathering, and relaxation
- Create **safe and appealing community connections** to services, schools, natural areas and other key community assets
- Provide and protect **peaceful natural areas** for community healing, gathering and enjoyment



To identify **the project’s primary goal** as well as methods to reach it, and measure project success, this impact based design outline was iterated through sessions with Navajo Townsite and community meetings.

Nitsáhákees

The goal of this project is to...

Create a culturally-responsive, equitable workforce housing development in Navajo, NM across a range of income levels

Nahatá

Create a cultural and specific design language for the project to:

- (1) Form mutually beneficial public-private partnerships between NGOs, cultural organizations, and local governments.
- (2) Identify priorities and need across types of housing
- (3) Understand and relate to cultural and geographic context
- (4) Design multi-generational housing and landscapes that preserve the “spirit of *hooghan*” and *K’e*

Iiná

We’ll know we’ve been successful by the:

- # of families/people who move back to the reservation
- # new homes created
- # homes rented / owned in 5 years
- # of kids playing / using the commons / natural areas
- # of events and initiatives that happen in the space
- % change in small business profits
- ↑ range of ages and incomes who live here
- # of \$ spent in Navajo (tourism, outdoor adventure)

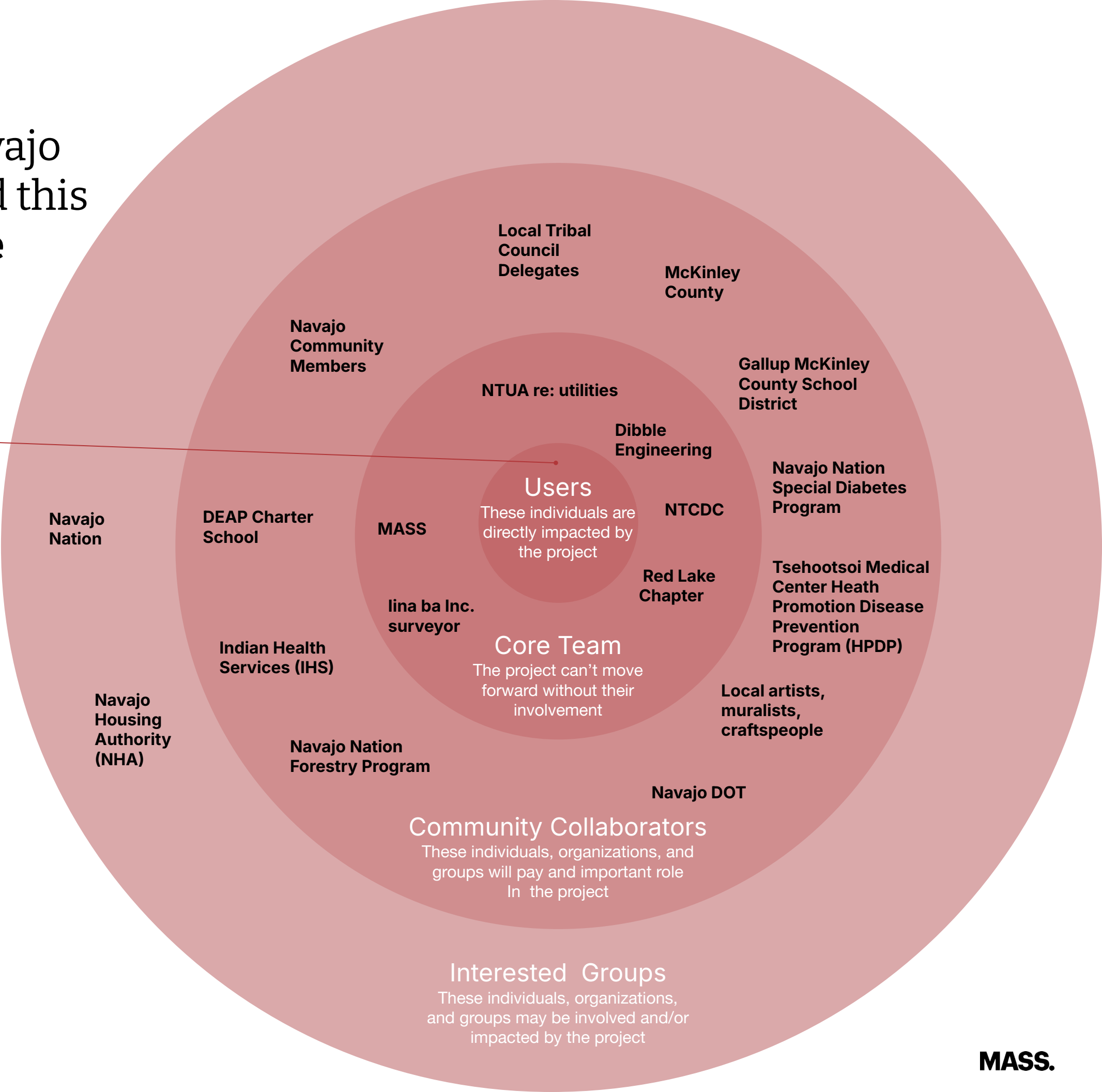
Síhasín

We’ll know this project has had an impact outside itself when...

The Lone Pine Project becomes a model for design engagement, multigenerational housing, and community resilience in Indian country

Community members & Navajo
Townsite CDC staff informed this
mapping of groups & people
related to the project.

Users:
Mixed Income
Multigenerational
Returning Families
Workforce 'Missing Middle'
Individuals



02

Public Engagement Action Plan

Goal setting + Audience
Engagement Plan
Engagement Activities
Engagement Summary Takeaways



The new homes, and common spaces within the Lone Pine Project will strengthen the Navajo community by welcoming and serving...



Community Members
(including multigenerational families)



Workers and their families
(the "missing middle") *



Professionals returning to Navajo Nation
(entrepreneurs + others)

* note: here 'missing middle' is defined as households that are not wealthy, but have too much income to qualify for housing affordability programs and subsidies.

Our past work across Indian Country has shown us that planning must go beyond storm-hardy infrastructural recommendations. We must recognize cultural resilience as inextricable from physical resilience, and treat sustainability and resilience as one-in-the-same.



Navajo Townsites' new development is a place for...



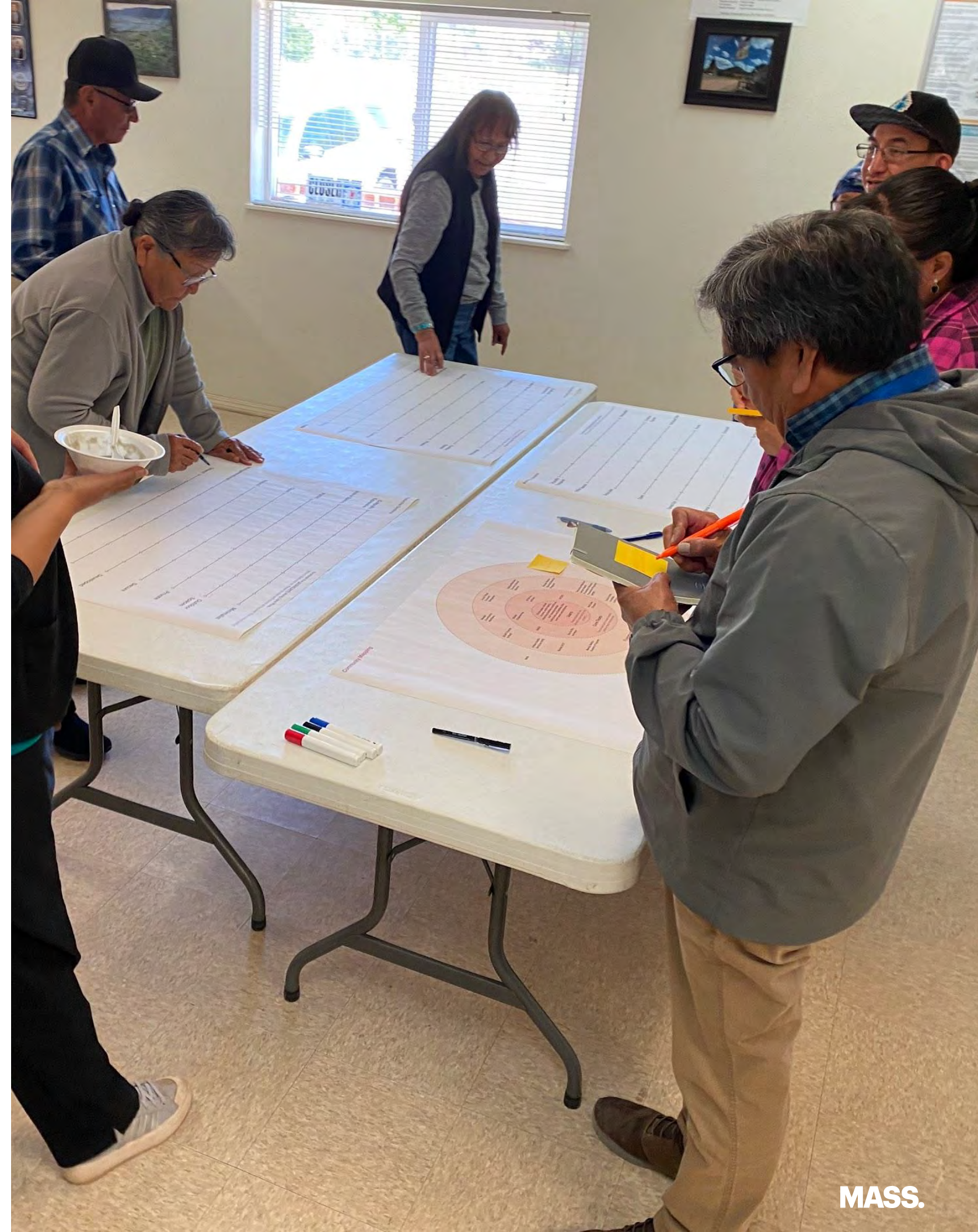
Navajo Townsite CDC and MASS convened a series of engagement meetings to shape the project based on community needs and direct input in Spring 2024.

With a goal of reaching a broad swath of community members and reach key demographics, Navajo Townsite worked with MASS to prepare outreach and activity materials and facilitate four community engagement meetings on May 22, 2024:

- **Community Morning Meeting**
11am - 12:30pm, Red Lake Chapter House
- **Youth Meeting**
1pm - 2:30pm, Navajo Pine High School
- **Women's Meeting**
3pm - 4:30pm, Red Lake Chapter House
- **Community Evening Meeting**
5:30pm - 7pm, Red Lake Chapter House

Food was served buffet style across all of the meetings at the Chapter House and attendance was between 5 and 10 individuals for each meeting. As anticipated, the evening meeting was the largest, though the way the activities were structured allows for each meeting to build on and view the feedback from prior meetings.

The community engagement activities themselves were developed to be appropriate for all groups and to fit within a 60-90 minute time frame while allowing for time to outline the overall process and goals, to answer participants questions, and **to create an atmosphere of trust and openness to allow for clear communication and sharing by all involved.** An overview of the engagement activities and their synthesis follows.



Engagement Activities

MASS, guided by Navajo Townsite CDC, created and led community engagement activities to discuss the future development project.

Each of the four Community Meeting Sessions lasted 90 minutes and focused on **hearing guidance from community members about what should be considered across the project** in terms of neighborhood, pocket parks and home design. The meetings listed above, featured the following agenda:

- Introductions + orientation
- Share and update IDM + Community Mapping
- Aerial Mapping activity
- Journey Narrative activities
- Productive Tensions activities

Each meeting began with a round of introductions to hear from everyone in the circle and an overview from Navajo Townsite CDC and MASS about the anticipated project at this early stage.

Next MASS & NTC team members shared and explained the IDM and Community Mapping draft documents and invited community input before turning to the three primary activities:

Aerial Mapping - participants noted opportunities, challenges and specific needs and conditions by placing Post-its on a large aerial map.

Journey Narratives - participants were asked to envision the future development they would like to see.

Productive Tensions - participants chose positions on spectrum between word pairs to describe desired aspects of the development.



Community members are the experts in their places and spaces. MASS and Navajo Townsite CDC bring expertise to focus the community vision and to meet the community needs.

Through all the engagement activities, community members added notes and comments to a large aerial map of Navajo, NM. Folks placed green markers at natural features they would like to see protected and purple markers in spaces and places where they would like to see bursts of color, art and creativity.



Engagement Activities: Aerial Mapping

High school students, elders, women and folks getting off work all added guidance and community recommendations on an aerial map of the Navajo community.

Key takeaways and community guidance from the Aerial mapping activity includes:

- Street improvements were a need stressed by many community members with many sharing concerns specifically about:
 - General road conditions
 - Potholes and ruts
 - Condition of and safety of sidewalks
 - Flooding concerns and need to clear existing culverts along the wash
- Several folks indicated that they'd like to walk along Lone Pine more but had safety concerns related to strangers and dogs
- Several community members recommended rebuilding or revitalizing facilities or areas:
 - Recreation Center
 - Fire Department
 - Entry to town

According to community members, **these places and spaces have special natural beauty** and should not be changed:

- Frog Rock (spire formation)
- Low mounds of sandstone near the intersection of Lone Pine Drive and Juniper Avenue
- Sandstone cliff features along the eastern edge of the Lone Pine neighborhood
- Undeveloped hill and trails area between Mulberry Place and the Navajo Middle School

Community guidance noted the following **locations where bursts of color, art and creativity would be welcome** and appropriate:

- Entry points to the community along Cleveland Drive
- Former Recreation Center area
- Near Post Office
- Little Folks Day Care
- Maple Place
- Gas station at Poplar Avenue



Navajo-specific community engagement feedback follows based on **community members' vision for the future Lone Pine project.**

The following pull quotes and word clouds come directly from the journey-narrative engagement activities. These are **the words community members shared while envisioning new homes, pocket parks and the future neighborhood.** This community feedback is grouped and color-coded across the three related activities.



The people of Navajo sharing their future vision of homes and neighborhoods.

I see Lone Pine Drive as a beautiful place with nice new houses and sidewalks where people walk in the evenings.



It feels like living with nature – the scenery of the sandstone peaks and the sky, the smell of the forest in the air, the smell of earth after the rain.



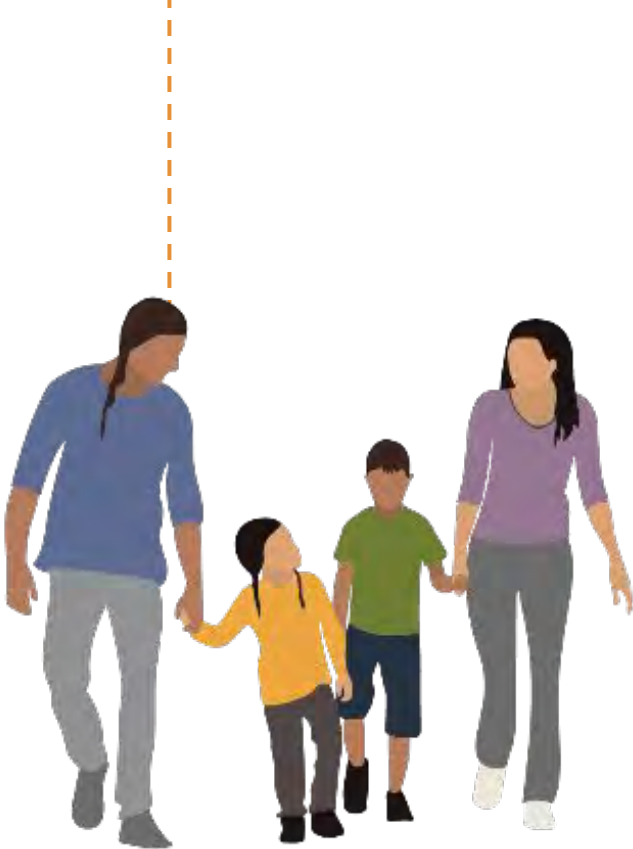
I feel safe and I can walk anywhere. There are kids running around having fun and the neighborhood is clean.



The neighborhood of Lone Pine feels clean with nice houses along the street. I see new homes or apartments for people who want to live here and work.



Entering our neighborhood I see good streets, sidewalks and well kept yards. There are parks that contain places for relaxing and exercising. It feels welcoming, and safe and secure with space for community in nature.



Future Homes Journey Narrative Synthesis

The MASS team shared the following prompt with Navajo community members:

Close your eyes and take a deep breath.

Picture yourself walking into the new homes that Navajo Townsite CDC will create with community in the Lone Pine neighborhood.

You are stepping into the shoes of the person for whom this space is created. Imagine their journey and experience as they engage with this space. Think about the following:

- How do they enter, what is it like inside?
- What do they feel?
- What do they see?
- How is the home unique to Navajo?

Bring your vision to life through a narrative or sketch. Write a short story from their perspective or draw the scene you’ve imagined. Feel free to explore different scenarios and perspectives, remembering that each visitor’s experience is unique.

To the right are ways in which community members describe their vision for future homes in their community.

Darker colors reflect higher frequencies of similar responses



Future Pocket Parks Journey Narrative Synthesis

The MASS team shared the following prompt with Navajo community members:

Close your eyes and take a deep breath.

Picture yourself walking into the pocket parks that Navajo Townsite CDC will create with community along Lone Pine neighborhood near the sandstone formations.

Imagine your journey and experience as you engage with this park space.

Think about the following:

- How do you enter, what are you greeted by?
- Who do you encounter?
- What do you feel?
- What do you see?
- What activities happen here?

Bring your vision to life through a narrative or sketch. Feel free to explore different scenarios and perspectives.

To the right are ways in which community members describe their vision for future parks and community outdoor spaces.

Darker colors reflect higher frequencies of similar responses



Future Neighborhood Journey Narrative Synthesis

The MASS team shared the following prompt with Navajo community members:

Close your eyes and take a deep breath.

Picture yourself walking into the updated Lone Pine neighborhood and the connecting sidewalk loop that Navajo Townsite CDC is creating.

Imagine your journey and experience as you engage with this space.

Think about the following:

- What does the neighborhood look and feel like?
- What do you do along the loop?
- What do you feel?
- What do you see?

Bring your vision to life through a narrative or sketch. Write a short story from your perspective or draw the scene you’ve imagined. Feel free to explore different scenarios and perspectives.

To the right are ways in which community members describe their vision for their neighborhood.

Darker colors reflect higher frequencies of similar responses



Engagement Activities: Productive Tensions

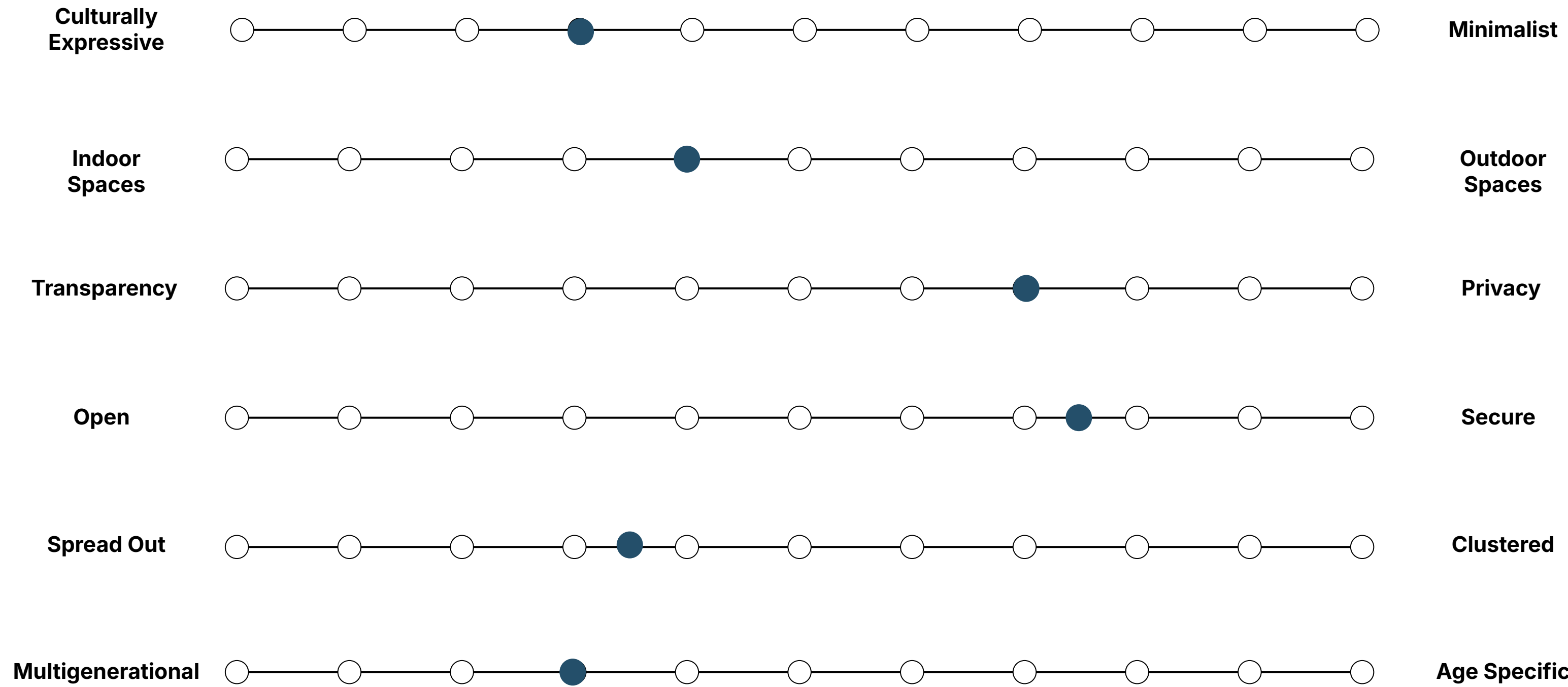
Tensions are not flaws; they speak to the many and unique needs and complexities within a community.

The goal of identifying productive tensions is not to resolve them one way or the other, but to use them to ignite creative new ideas, elevate the discussion, and inspire thought about where the greatest opportunities lie.

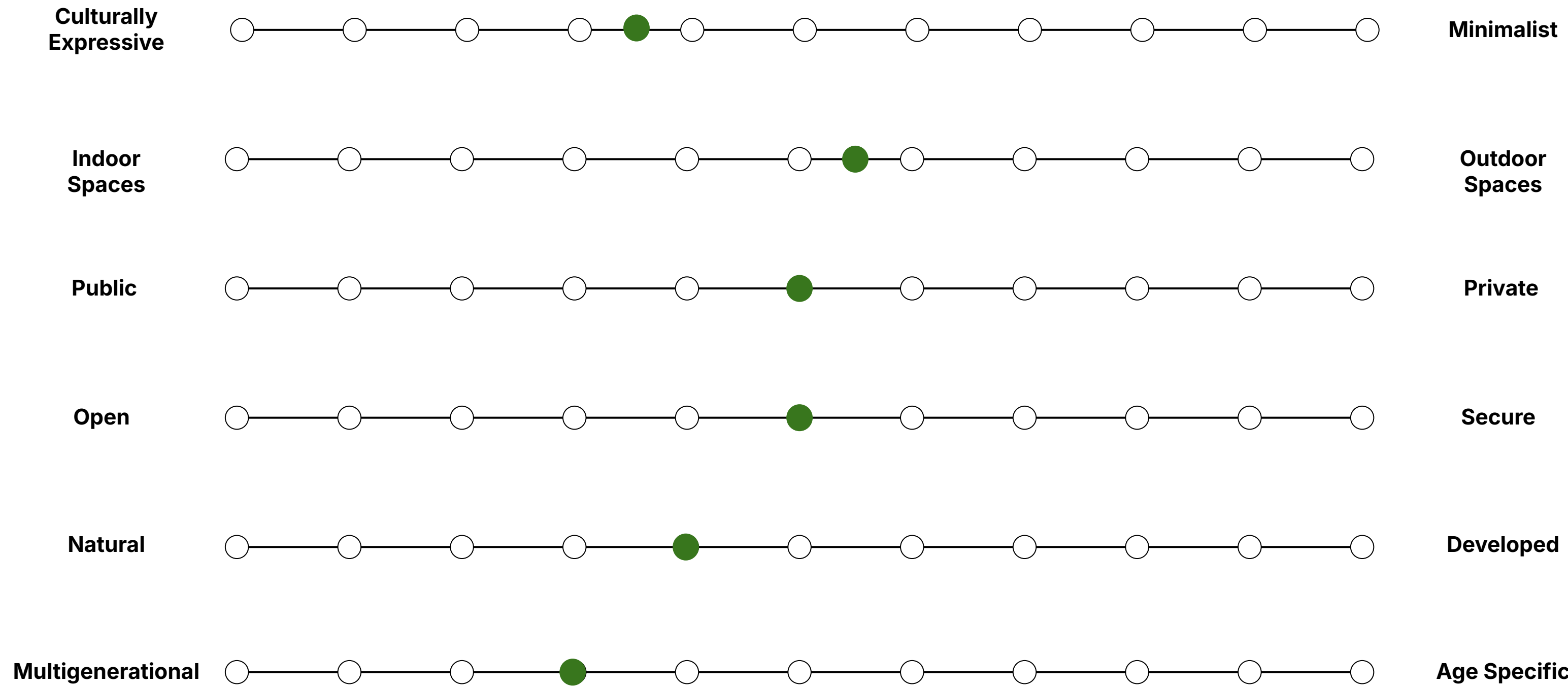
The following pages share average community responses across all engagement meetings related to: neighborhood, parks and homes.



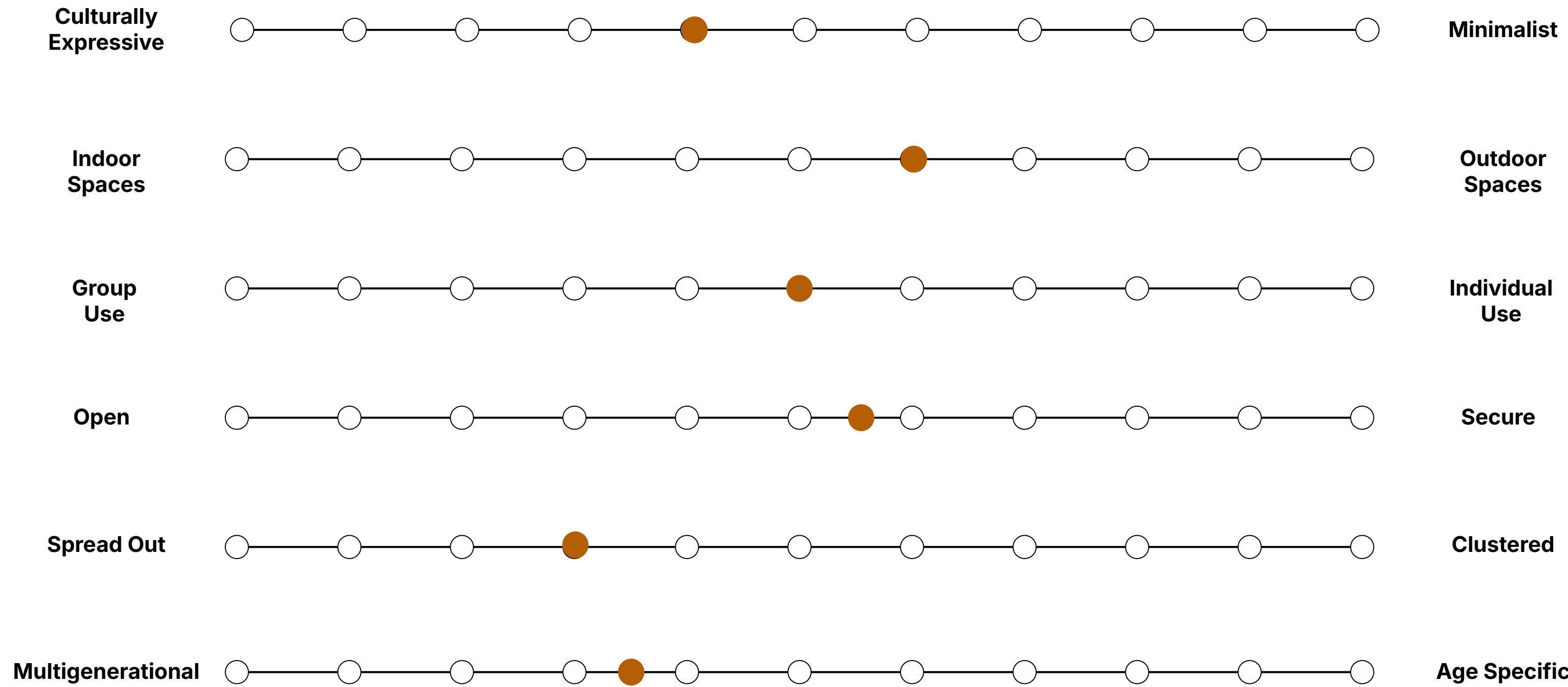
Envision **new homes** along Lone Pine. Which balance on these scales will most empower the community?



Envision the **pocket parks** along Lone Pine. Which balance on these scales will most empower the community?

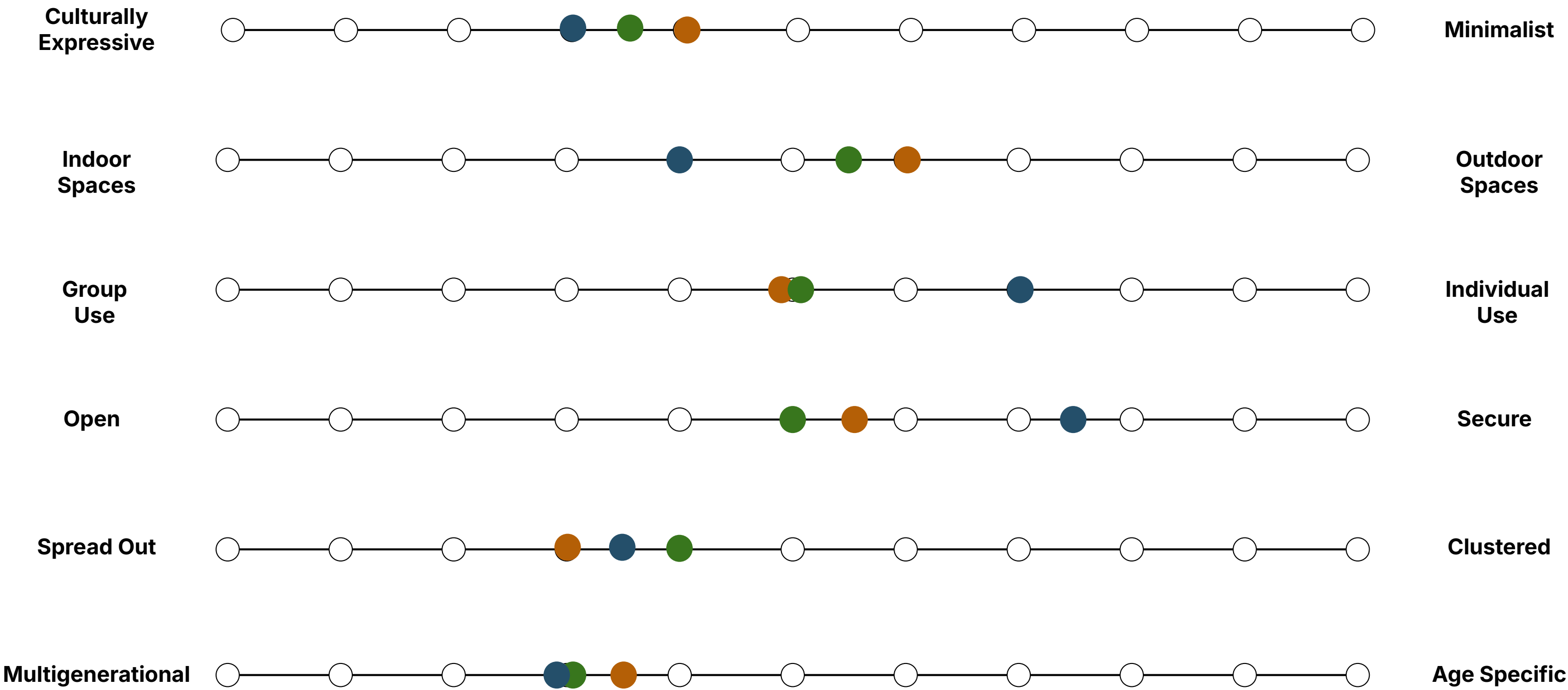


Envision **the neighborhood** along Lone Pine. Which balance on these scales will most empower the community?



These tensions will ideally be balanced in the design of the Lone Pine project

● Home ● Pocket Parks ● Neighborhood



Centering community input together with the average values from the Productive Tensions activity yields **design guidance based on focused community feedback.**

The following image pairs are shown with color-keyed dots corresponding to responses and **design recommendations for homes, pocket parks and the overall neighborhood.** Under each word pair are key takeaways from community member guidance during the activity and related conversations.



Creative Tensions Synthesis

The word pairs that begin on this page, indicate the Navajo community members average on each word-pair spectrum and share takeaways from the conversations that came up during engagement activities.

Culturally Expressive - Minimalist

Navajo Townsite CDC and community members conversation about this productive tension pair indicate these takeaways to inform design thinking related to neighborhood, park space and homes:

- More culturally expressive than minimalist
- Navajo cultural elements are important, especially in the home
- Key cultural features include; east-facing entries and spacious cooking, living and dining spaces
- Shade structures are an important park and landscape element along with the protection of sandstone formations



Culturally Expressive



Minimalist



Creative Tensions Synthesis

Indoor - Outdoor Spaces

Navajo Townsite CDC and community members conversation about this productive tension pair indicate these takeaways to inform design thinking related to neighborhood, park space and homes:

- A mix of outdoor and indoor spaces including in home designs
- Porch and patio spaces where folks can gather, share meals and talk
- Trees and landscaping, garden areas, shade structures and protection
- Pocket parks would ideally have an indoor or sheltered component to allow for gatherings and events in challenging weather conditions
- Desired cleanup, protection and appropriate use of nearby outdoor areas and features such as prominent limestone formations



Indoor



Outdoor

Creative Tensions Synthesis

Public Group - Private / Individual

Navajo Townsite CDC and community members conversation about this productive tension pair indicate these takeaways to inform design thinking related to neighborhood, park space and homes:

- Mix of collective and individual focus
- People who live in the neighborhood would be the main ones using the park
- Outdoor gathering space, meeting spaces, fire spaces within parks and neighborhood
- Spaces and places for gathering in a range of group sizes
- Activity area for residents and groups including recreation, relaxation, enjoyment of nature
- Home spaces are private, though have outdoor areas to allow for small gatherings + activities



Public / Group Use



Private / Individual

Creative Tensions Synthesis

Open - Secure

Navajo Townsite CDC and community members conversation about this productive tension pair indicate these takeaways to inform design thinking related to neighborhood, park space and homes:

- Mix of open and secure spaces
- Homes much more secure and less open
- Parks and neighborhood somewhat open but still secure and safe a 'neighborhood park' rather than a 'public park'
- Some fenced areas to address safety concerns: feral animals, dangerous dogs
- Neighborhood gathering spaces geared to residents of the community
- An overall sense of privacy and separation from people passing through and speeding vehicles
- Visual and sound privacy desired at gathering areas and homes
- Traffic calming and tree maintenance to contribute to neighborhood safety and calm



Open



Secure

Creative Tensions Synthesis

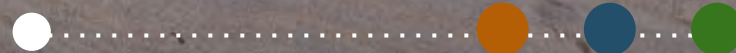
Spread-Out - Clustered

Navajo Townsite CDC and community members conversation about this productive tension pair indicate these takeaways to inform design thinking related to neighborhood, park space and homes:

- More dispersed than clustered
- Slightly more clustered at multi-family, multigenerational homes and near to community center
- Interest in more dispersed building massing at edge of community at natural edge with stone and forest
- Need for affordability, security, and use of existing infrastructure points to where clustered approach makes sense
- Shared amenities like safe areas for walking and biking
- Balance circulation and infrastructural benefits of buildings in close proximity
- Comparison, beyond the buildings, of spread-out landscape, habitat, views



Spread-Out



Clustered

Creative Tensions Synthesis

Age-Inclusive - Age-Specific

Navajo Townsite CDC and community members conversation about this productive tension pair indicate these takeaways to inform design thinking related to neighborhood, park space and homes:

- More age inclusive than specific
- Navajo community members generally share an intergenerational focus across their community
- Youth programs and activities are important though the community sees benefit in an age-inclusive approach in built environment (elder housing)
- The community prefers spaces and places that include a wide range of ages and abilities
- Homes, pocket parks and the overall neighborhood should serve the needs of multigenerational community members



Multigenerational



Age-Specific

Community feedback and priorities related to the Lone Pine project

- **AFFORDABLE** - new homes should be attainable to own and/or rent for a range of community members including elders, families who want to move back to Navajo, and those in 'the missing middle' who make up the regional workforce
- **HEALTHY** - clean, quiet, healthy homes with excellent indoor air quality, adjacent to nearby park spaces for active use and relaxation connecting residents to nature and providing a foundation for holistic health
- **SAFE** - clean, well-lit sidewalks, traffic calming features to reduce speeding, home sites that mitigate flood risk, and animal-control fencing to enhance community safety
- **CULTURAL**- the new development should reflect elements of Navajo culture: homes have east-facing entries with spacious living, cooking and dining areas allowing for large gatherings, parks have native vegetation and nature based playscapes
- **COMFORTABLE** - homes need to be pleasant during the hottest and the coldest days of the year with heating systems that can operate during winter power outages; homes are built to allow for the addition of future solar panels
- **MULTIGENERATIONAL** - homes, pocket parks, and the entire neighborhood are designed to be actively used by community members of all ages and extended families
- **HIGH QUALITY** - removing existing condemned homes and replacing them with high-quality homes, with efficient and cost effective building systems and materials, to meet community needs and withstand regional climate extremes
- **MEDIUM DENSITY** - increasing the number of homes in the neighborhood to provide more housing on the west side of Lone Pine closer to the town center and more park space near the sandstone formations to the east
- **SCALABLE** - the new housing designs should provide options for families of different sizes to age in place; with homes where multigenerational families can live together in proximity and privacy
- **OUTDOOR CONNECTIONS** - porches, entries facing the sunrise, gardens, parks, trails, and nature are seen as important community features that should be accessible across a range of ages and mobilities
- **NATURALLY LIT** - homes have ample daylighting through windows and include outdoor areas like porches. Ideal home locations have access to the morning sun
- **SOCIAL SPACES** - the development should have areas for social gathering including outdoor shade structures, places to cook outside, pocket parks, and residential porches

03

Existing Conditions

Context + Land Use
Adjacent Planning Considerations
Precedents



Source: iina ba, Inc.

MASS.

Community Context



1963

NFPI opens its door to produce and mill lumber providing jobs to over 600 Navajo families.



2000

Census determines Navajo, NM is likely the 'most Navajo' community with about 95% of residents having full or partial Navajo ancestry. (US Census)



2014

DZİŁ DİtŁ'OOÍ School of Empowerment, Action and Perseverance (DEAP) opens in Navajo.

Late 1950's

Navajo Tribal Council established the Navajo Forest Products Industry

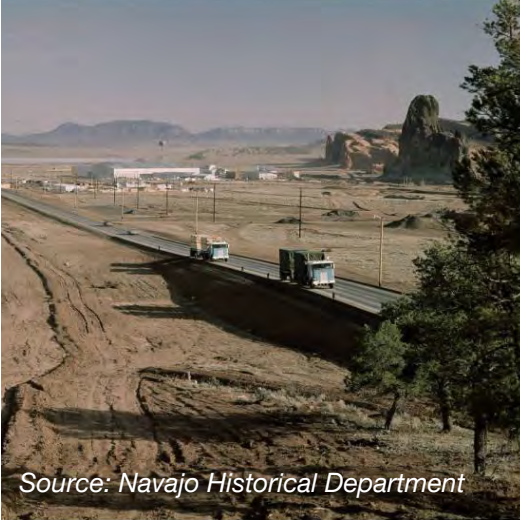


1980

Griswald's Store established

1991

NFPI production stops and shuts down by July 25.



2002

Navajo Nation formally dissolves NFPI



2013

Navajo Pine High School's Lady Warriors win the school's second basketball state championship.





Source: Reuben Hubbell / N8 Productions



Source: MASS Design Group

1989

Navajo Townsite Community Development Corporation (NTCDC) is incorporated under the Navajo Nation as its own Non-Profit Organization.

2012

NTCDC completed 25 public rental units and 15 lease-to-own homeownership units.

2024

Pre-Design Report for redevelopment of the Lone Pine neighborhood is issued

1999

NTCDC acquires the Master Lease from Navajo Nation for NFPI housing

2021

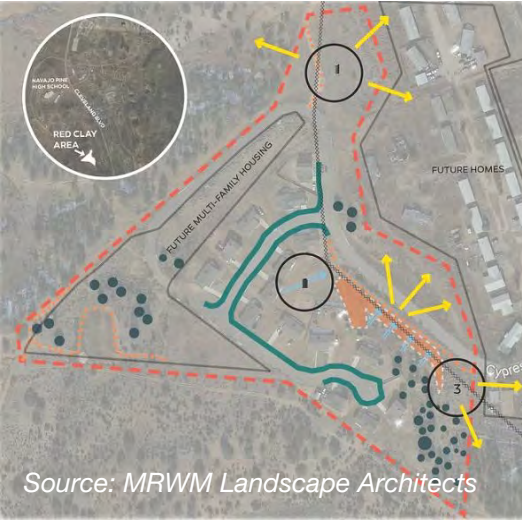
NTCDC Community Wellness Plan

2022

Pre-Design Report issued for Red Clay Hill

2025

Red Lake Chapter House #18 is rebuilt and expanded in Navajo



Source: MRWM Landscape Architects



Source: Reuben Hubbell / N8 Productions



Source: MASS Design Group

Current Land Use

The Lone Pine Project is **balanced between community and nature** – the site transitions between rural density and large sandstone formations.

Key existing conditions that inform the planning and development along Lone Pine include natural and built environment features and a range of challenges related to flooding, drainage, and community connectivity.

Existing Adjacent Housing – Navajo Housing Authority housing clusters border the site to the northeast along Juniper Avenue and to the south along Lone Pine Drive. The Lone Pine project will relate to these existing developments in terms of scale and density, while adding a mix of more culturally-informed home types to form a cohesive neighborhood.

Seasonal Wash – bridged culverts span an existing wash drainage running south to north just west of the site. New home sites within the project will be located at elevations and sites to allow for wash flows.

Community Connectivity – currently the wash effectively separates Lone Pine from the rest of the community with the exception of the vehicular road and culvert bridge at Balsam Court. This plan recommends removing the bridge and culvert between Lone Pine and Balsam Court as the homes at Balsam Court are already accessible from Route 109.

Sandstone Formations – the eastern edge of the site area transitions abruptly to large sandstone formations that provide beautiful views, but also create potential challenges in terms of drainage and the daylighting and passive heating of adjacent homes.

Flood-prone Areas – flood mapping and community member accounts of flood history suggest that the northwest area and lower lying areas of the site should be provided with floor elevations and foundation systems resilient to flood risk.



The Navajo Lone Pine Project presents **an opportunity to revitalize community and reclaim culture** set between a wash and a natural cliff drainage and among several existing housing clusters.

Community guidance and a review of proposed plans adjacent to, or affecting, the Lone Pine project site provides **a basis for understanding how to design to benefit the community as a whole**. Key anticipated plans affecting the project and related opportunities and challenges include:

Anticipated Home Removals – several homes in or near Lone Pine are anticipated for demolition or removal as they have burned down or are at the end of their serviceable life.

Pocket Park - the planned Frog Rock park at the northern edge of the site has a turf grass area for sports and a basketball practice area and other amenities.

Street Improvement Planning – a 30% street-improvements package by Dibble Corp Transportation informs access and infrastructure across the development.

Community Access – a pedestrian path could bridge the wash and provide direct access to the open area north of the Middle School.

Natural Access – the site allows access to the east to beautiful meadows and sandstone features; community members mentioned the need to stop dumping of garbage in these area and to provide guidance to cyclists and hikers to understand appropriate use areas within the cultural landscape.

Church Parcel – an existing church and house adjacent to the north of the site may hold potential spaces for community events or meetings.



It's an exciting moment for Tribal planning as many **Native Nations have planned and developed exemplary culturally-responsive projects** that can help inform the Lone Pine Project process.

Pathbreaking Tribal housing projects provide **healthy homes that perpetuate cultures and lifeways** alongside shared amenities for the benefit of their communities.

Conversations with Navajo community members about the Lone Pine development and related research identified these kindred projects, as well as additional precedents, as useful references to help inform the pre-development and planning.

Community feedback and guidance from Navajo Townsite CDC suggest referencing projects that exemplify the following themes:

- **Tribal planning and housing initiatives** - projects with mixed income attainability with elements that go beyond housing to feature shared park areas, community commons and live-work elements.
- **Reclaiming** - projects with cultural elements that embody belonging within the community
- **Living** - home places that meet community needs and express and revitalize Tribal culture
- **Moving** - active spaces that anchor community connections, play and movement in nature
- **Gathering** - community common spaces for gathering, celebrating and culture keeping
- **Growing** - natural places and gardens where living things and land enrich community

Precedents

Tribal Planning and Housing Initiatives

The precedent shared here reflect a range of recent Tribal planning and housing initiatives that relate to the goals of the Lone Pine project. Conversations with Navajo community members about the Lone Pine development and related research helped to identify kindred projects, as well as additional precedents, as useful references to help inform the pre-development and planning.

Community feedback and guidance from Navajo Townsite CDC suggest referencing these Tribal housing initiatives and the following precedents that feature the following characteristics:

- **Mixed-income attainability** – real affordability to meet a range of families’ needs
- **‘Beyond-housing’ elements** – shared amenities that emphasize community togetherness such as park areas, community commons and live-work functionality
- **Pedestrian pathways** – trails, walks and connected activity nodes that keep residents active, safe and engaged with others



1. **Thunder Valley CDC Housing Initiative** at Pine Ridge, Porcupine, SD – an innovative approach to community housing and culture keeping featuring community gathering and agricultural spaces, 2. **Stillaguamish Village**, Stillaguamish Tribe, Arlington, WA – a culturally-responsive, mixed-income development featuring detached shade structures and a shared central park area, 3. **Penobscot LEED Homes**, Penobscot Indian Nation, ME – a housing development featuring efficient single-family homes connected to trails and community amenities, 4. **Wa-Di Housing Development**, Santo Domingo Pueblo, NM – a development of 41 multi family homes with a community center, garden spaces, and places for sports and play

Precedents

Reclaiming - cultural and natural elements that embody belonging within the Navajo community.

These precedents exemplify cultural landscape restoration and conservation together with cultural revitalization – key themes lifted up by the Navajo community members participating in engagement – and show ways that the anticipated project can approach reclaiming restoring and revitalizing spaces and places.

- Centering key cultural landscape elements on site
- Combining ceremonial spaces with habitat and landscape
- Protecting sacred and natural spaces while allowing appropriate use
- Creating and restoring spaces for cultural and traditional activities



1. Raising sheep on Navajo Nation, 2. Trail in protected natural area, Penobscot Indian Nation,, 3. Earth and timber structures, DEAP Charter School, Navajo, NM, 4. Sandstone cliffs near the Lone Pine Project site, 5. Native language signage

Precedents

Living - home places that meet community needs and express Navajo culture.

The precedents featured here exemplify the types of living spaces that community members mentioned during conversations and community engagement activities. These precedents show ways in which the anticipated project can provide home spaces that meet the cultural and practical needs expressed by the people of Navajo. .

- Hogan homes as part of the housing type mix for families that want to live in a more traditional way
- East facing entries that allow for a direct connection between the home and the rising sun
- Open plan interiors featuring spacious living, cooking and dining spaces suited to family gatherings
- Spaces that bring in ample daylight and open to the outdoors and relate to landscape and natural areas
- Featuring local and natural materials that reflect culture and place within the home



1. Hogan with shade house, 2. Timber shade structure, 3. Spacious hogan interior, 4. Outdoor storage and workshop spaces, 5. Nageezi House, 7 Directions, 6. Natural wood and stone hardscape, 7. Ample porch with round wood columns

Precedents

Moving - active spaces that anchor community connections, play and movement in nature.

The precedents shown here exemplify play, fun, recreation and relaxation in natural settings – all key themes lifted up by community members – and show ways that the anticipated project can enhance opportunities for outdoor activities.

- Creating exciting landscapes, spaces and structures that invite a range of uses and encourage fun activities and the enjoyment of natural places
- Activating spaces that have forms, materials, site furniture and sizing that are conducive to informal gatherings and community events
- Featuring culturally-resonant murals, sculptures, play spaces, installations and other elements that connect community members to place and to one another.



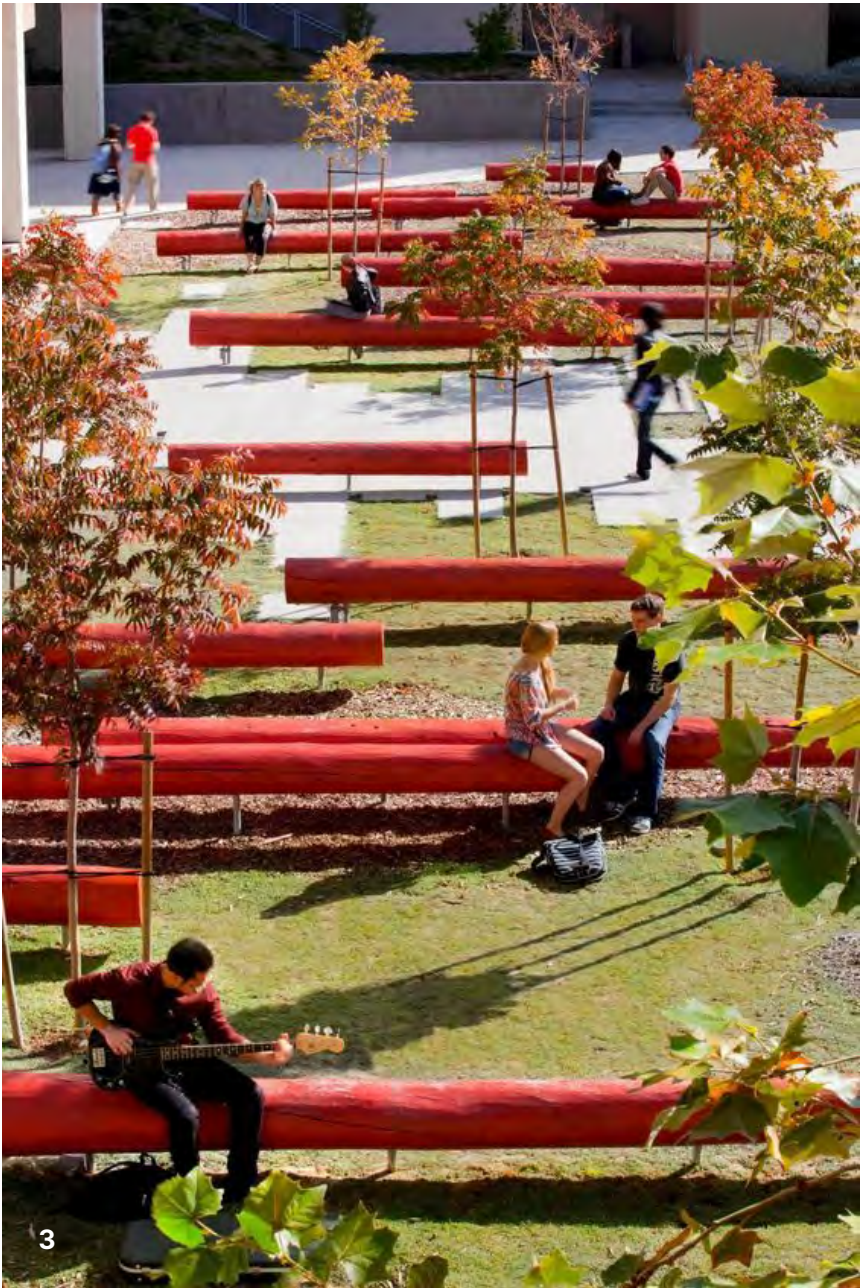
1. Shadow-casting shade structures, 2. Indigenous play space, Tagish First Nation, Yukon, 3. Culturally-appropriate bike trails, 4.Landscape integrated recreation, 5. Mural, Change Labs, Tuba City, 6. Colorful play space elements

Precedents

Gathering - community common spaces for gathering, celebrating and culture keeping.

The precedents featured here exemplify interactive spaces and places that hold intergenerational gatherings well – key themes lifted up by community members. These projects show ways in which the development can support spaces and places for gatherings for folks from all stages of life.

- Spaces where people are encouraged to engage, visit and connect with others in the community
- Dynamic experiential learning and play environments
- Multigenerational gathering spaces featuring barrier-free design
- Spaces and places that connect community members across different families and generations



1. Community space, Change Labs, Tuba City, 2. Tree-shaded outdoor seating, 3. Log seating framing gathering spaces, 4. Community room with murals, 5. Plant-defined outdoor areas, 6. Gathering space, Penobscot Indian Nation

Precedents

Growing - natural places and gardens where living things and land enrich community.

The precedents featured here exemplify how a range of activities related to tending, gardening and habitat can support a key project theme emphasized by community members and Navajo Townsite CDC. These places and spaces can bring community members into relationship with nature.

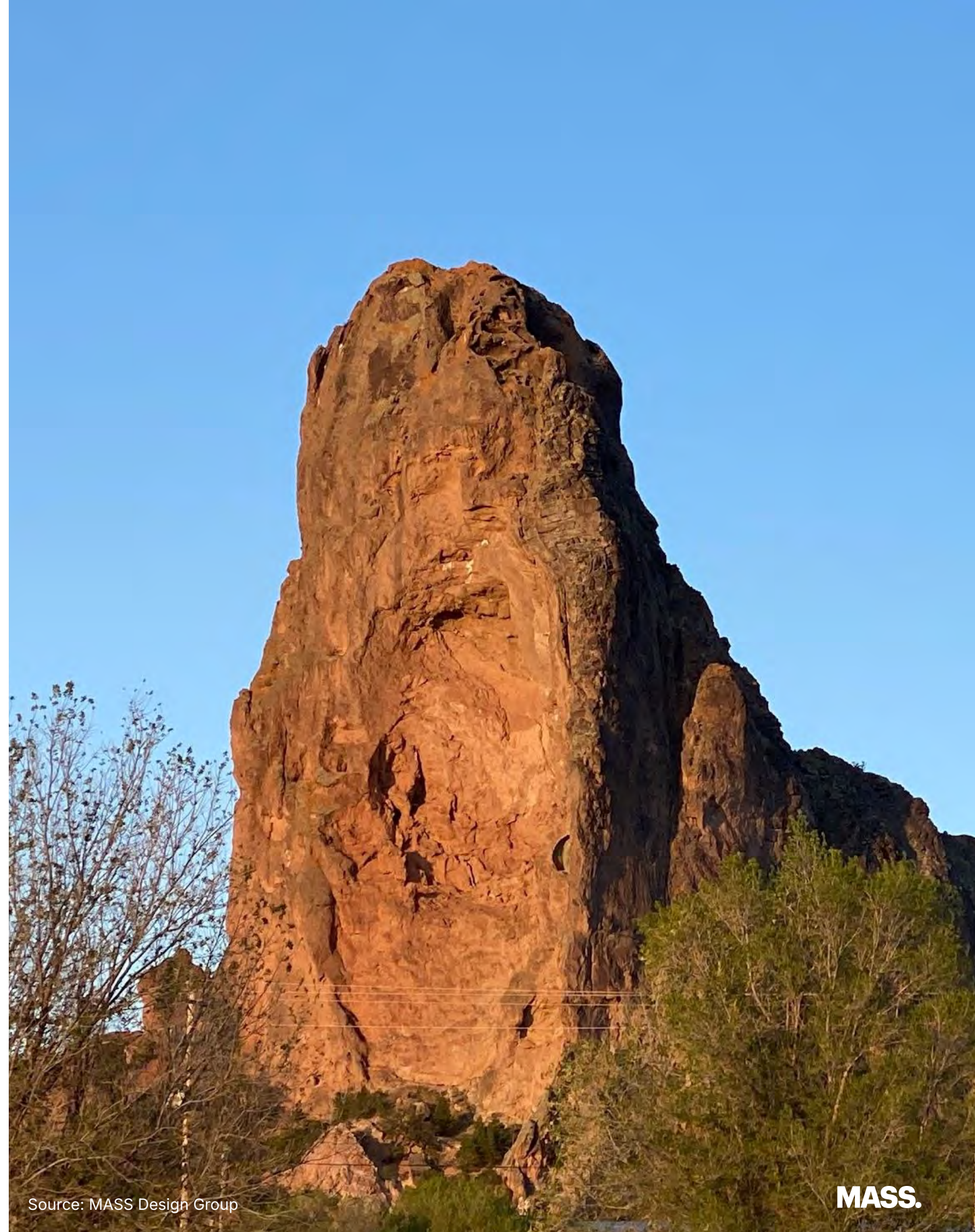
- Places for tending, growing and foraging food plants as well as ceremonial and useful plants
- Gardening and orchard areas including places to grow and share produce
- Shade houses and structures that allow for the growing and preparation of food and energy
- Appropriate protections and restricted access to sacred spaces including nearby peaks
- Natural areas where people can go to for relaxation and refreshment amidst nature



1. Thunder Valley greenhouse, 2. Respectful signage, 3. Stonefruit orchard, 4. Raised bed gardening, 5. Solar shade structure over garden, 6. Community farm stand , 7. Penobscot native plants garden, 8. Poultry Palace' at Thunder Valley

04 Community Resilience

Community Resilience Assessment
Resilience Opportunities



Source: MASS Design Group

MASS.

Navajo Townsite CDC is working to develop a **healthy, vibrant and resilient community**.

Understanding location-specific risks at the anticipated development site will be crucial for community resilience and will inform design and development decisions. Given the Navajo Townsite teams' focus on creating safe and healthy homes, shared amenities, and natural areas conducive to a thriving community, the following pages feature maps and information to help clarify what specific risks should be considered and prioritized for future community development in the area.

This section provides context related to the publicly available information from FEMA, New Mexico's Energy, Minerals and Natural Resources Department, the EPAs EnviroAtlas, the Centers for Disease Control, and other sources in order to rank a range of risk factors in Navajo, NM and McKinley County.

The resilience maps in this section show risk types that FEMA and other sources indicate as having a relatively moderate or higher risk. Happily, several of these risks are rated very low or not applicable to Navajo, NM and therefore are not included here. Overall the risk of a Cold Wave is among the most significant risk factors along with a very high Social Vulnerability and very low Community Resilience metrics.

The following resilience maps share more specifics about the primary risk factors affecting Navajo alongside tactics for risk mitigation:

- Environmental Health Risk
- Cold Wave
- Landslide
- Flooding
- Wildfire
- Social Vulnerability
- Community Resilience



Environmental Health Risk

There is evidence of environmental hazards in the vicinity of Navajo, NM. When the Navajo Forest Products Industry (NFPI) closed, little was done to mitigate contamination left by operation at the site. The result is contaminated soil and water largely from petroleum, asbestos, and hexavalent chromium.*

Community discussions about mitigation and clean up were held in 2012 *** and in 2021 the USEPA removed the last asbestos containing waste materials from the the former kiln building, as well as from piles of building debris and soil surfaces.** The USEPA removed over 4000 cubic yards of asbestos waste on the 103 acre site. More work is still needed to clean the remaining containmates from the soil and groundwater.

Sources:
*Navajo EPA Superfund; Brownfields Program, Pam Maples, Remedial Project Manager
**EPA response, Navajo Forest Product Industries
***Navajo Times, Costs of cleaning up: Many issues plague former Navajo Forest Products Industry site, Arlyssa Becenti

Below are some strategies to mitigate environmental health risks in the community:

- Participate in air, water, and soil quality and sampling programs
- Have community clean ups to collect trash and maintain vegetation
- Provide health warning signs advising the public of health risks for hazardous sites
- Replace chemical cleaning products with natural alternatives
- Do spot checks for toxicity in areas where development and community use are anticipated



Source: United States Environmental Protection Agency

Moderate Flooding Risk*

Flood Risk is another concern for the Navajo community and areas nearby. Based on Enviro Atlas data and community feedback, flooding is a risk across the Lone Pine development site areas in consideration. Flooding occurs when streams and rivers exceed the capacity of their natural or constructed channels to accommodate water flow and water overflows the banks, spilling out into adjacent low-lying, dry land. Generally riverine flooding risk is relatively moderate in McKinley County, compared to the rest of the U.S.

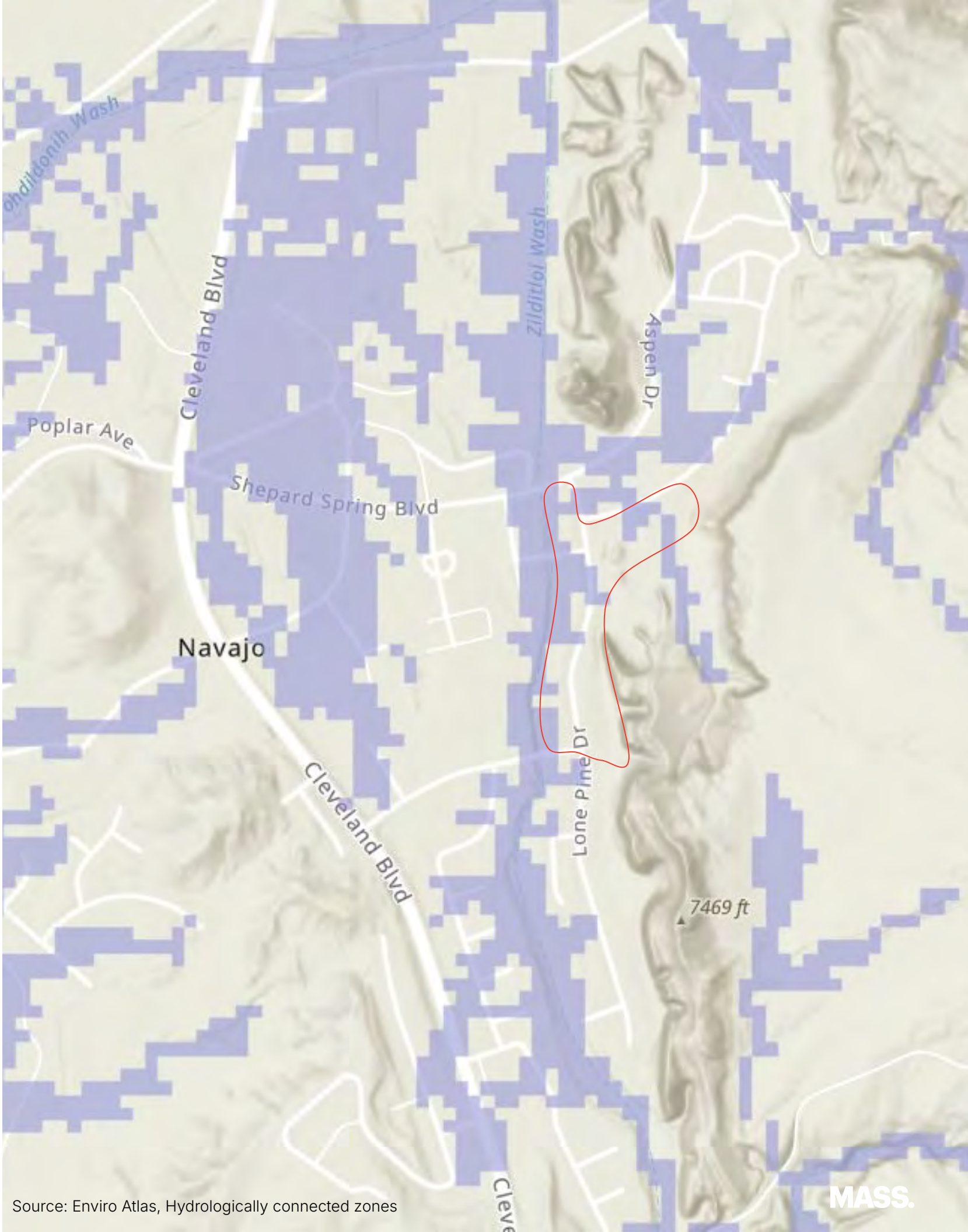
Unpredictable surface flooding and erosion are somewhat common in McKinley County, where heavy monsoon rains can cause fast moving surface flows. The town of Navajo, NM includes three watersheds, two washes, one creek, and one lake. Droughts and fires in the region have tended to make the effects of floods worse over time as deforestation and dry soils tend to increase erosion and climate change has brought larger and less predictable weather events to the area.

*FEMA doesn't provide flood risk data for this area, though risk is assumed to be moderate.

Given a quite variable risk of surface flooding across the area, it will be prudent to look at flood risk according to the anticipated risk at specific locations across the site selection and prioritize flooding at any site chosen that is flood prone or contains land within any identified flood plain or FEMA designated zone.

To mitigate the risk of onsite flooding, candidate sites can be assessed and developed resiliently by:

- Selecting building and foundation types which factor in soil types and flooding potentials including not building basement spaces in flood-prone or high-water table areas
- Clear new and existing culverts periodically to keep flow unchecked wherever roads cross over a wash or draw
- Locating all structures, parking, gathering areas, and circulation paths at high elevations relative to FEMA flood heights wherever they exist on site
- Checking with long-time residents to understand what the worst effects of flooding are in their experience and prioritizing those accounts when planning new site elements



Source: Enviro Atlas, Hydrologically connected zones

Cold Wave Risk: Relatively Moderate

Resilience Metrics: Census Tract 943801

Cold Wave Risk is a concern for the Navajo community. Based on community feedback, this is a consistent risk across the development site.

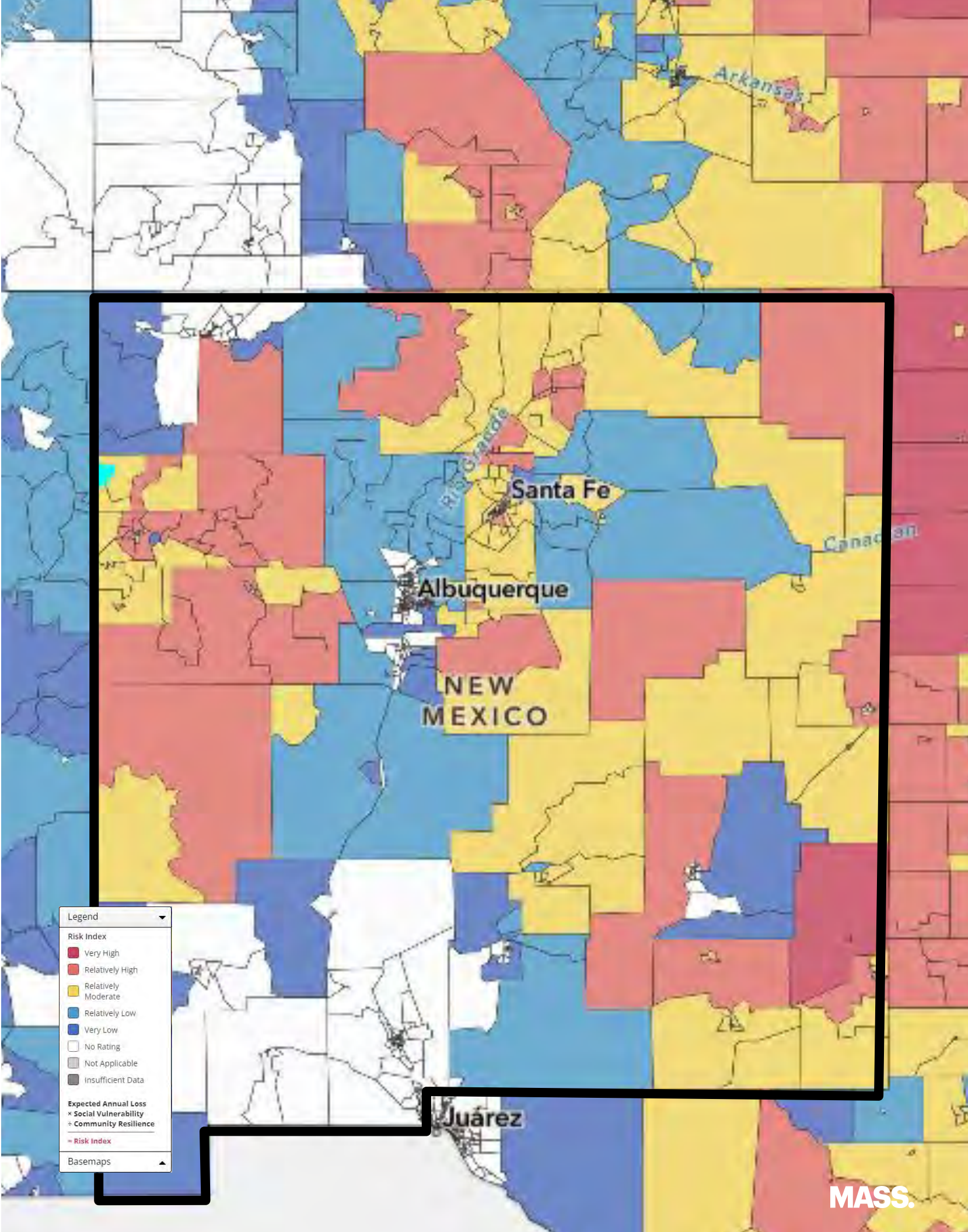
The US National Weather Service defines a cold wave as a rapid fall in temperature within 24 hours to levels requiring substantially increased protection to agriculture, industry, commerce, and social activities. Cold wave risk is relatively high in McKinley County, compared to the rest of the U.S.

Recent cold waves that affected the area include the February 2021 North American cold wave, an extreme weather event that brought record low temperatures to a significant portion of the United States and parts of northern Mexico during over the course of several weeks. The effects of climate change are expected to bring larger and less predictable weather events to the area in the future.

FEMA Natural Hazards map.
Risk Index = $\frac{\text{Expected Annual Loss} \times (\text{Social Vulnerability})}{\text{Community Resilience}}$

To mitigate the risks posed by cold waves, buildings and sites can be made more resilient by:

- Designing and building well insulated buildings with high quality weatherproofing assemblies, and elements such as windows and doors appropriate for cold weather
- Preparing and planning for the event of a power outage including having fire extinguishers and smoke detectors and alarms available and operable on battery backup without line power
- Protect water pipes from freezing
- Cover or any outdoor plants that are susceptible to extreme cold
- Protect any livestock or pets by ensuring they have access to warmth
- Consider efficient wood stove or multi-fuel stoves as alternative heating source for homes
- See additional recommendations related to winter and storm hazards in the Winter Weather Risk section below



Landslide Risk: Relatively Moderate

Resilience Metrics: Census Tract 943801

Landslide Risk is a concern for the Navajo community and areas nearby. Based on FEMA data, this risk is consistent across the development site areas in consideration.

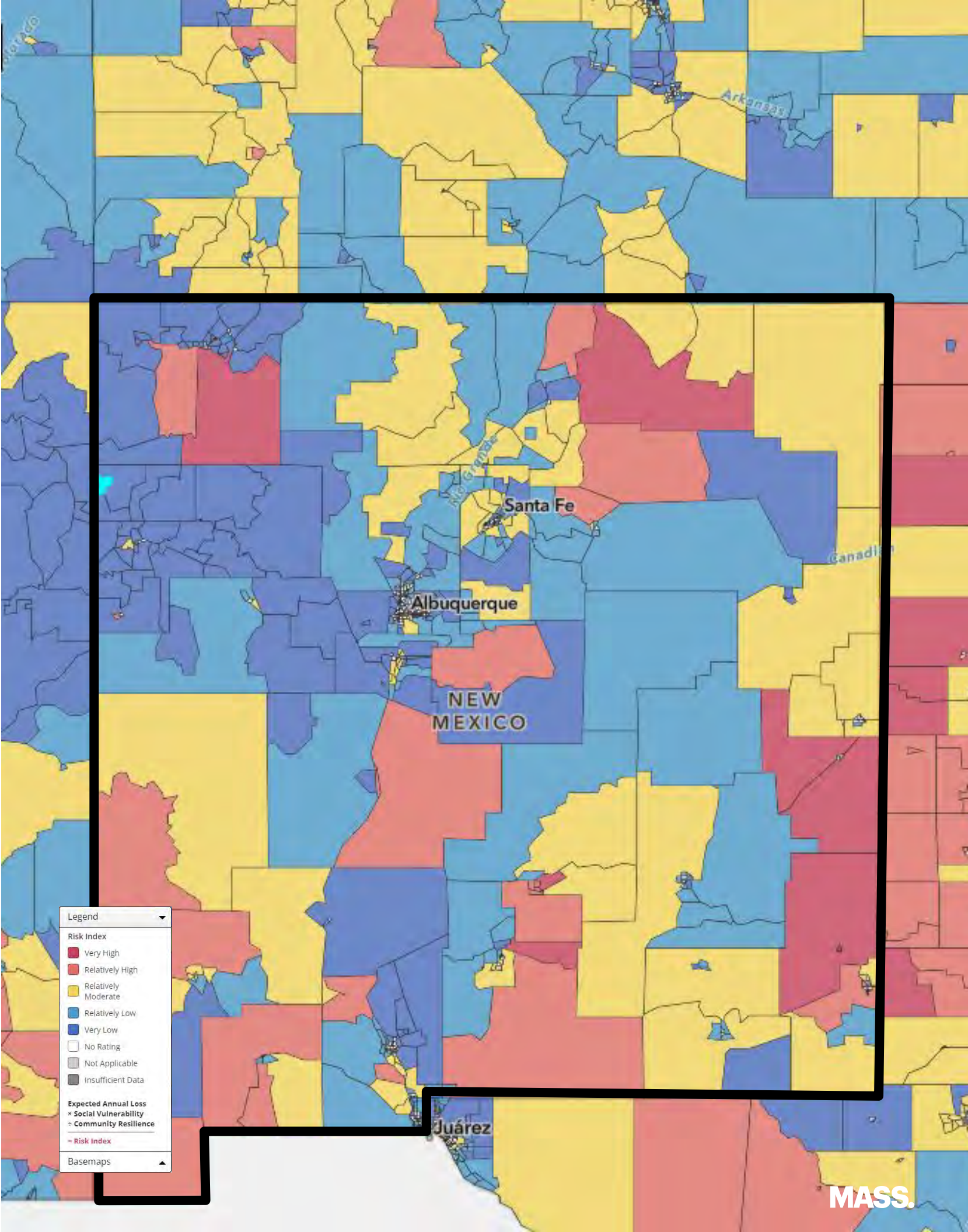
A Landslide is the movement of a mass of rock, debris, or earth down a slope. Generally landslide risk is very low in McKinley County, compared to the rest of the U.S. Several potential home sites in the development are located near substantial sandstone outcroppings or in areas where landslides might occur.

Local landslides in Navajo, NM are a moderate risk as large sandstone formations exist close to some locations in the development and landslides in combination with seasonal floods could create safety issues in some locations. In addition to avoiding sites where overhead formations look precarious, it will be important to focus on preparations to flash floods and be aware that water and wind may move loose pieces of stone over time.

FEMA Natural Hazards map.
Risk Index = $\frac{\text{Expected Annual Loss} \times (\text{Social Vulnerability})}{\text{Community Resilience}}$

In terms of site selection and development in the area, this moderate risk level suggests that the placement and construction of site elements and structures be considered on certain sites where landslides could occur. In such cases, beyond meeting or exceeding local code requirements, these steps would help to make a candidate site more resilient:

- Work closely with a civil engineer to understand site and soil conditions in light of predicted stormwater levels
- Site buildings and gathering areas far from the base of steep slopes and where landslides are more likely to occur
- Ask long-term residents nearby and parcel neighbors how the site fared in the recent atmospheric river events and plan accordingly
- Provide sites with more than one point of entry if possible
- Provide retaining walls or other structural solutions where steep grades exist on higher risk sites



Wildfire Risk: Relatively Low

Resilience Metrics: Census Tract 943801

Wildfire Risk is a minor concern for the Navajo community and areas nearby, however fire generally should be a significant concern for any development and is considered here together with wildfire risk. Based on FEMA data, this risk is consistent across the development site areas in consideration.

A Wildfire is an unplanned fire burning in natural or wildland areas such as forests, shrub lands, grasslands, or prairies. While the conditions for large wildfires are less likely to exist in the community, firewise planning is important as house fires and other spontaneous combustion fires can clearly threaten homes in the area. That said, wildfire risk is generally low in McKinley County, compared to the rest of the U.S.

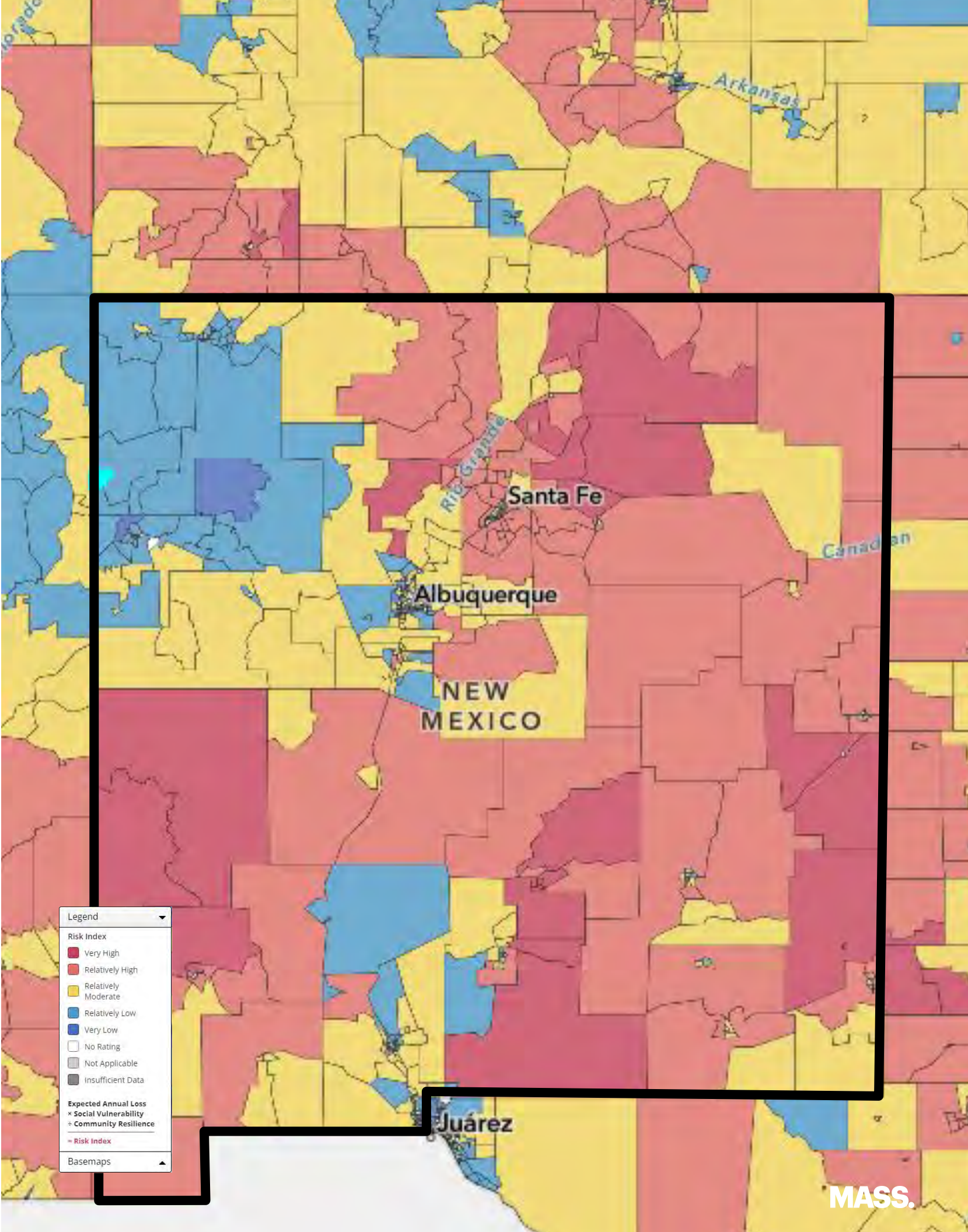
While considered a relatively low risk, the Wood Springs 2 Fire of 2020 is a reminder that wildfire is a real concern for the region. This wildfire covered 3,000 acres and impacted air quality in the Navajo, NM community.

FEMA Natural Hazards map.

Risk Index =
$$\frac{(\text{Expected Annual Loss}) \times (\text{Social Vulnerability})}{\text{Community Resilience}}$$

In terms of site selection and development in the area, this low risk level suggests that the placement and construction of site elements and structures be considered on certain sites where wildfires might occur. The recommendations that follow work to increase resilience related to wildfire and other types of more common home fire events. Beyond meeting or exceeding local code requirements, these additional steps would help to make a candidate site more safe and resilient:

- Site development and habitations in the lowest fire risk areas possible to enhance human and property safety
- Remove all flammable materials and plantings close to structures and maintain landscaping buffer zones around all homes and structures
- Build and detail all structures with fire-resistant materials
- Refer to National Fire Protection Association (NFPA) FireWise (firewise.org) resources for further recommendations



Social Vulnerability Risk: Very High

Resilience Metrics: Census Tract 943801

Compared with the rest of the U.S. Social Vulnerability Risk is very high in McKinley County, including in the community of Navajo, NM.

Social Vulnerability metrics used by FEMA are based on location-specific assessments of 16 socioeconomic variables deemed to contribute to a community's reduced ability to prepare for, respond to, and recover from hazards, specifically:

- Below 150% Poverty
- Unemployed
- Housing Cost Burden
- No High School Diploma
- No Health Insurance
- Aged 65 & Older
- Aged 17 & Younger
- Civilian with a Disability
- Racial & Ethnic Minority Status
- Multi-Unit Structures
- Mobile Homes
- Crowding
- No Vehicle
- Group Quarters
- Single-Parent Households
- English Language Proficiency

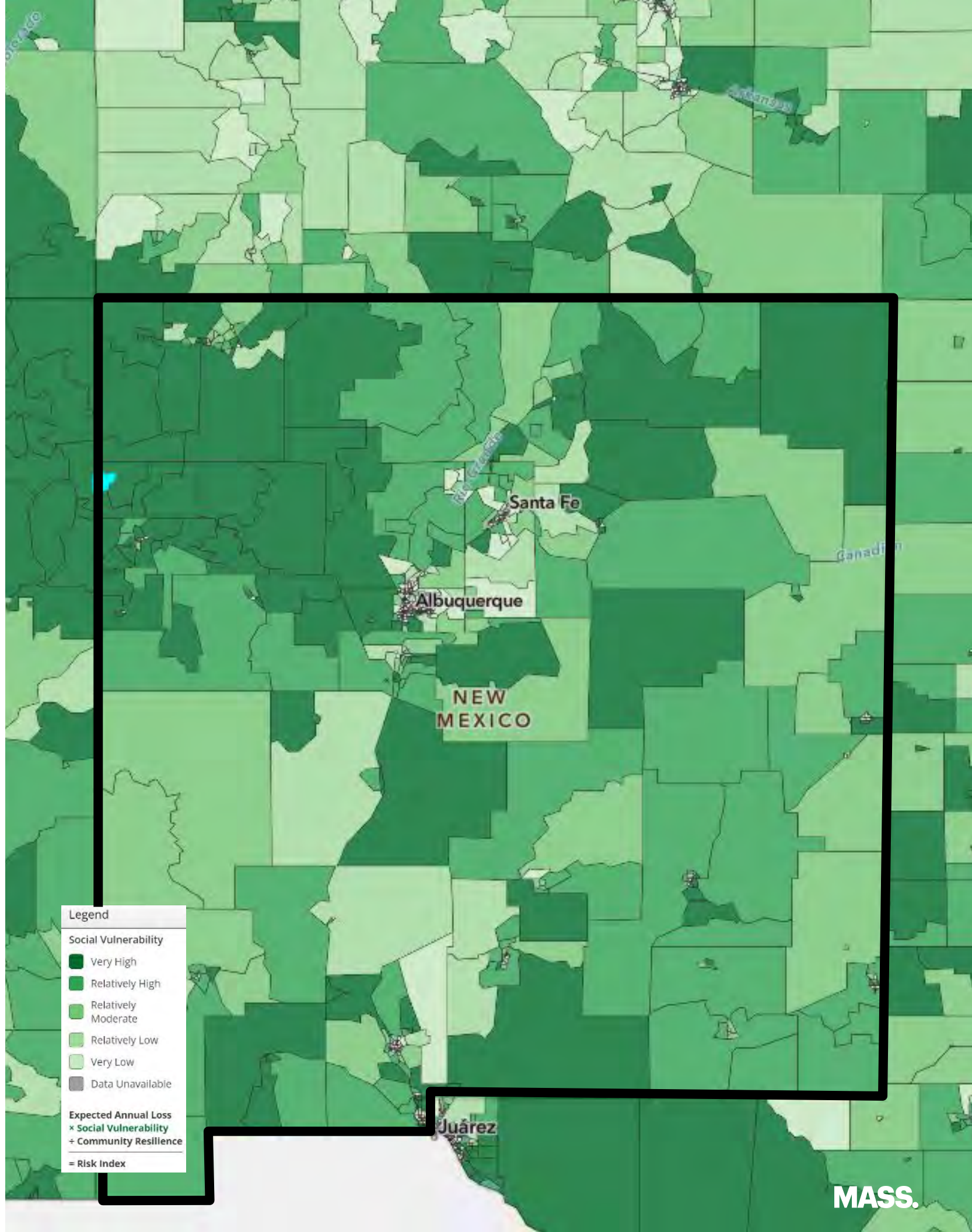
The Navajo Townsite team can affect positive change to reduce social vulnerability. Given it's goals, capacity and programs, some key resilience actions include:

- Providing quality housing
- Reducing housing cost burden
- Reducing overcrowding
- Providing culturally sensitive multifamily housing options
- Working to mitigate the FEMA risks outlined above
- Creating community spaces for gathering, recreation and enjoyment of nature

Note: Unlike other maps in this section, FEMA sources this data from the CDC/ATSDR Social Vulnerability Index (CDC/ATSDR SVI) uses 16 U.S. census variables to help local officials identify communities that may need support before, during, or after disasters.

Source: Agency for Toxic Substances and Disease Registry (ATSDR), a federal public health agency of the U.S. Department of Health and Human Services.

FEMA Natural Hazards map. Social Vulnerability is measured using the [Social Vulnerability Index \(SVI\)](#) published by the [Centers for Disease Control \(CDC\)](#).



Community Resilience: Very Low

Resilience Metrics: Census Tract 943801

Compared with the rest of the U.S. Community Resilience is very low in McKinley County and in the community of Navajo, NM according to FEMA. This means communities in the region have a relatively low ability to prepare for anticipated natural hazards, adapt to changing conditions, and withstand and recover rapidly from disruptions when compared to the rest of the country.

The framework FEMA references defines six types of resilience:

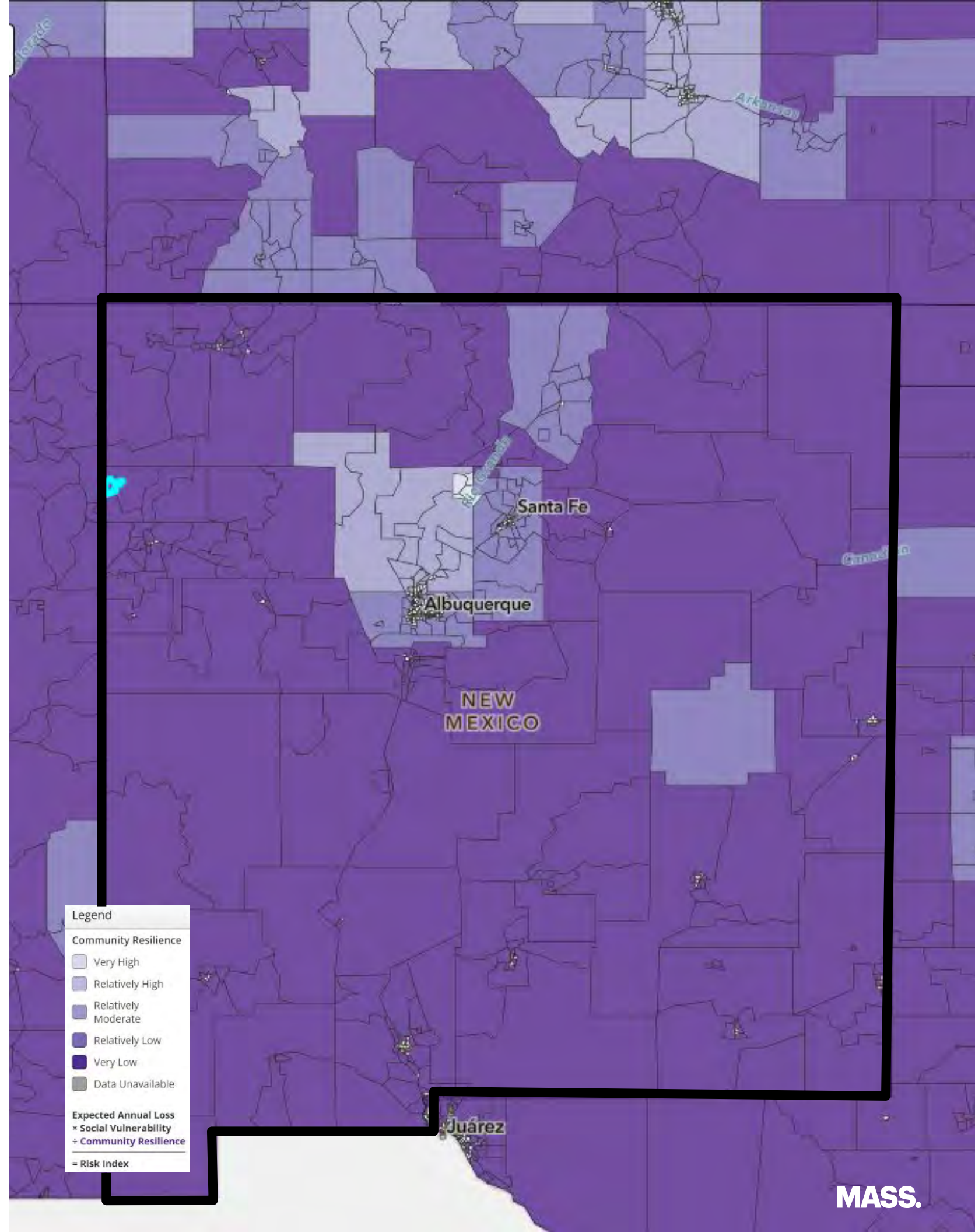
- Social
- Economic
- Community capital
- Institutional capacity
- Housing / infrastructure, and
- Environmental

The Navajo Townsite CDC team is well positioned to positively impact resilience in their community as they are set up to provide capacity building, community capital and funding and management towards infrastructure and housing creation.

FEMA Natural Hazards map. Community Resilience is measured at the County level using the [Baseline Resilience Indicators for Communities \(HVRI BRIC\)](#) published by the [University of South Carolina's Hazards and Vulnerability Research Institute \(HVRI\)](#).

There is a clear need for people, programs and projects that increase community resilience in Navajo and the region. The Navajo Townsite CDC team can increase community resilience by:

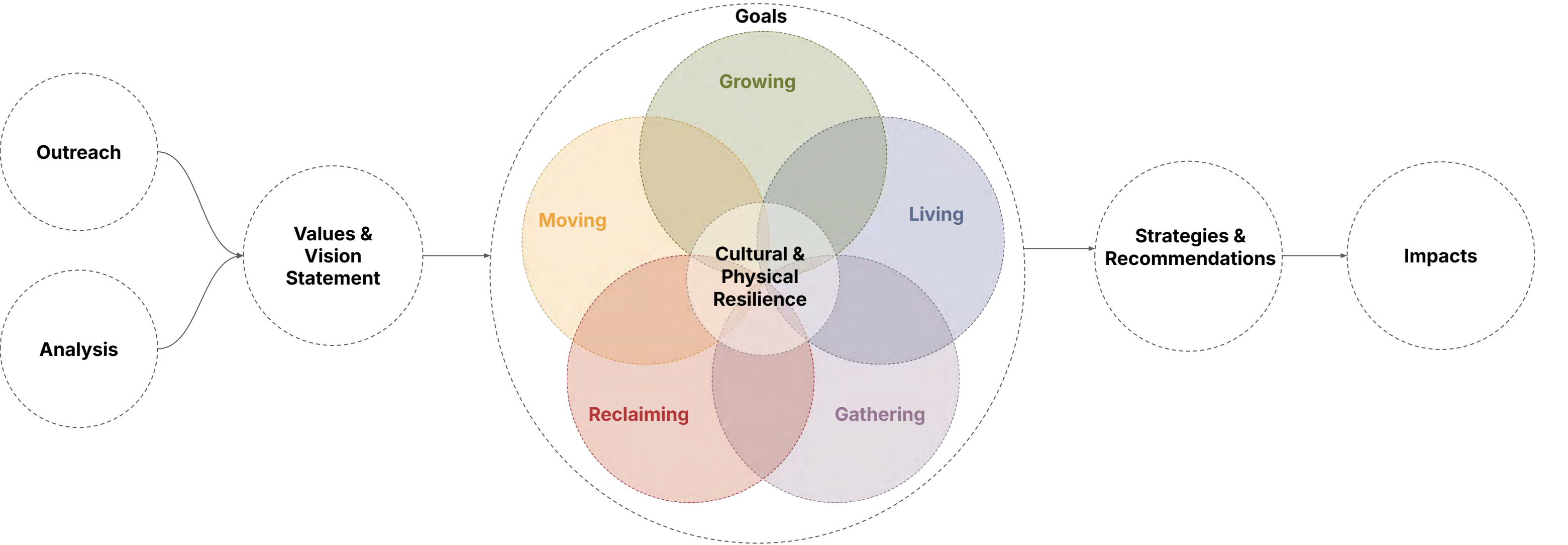
- Gathering and supporting social and community gatherings and programs
- Working to increase financial literacy and to make housing more accessible to all
- Creating programs and financing to keep dollars and housing equity within the community
- Growing internal capacity at the CDC to help more families
- Developing and managing quality, culturally-responsive housing
- Creating natural and recreational areas within the community
- Working with other local and regional actors to improve access to healthy food, healthcare and emergency response services
- Working to mitigate the FEMA risks outlined above



The resilience planning process identifies **opportunities for systemic change within the Navajo community** beyond the Lone Pine Project.

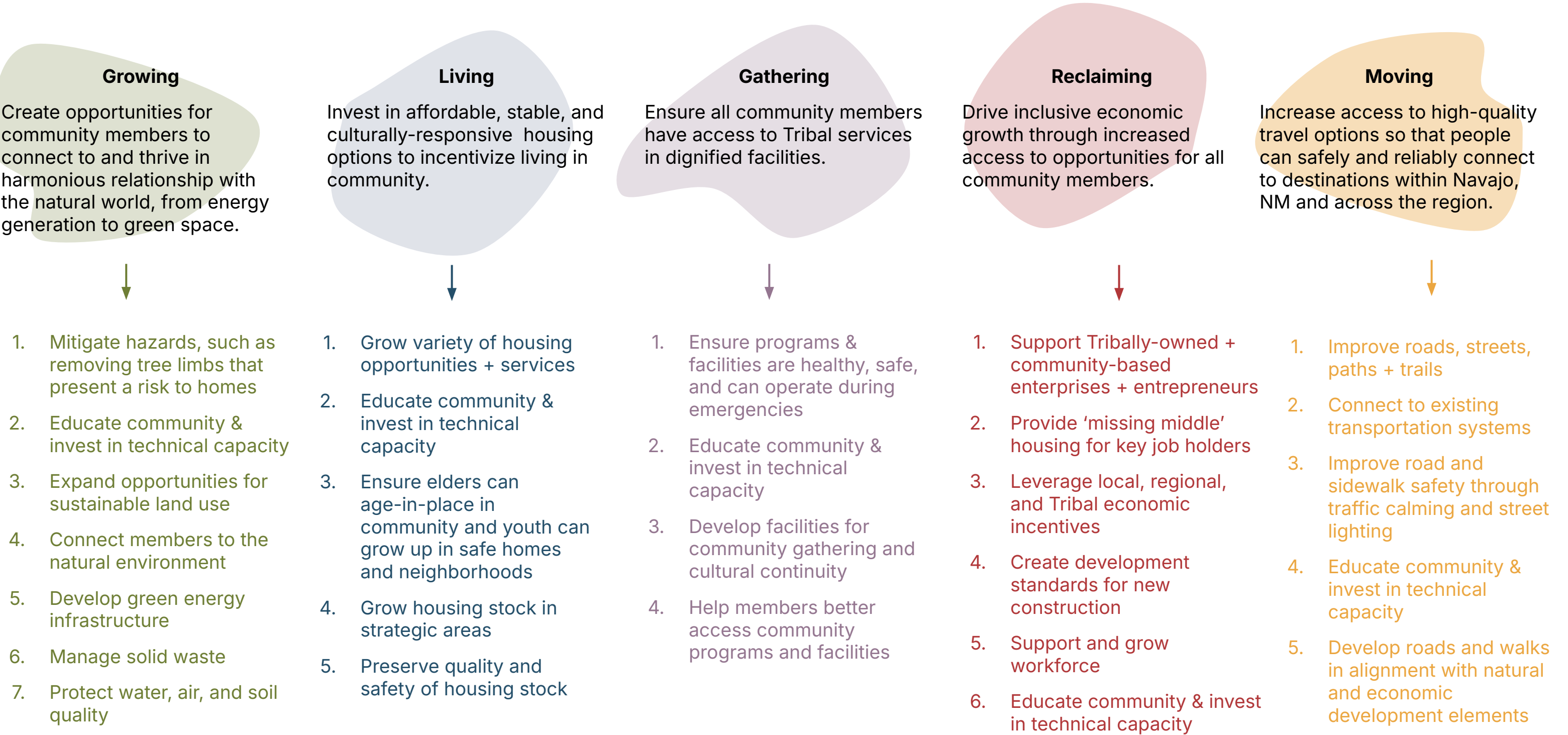
These community-resilience opportunities that follow, reflect options open to Navajo Townsite CDC based on MASS research and community feedback.

The following pages outline additional achievable resilience actions that will support the current project while increasing community resilience more broadly. Each potential resilience action builds upon the project goals of community building, homeownership, housing affordability as well as accessibility and well being. Each resilience opportunities shared below can be initiated individually or in any combination as they are discrete actions that will elevate overall resilience within the Navajo community.



How do we achieve community resilience through these opportunities?

Striving towards cultural resilience and self-sufficiency, Navajo Townsite CDC envisions a thriving community where all members have access to culturally centered spaces – a community where affordable and safe housing, sustainable and reliable infrastructure, and economic opportunities, embody a model of stewardship, connection, and prosperity for future generations.



Resilience Opportunities - Living

Action	Build new homes for rental housing and homeownership
Goal 1	Invest in affordable, stable, and diverse housing options across Navajo to incentivize living in community
Goal 2	Create a sustainable, robust, and self-sufficient Navajo economy
Strategy 1	Create a community master plan to grow housing stock in strategic areas
Strategy 2	Conduct a housing assessment of the current housing stock
Impact 1	Growth in # of members who move back to the community
Impact 2	Growth in homeownership and equity-building
Impact 3	Ensure elders can age-in-place in community
Which Entity Would Oversee?	Red Lake Chapter #18, Navajo Townsite CDC
Which Entity Would Support?	NHA, MASS
Possible Funding Opportunities	IHBG, LIHTC, Bundling HUD Section 184s
Precedents/ Who's Done It	Santo Domingo Housing Authority



Source: Atkin Olshin Schade Architects, Wa-Di Housing Development, Santo Domingo Pueblo, NM

Resilience Opportunities - Living

Action	Invest in a Housing Assessment Inventory of all Navajo Townsite CDC-managed housing properties
Goal 1	Invest in affordable, stable, and diverse housing options across Navajo community to incentivize folks living in and moving back to community
Strategy 1	Preserve quality and safety of housing stock
Strategy 2	Ensure elders can age-in-place in community
Strategy 3	Grow housing stock in strategic areas
Strategy 4	Grow variety of housing services
Strategy 5	Educate community & invest in technical capacity
Impact 1	Community members can age in place in healthy, safe housing
Impact 2	Growth in # of members who move back to the community
Impact 3	Growth in homeownership and equity-building
Which Entity Would Oversee?	Navajo Townsite CDC
Possible Funding Opportunities	
Precedents/Who's Done It	<u>Zuni Pueblo Housing Inventory Assessment</u>



Source: Atkin Olshin Schade Architects, Zuni Pueblo, NM

Action	Adopt Resilience Plan Design Guidelines on Future Developments
Goal 1	Create opportunities for Navajo community members to connect to and thrive in relationship with the natural world, from energy generation to green space, to healthy housing
Strategy 1	Protect water, air, and soil quality
Strategy 2	Mitigate hazards including potential flooding during storm and wind events, freeze-thaw effects, indoor-air pollution in homes
Strategy 3	Develop transitional and green energy infrastructure (e.g. solar, solar-ready, passive solar, and energy and water efficient systems and appliances)
Strategy 4	Connect members to natural world
Strategy 5	Manage solid waste and clean up degraded natural areas
Impact 1	Improvement in health outcomes for members (from indoor & outdoor environments)
Impact 2	100% of new homes across Navajo community are solar-ready and increasingly can rely on self-generated energy, resilient to disasters
Impact 3	Children become stewards of environmental knowledge for their families
Which Entity Would Oversee?	Navajo Townsite CDC
Which Entity Would Support?	Navajo Nation EPA, Navajo Housing Authority, Fish & Wildlife, Navajo Nation Parks and Recreation, Red Lake Chapter; Possibly DEAP Charter and local district schools
Possible Funding Opportunities	EPA Funding Opportunities EPA: Tribal Green Building Code Guidance
Precedents/ Who's Done It	Building Green & Respecting Native American Identity: Housing, Culture, and Sustainability in Native American Communities

Tribal Green Building Toolkit

2023



Humankind has not woven the web of life.
We are but one thread within it.
Whatever we do to the web, we do to ourselves.
All things are bound together.
All things connect.

– Chief Seattle, 1854

Resilience Opportunities - Growing

Action	Develop solar farms & Micro Grids
Goal 1	Create a reliable power supply for homes and the community
Goal 2	Create opportunities for the community to connect to and thrive in harmonious relationship with the natural world, from energy generation to green space
Strategy 1	Develop transitional and green energy infrastructure
Strategy 2	Provide new homes with solar power
Impact 1	Homes have power during outages
Impact 2	Growth in employment opportunities for members
Impact 3	100% of energy needs in Navajo, NM are self-generated and resilient to disasters
Which Department Would Oversee?	Red Lake Chapter could initiate conversations with Navajo Tribal Utility Authority, or identify grants to help explore these potentials
Which Department Would Support?	NTCDC may be able to support
Possible Funding Opportunities	https://www.bia.gov/service/grants/nabdi https://www.bia.gov/service/grants/emdp
Precedents/ Who's Done It	Standing Rock Tribe, SD



Resilience Opportunities - Growing

Action	Redevelop dangerous intersections and mitigate flooding issues where roads bridge culverts or drainages
Goal 1	Safer roads and less flooding
Strategy 1	Develop roads in alignment with economic development nodes
Impact 1	0 community roadway accidents/year
Which Entity Would Oversee?	Red Lake Chapter #18, Navajo Department of Transportation
Which Entity Would Support?	TBD, Navajo Townsite CDC, Dibble Corp. (Street Improvements)
Possible Funding Opportunities	DOT Loan: Transportation Infrastructure Finance and Innovation Act (TIFIA) program DOT Flex Funding: Surface Transportation Block Grant (STBG) Local funding opportunities: Tribal TIP, Navajo Nation Fuel Excise Tax, NM TIF, NM Capital Outlay
Precedents/ Who's Done It	Navajo Townsite CDC anticipates working towards this opportunity through the Lone Pine Project



Resilience Opportunities - Moving

Action	Implement Improvements to Community Sidewalks, Paths and Roads
Goal 1	Increase access to high-quality transportation infrastructure so that people can safely and reliably connect to destinations within the Navajo community and across the region
Strategy 1	Develop roads in alignment with housing development and community development nodes including economic development sites
Impact 1	Increase in community health from more walking and biking
Impact 2	Increase in use of facilities, services, and participation in tribal events by Navajo community members
Impact 3	Less flooding at streets around culverts and drainages
Which Entity Would Oversee?	Red Lake Chapter #18, Navajo Dept. of Transportation
Which Entity Would Support?	Navajo Townsite CDC, Navajo DOT (Roads), Dibble Corp (Street Improvements)
Possible Funding Opportunities	DOT Loan: Transportation Infrastructure Finance and Innovation Act (TIFIA) program DOT Flex Funding: Surface Transportation Block Grant (STBG) Local funding opportunities: Tribal TIP, Navajo Nation Fuel Excise Tax, NM TIF, NM Capital Outlay
Precedents/ Who's Done It	Navajo Townsite CDC



Source: MASS Design Group, Caddo Nation, Hinton, OK

Resilience Opportunities - Moving

Action	Identify and develop slow zones with traffic calming mechanisms
Goal 1	More people feel safe walking and biking in the community
Strategy 1	Develop roads, bike lanes, and sidewalks in alignment with housing and economic development nodes
Impact 1	0 roadway accidents/year
Impact 2	Increase in economic stimulus generated within community and within Navajo, NM
Which Entity Would Oversee?	Red Lake Chapter #18, Navajo Dept. of Transportation
Which Entity Would Support?	Navajo Townsite CDC, Navajo DOT (Roads), Dibble Corp (Street Improvements), MASS
Possible Funding Opportunities	DOT Loan: Transportation Infrastructure Finance and Innovation Act (TIFIA) program DOT Flex Funding: Surface Transportation Block Grant (STBG) Asphalt Art Initiative AARP Livable Communities and Team Better Block Living Streets Alliance Local funding opportunities: Tribal TIP, Navajo Nation Fuel Excise Tax, NM TIF, NM Capital Outlay
Precedents/ Who's Done It	Tucson, AZ



Source: Living Streets Alliance, Tenwest Street Fest, Tucson, AZ

Resilience Opportunities - Growing

Action	Designate additional protected recreation areas and pocket parks
Goal 1	Ensure all community members have access to culturally-appropriate lands and trails as well as information about what spaces and places are sacred and not appropriate for hiking, biking and other uses.
Goal 2	Create opportunities for community members to connect to and thrive in harmonious relationship with the natural world
Strategy 1	Develop facilities for community gathering and cultural continuity
Strategy 2	Celebrate cultural and local flora and fauna through conservation areas and trails
Impact 1	Tribal members feel a sense of belonging and cultural pride in their community; kids become stewards of environmental knowledge for their families
Impact 2	Improvement in health outcomes for members (from indoor & outdoor environments)
Impact 3	Potential economic impact through use and attraction of designated recreational areas and parks spaces
Which Entity Would Oversee?	Navajo Townsite CDC, Red Lake Chapter #18
Which Entity Would Support?	Navajo Nation Parks and Recreation, Navajo Nation Fish & Wildlife, Navajo Nation Historic Preservation; possibly Navajo Nation Museum and/or school programs in collaboration
Possible Funding Opportunities	Funders such as: NEA Community Placemaking, National Park Service, and grants from philanthropic groups and foundations
Precedents/ Who's Done It	Frog Bay Tribal National Park Penobscot Indian Island trails system



Source: Frog Bay Tribal National Park, Red Cliff Band of Lake Superior Chippewa, WI

Resilience Opportunities - Gathering

Action	Develop cultural signage
Goal 1	Include Navajo language on signage and develop community-approved history narratives to increase awareness of culturally-appropriate use of natural areas including peaks, sandstone formations, sacred sites, cultural plants
Strategy 1	Identify areas where cultural signage could be placed throughout the neighborhood and community
Impact 1	Increase in use of facilities, services, and participation in Tribal events by community members
Impact 2	More community members becoming culture bearers and local history keepers
Impact 3	Children become stewards of environmental knowledge
Which Entity Would Oversee? / Support?	Red Lake Chapter #18, Navajo Dept of Transportation, Roads, Environment; Supported by groups potentially including: Historic Preservation, NN Museum, potential school collaborations, Navajo Townsite CDC, etc.
Possible Funding Opportunities	DOT Loan: Transportation Infrastructure Finance and Innovation Act (TIFIA) program DOT Flex Funding: Surface Transportation Block Grant (STBG)
Precedents/ Who's Done It	Ngurin bush tucker trial, Karratha, Western Australia



Source: Interpretive Design Company, Ngurin Bush Tucker Trial, Australia

Resilience Opportunities - Gathering

Action	Develop cultural places for the community to gather
Goal 1	Create places to gather and share meals, bring the community together through cultural practices
Strategy 1	Identify areas where a community gathering place could be located
Strategy 2	Identify what practices and activities should take place in the gathering space (ie, sharing food, cultural ceremonies, place to relax)
Impact 1	Increase social interaction and sense of community
Impact 2	More community members becoming cultural bearers
Impact 3	Children learn more about cultural practices
Which Entity Would Oversee?	Red Lake Chapter #18, Navajo Dept of Transportation, Roads, Environment; Supported by groups potentially including: Historic Preservation, NN Museum, potential school collaborations, Navajo Townsite CDC, etc.
Possible Funding Opportunities	Funders such as: NEA Community Placemaking, National Park Service, and grants from philanthropic groups and foundations
Precedents/ Who's Done It	Stillaguamish Canoe Shed, Washington



Source: 7 Directions, Stillaguamish Tribe of Indians, WA

05

Plan for the Future

Existing Site Plan
Site Programming
Phasing Approach
Development Plan
Housing Approach
Development Guidelines
Next Steps + Recommendations



Existing Site Plan

Current onsite concerns include:

- A range of older existing homes, some near the end of their service life
- Two homes that have recently burned and are condemned
- Dumping of refuse and large furniture in the valley to the east of the site
- Safety of the neighborhood, including concerns about strangers and loose animals, ability to heat homes during power outages, and some homes with backyards near steep cliffs could experience falling snow, ice or rock

Neighborhood Density

West of Lone Pine Drive (5.19 acres or 226,159.83 sq ft)

Current existing density is 14 homes, approximately 2.7 homes per acre

Proposed density is 17 homes, approximately 3.2 homes per acre

East of Lone Pine Drive approximately 8 acres (excluding sensitive habitat)

Current existing density is 7 homes, approximately .87 homes per acre

Proposed density is 11 homes, approximately 1.3 homes per acre

Increased density promotes:

- Better Infrastructure Utilization
- Reduced Environmental Impact
- Enhanced sense of community - more opportunities for social interactions
- Diverse Housing Options
- Retaining and Attracting Resident (younger populations)



Site Programming

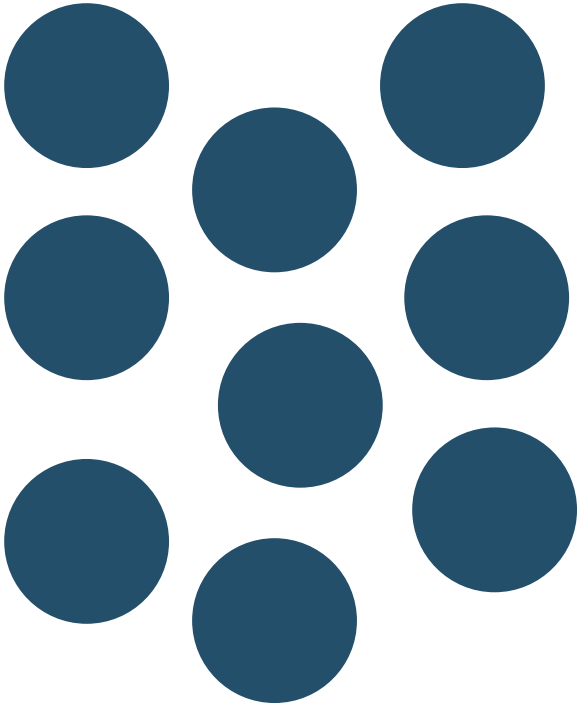
Navajo community members shared a variety of anticipated uses they would like to see within the Lone Pine project. Through the engagement activities and discussion the Navajo Townsite x MASS team identified this framing of community-prioritized uses and reuses.

The programming diagram shown here indicates the spaces the Navajo Townsite team is most likely to create and shows the relative size and quantity of each type of space.

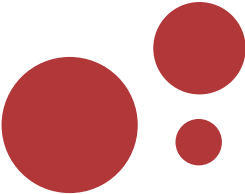
This diagram describes community-desired activities and indicates the relative sizes and quantities of spaces. As a diagram of site programming, this provides a graphic way to understand the scale across various use areas and forms a kit of parts to inform the design process in terms of adjacencies, circulation, and the space needs of various programs and uses.

This family of graphic elements and colors will help us going forward to update Navajo community priorities and phasing across the Lone Pine development site.

Living
homes that meet community needs and express Navajo culture



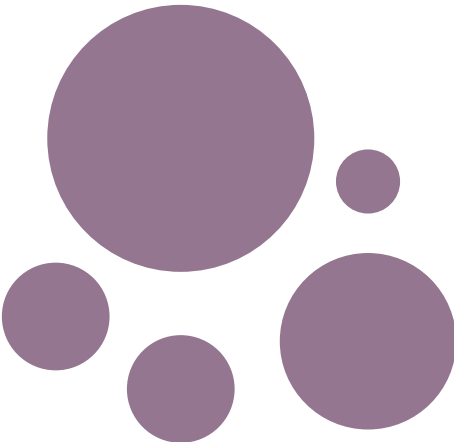
Reclaiming
cultural elements that embody belonging within the Navajo community



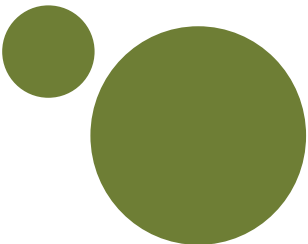
Moving
active spaces that anchor community connections, play and movement in nature



Gathering
community common spaces for gathering, celebrating and culture keeping



Tending
natural places and gardens where living things and land enrich community

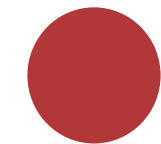


Site Programming

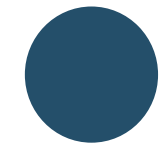
Building on community guidance and site observations, these main spatial activity areas will be fundamental across the Lone Pine project development process. This diagram shows key use areas anchoring our development planning process through community feedback and the programming areas outlined above:

- Connecting community and homes to pocket park spaces and shared facilities
- Providing access to Fuzzy Mountain hiking areas
- Removing unnecessary informal access ways to conserve natural areas limit undesired dumping
- Removing the informal connection between Lone Pine and Balsam Court as future development anticipated along Balsam will have safe and ample access from Route 109

Reclaiming
cultural + natural elements



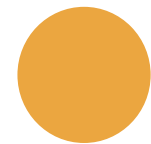
Living
housing



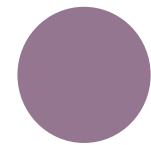
Tending
habitat + green space



Moving
connections + playing



Gathering
community commons



To prepare for a new housing design and development process, this section outlines suggested **development steps towards approximately 36 new homes** including a remove-and-replace strategy to provide housing continuity and stability to families who choose to continue residing at Lone Pine during the process.

Step 1 - carry out housing needs assessment and complete housing design and engineering while removing damaged, condemned + burned homes (verify structures + locations)

Step 2 - begin rebuilding new single-family and multigenerational homes / duplexes and hogans to open up housing for families and households relocating out of substandard or demolished units

Step 3 - continue to replace more existing units with new homes in phases related to needs assessed to streamline transition for residents while optimizing project efficiencies



How can Navajo Townsite CDC create new housing and increase density with minimal disruption to the community.

A phased development approach, building on community feedback and Navajo Townsite team guidance, suggests a path where the CDC can achieve site control and build incrementally to serve current needs and expand to suit future housing demand and opportunities.

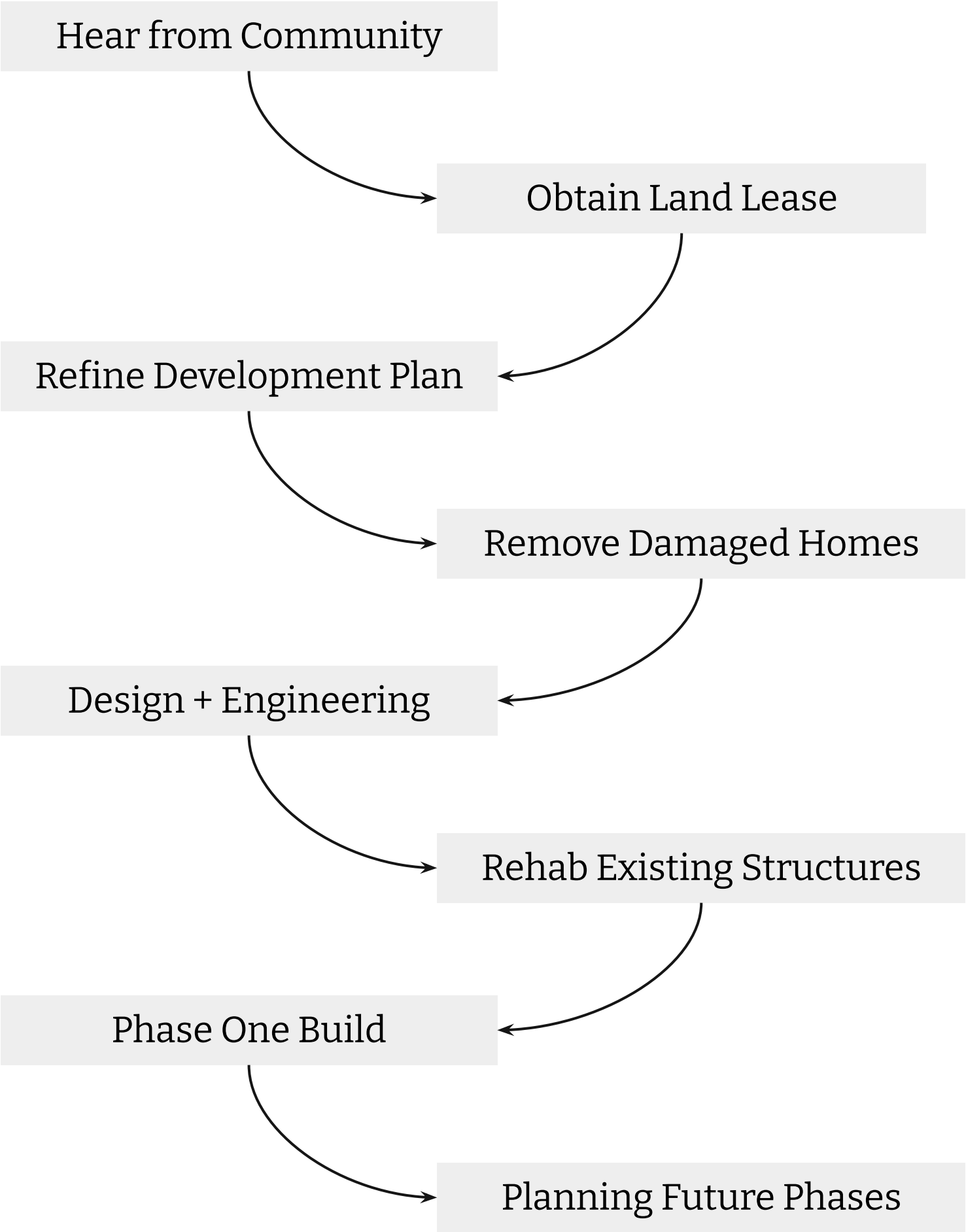
Centering the housing, pocket parks, access ways and key systems with regard for existing utilities locations allows for the implementation of architecture and landscape elements without devoting unnecessary project dollars to new infrastructure.

This incremental approach combines with a range of concept home types suited to future residents, from hogan homes, to multigenerational homes, to multi-family homes at a variety of sizes and price points, this approach builds on the initial investments in the site and outlines a path to create a neighborhood of healthy homes in the Lone Pine neighborhood.

The maps and graphics in this section show options to inform the development process and indicate phasing options to show how phased development can achieve the removal and replacement of housing in an efficient way that optimizes for affordability and minimizes disruption to community members.

Map Exhibits:

- **Existing Conditions:** showing overall site features as surveyed
- **Demolition Plan:** showing removal of existing homes
- **Phase One Homes:** showing suggested density along Lone Pine Drive
- **Phase Two Homes:** showing pocket park and suggested density along Juniper Avenue
- **Combined Phases - One + Two:** showing feasible high density across development site
- **Boundary Survey** -(by surveyor)



Current Conditions

The Lone Pine site consists of 21 homes, several of which are in substandard condition. The CDC plans to phase the demolition of these existing homes and the replacement of a greater number of homes in order to keep community members housed throughout the duration of the development process.

Community needs assessments will help the CDC to understand how many households would like to stay within the Lone Pine Development. A phased demo-and-replace approach is outlined on the next several pages. This approach can be adjusted to accommodate housing needs and available budget.

Future Frog Rock Park

Survey Boundary

Sensitive Habitat Zone

Existing Lone Pine Homes



Development Plan - Phase 1

Phase 1

During the initial phase of development new housing will be constructed on sites where no homes exist so homes are available for folks to move into following the demolition work.

Key Phase 1 activities:

- Build 5 New Homes at Juniper Avenue and at north of Lone Pine
- Demo 2 existing homes at north end of Lone Pine
- Demo any remaining structures at burned / condemned homes
- Demo Balsam Ct road, bridge and culvert

New Home Breakdown

Type	3-Bedroom (1350 SF)	4-Bedroom (1740 SF)	3-Bedroom + Studio (2400 SF)	Small Hogan (1040 SF)	Large Hogan (2400 SF)	Total Home Count
Homes by Phase	1	1	1	1	1	5
Total Home Count						5

Housing types to be adjusted based on community need, with larger homes going on larger lots.

Future Frog Rock Park

New Walking Trail
Connecting Parks

Boulders to prevent
vehicle access

Demolished
Road/Bridge

New Community Park
Structure

Demolished Home



Phase 2

During this phase of development new housing will be constructed on sites where homes were demolished in the prior phase so that homes continue to be available for folks to move into following the continued demolition and home replacement process.

Key Phase 2 activities:

- Build 4 additional new homes at the north end of Lone Pine
- Demolish 5 more homes along Lone Pine

New Home Breakdown

Type	3-Bedroom (1350 SF)	4-Bedroom (1740 SF)	3-Bedroom + Studio (2400 SF)	Small Hogan (1040 SF)	Large Hogan (2400 SF)	Total Home Count
Phase Home Count	1	1	1	0	1	4
Total Home Count						9

Housing types to be adjusted based on community need, with larger homes going on larger lots.



Development Plan - Phase 3

Phase 3

During this phase of development new housing will be constructed on sites where homes were demolished in the prior phase so that homes continue to be available for folks to move into following the continued demolition and home replacement process.

Key Phase 3 activities:

- Add 5 more additional new home along the north end of Lone Pine
- Demolish 6 more homes along Lone Pine

New Home Breakdown

Type	3-Bedroom (1350 SF)	4-Bedroom (1740 SF)	3-Bedroom + Studio (2400 SF)	Small Hogan (1040 SF)	Large Hogan (2400 SF)	Total Home Count
Homes by Phase	2	1	2	0	0	5
Total Home Count						14

Housing types to be adjusted based on community need, with larger homes going on larger lots.



Phase 4

During this phase of development new housing will again be constructed on sites where homes were recently demolished so that homes continue to be available for folks to move into following the continued demolition and home replacement process.

Key Phase 4 activities:

- Add 7 more additional new home at the south end of Lone Pine
- Demolish 7 more homes along Lone Pine

New Home Breakdown

Type	3-Bedroom (1350 SF)	4-Bedroom (1740 SF)	3-Bedroom + Studio (2400 SF)	Small Hogan (1040 SF)	Large Hogan (2400 SF)	Total Home Count
Homes by Phase	2	3	2	0	0	7
Total Home Count						21

Housing types to be adjusted based on community need, with larger homes going on larger lots.



Phase 5

During this final phase of development new housing will again be constructed on sites where homes were recently demolished and pocket parks and shade structures will be established as community amenities to complete the project work.

Key Phase 5 activities:

- Build 7 more new homes at the south end of Lone Pine
- Establish new Pocket Park areas
- Build new Shade Structure to anchor trail network

New Home Breakdown

Type	3-Bedroom (1350 SF)	4-Bedroom (1740 SF)	3-Bedroom + Studio (2400 SF)	Small Hogan (1040 SF)	Large Hogan (2400 SF)	Total Home Count
Homes by Phase	2	4	1	0	0	7
Total Home Count						28

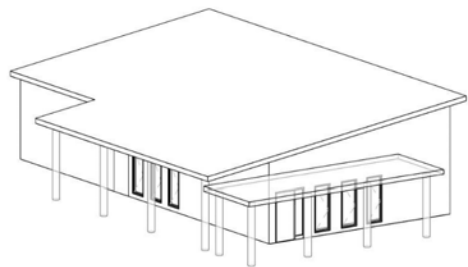
Housing types to be adjusted based on community need, with larger homes going on larger lots.



Conceptual home designs

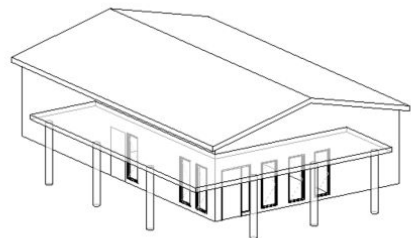
Single Family Home: Large

- 4 bedroom, 2 bath
- 1740 SF



Single Family Home: Medium

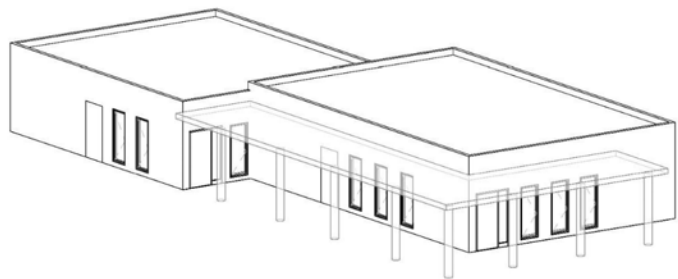
- 3 bedroom, 2 bath
- 1350 SF



Multigenerational Duplex Home

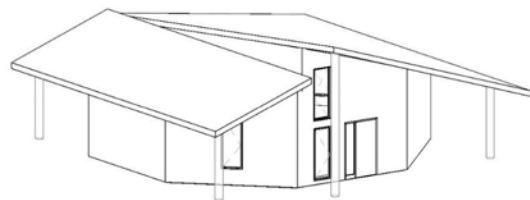
feat. shared portal:

- 3 bed, 2 bath +
- 2 bed, 1 bath
- 2400 SF total



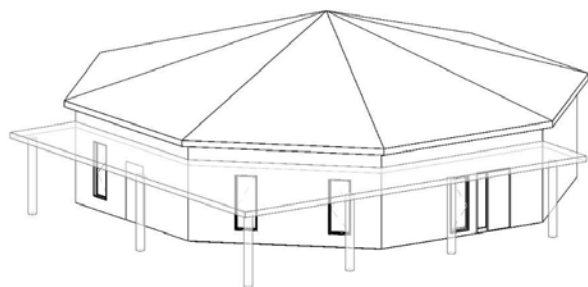
Hogan Home: Small

- 2 bedroom + 1 bath
- 1040 SF



Hogan Home: Large

- 4 bedroom + 2 bath
- 2400 SF



Home designs will be developed based on engagement and needs assessment. Home types shown here are for preliminary engagement and estimation. Further community input, as well as an assessment of existing utilities, will determine final home design, size, and placement to meet community needs and site capacity. Each home type reflects concepts based on listed square footage and designed bedroom/bathroom counts, aligned with key project goals. These home concepts are designed to be:

ATTAINABLE - featuring compact forms and efficient layouts that will lead to lower operational costs and construction costs

SUSTAINABLE - featuring design and systems that improve operational efficiency and environmental impacts

CULTURALLY-RESPONSIVE - east entries, spacious living-dining spaces and shade structures express Navajo culture

EXPANDABLE - each home can be configured with two, three or four bedrooms

CONSTRUCTIBLE - featuring compact and materials-saving massing and involving building elements that can be constructed easily by constructors in the community and the region

FLEXIBLE - design concept allows for duplex bedroom counts anywhere between four and eight bedrooms per duplex

COMPACT - elongated east-west plan allows for expansion while adding density at existing infrastructure points

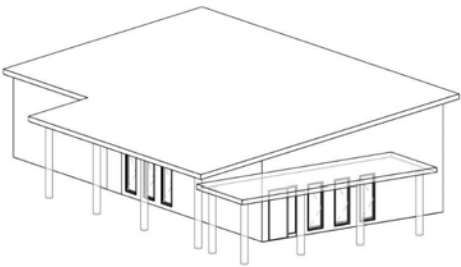
MULTIGENERATIONAL - shared porches and the potential for interior adjoining doors provide shared spaces as well as privacy

NATURAL -materials such as timber, stone and straw-bale stem from the region and provide cozy, healthy and beautiful spaces

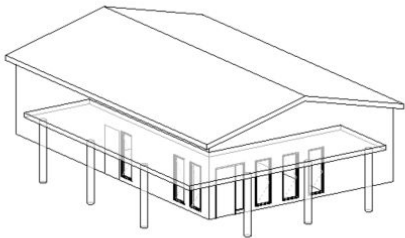
VERDANT - south-facing spaces for gardens and home-scale greenhouses to allow families the option to grow their own food

Cost estimates by home design type

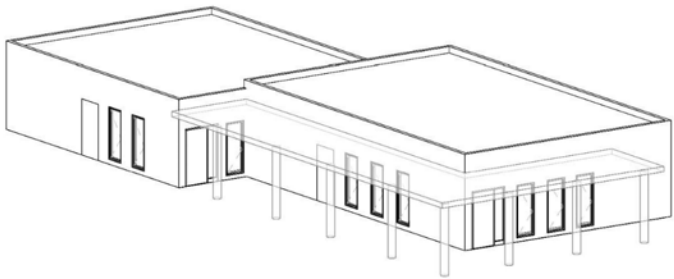
Single Family Home: Large



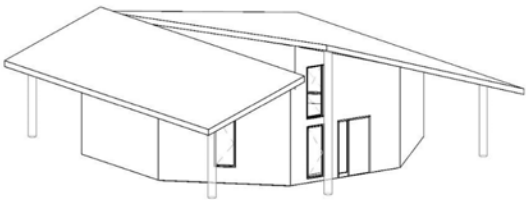
Single Family Home: Medium



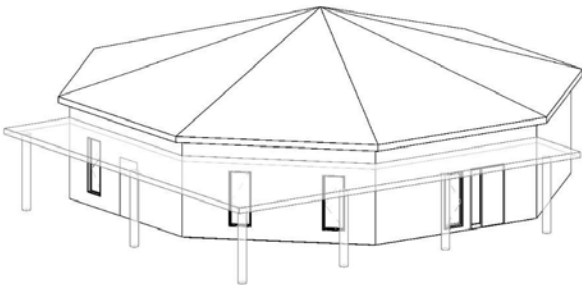
Multigenerational Duplex Home



Hogan Home: Small



Hogan Home: Large



Quantity Bedrooms	Quantity Bathrooms	Home Size (Square Feet)	Approximate Low-end Cost (\$350/sf)*	Approximate High-end Cost (\$450/sf)*
4	2	1,740	\$609,000	\$783,000
3	2	1,350	\$472,500	\$607,500
5	3	2,400	\$840,000	\$1,080,000
2	1	1,040	\$364,000	\$468,000
4	2	2,400	\$840,000	\$1,080,000

Aerial View showing Homes and Pocket Parks



Street View



How does the project positively impact people, place, and planet?

Together with the site assessment and impact-design framework, this design brief serves to guide design decisions for the project.

Planning Objectives – Navajo Townsite CDC guidance and community-needs research clarify the following project objectives:

- Connect new housing to community in parallel with Street-improvements project and development of 'the Loop'
- Increase density to 28 homes in a phased development
- Incorporate pocket parks and shared amenities
- Optimize use of existing infrastructure

Project Phasing: A flexible phased approach responsive to community needs and funding availability across the development process:

- Provide planning options for the removal and replacement of damaged or burned homes
- Provide planning options for housing of any displaced people or families

Building Typologies – New Housing, specifically a range of homes that serve to replace existing homes over time while increasing housing options and density along Lone Pine Drive:

- Single family and duplex homes
- Multigenerational homes
- Culturally-responsive homes and place forms:
 - Hogans
 - Shade houses

Cultural Guidance – Community feedback and immersion suggest that the project should:

- Honor traditional lifeways and support cultural activities; protect and celebrate adjacent natural areas and features
- Cultural features recommended:
 - East-facing entries
 - Outdoor gathering spaces, patios, backyards + fencing, built with lifeways, comfort, safety in mind
 - Access to nature and views
 - Natural light + daylighting
 - Native plants + trees
 - Signage featuring Dine language and culture
 - Hogan options for families who want traditional homes

Home Design Features – community engagement activities and feedback identified this range of particular home design features:

- Spacious living and dining spaces
- Porches and outdoor living spaces
- Garages or carports
- Ample indoor + outdoor storage
- Well insulated and energy efficient, to handle extremes of summer and winter weather including high winds

Landscape Design Features – community engagement activities and feedback identified this guidance about landscape design features:

- Strong connection to the outdoors
- Trees and shrubs appropriate to place and culture
- Shade structures and tree locations for human comfort and outdoor living
- Sidewalks and street improvements
- Driveways, some shared, with safe turnaround
- Boundaries for animals (fences)

Budget and Affordability – a quality affordable housing development to meet the current needs of the Navajo community including attainable homes for these types of households:

- Workforce
- Commuters - working in Window Rock, Fort Defiance, etc
- Elders and their families or caregivers
- Low-income families
- Multigenerational and extended families wishing to live together
- Those who make up 'the missing middle,' who don't qualify for housing assistance, yet cannot afford to buy a home
- Those who do not want to buy a home off reservation or commit time and effort to building a home in rural areas where they're responsible for infrastructure extensions, a home site lease and the purchase of a modular home or the construction of a home.

Navajo Townsite CDC & MASS have identified **key next steps for the Lone Pine Project** to take the work beyond the pre development and planning stage.

MASS Design Group will continue to support the Lone Pine project development process and be available for conversations along the way as this document is utilized by the Navajo Townsite CDC team and other project consultants. As funding is obtained, MASS stands ready to assist with adjusting phasing and unit mix as needed and hopes to accompany Navajo Townsite CDC to implement the impactful goals of this project.

Please feel free to reach out to the MASS team about any of the information and suggestions within this document. We look forward to collaborating over the long term and helping the Navajo Townsite CDC team manifest the timely vision towards healthy homes and culturally-responsive community development.

Potential future MASS services could include:

- Conceptual design of housing types including hogan and multigenerational homes
- Site visit(s) to help inform final site development decisions and housing design
- Continued engagement to inform and right-size housing types and design
- Site analysis and design to further develop designs for pocket parks and the connections to, and protection of, adjacent natural areas
- Assistance in assembling an integrated project team
- Providing design development and construction documentation
- Assisting with a bidding process to clarify costs and identify contractors
- Construction administration services





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