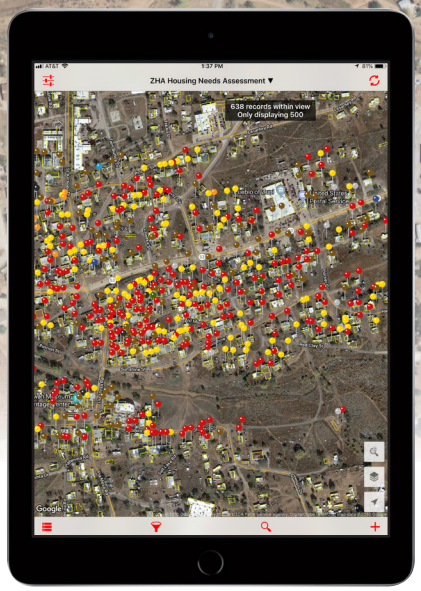

ZUNI HOUSING AUTHORITY

GIS Housing Needs Assessment & Inventory

August 2018

prepared by

ATKIN OLSHIN SCHADE ARCHITECTS

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Zuni Housing Authority

GIS Housing Needs Assessment & Inventory

FINAL REPORT

August 2018

ATKIN OLSHIN SCHADE ARCHITECTS, Santa Fe, NM

TEAM

This report was generated by AOS Architects for the Zuni Housing Authority with the assistance of many people at the Pueblo of Zuni. Please see section 1.6 for a complete listing of participants.

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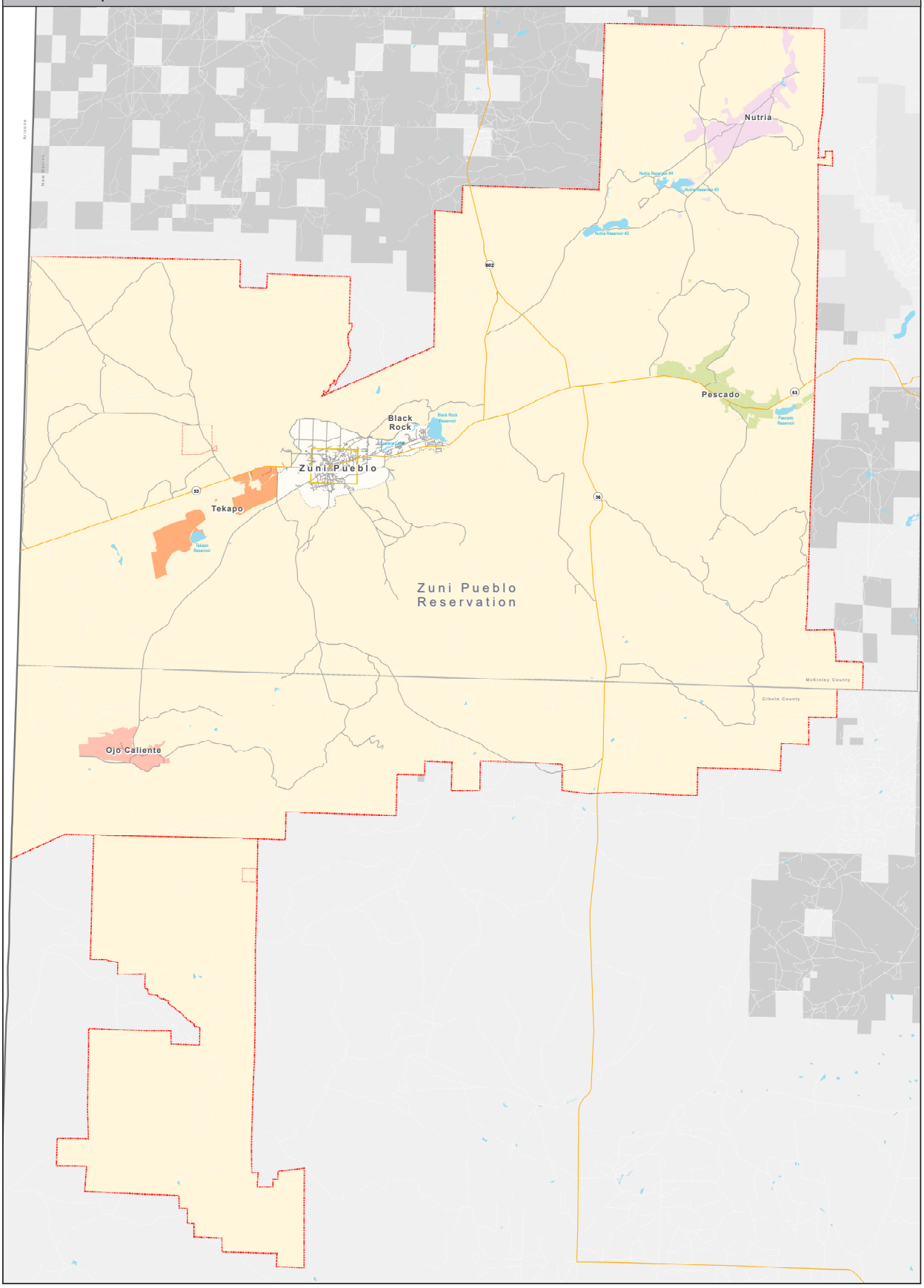


1.0 INTRODUCTION

1.1 LOCATION

The Pueblo of Zuni is one of 19 Pueblo tribes in the state of New Mexico. Zuni is the only Zuni-speaking tribe. Zuni is located in McKinley County, New Mexico, approximately 150 miles west of Albuquerque.

Zuni is a Spanish name derived from the Keres name, Suni, for Zuni.[1] The traditional Zuni name for their place is A:shiwi.

1.2 BRIEF HISTORY OF THE PUEBLO OF ZUNI

The Zuni had been living in this place for thousands of years - centuries prior to the arrival of the Spanish in 1539. Zuni was the first Pueblo tribe to be "discovered" by the Spanish, who referred to it as Cibola, one of the legendary cities of gold. Prior to the Spanish, the Zuni people lived in numerous villages including Hawikuh, Kwa'kin'a, Kechiba:wa, Kyaki:ma, Mats'a:kua, and Halona:wa. These villages were abandoned during the Pueblo Revolt in 1680. Only Halona:wa was resettled following the re-entrada in 1692. Halona:wa is the current village site of Zuni.[2]

Zuni is famous for being a multi-story village, as many as five stories, and was extensively photographed in the late nineteenth century. These images, a couple of which are included below, are perhaps the best reminder that Pueblos are organic environments - the Halona village had only recently taken on that character at the time when photography was invented and much of this multi-story character was gone within a few decades. Today, the Halona village remains the traditional and spiritual core of the Pueblo which has grown substantially. A number of farming villages are situated at the periphery of the Pueblo, while subdivisions of single-family housing have grown closer to the traditional center.

1.3 PROJECT INTENT

This important project provides the Pueblo of Zuni Housing Authority (ZHA) with a robust data management system to manage information on the current state of housing at Zuni. This is urgently needed for the tribe and ZHA to understand living conditions and plan for needed improvements. In recent years, technological developments have created new ways for tribes and other housing entities to use GIS data and mapping to inventory and assess housing. Atkin Olshin Schade Architects (AOS) developed a user-friendly mobile app that uses this technology to assist communities in their preservation and rehabilitation planning efforts. This data collection app was utilized under this project to record the survey information, document exterior conditions, interior conditions, and resident information.

1 Eggan and Pandey, p. 479-80, in Ortiz, 1979.
2 Ferguson, Zuni Atlas, 29-35.

Cluster of Adobe Houses with Terraces, Baskets, jars, and Bowls..., 1879.
John K. Hillers, photographer.
National Anthropological Archives. NAA INV 06375700.

View of Rooftops of Pueblo Showing Corn and Squash Drying... 1879.
John K. Hillers, photographer.
National Anthropological Archives. NAA INV 01155700.

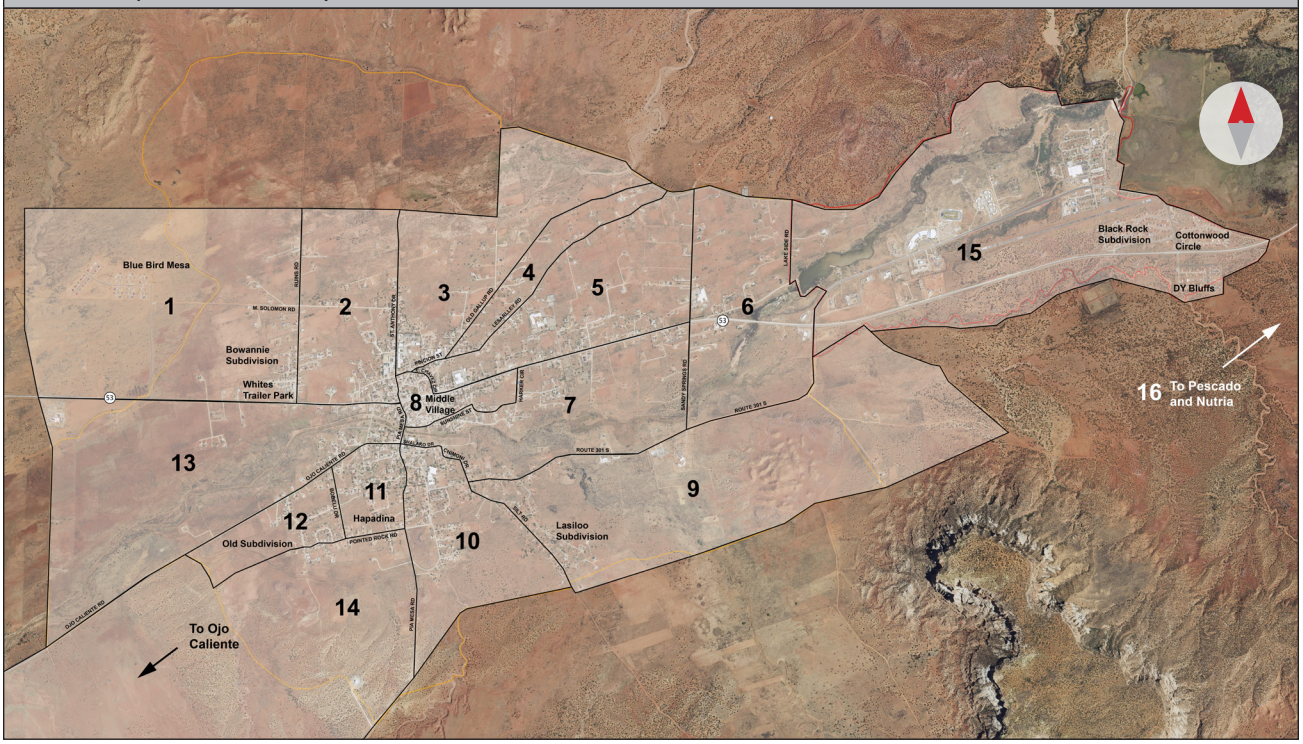
1.3.1. INVENTORY ZONES & PAST ASSESSMENT

Prior to beginning the project assessments, AOS met with ZHA staff to discuss past efforts completing an inventory of this large scale and review any existing data to build off. Previously, the Zuni Housing Authority completed a 2014 Zuni Community Housing Inventory with the intent of collecting the total number of residences in the Zuni reservation. This windshield count identified 2,490 homes (2,254 occupied and 236 abandoned). All structures were classified under the following uses: Homes; Mobile Homes; Sheds/Stew Houses; Kiva House; and Businesses. The status 'occupied' or 'abandoned' was also noted. Refer to Appendix Volume I , Supplemental Documents for a map and table of this 2014 housing inventory. In order to complete the 2014 inventory, ZHA staff mapped out 17 areas of different proportions that were roughly bounded geographically by existing roads. These 17 areas covered the traditional village of Halona and its adjacent subdivisions, as well as the more remote areas of Blackrock, Ojo Caliente, Pescado, and Nutria. Building off this existing 17 Area Inventory Map already used by ZHA in 2014, AOS worked the ZHA staff to outline 16 Inventory Zones to be used under this new project (Pescado and Nutria were combined into a single district.) These zones were helpful in approximating the anticipated timeline of completion for the project as well as schedule for visiting each zone in the field. There is no functional or cultural significance to the boundaries of the districts. Map 1.3.1 below shows the 16 Inventory Zones. There are a few isolated homes not included in these areas that have not been included.

1.3.2. BRIEF APP BACKGROUND

Several New Mexico Pueblos have recently completed similar inventory and assessment initiatives of traditional villages as a component of preservation and rehabilitation planning efforts. AOS has had the pleasure of being involved in a number of these efforts which have resulted in new self-determined planning approaches and significant renovation projects. In much of our previous work conducting comprehensive housing assessments for other tribes, we realized the challenge of uploading paper surveys to digital databases and keeping this data current. In recent years, technology and digital platforms have improved work

1.3.1. Map of 16 Inventory Zones



Above map shows the 16 geographic zones utilized in this project. The data collected from the homes in these areas is outlined in the following report. These inventory zones were developed from the boundaries used in the ZHA 2014 Housing Inventory windshield survey.

flow opportunities for tribes to create robust Geographic Information System (GIS) applications for recording and mapping real-time data in the field that can be easily managed and updated.

Seeing the potential of these initiatives to empower tribal housing authorities with the latest tablet-based survey technology, the mobile app utilized at Zuni was developed following a pilot project funded through a National Park Service 2016 Historic Preservation Fund (HPF) Underrepresented Communities Grant Project (UCGP).[3] Under this initial grant, AOS Architects partnered with the State of New Mexico Historic Preservation Division ("NM-HPD"), the official State Historic Preservation Office (SHPO), in an effort to develop a mobile phone application that enables tribes to create a self-determined means of inventorying and assessing buildings within the traditional villages of the nineteen Pueblos in New Mexico. The mobile app was developed by AOS Architects utilizing Fulcrum, a fully customizable mobile data collection platform. [4] It was first piloted at Pueblo de San Ildefonso in September 2016 and presented to regional tribal representatives, including several Tribal Historic Preservation Offices (THPO), at the "2016 Tribal Symposium" organized under the grant program. A final report of the app's design, functions, and potential was also generated and provided to the National Park Service, New Mexico State Historic Preservation Office, and the Advisory Council on Historic Preservation, with the intent to distribute it to the 19 Pueblo Nations Tribal Historic Preservation Offices.

Being readily customizable, the mobile app was advanced at Zuni under this project in an innovative approach undertaken by ZHA to complete comprehensive home assessments, far beyond the limits of the traditional Middle Village.

1.3.3. SCOPE OF WORK

The Zuni Housing Authority commissioned this inventory to include all homes located within the exterior boundaries of the Zuni Reservation with the aim of conducting a physical needs assessment not to exceed 1,500 units; excluding housing managed by the ZHA, Indian Health Services, local schools, and Zuni Rental Enterprise. As outlined in the Zuni Housing Authority Request for Proposals issued in August 2016, the basic scope of work for the project involved the following:

"The Zuni Housing Authority (ZHA) is soliciting proposals from qualified firms to provide comprehensive home inspections for homes located within the exterior boundaries of the Zuni reservation and develop and implement a Geographic Information System (GIS) database and map-based view of housing information that enables ZHA and other tribal departments to locate a particular house and review corresponding information as well generate reports. The GIS database needed to be designed using a configuration of ArcGIS and its support applications. The selected contractor shall train a ZHA employee on how to use the application, and update and maintain the database." [5]

Over the beginning weeks of the project, AOS and ZHA had a number of discussions regarding the ambitions and extents of the project. Through these discussions, the scope of work was concisely clarified and adjusted accordingly for the project as outlined below:

Scope of Work

A. Project Coordination
B. Compatibility
    1. Coordinate with POZ departments – systems, processes, protocols, software
    2. Develop GIS system to be utilized by POZ to generate maps, reports, and analysis
C. GIS Data - develop staff processes for generating and updating data
D. Development of Assessment and Survey Tools
    1. Review existing inventories
    2. Determine additional information required

3 Visit UCGP website, [https://www.nps.gov/preservation-grants/community-grants.html]
4 Fulcrum Mobile Location Leverage, Spatial Networks, Inc., [link to http://www.fulcrumapp.com/tour/]
5 Request for Proposals, Geographic Information System Housing Needs Assessment & Inventory, August 2016

E. Field Data Collection Plan
   1. Program the Fulcrum app
   2. Hire and train three full-time assessors

F. Implementation
   1. Assumed 1500 homes (1958 final count – including ruins & declined participation)*
   2. Monthly status reports

G. Provide Training to ZHA Staff
   1. Software, hardware requirements
   2. Use, maintenance, and expansion of data

1.4 PROJECT GOALS

The overall project goals for this comprehensive housing inventory include:

- Provide detailed information in order to allow ZHA to make informed decisions on homes requiring immediate attention, including but not limited to, unsafe or unsanitary conditions, housing occupied by seniors, housing with accessibility needs, etc.
- Physically assess all assumed residential homes and dwellings for current living conditions

The findings will lead to additional efforts to:

- Provide the ZHA with a powerful data management system to manage information on the current state of housing at Zuni.
- Plan for needed repairs and additional housing, and advocate for funding to complete projects needed by the Zuni people.

This self-determined planning approach enables citizens and local community members to become engaged in community planning through modern data collection as a tool to further the resiliency of the Zuni people. With the completion of this project, there is great excitement at Zuni to expand this database with other tribal departments to self-examine the relationships between housing quality, health, education, and countless other tribal initiatives. For example, the new database could enable ZHA and IHS to partner in studies examining the relationship between housing conditions and asthma and other chronic conditions found on the reservation.

Diagram showing the interrelationship of data

1.5 PROCESS

Atkin Olshin Schade Architects (AOS) was selected to complete this Housing Inventory & Assessment following an RFP process that solicited proposals in the Fall of 2016 to provide professional services for GIS mapping, building assessments, and rehabilitation planning. AOS is a 25-person architecture, preservation, and planning firm with offices in Santa Fe and Philadelphia. AOS has been working with other pueblos on similar efforts including Ohkay Owingeh, Pueblo de Cochiti, and Santo Domingo Pueblo on long term preservation and rehabilitation plans.

Zuni Housing Authority staff from several departments were assigned to oversee the project. The staff included members of the Executive Department managed by Michael Chavez (Executive Director), Housing Management, Maintenance, and Construction Services Department. AOS met with the ZHA staff on several occasions between January 2017 and May 2018, made several presentations to the Housing Board of Commissioners and the Pueblo of Zuni Tribal Council.

1.5.1. DESIGNING THE APP

Beginning in January 2017, AOS and ZHA staff held several meetings and various planning sessions to begin drafting an outline of the desired survey questions for the housing inventory app. The outline pulled existing questions from previous survey forms used by AOS in similar projects at other New Mexico Pueblos. Many of these forms were as well as current housing application and inspection forms provided by ZHA. Using this initial outline, AOS designed and built the app online with the customized survey questions. These included a variety of response formats from Yes/No, multiple choice, numeric and text input, calculations, photos, and signatures. Throughout the duration of the project, questions were also revised as well as added based on continual review by ZHA staff, feedback on efficiency from the field assessors using the app, and level of participation received from residents. The final app – titled 'Zuni Housing Needs Assessment & Inventory App' – had a total of 252 fields or questions built into the system's template.

Once the survey forms were completed, we deployed the mobile app on computer tablet devices in the field to begin the housing assessment process. The final survey app template included questions that gather information relevant to the following general topics:

- Building Identification (addressing and location)
- Housing Use and Type
- Levels of Use (residency)
- Number of Residents (occupancy and age)
- Estimated Size and Bedroom Count
- Exterior Conditions*
- Interior Conditions*
- Building Systems*
- Overall Dwelling Condition
- Structural Concerns
- Life Safety Issues
- Accessibility Issues
- Past History of ZHA Assistance
- FEMA Floodplain Location

**PLEASE NOTE: Per direction of the ZHA, limited data was collected on the exterior, interior, and building system conditions of residences classified as mobile and/or manufactured homes. However, the app can always be expanded in the future to further collect information on these topics if desired by the ZHA.*

To optimize the efficiency of the assessor's time in the field, the survey questions were broken down into five distinct sections listed below based on the relevancy of the topics for each question.

- Section A - Physical Exterior Survey
- Section B - Resident Survey
- Section C - Interior & Systems Survey
- Section D - History / Physical Location
- Section E - Inspection Status

Several questions regarding the dates of the survey, building identification, and time availability of both the assessor and the resident (if present) were asked before Section A. This organization allowed the app to be designed with conditional logic rules that adjust the visibility of various questions within Sections A through E. Furthermore, the survey questions in the field can appear or hide depending on the following time allowances classified as either a 'QUICK' or 'FULL' Survey:

- 10 minutes | Owner not home (QUICK + SECTION A ONLY)
- 35 minutes | Owner home but permits exterior and site survey (FULL + SECTION A + PART C)
- 35 minutes | Owner has limited time for exterior and interior survey (QUICK + SECTION A + B + C)
- 1 hour | Owner permits complete survey (FULL + SECTION A + B + C)

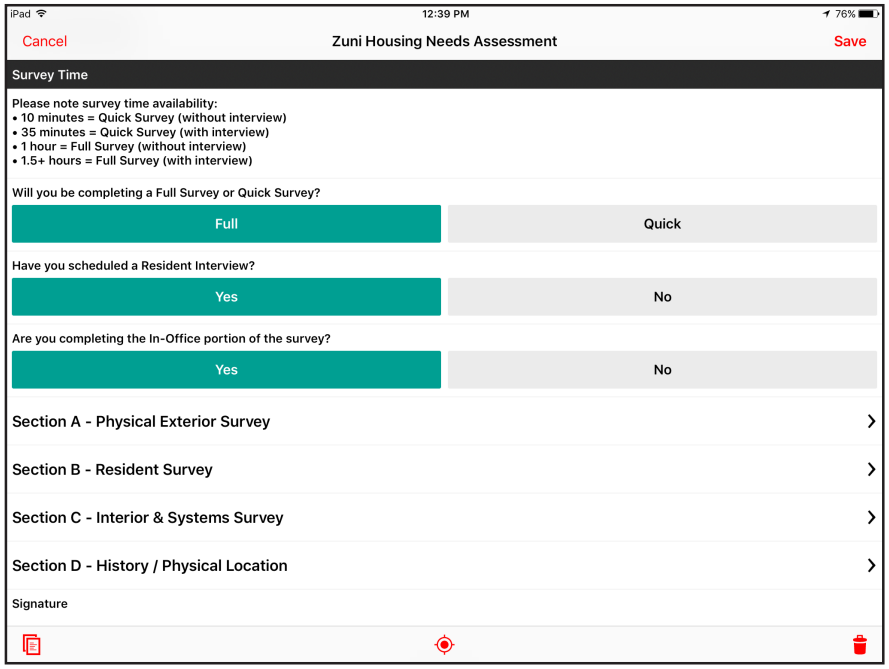
In addition, the resident's time availability and permissions for interviews influence the app survey. If residents permit interviews and/or interior access, Sections B + C would appear. The last conditional question influences whether Section D, the in-office portion, would appear. Section D included information regarding past history of ZHA assistance, location within the Historic National Register District, and location within the FEMA Flood zones. This part of the survey was completed at the end of the project inventory as time permitted. However, inspection status has not been updated to indicate 'A/B/C/D Complete' as the ZHA will continue to update past assistance data in Section D. Inspection status will be discussed in Section 3.0 on page 13. This report provides data from Section A + B + C only.

For a complete outline of the survey questionnaire built into the app, please see Appendix Volume I, Supplemental Documents.

1.5.2. HIRING ZUNI ASSESSORS

A top priority of the project was to hire and train local tribal members for the housing inventory and assessments. Beginning in April 2017, AOS worked with ZHA Human Resources staff to hire three field assessors to complete the surveys in the field, with the understanding that the assessors would be employees of AOS for the duration of the project. A public employment notice and job announcements for the positions were issued by ZHA through multiple platforms. Upon review of several applications and interviews, two individuals were selected for the positions: Lee Lucio (Lead Assessor) , Angel Yatsayte (Assistant Assessor), and Sherry Bellson (Assistant Assessor). The assessors had diverse backgrounds in various relevant fields including knowledge of construction, geographic locations within Zuni, and experience with conducting resident interviews. A two-day training session initiated on August 21st - 22nd, 2017 to introduce the assistants to the project background, process, mobile application, and tablet computer software. In the session, AOS staff and the assessors reviewed the entire survey questions, introduced relevant building construction and systems found at Zuni, criteria for evaluations, and presented examples of conditions. See Appendix Volume I, Supplemental Documents for a copy of the training document issued to the assessors for their reference in the field. The training also included a team visit to several homes where AOS staff and the hired assessors collectively completed exterior surveys and resident interviews. The three hired assessors continued to survey homes together for the first week of the inventory in Zone 1 before moving on to assess homes individually.

App Screenshot of Survey Time Questions



App Screenshot of Aerial

AOS Staff and Assessors Field Training

Miriam Diddy (AOS Architects) explaining computer tablets and app training.

AOS assessors first Day in the filed documenting conditions.

Shawn Evans (AOS Architects) explaining differential settlement and indicators of foundation problems to Angel, Lee, and Sherry in the field.

1.5.3. INSPECTION PROTOCOL

Prior to sending the AOS assessors into the field, ZHA staff and AOS drafted resident notices about the project to post in public locations and handout. See Appendix Volume I, Supplemental Documents for copies of the various notices that were distributed. The protocol for issuing the notices and inspecting the homes is described below:

INSPECTION PROTOCOL

1. "Community Notice" regarding the project posted at various locations around Zuni, POZHA website, POZ Facebook page, and announced on local KSHI radio station. This notice was also delivered to the Zuni Police Department.
2. Several days prior to initial survey in a given area, assessors distributed a "Neighborhood Notice," house by house to prepare the residents.
3. At the time of the initial survey, assessors visit each homes in the listed zones where "Neighborhood Notice" was distributed, starting with zone 1. The assessors knocked on the door with the hopes of discussing the project with residents and gaining permission to assess exterior and interior of home. "Resident Notice" was distributed to all homes visited.
4. If residents were not home during initial visit, assessors completed Section A - Exterior Survey only. This takes approximately 10 minutes. "Resident Notice" was left behind at home.
5. In homes with physical barriers such as fences, assessors avoided intruding on the privacy of the owners and occupants of the homes without proper notification. In this case, little information on the exterior was collected.
6. If the residents were home and have given permission, assessors completed Section A/B/C - Exterior AND Interior Surveys. This takes approximately 30 - 60 minutes based on the homeowner's time, availability, and talkativeness.
7. For the homes where assessors completed only Section A - Exterior Survey, assessors returned for follow-up survey at a later date in hopes of completing Sections B/C - Interior Survey. Follow-up visits are completed for the homes where 1) residents were not home; 2) resident declined survey participation due to time conflicts; 3) declined participation because homeowner not present; and 4) resident not prepared for survey.
8. In the instance where assessors returned for follow-up and the resident declined participation altogether, any data collected in initial visit for only Section A - Exterior Survey will be kept in the database. No further survey will be completed.
9. Assessors continually informed the residents that this project and the information collected is a positive effort by ZHA and supports future housing initiatives and grants.

Following this protocol, the assessors visited each of the 16 Inventory Zone that were created as outlined in Section 1.3.1. Each inventory area was surveyed in numerical order from 1-16. Homes were randomly assigned to each of the three assessors within the mapped boundaries.

Following completion of the project, Angel Yatsayte was hired by the ZHA as a full-time employee to oversee the continuation of data collection.

1.6 PARTICIPANTS

Zuni Housing Authority (ZHA)

ZHA is the Tribally Designated Housing Entity for the Zuni Tribe. The mission of the Zuni Housing Authority is to provide safe, decent, affordable housing and professional housing services to tribal and community members through fair and equitable means and to promote quality living and self-sufficiency while maintaining balance to our unique cultural and traditional heritage.

https://www.pozha.org/

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Cedric Lupee, Maintenance Director
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1.7 FUNDING

This project was funded by the Pueblo of Zuni Housing Authority through its Indian Housing Block Grant from the U.S. Department of Housing and Urban Development.

1.8 DATA DISCLAIMER

As noted above, the goal of this project was to provide an inventory and assessment of all owner occupied housing on the Zuni Reservation. The home assessments varied in detail and scope according to whether or not interior access was possible and the time constraints of the assessors and the residents of each home. As such, assessments that were limited to the exterior should be understood to be preliminary in nature as the relationship between interior conditions and exterior condition could not be verified. The primary purpose of this project was to understand conditions of Zuni housing as a whole and the data collected fulfills that purpose. The individual survey reports provided to ZHA can serve as a foundation for planning repairs and rehabilitation for any given unit, however, more detailed inspections should be completed before establishing a final scope of work on any home. All of the data collected in the app through this project is the property of the Zuni Housing Authority and the Pueblo of Zuni.

2.0 EXECUTIVE SUMMARY

2.1 NEED FOR PROJECT

The mission of the Zuni Housing Authority (ZHA) is to provide safe, decent, affordable housing and professional housing services to tribal and community members through fair and equitable means and to promote quality living and self-sufficiency while maintaining balance to our unique cultural and traditional heritage. ZHA accomplishes this through the provision of quality rental housing and management of a variety of rehabilitation programs for owner-occupied housing. As per HUD and NAHASDA requirements, ZHA produces an annual Indian Housing Plan, outlining the housing needs for the community. Tracking the number and condition of homes on a reservation as large as Zuni is a complex effort that ZHA has long desired to improve. This project initiative at long last provides ZHA with current statistics as well as the technological ability to manage the data which is constantly changing.

This project supports a major planning process to assess the housing needs of the Zuni community while leveraging geographic information and the ArcGIS platform. This project involved an assessment and inventory of all owner-occupied housing as well as the development of an intuitive GIS interface. The provided tools enable ZHA to fully evaluate the needs for housing rehabilitation, new housing, and improvements to housing services.

Under this project, AOS Architects customized a mobile application for community level assessments in Zuni with the help of ZHA staff. The digital information system gives ZHA a powerful tool to understand where homes are in poor condition and require repair. The system also enables ZHA to understand overcrowding and plan the need for new housing. The system is capable of being expanded to integrate with other data sets, enabling ZHA to collaborate with other tribal departments to understand the complex relations between housing and health, language retention, and other factors influencing the resiliency of the Zuni people.

2.2 FINDINGS

2.2.1. QUANTITY

The Pueblo of Zuni is the largest of the New Mexican Pueblos, with a population of approximately 8,430 tribal members living on their reservation. Accordingly, there are many homes. This inventory and assessment project resulted in contact with 1,958 owner occupied homes, not including 54 owner-occupied homes at recent Blue Bird subdivision. Not included in this study are rental homes (approximately 241 homes) managed by the ZHA, the majority of which are located in Black Rock, four miles west of the traditional Middle Village.

2.2.2. RESIDENTIAL USE

Of the 1,858 participating homes, 1,536 of them (83%) were confirmed to be primary residences, meaning that they are used full-time for sleeping. An additional 61 homes (3%) were assumed to be primary residences. 41 homes (2%) were determined to be used part-time, while 167 homes are unused, not counting an additional 21 homes classified as ruins, meaning they have not been utilized in many years. See section 4.1 for more information.

For the homes in which resident interviews were permitted, the inventory gathered information on the number of residents and their ages, finding that while most homes have 4 or fewer residents, there are many homes with more than 7 residents. Most families include at least one senior (age 52+) and (51%), 17% of homes have young children (age 0-5), and 41% of homes house at least one youth (age 6-17). Many homes (23%) house more than one family. See sections 4.2 through 4.9.

The information gathered begins to provide insight into degrees of overcrowding at Zuni, but additional data is required to fully understand the issue. See section 5.0 for further discussion.

2.2.3. DWELLING TYPE, CONSTRUCTION, AND CONDITION

There are many types of housing at Zuni. The most common type (25%) are mobile or manufactured homes. HUD homes come in two types: subdivision homes (10%) or scattered sites (18%). 15% of homes are traditional owner-constructed homes, while 17% are traditional homes constructed for the Shalako celebration.

Zuni homes were traditionally made of stone, but today just 19% of homes are stone. Most homes at Zuni today are constructed of concrete block (53%) with nearly 25% made of stuccoed wood frame construction. Sections 4.10 and 6.0 provide more information.

The overall exterior condition of the 1,395 homes assessed is varied, with over 60% of homes having either no deficiencies (21%) or minor deficiencies (42%). 21% of homes were noted to have moderate deficiencies and 14% of homes were noted with major deficiencies. Interior assessments were made of nearly 30% of the homes, and the approximate breakdown of condition was very similar. Sections 6.1 and 6.2 of the report provide more detail and breakdown by type and location.

Although the purpose of this initiative is to understand the broad patterns of residential use and condition, specific information was gathered on each home and individual reports have been prepared for each structure. Certain life safety concerns presented themselves in a number of homes – severe structural settlement, severe roof leaks, severe mold, lack of heating source, and health concerns for specific residents. 54 homes in total were flagged with critical life safety concerns and information was provided to ZHA as these houses were found. Section 8 and Appendix Volume III provide additional information.

2.3 RECOMMENDATIONS

2.3.1. IMMEDIATE ACTIONS

Findings should be presented to the tribal administration and the residents of Zuni. Many tribal members do not understand the complexity of tribal housing programs and educational efforts are needed to better explain the policies and procedures of ZHA and the federal restrictions that shape them. Many homes were discovered that are not fit for inhabitation and urgent efforts are needed to ensure safety of the families living in these homes and in some cases the safety of those who live nearby or pass by on the street. Smoke detectors are lacking from most homes, which is a relatively cost effective means of increasing safety. An engineering study is needed to explore common structural settlement problems seen throughout the reservation. See section 9.1 for further discussion.

2.3.2. CONTINUING THE PROJECT AND MAINTAINING THE DATA

Additional data collection is recommended to gather a more complete picture of key data points needed for grant applications. This needed data on overcrowding and the condition of plumbing and kitchens can only be obtained by increasing the participation rate for interior surveys. We also recommend developing policies for updating the data as rehabilitation efforts are completed each year. Section 9.2 provides guidance on our recommendations for continuing the project and maintaining the data.

2.3.3. FUNDING FEASIBILITY

The cost for addressing the conditions found in the nearly 2,000 homes has not yet been determined. See Section 9.3 for recommendations on estimating costs and exploring new funding opportunities.

2.3.4. REHABILITATION PRIORITIZATION

The data contained within this report provides the ZHA with the opportunity to be strategic with rehabilitation funding and to develop a pro-active approach. Certainly the critical life-safety concerns should be prioritized, but now other priorities can be targeted and planned for such as senior housing or family housing, or improvements could be designated for particular components like roofs or windows. Section 9.4 provides some introductory thinking into a variety or prioritization possibilities.

3.0 COMPLETION STATUS

3.1 NUMBER OF HOMES VISITED

As shown in Table 1 below, the assessors have visited 1,958 assumed homes thus far, 100% of the homes within the 16 zones. This number has been reduced from the 2,490 homes identified in the ZHA 2014 inventory of homes as the total excludes housing managed by the ZHA, Indian Health Services, local schools, and Zuni Rental Enterprise. The 1,958 total visited structures also exclude the Blue Bird Subdivision (listed as 'outside survey' in Zone 1) which did not receive an assessment, as it was constructed more recently. Most of the building locations were marked by an existing GIS point. Some outlying structures were pinned through aerial imagery or tagged by an assessor in the field. As noted previously, we are aware of a few remote homes outside of the 16 zones that have not been surveyed. The "2014 Count" refers to the number of homes and sheds inventoried previously by the Tribe. The "GIS #" refers to the number of rural addresses estimated from GIS data. Additionally, these estimates do not include public, commercial, and other non-residential buildings. The app has now been transferred to ZHA and Angel Yatsayte has been hired by ZHA to oversee continued data collection for homes in which interior assessments were not completed or for updating homes as they receive repairs.

Table 1. Completion Status - Number of Homes Visited as of 5/17/18

Zone	Name	2014 Count	GIS #	Field Est #	Apr-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17	Jan-18	Feb-18	Mar-18	Apr-18	Survey Total	%	Outside Survey	ZHA Rental	TOTAL	IHS & Teacher Housing*
1	Blue Bird / Bowannie	153	152	98		41	53						2	2	98	100%	54	0	152	0
2		195	207	194		66	124						3	1	194	100%	0	0	194	12
3		142	134	103			101						2		103	100%	0	1	104	28
4		79	64	77			47	19					8	3	77	100%	0	0	77	0
5		201	234	208			16	191						1	208	100%	0	0	208	0
6		192	65	62				62							62	100%	0	0	62	0
7		149	186	176	1				134	32	6			3	176	100%	0	0	176	0
8	Middle Village	235	217	211	2	1	1			181	15			11	211	100%	0	0	211	0
9	Lasiloo	132	102	97					1	9	81			6	97	100%	0	1	98	0
10		158	197	175							169			6	175	100%	0	1	176	16
11	Hapadina	150	145	139	1						21	114	1	2	139	100%	0	0	139	0
12	Old Subdivision	134	106	104								80	23	1	104	100%	0	3	107	0
13		148	120	128								1	114	13	128	100%	0	0	128	0
14	Ojo Caliente	14	37	65									65		65	100%	0	0	65	0
15	Black Rock	347	462	56									56		56	100%	0	235	291	36
16	Pescado/Nutria	61	-	65									59	6	65	100%	0	0	65	0
	TOTAL	**2490**	**2428**	**1958**	**4**	**108**	**342**	**272**	**135**	**222**	**292**	**195**	**333**	**55**	**1958**	100%	**54**	**241**	**2253**	**92**

Inspection Status	Count	%
A - Complete	1311	67.0%
AB - Complete	68	3.5%
ABC - Complete	479	24.5%
Visited - Declined	63	3.2%
Visited - Aggressive Dog	37	1.9%
Total	**1958**	100%

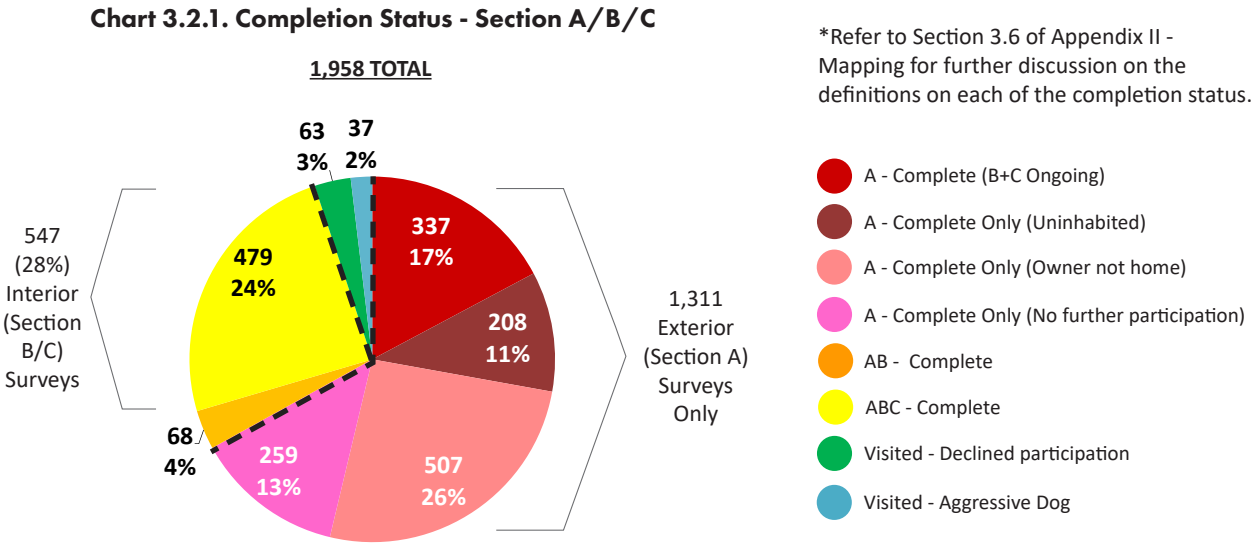
The table to the left indicates the total assumed residential structures visited per the inspection status completed. Note that it was always understood that interior assessments (sections B+C of the questionnaire) would not reach 100% during the project. It was agreed that the assessors would do as many interior assessments as possible during the project duration. 28% of the interiors were partially assessed (including mobile homes).

See Appendix Volume II, Mapping, Section 3.6. Completion Status Mapping for a breakdown of inspection status by each zone.

3.2 COMPLETION STATUS A/B/C

As seen in Chart 3.2.1, a total of 1,958 assessments have been completed to some extent. 1,311 homes have Section A complete. Within this Section A - Complete status, the chart shows a further breakdown of categories. “A-Complete (B+C Ongoing)” indicates the assessors where in the process of completing subsequent attempts to finish Section B+C. “A-Complete (Owner not home)” indicates the assessor has made three (3) attempts to contact the resident without any success. “A-Complete (No further participation)” indicates some level of data has been collected in Section A but the resident has declined further assessment. 68 homes have Sections A/B complete; and 479 homes have Sections A/B/C complete. Many of the homes falling within the “AB - Complete” status include mobile homes were data on interior finishes and systems were not intended to be collected. Information on interiors was gathered on 28% of the homes, but these 500 some homes are representative of the breakdowns in dwelling type and exterior condition, thus it is reasonable to extrapolate information on the interiors which have not yet been assessed.

Chart 3.2.1. Completion Status - Section A/B/C



3.3. DECLINED PARTICIPATION

During the first month of the inventory, the assessors received declined participation from a number of residents. In order to differentiate between residents who wanted a follow-up visit or no future visit, questions regarding the reasons for declined participation were added to the survey app. Chart 3.3.1 shows 63 total residents that have declined participation in the entire survey altogether. The general reasons for declining are documented in the response categories for chart 3.3.1. The “other” reasons includes various responses not fitting in the provided categories. This “other” also includes homes where fences or some physical barrier prevented the assessors from accessing the exterior of the home. The “unknown” category includes homes that were assessed prior to the declined participation question being added to the survey. This chart does not include the 259 homes with the status “A - Complete (No Further Participation)” seen in Chart 3.2.1 where information was gathered on Section A but residents declined the remaining Sections B/C.

On 01/16/18, AOS staff and the ZHA staff involved in the project held a conference call to discuss the declined participation feedback our assessors have received. ZHA and AOS staff discussed protocol for responding and agreed on encouraging future residents to contact ZHA directly.

3.4. INTEREST IN RETURN VISIT

Chart 3.4.1 shows the current status of homes with a resident’s interest in a return visit or call back to schedule a follow-up appointment. This chart does not include the breakdown of declined participation from the 259 homes with the status “A - Complete (No Further Participation)” seen in Chart 3.2.1.

Chart 3.3.1. Declined Participation

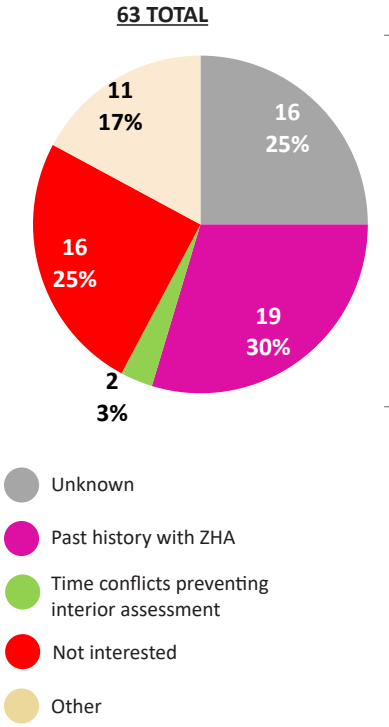
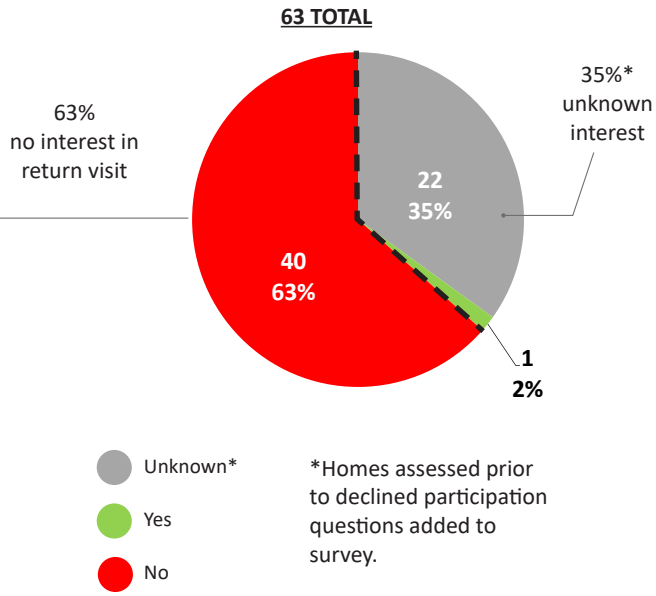


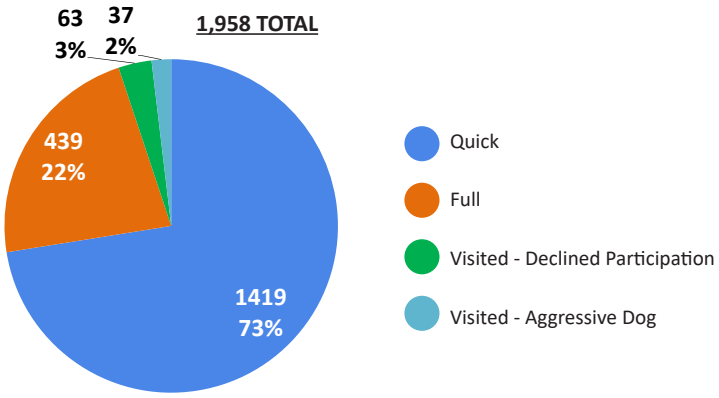
Chart 3.4.1. Interest in Return Visit or Call Back?



3.5. FULL/QUICK SURVEY

As mentioned previously in Section 1.5.1 of this report, several questions regarding the survey time availability of both the assessor and the resident (if present) were asked before Section A. The assessor had the option to select their time allowances as either a 'QUICK' or 'FULL' Survey. Depending on the response, various questions can appear or hide throughout the survey. The majority of assessments completed in the field were 'quick' surveys - 73% (1419 surveys). The 'full' surveys made up 22% (439) of the responses.

Chart 3.5.1. Completion Status - Full/Quick Survey



3.6. COMPLETION STATUS MAPS

See Appendix Volume II, Mapping, Section 3.6 for completion status maps by inventory zone.

4.0 USE, DEMOGRAPHICS, & DWELLING TYPE

4.1 RESIDENTIAL USE

Chart 4.1.1 shows the distribution of building use in the Zuni Reservation. Provided below are definitions for the categories used to assess building use.

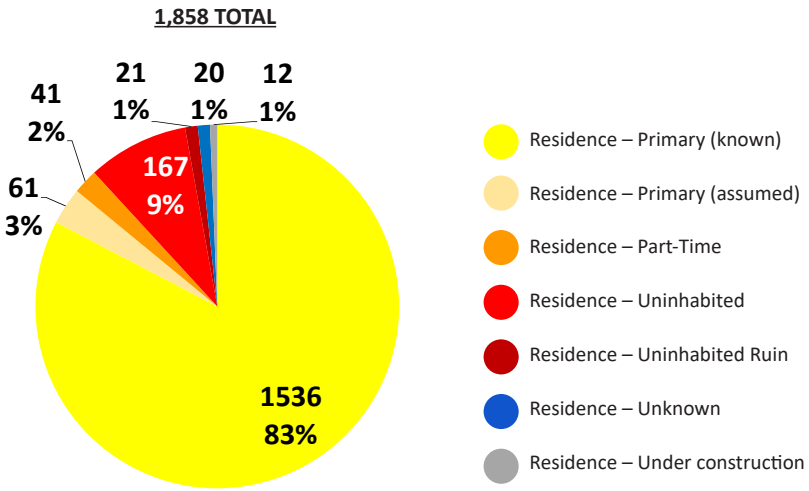
BUILDING USE DEFINITIONS:

- Residence - Primary (known): Dwelling is known to be occupied full-time by resident(s).
- Residence - Primary (assumed): Dwelling is assumed to be occupied full-time by resident(s).
- Residence - Part-Time: Dwelling is occupied on a part-time basis by resident(s) and not used full-time.
- Residence - Uninhabited: Dwelling is unoccupied by resident(s).
- Residence - Uninhabited Ruin: Dwelling is unoccupied by resident(s) due to lack of building infrastructure and severe physical deterioration.
- Residence - Unknown: Dwelling is known to be residential but unable to identify the level of use by resident(s).
- Residence - Under construction: Dwelling is currently under construction.

**PLEASE NOTE: Locations of non-residential buildings designated for either private non-residential uses including storage, workshop, outbuilding, kitchen, etc. or public and/or community use were recorded in the app. Data on quantity or condition of these non-residential buildings are not included in the following charts.*

The survey gathered data on 1,858 residences or buildings once used as residences in the Zuni community area. This total excludes the residences declining participation as seen in Chart 3.2.1 in the previous section. 1597 of these (86%) are currently used as primary residences (used full-time for sleeping) or are assumed to be primary. Just 41 homes (2%) are used part-time, typically during cultural observances or other seasonal uses for the outlying farming districts of Ojo Caliente, Nutria, and Pescado. Out of the 1,858 homes assessed, an additional 167 buildings were noted as uninhabited (9%). Understanding the condition of uninhabited dwellings (separate from uninhabited ruins) can help inform planning goals for providing additional housing as renovating these homes may be less costly than providing new homes. Distinguished separately from only uninhabited buildings, 21 structures (1%) were noted as 'uninhabited ruin.' In most cases, ruins were defined as severely deteriorated buildings without roofs, missing walls, or in a state of collapse. Many of these 'ruin' structures were located in the outlying areas of Ojo Caliente, Tekapo, Nutria, and Pescado. An additional 21 buildings were identified as unknown residential use. 12 buildings were noted as residences under construction at the time the survey was completed in the field.

Chart 4.1.1. Residential Use

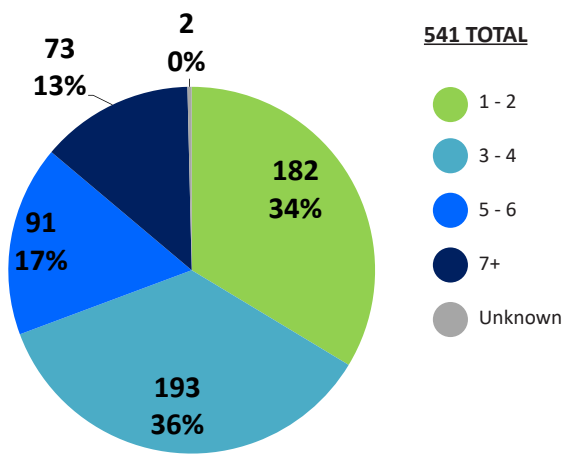


4.2 NUMBER OF RESIDENTS

Of the 1,858 residences visited, 541 assessments (including mobile/manufactured homes) reported resident occupancy information. Chart 4.2.1 shows the breakdown of the number of residents reported for each household. 182 homes (34%) reported 1-2 residents occupying the household. 193 homes (36%) reported 3-4 residents in the household. 91 homes (17%) reported 5-6 residents. An additional 73 homes (13%) reported 7 or more residents occupying the household.

In Charts 4.2.1 - 4.9.1, the 'unknowns' represent two (2) homes that were first assessed in April 2017 when AOS and ZHA piloted the app in the field. Questions regarding resident composition were added later in Section B following this initial assessment.

Chart 4.2.1. Number of Residents



4.3 HOMES WITH YOUNG CHILDREN (AGES 0 - 5)

Chart 4.3.1 shows 124 homes (23%) occupied with young children ages 5 and under. Of this 124, the most homes (17%) reported 1 young child ages 0-5 occupying the dwelling. An additional 24 homes (4%) reported 2 young children in the household. Just 8 homes (2%) reported 3 or more young children occupying the home.

4.4 HOMES WITH YOUTH (AGES 6 - 17)

Chart 4.4.1 shows 222 homes (41%) occupied with youth between the ages 6 - 17. Of this 222, 127 (23%) homes report 1 youth occupying the dwelling. An additional 66 homes (12%) report 2 youth living in the household. 21 homes (4%) report housing 3 youth. Just 8 homes (2%) reported 4 or more youth ages 6 - 17 in the household.

Chart 4.3.1. Homes with Young Children (Ages 0 -5)

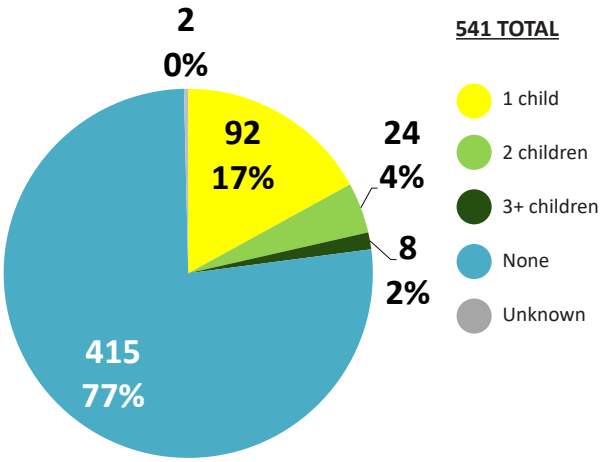
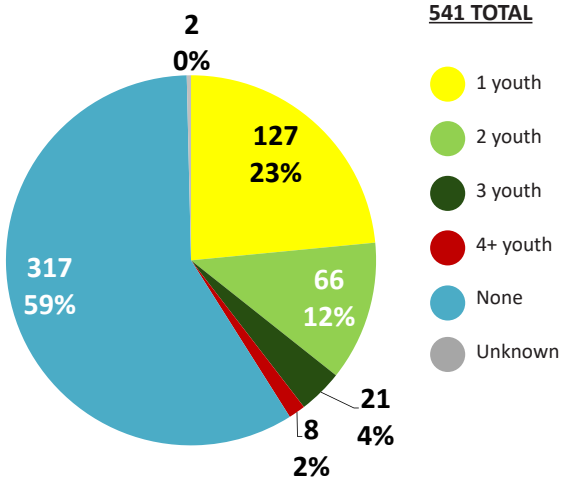


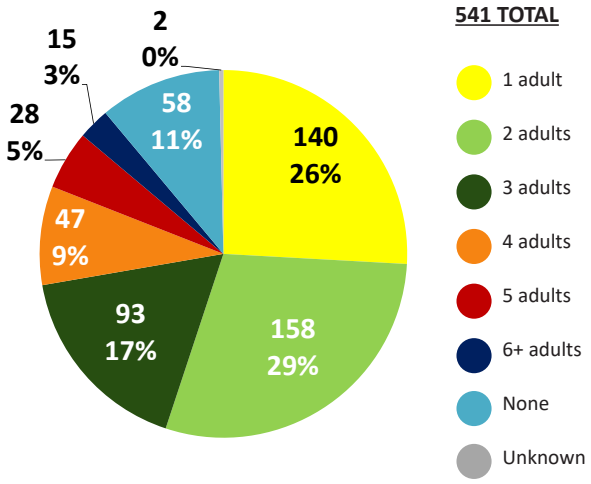
Chart 4.4.1. Homes with Youth (Ages 6 -17)



4.5 HOMES WITH ADULTS (AGES 18 - 61)

Chart 4.5.1 shows the age breakdown of adults occupying the 541 total homes surveyed. More homes have either 1 adult (26%) or 2 adults (29%) occupying the dwelling. An additional 93 homes (17%) have 3 adults. 47 homes (9%) reported 4 adults living the household. An additional 28 homes (5%) report 5 adults occupying the dwelling. Just 15 homes (3%) report 6 or more adults in the household. 58 homes (11%) reported no adults living in the home.

Chart 4.5.1. Homes with Adults (Ages 18 -61)



4.6 HOMES WITH SENIORS (AGES 62+)

Chart 4.6.1 shows the number of seniors age 62 and older occupying homes. Of the 541 homes with reported residence information, 56% of homes (283) are occupied by seniors. Of this 283, more homes (37%) reported 1 senior living in the household. An additional 77 homes (14%) reported 2 seniors in the home. Just 5 homes (1%) reported 3 or more seniors living in the household.

Chart 4.6.1. Homes with Seniors (Ages 62+)

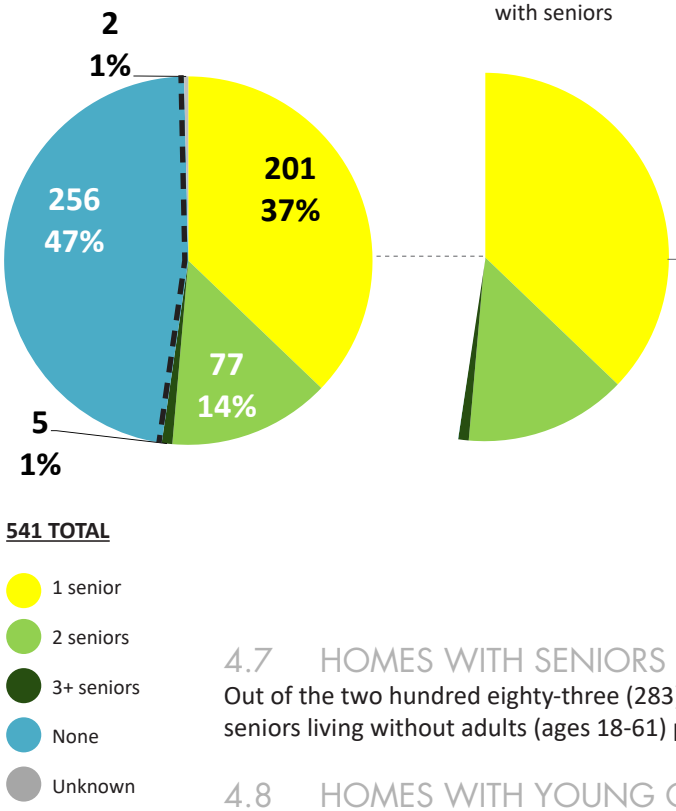


Chart 4.7.1. Seniors Living Without Adults

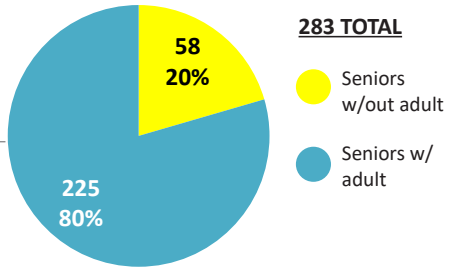
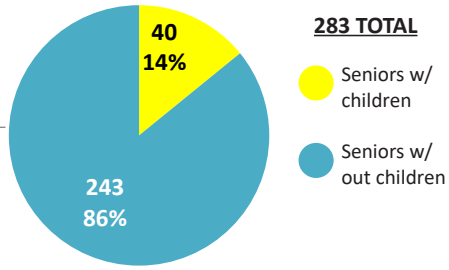


Chart 4.8.1. Homes with Young Children & Seniors



4.7 HOMES WITH SENIORS LIVING WITHOUT ADULTS

Out of the two hundred eighty-three (283) homes with seniors, Chart 4.7.1 shows 20% (58) of the seniors living without adults (ages 18-61) present in the home.

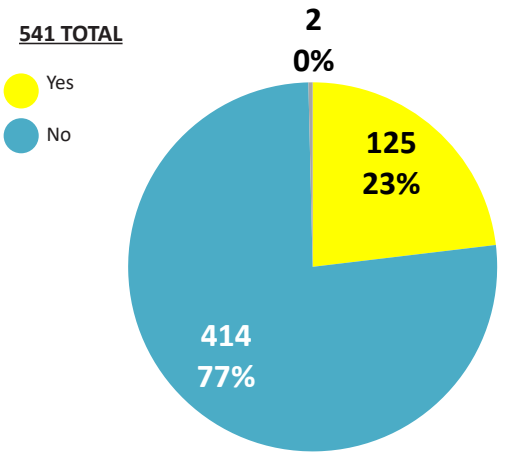
4.8 HOMES WITH YOUNG CHILDREN & SENIORS

Chart 4.8.1 shows 14% (40) homes occupied by both young children and seniors.

4.9 HOMES WITH MULTIPLE FAMILIES

Chart 4.9.1 shows 23% (125) homes occupied by multiple families.

Chart 4.9.1. Homes with Multiple Families

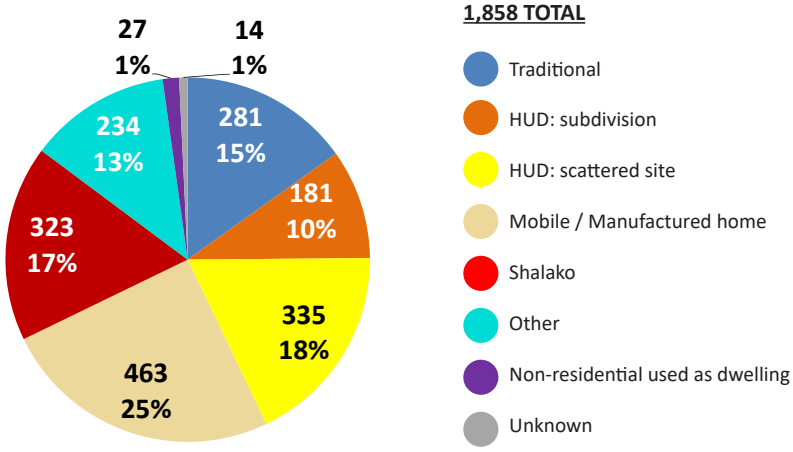


4.10 DWELLING TYPE

Dwelling type indicates the various styles of housing characters found at Zuni. “Traditional” includes homes constructed with traditional stone masonry and/or adobe practices. “HUD” describes the typical federal housing of various sizes and styles. “Mobile/ Manufactured” are interchangeable terms for ZHA standards and include readily movable manufactured homes both single-wide or double-wide. “Shalako” indicates the eight new (or heavily renovated) homes built each year as part of a cultural tradition in which new homes are blessed by the deities who visit and dance in the homes in an all-night ceremony witnessed by hundreds of people. This type of housing is unique to Zuni. Shalako homes are constructed with a variety of materials. “Other” includes various types of owner-built housing that do not fall within the other categorized described. Additional homes encountered in the survey included “Non-residential” structures used as a dwelling such as a shed or stew house. Samples photos of each dwelling type are provided on the following pages.

Chart 4.10.1 shows the breakdown of dwelling types at Zuni. The most common homes encountered are mobile/ manufactured homes - 25% (463 homes). 18% (335 homes) are HUD: Scattered Site homes. As the assessors used this category based on physical appearance/style of the homes, this number may change when verified with ZHA records of HUD constructed homes. 10% (181 homes) were categorized as HUD: subdivision. These totals do not include the subdivisions of Blue Bird, Blackrock, D.Y. Bluffs, Cottonwood Circle, Blackrock Apartments or other ZHA Rental units. Refer to page 13 for the breakdown of the homes excluded from this inventory. Shalako homes make up 17% (323) of the dwelling types. An additional 15% (281 homes) were categorized as Traditional dwelling types. This number includes several structures considered uninhabited ruins that are either collapsed or severely damaged but constructed within this style. 13% (234 homes) were categorized as ‘other’ dwelling type. This category includes homes that are owner-built, not Shalako, and do not fit in the other types. 27 homes (1%) were identified as non-residential buildings used a dwelling.

Chart 4.10.1. Dwelling Type



DWELLING TYPES - SAMPLE PHOTOS

TRADITIONAL

These include homes constructed with traditional stone masonry and/or adobe practices. Many of these homes are found in the middle village. Homes were categorized as traditional if they had stone wall material or siding as seen in the images below and did not fall under the Shalako category.

Stone Structural Wall Material

Stone Structural Wall Material

Stone Structural Wall Material

Adobe Wall Material

Stone Structural Wall Material

Stone Structural Wall Material

DWELLING TYPES - SAMPLE PHOTOS

HUD: SUBDIVISION

This category describes the typical federal housing of various sizes and styles. These homes are located in the following subdivisions provided in the aerial images below: Blue Bird Mesa, Bowannie, Old Subdivision, Hapadina, Lasiloo, Blackrock, Cottonwood Circle, and D.Y. Bluffs. *(Note: Google Aerial Imagery provided below are not scaled).*

Blue Bird (not included in this assessment)

Bowannie

Old Subdivision

Hapadina

Lasiloo

Blackrock (not included in this assessment)

Cottonwood Circle (partially assessed)

D.Y. Bluffs (not included in this assessment)

DWELLING TYPES - SAMPLE PHOTOS

HUD: SCATTERED SITE

These include HUD homes built outside of the listed HUD subdivisions. These locations should be confirmed with ZHA. The following images are typical HUD layouts, seen in both subdivisions and scattered sites.

Vinyl/Stone Facing Wall Siding

Vinyl/Stone Facing Wall Siding

Vinyl/Stone Facing Wall Siding

Cement Stucco/Stone Facing Wall Siding

MOBILE / MANUFACTURED HOME

These include single and double wide mobile homes as well as manufactured structures.

Mobile/Manufactured home

Mobile/Manufactured home

DWELLING TYPES - SAMPLE PHOTOS

MOBILE / MANUFACTURED HOME (CONTINUED)

Mobile/Manufactured home

Mobile/Manufactured home

SHALAKO

This category was identified either by the resident or the assessor's own knowledge of the location of Shalako homes. This type of home has the most varying wall construction types and wall sidings.

CMU with No finish, OSB/ PWD exposed

Stone (structural) wall material

Cement stucco incomplete/ building wrap exposed

OTHER

These include all other various dwelling types not falling in the listed categories.

Owner-built

NON-RESIDENTIAL USED AS DWELLING

These include sheds, stew houses, and other non-residential buildings lived in by residents.

Shed used as dwelling

Stew House used as dwelling

5.0 CONFIGURATION

5.1 DWELLING SIZE & OVERCROWDING

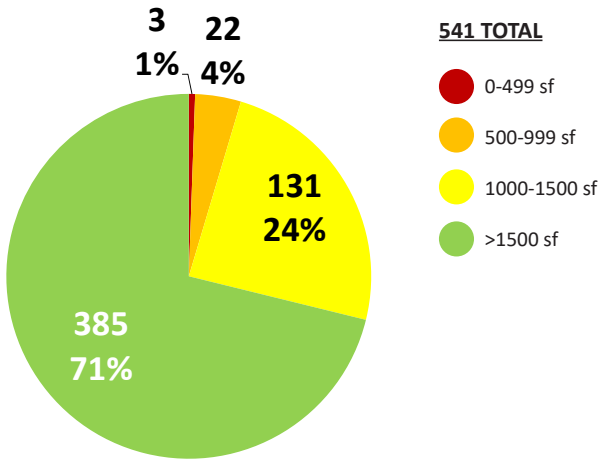
The following charts represent homes with Section B/C data collected from interior surveys and resident interviews. Five hundred forty-one (541) homes, including mobile homes, have reported resident occupancy information. This total excludes six (6) homes where the residency changed to uninhabited over the course of the survey. Dwelling size in the following charts are indicated by two conditions: 1) estimated area in gross square feet, and 2) bedroom count. Charts 5.1.1 and 5.1.3 contain area estimates and related occupancy data. The square footage estimate is taken from the GIS footprint data provided by the Pueblo of Zuni Department of Natural Resources. Exterior and interior areas for each home were not physically measured in the field. During assessments, the assessors sketched the general building footprint or perimeter of the building. GIS footprints were later adjusted for units that were either demolished, had additions, or represented new construction. Areas for upper levels of two-story units have been added to the footprint value for a total area. As these estimates are generated from GIS aerial imagery, areas for porches (portals) and roof overhangs are included. The accuracy of areas listed in the individual app records for each home need to be verified in the field. However, the gross area estimates provided in the following charts can be helpful for planning purposes.

5.1.1. ESTIMATED AREA

Chart 5.1.1 shows the estimated area in square feet for the five hundred forty-one (541) homes where the assessors collected data on the interiors. The chart shows the majority of homes - 71% (385) - are over 1,500 square feet in size. 131 homes (24%) range in areas of 1,000 - 1,500 square feet. An additional 22 homes (4%) range in areas from 500-999 square feet. Just 3 homes (1%) were identified as under 499 square feet.

* Note that GIS data can be easily generated for the remaining dwellings whose interiors have not yet been assessed, but analysis would be required to adjust these areas for 2nd stories and other features that impact a calculation of overcrowding.

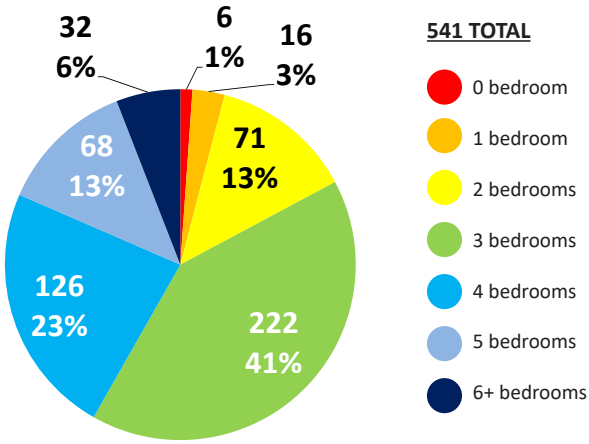
Chart 5.1.1. Area (Square Feet)



5.1.2. BEDROOM COUNT

Chart 5.1.3 shows the number of bedrooms for the 541 homes reporting interior information. The majority of homes (41%) have 3 bedrooms. 71 homes (13%) have 2 bedrooms. 16 homes (3%) have 1 bedroom in the home. Just 6 homes (1%) reported no bedrooms present in their home. An additional 126 homes (23%) have 4 bedrooms. 68 homes (13%) have 5 bedrooms. An additional 32 homes (6%) report having 6 or more bedrooms.

Chart 5.1.2. Bedroom Count

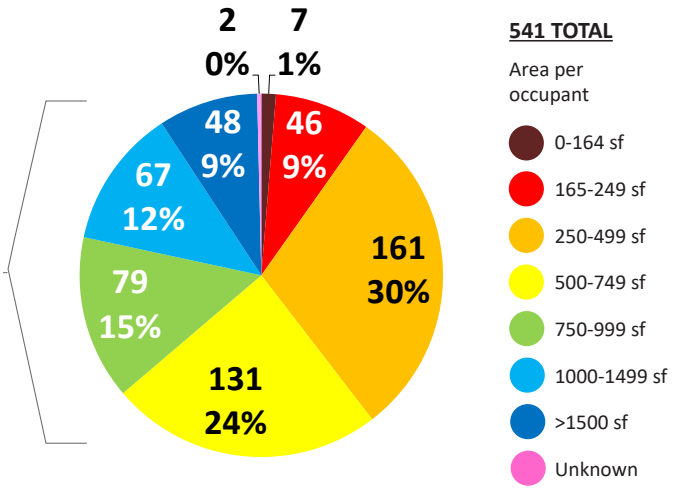


5.1.3. OVERCROWDING BY HOME SIZE

One dimension of overcrowding is size of the unit measured as area per occupant. Chart 5.1.2 shows estimated area per occupant for the 541 homes reporting resident information. 1% of homes have 164 square feet or less per occupant living within the home. 46 homes (9%) have 165-249 square feet per occupant. 161 homes (30%) have 250-499 square feet per occupant. 131 homes (24%) have 500-749 square feet per occupant. An additional 79 homes (15%) have 750-999 square feet per occupant. 115 homes (21%) have over 1,000 square feet per occupant.

Chart 5.1.3. Overcrowding by Home Area

Area per occupant	# homes	%
0-164 sf	7	1.3%
165-249 sf	46	8.5%
250-499 sf	161	29.8%
500-749 sf	131	24.2%
750-999 sf	79	14.6%
1000-1499	67	12.4%
>1500	48	8.9%
unknown	2	0.4%
Total	**541**	**100%**



5.1.4. OVERCROWDING BY NUMBER OF BEDROOMS

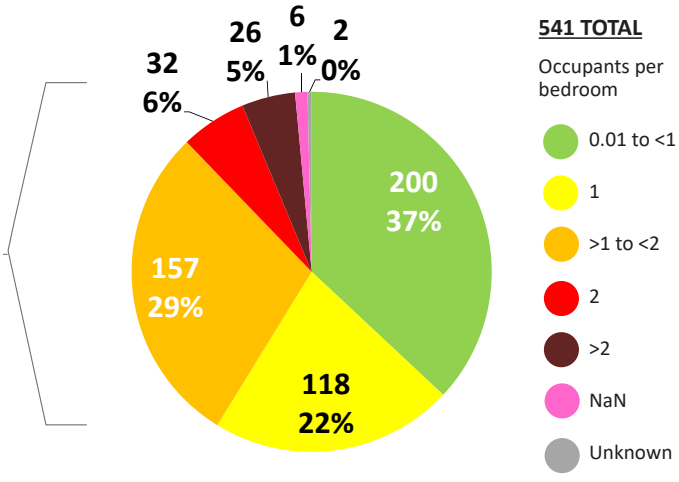
Another dimension of overcrowding is measuring occupants per bedroom. Chart 5.1.4 shows the total number of occupants per bedroom for the homes reporting resident occupancy and room count data. This chart includes data collected for mobile homes. Overcrowding is defined as units with more than two occupants per bedroom.[6] This measurement is not calculating occupants per room.

6 *Measuring Overcrowding in Housing*, U.S. HUD & Econometrica, Inc. 2007.
[liink to https://www.huduser.gov/publications/pdf/measuring_overcrowding_in_hsg.pdf]

Chart 5.1.4. Overcrowding by Number Bedrooms

Occupant per bedroom	# homes	%
<1	200	37.0%
1	118	21.8%
1.1-1.9	157	29.0%
2	32	5.9%
>2	26	4.8%
NaN	6	1.1%
Unknown	2	0.4%
total	**541**	**100%**

Notes: Mean Value is 1.119 persons per bedroom. Standard Deviation is 0.629 persons per bedroom. NaN (standing for "not a number") indicates an unrepresentable value for zero-bedroom units with occupants.



The majority of homes (59%) have 1 or less occupants per bedroom. 157 homes (29%) have between <1 - >2 occupants per bedroom. An additional 32 homes (6%) have 2 occupants per bedroom. The 'unknowns' represent two (2) homes that were first assessed in April 2017 before resident composition questions were included in the survey. The chart shows just 5% of homes (26) have more than 2 persons per bedroom. An additional 6 homes (1%) have no bedrooms. It should be noted that this chart is reflecting just the 541 homes in which assessors have interviewed the residents. If the 5% overcrowding statistic holds true, this would translate to approximately 98 of the 1,958 total homes assessed at Zuni. If the 5% overcrowding statistic were applied to all homes in Zuni including the rental and subdivision units not assessed, this would translate to approximately 1,211 of the 2,422 estimated homes at Zuni. This number could be greater as home areas were not physically measured as mentioned previously in Section 5.1.

Analysis of overcrowding requires further thought and analysis, particularly with respect to the cultural values of the tribe which result in more intergenerational living and tight quarters than typically found in the United States.

5.2 ACCESSIBILITY

The following charts on accessibility represent homes with Section B data collected from the resident interviews. Five hundred forty-one (541) homes, including mobile/manufactured homes, have reported resident accessibility information.

5.2.1. HOMES WITH MOBILITY CHALLENGES

Chart 5.2.1 indicates homes reporting mobility challenges. 31% (169) of homes have residents with mobility challenges.

5.2.2. NEED FOR ACCESSIBILITY IMPROVEMENTS

Chart 5.2.2 shows the homes where residents report a need for accessibility improvements. There is a large amount of 'unknowns' due to this survey question being excluded for mobile homes as ZHA does not perform repairs on manufactured homes. 35% (190) of residents reported a need for accessibility improvements either within the interior or on the exterior of their home.

Chart 5.2.1. Mobility Challenges

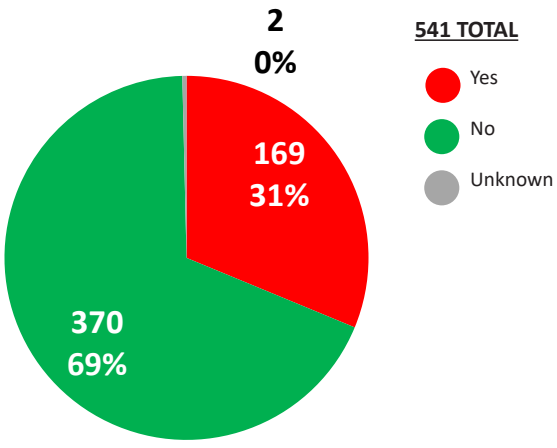
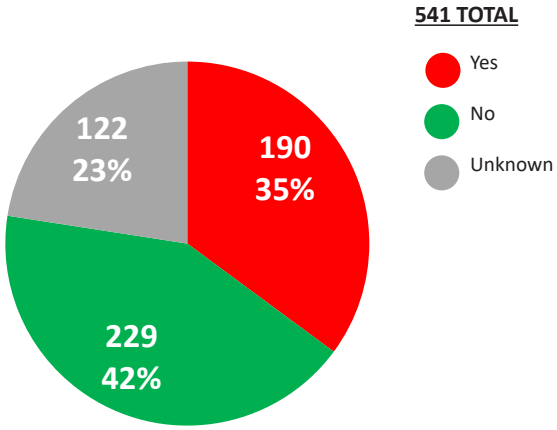


Chart 5.2.2. Accessibility Improvements



6.0 CONSTRUCTION & PHYSICAL CONDITION

6.1 EXTERIOR

Over the course of the inventory, 1,858 homes received some level of assessment of the dwelling exteriors. The data collected on the exterior construction and physical conditions are presented in the following charts. Some of these charts only present data on the exterior assessments of 1,374 homes, which exclude 463 mobile homes. The mobile homes received a quick exterior overall evaluation which are documented on the charts provided in Section 6.3. In addition, the following charts exclude dwellings classified with the building use 'residence - uninhabited ruin,' except for the totals in charts 6.1.11 - 6.1.13.

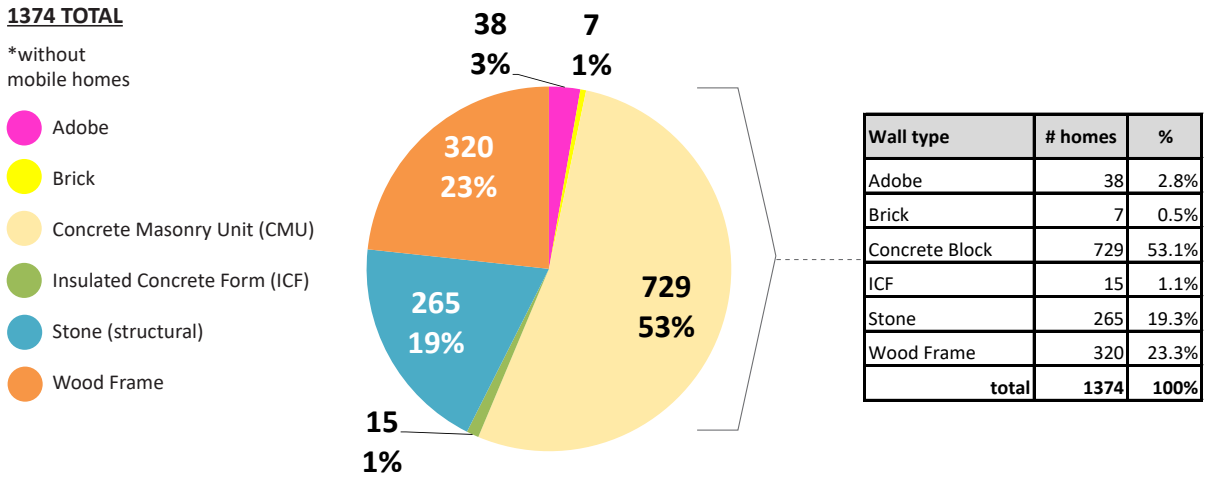
Exterior physical conditions and construction types were recorded and photographed if the resident permitted. Refer to page 8 for the protocol followed by assessors to document and photograph homes when residents were not present. Many of the dwellings at Zuni have been expanded or renovated over the years. As a result, most of the homes in Zuni are constructed with multiple materials. The survey documented both the primary and secondary construction materials and types visible from the exterior. 'Primary' questions documented the most prominent wall or roof material and construction type. 'Secondary' questions documented all other wall or roof materials present on the dwelling exterior. The following charts present data collected only for the primary construction material and types. Refer to Appendix Vol. I for further discussion on primary vs. secondary.

In many of the following charts that provide data on conditions, the terms 'no, minor, moderate, or major deficiencies' is used. This terminology was taken from existing housing rating forms utilized by ZHA. More discussion on this criteria can be found on the following charts utilizing these terms

6.1.1. PRIMARY WALL CONSTRUCTION

Chart 6.1.1 indicates the primary wall construction of the various buildings. Most of the homes (51%) in Zuni are constructed with concrete masonry units (CMU). 313 homes (22%) are primarily constructed with stone masonry. An additional 296 homes (21%) are constructed with wood frame. Just 43 homes (3%) are primarily constructed with adobe. 2% of the homes assessed at Zuni are constructed with insulated concrete form (ICF). This total number of ICF constructed homes may slightly differ once compared with ZHA records on their locations. In some cases, the wall construction was difficult to determine with the wall siding covering the entire exterior. Refer to Appendix Vol. II for mapping on wall construction.

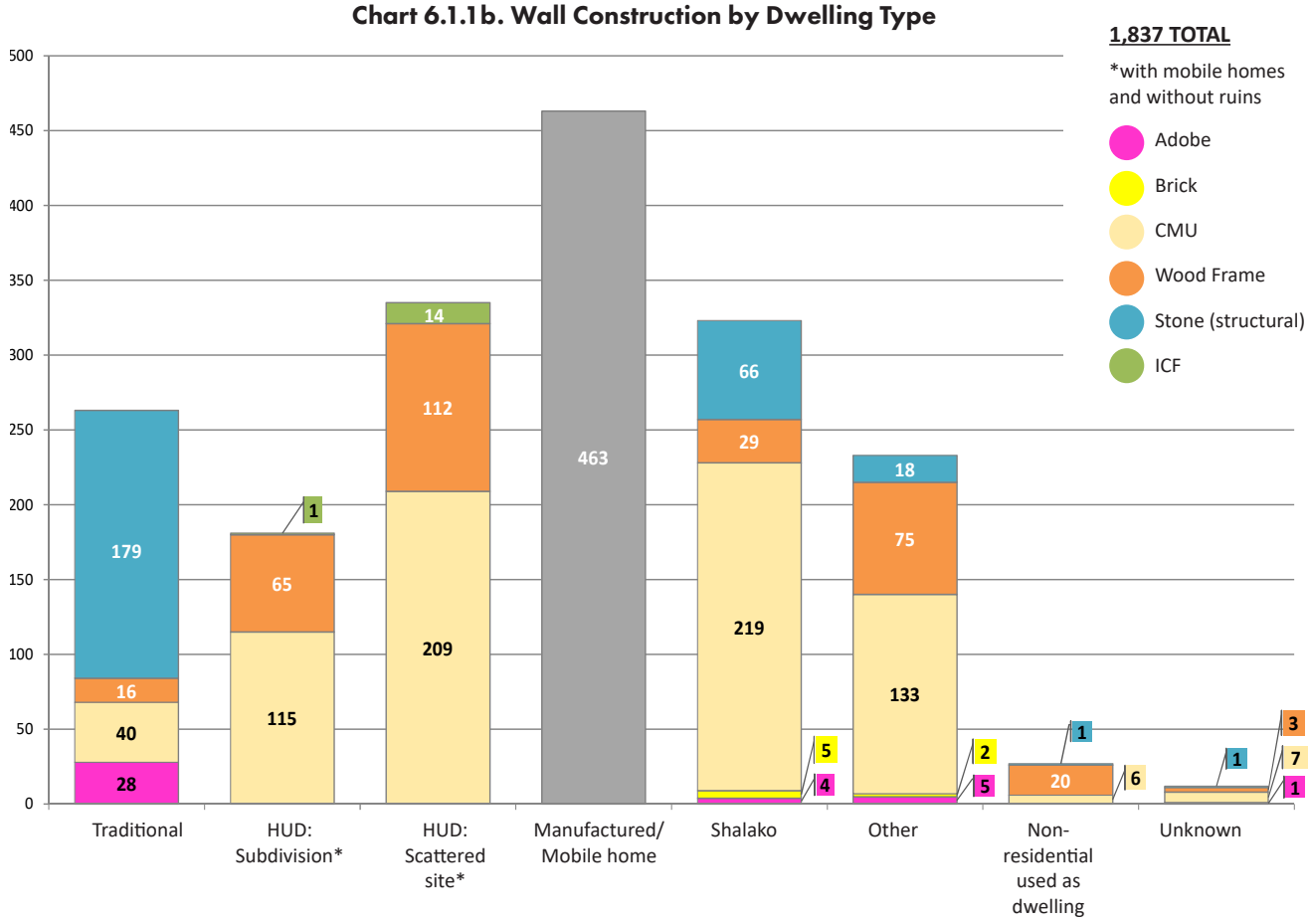
Chart 6.1.1a. Primary Exterior Wall Construction



Wall type	# homes	%
Adobe	38	2.8%
Brick	7	0.5%
Concrete Block	729	53.1%
ICF	15	1.1%
Stone	265	19.3%
Wood Frame	320	23.3%
total	**1374**	**100%**

Chart 6.1.1b. shows a breakdown of the primary wall construction by dwelling types. Refer to page 19 for discussion of dwelling types. Many of the homes at Zuni have a combination of the wall construction materials listed below. As these charts exclude secondary materials, the percentage of homes constructed with these materials may be higher than shown.

Chart 6.1.1b. Wall Construction by Dwelling Type



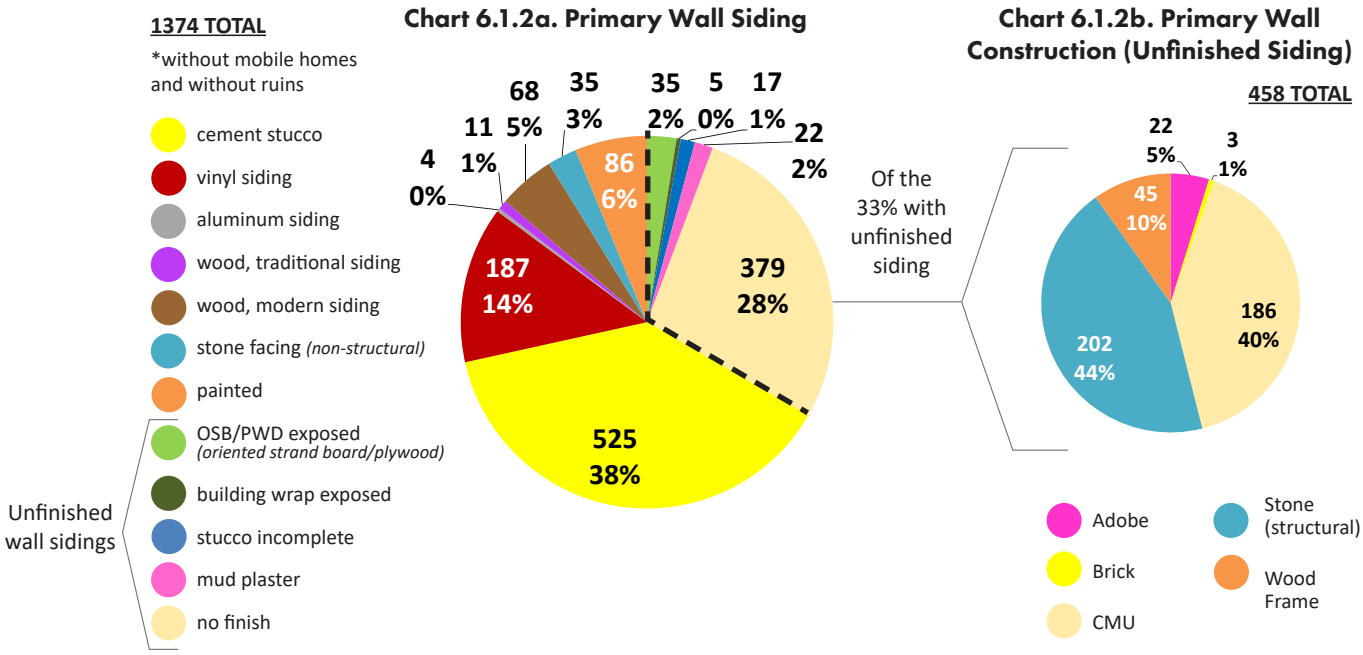
Type	Adobe	Brick	Concrete Block	Wood Frame	ICF	Stone	Mobile	Total	%
Traditional	28	0	40	16	0	179	0	**263**	**14%**
HUD: subdivision	0	0	115	65	1	0	0	**181**	**10%**
HUD: scattered site	0	0	209	112	14	0	0	**335**	**18%**
Manufactured/Mobile	0	0	0	0	0	0	463	**463**	**25%**
Shalako	4	5	219	29	0	66	0	**323**	**18%**
Other	5	2	133	75	0	18	0	**233**	**13%**
Non-residential dwelling	0	0	6	20	0	1	0	**27**	**1%**
Unknown	1	0	7	3	0	1	0	**12**	**1%**
total	**38**	**7**	**729**	**320**	**15**	**265**	**463**	**1837**	**100%**

*NOTE: The total number of HUD constructed homes may slightly differ once compared with ZHA records on their locations. Wall construction for these HUD homes should be confirmed with the ZHA. In some cases, the wall construction was difficult to determine with the wall siding covering the entire exterior. However, these totals should hold for the aggregate.

6.1.2. PRIMARY WALL SIDING

Chart 6.1.2a indicates the primary wall siding material of the 1,374 buildings assessed. 525 (38%) of homes have cement stucco as the primary wall siding. Many of the homes at Zuni have a combination of the wall siding materials listed below. 379 homes (28%) had no finish to the wall exterior. 79 homes (5%) has unfinished wall sidings. Please note that some wall types such as CMU, brick, and stone will have no finish. Many of the door and window installations in CMU homes were designed to have a cement stucco finish which has not been completed in 186 homes - see Chart 6.1.2b. This condition provides an opportunity for water infiltration and mold. Also of great concern are the wood frame homes with no finish or exposed building wrap where construction has ceased. As these charts exclude secondary materials, the percentage of homes with unfinished wall sidings may be higher than shown.

Refer to Appendix Vol. I for examples of these wall sidings and further discussion on primary vs. secondary. Refer to Appendix Vol. II for mapping on wall siding.



6.1.3. PRIMARY WALL EVALUATION

The assessors evaluated wall condition based on the following visible features: cracks and their severity, wall material siding condition, water penetration concerns, structural issues, and settlement in walls/foundation.

Chart 6.1.3 provides data on conditions using the terms 'no, minor, moderate, or major deficiencies'. This terminology was taken from existing housing rating forms utilized by ZHA. Under this project, these evaluations consider the following criteria:

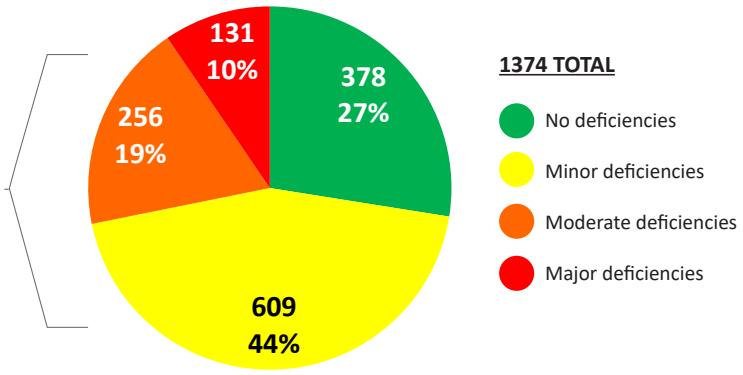
No deficiencies	Item is in good working order and no work should be necessary.
Minor deficiencies	Item is functional, but may be outdated or have some minor deficiencies. Cleaning, patching, or other minor repairs may be required.
Moderate deficiencies	Item is only partially functional or is degraded substantially. Significant finish damage may be evident. This item should be planned for a moderate repair or replacement.
Major deficiencies	Item is non-functional and/or broken. Severe deterioration may be evident. The item should be planned for a major repair or replacement.

*NOTE: This criteria should be referenced for all fields utilizing this terminology.

Chart 6.1.3 shows the primary wall evaluation with the majority of homes having minor wall deficiencies (44%). 378 homes (27%) were assessed with no deficiencies in the exterior wall. 29% of the homes assessed had either moderate (19%) or major (10%) deficiencies. Refer to Appendix Vol. II for mapping on wall evaluation.

Chart 6.1.3. Primary Exterior Wall Evaluation

Evaluation	Total	%
No deficiencies	378	28%
Minor deficiencies	609	44%
Moderate deficiencies	256	19%
Major deficiencies	131	10%
Unknown	0	0%
TOTAL	1374	100%



EXTERIOR WALL EVALUATIONS - SAMPLE PHOTOS

No wall deficiencies



Minor wall deficiencies



Moderate wall deficiencies



Major wall deficiencies




6.1.4. PRIMARY WINDOW EVALUATION

Chart 6.1.4 shows the primary window evaluation. This chart has a smaller total - 352 (26%) out of the 1374 exterior surveys excluding mobile homes - due to survey time restrictions for the Full vs. Quick responses. This question for window evaluation only appeared if the survey time was selected as 'Full.' The chart below shows the majority of homes having minor window deficiencies.

6.1.5. PRIMARY DOOR EVALUATION

Chart 6.1.5 shows the primary door evaluation. This chart has a smaller total - 352 (26%) out of the 1374 exterior surveys excluding mobile homes - due to survey time restrictions for the Full vs. Quick responses. This question for door evaluation only appeared if the survey time was selected as 'Full.'

Chart 6.1.4. Primary Window Evaluation

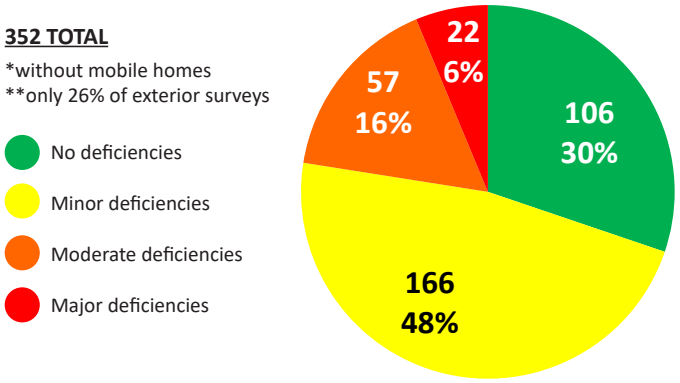
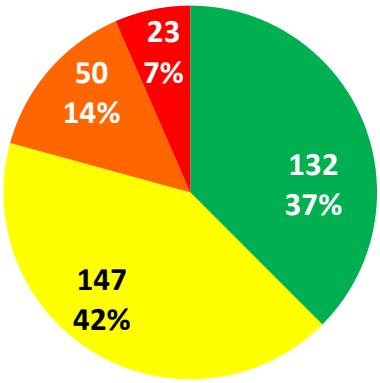


Chart 6.1.5. Primary Door Evaluation



Images of CMU constructed homes with window winterization needed. This unfinished condition provides an opportunity for water infiltration and mold.

Home with finished window winterization.

6.1.6. PRIMARY ROOF TYPE

Chart 6.1.6 indicates the varying primary roof types (and slopes) at Zuni. The majority of rooftops are sloped gable - 75% (1026 homes). This chart shows only the primary roof types. Data was also collected on the secondary roof type. A large amount of dwellings in Zuni had multiple roof types. This information is in the database and can be queried, but is not commented on within this report. Refer to Appendix Vol. I for examples of these roof types. Refer to Appendix Vol. II for mapping on roof types.

6.1.7. PRIMARY ROOF MATERIAL

Chart 6.1.7 shows the primary roofing materials at Zuni. The majority of rooftops are constructed with shingles (49%) and rolled bituminous roofing (41%). This chart shows only the primary roof types. Data was also collected on the secondary roofing materials, but not presented in this report. A large amount of rooftops on homes were constructed utilizing multiple materials. Refer to Appendix Vol. I for examples of these materials. Refer to Appendix Vol. II for mapping on roof materials.

Chart 6.1.6. Primary Roof Type

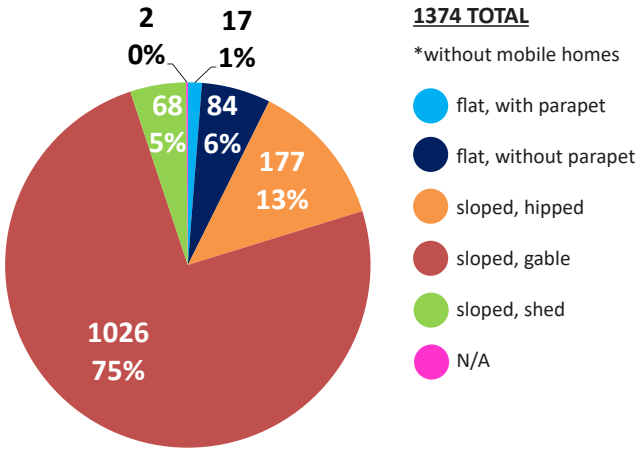
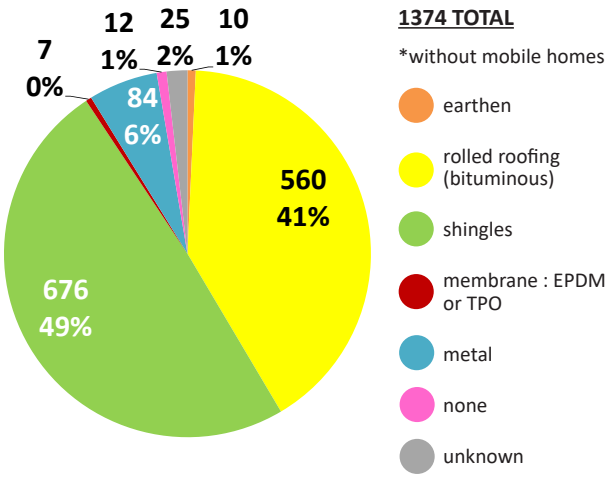


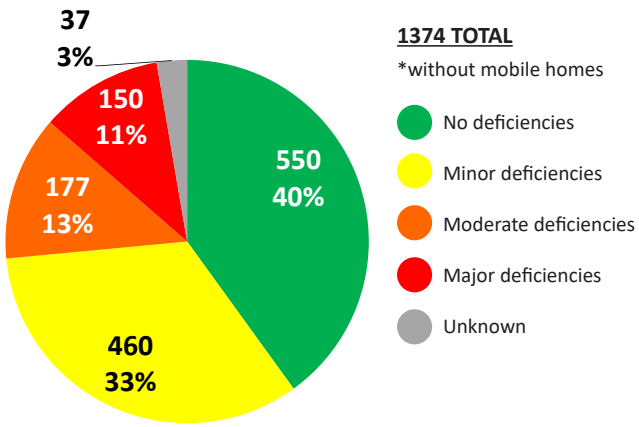
Chart 6.1.7. Primary Roof Material



6.1.8. PRIMARY ROOF EVALUATION

Chart 6.1.8 shows the overall primary roof evaluation. This chart shows 37 homes (3%) with 'unknown' roof conditions. These homes have roofs that cannot be seen from the exterior, typically flat roof types. These homes would require physical access in order to properly assess the roof exterior. It should be noted that of these 1,374 exterior roof evaluations, only 30% (418 homes excluding mobile homes) had interior evaluations completed where assessors could document interior leaks or other roof/ceiling concerns. Refer to Appendix Vol. II for mapping on roof evaluation.

Chart 6.1.8. Primary Roof Evaluation



6.1.9. ROOF CONCERNS

Chart 6.1.9 shows whether any roof concerns were present on the exterior. 19% (267) of the home exteriors assessed have roofing concerns.

6.1.10. ROOF LEAKS

Chart 6.1.10 shows the reported roof leaks from residents. This chart includes 418 total homes where interior surveys (sections B/C) were completed, excluding mobile homes. 41% (173) of the homes have reported roof leaks. This is of concern as leaks can lead to mold and health concerns.

Chart 6.1.9. Roof Concerns

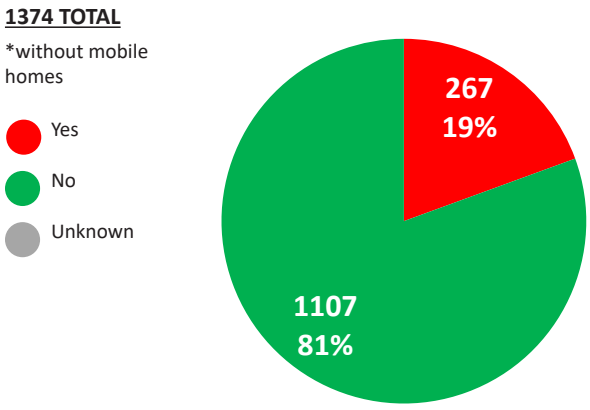
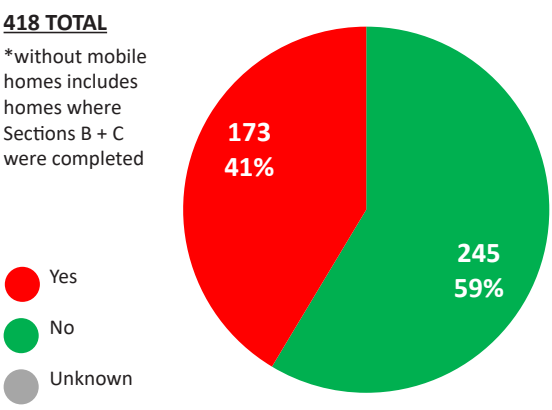


Chart 6.1.10. Roof Leaks

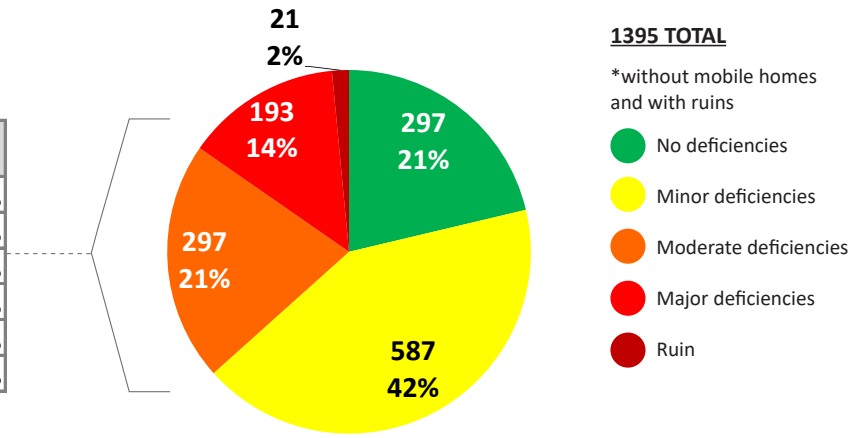


6.1.11. OVERALL EXTERIOR CONDITION

Chart 6.1.11 shows the overall exterior condition of the homes assessed. This evaluation factored in the exterior wall and roof evaluations, foundation, and structural concerns. More homes assessed had minor deficiencies than other categories - 42% (587 homes). 297 homes (21%) have no exterior deficiencies. In addition, 297 homes (21%) had moderate exterior deficiencies noted. 193 homes (14%) have major exterior deficiencies. 21 homes (2%) were assessed as ruin for lack of building infrastructure or physical deterioration. Please note that interior assessments were only completed on 30% of the homes identified in the chart below. Exterior wall and roof evaluations, in particular, may not be reflected of the interior conditions. Refer to maps 6.1.11a. and 6.1.11b. in Appendix Vol. II for mapping on overall exterior conditions.

Chart 6.1.11. Overall Exterior Evaluation

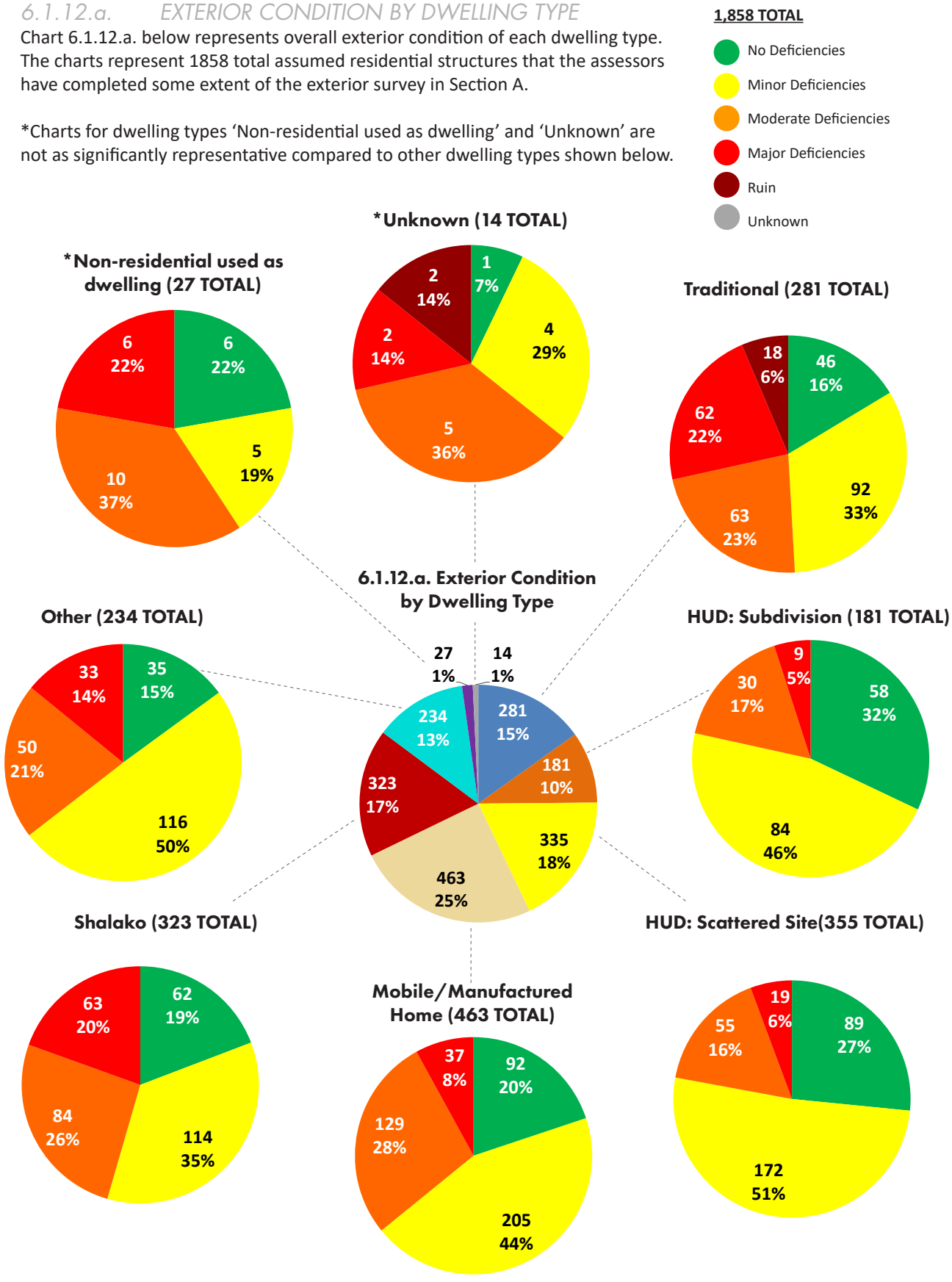
Evaluation	Total	%
No deficiencies	378	28%
Minor deficiencies	609	44%
Moderate deficiencies	256	19%
Major deficiencies	131	10%
Unknown	0	0%
TOTAL	**1374**	**100%**



6.1.12.a. EXTERIOR CONDITION BY DWELLING TYPE

Chart 6.1.12.a. below represents overall exterior condition of each dwelling type. The charts represent 1858 total assumed residential structures that the assessors have completed some extent of the exterior survey in Section A.

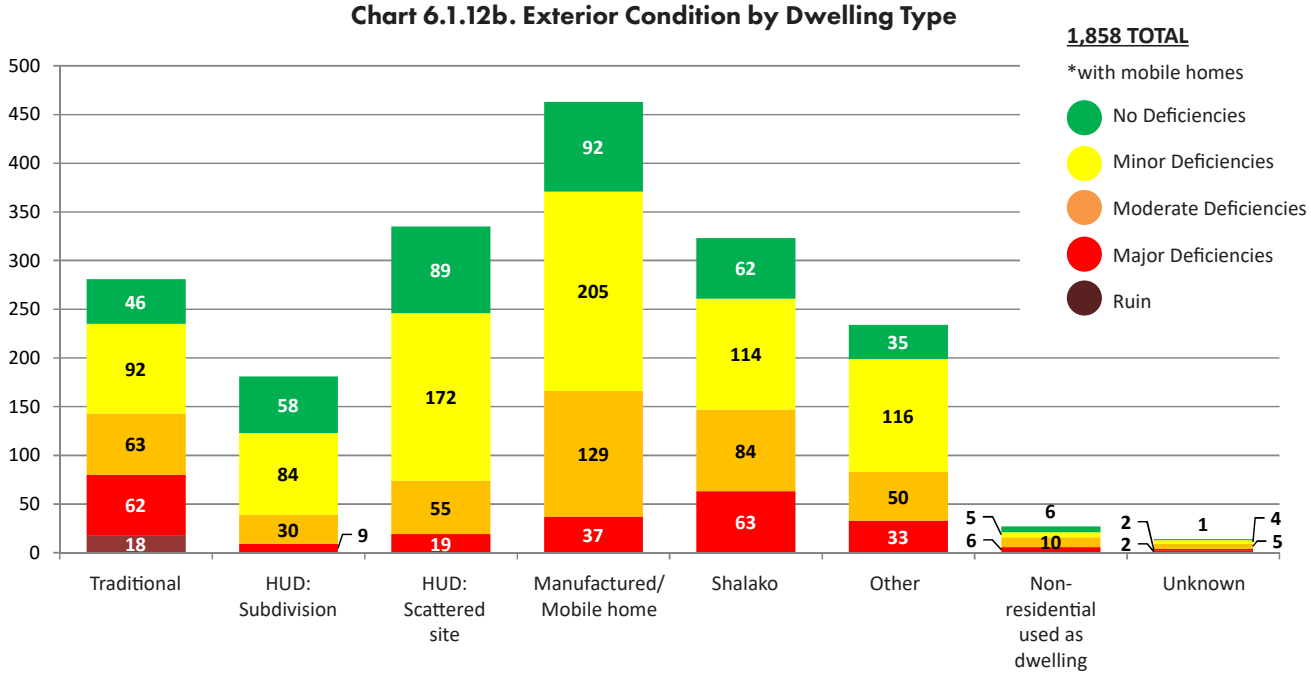
*Charts for dwelling types 'Non-residential used as dwelling' and 'Unknown' are not as significantly representative compared to other dwelling types shown below.



6.1.12.b. EXTERIOR CONDITION BY DWELLING TYPE

Chart 6.1.12.b. shows the overall exterior evaluation broken down by dwelling type. This is the same data presented in chart 6.1.12.a, but presented here in a column graph. Refer to page 19 for descriptions of each dwelling type. The totals and percentages in this chart differ from Chart 6.1.11. because mobile homes are included. As shown in chart 4.10.1, manufactured/mobile homes make up more homes in Zuni than other types.

Chart 6.1.12b. Exterior Condition by Dwelling Type



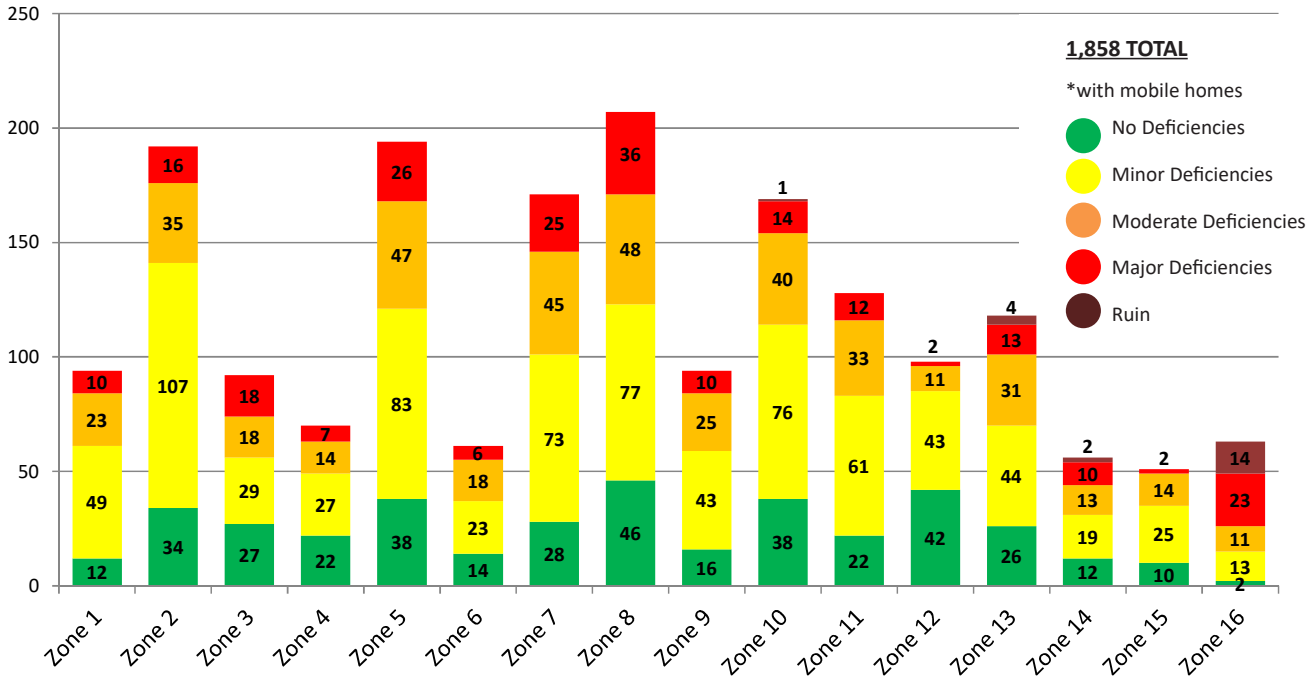
Type	No deficiencies	Minor deficiencies	Moderate deficiencies	Major deficiencies	Ruin	Total
Traditional	46	92	63	62	18	281
HUD: subdivision	58	84	30	9	0	181
HUD: scattered site	89	172	55	19	0	335
Manufactured/Mobile	92	205	129	37	0	463
Shalako	62	114	84	63	0	323
Other	35	116	50	33	0	234
Non-residential dwelling	6	5	10	6	0	27
Unknown	1	4	5	2	2	14
total	**389**	**792**	**426**	**231**	**20**	**1858**
%	**21%**	**43%**	**23%**	**12%**	**1%**	**100%**

Charts 6.1.12.a and 6.1.12b present some of the most interesting and actionable data in the project. They show that the traditional and Shalako home types have significantly more homes with major deficiencies. This data also shows that in terms of major and moderate combined, the manufactured/mobile homes have more dwellings with significant issues.

6.1.13. EXTERIOR CONDITION BY INVENTORY ZONE

Chart 6.1.13 shows the overall exterior condition broken down by each inventory zone 1-16. Zone 8 - Middle Village - had the largest concentration of residential buildings assessed. Zone 16 has the highest amount of ruins as it included the outlying farming areas of Ojo Caliente, Nutria, and Pescado, areas which have many homes that have not been in use for decades. Refer to map 6.1.13. in Appendix Vol. II for mapping on overall exterior conditions.

Chart 6.1.13. Exterior Condition by Inventory Zone



Type	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	Zone 12	Zone 13	Zone 14	Zone 15	Zone 16	Total	%
No deficiencies	12	34	27	22	38	14	28	46	16	38	22	42	26	12	10	2	389	21%
Minor deficiencies	49	107	29	27	83	23	73	77	43	76	61	43	44	19	25	13	792	43%
Moderate deficiencies	23	35	18	14	47	18	45	48	25	40	33	11	31	13	14	11	426	23%
Major deficiencies	10	16	18	7	26	6	25	36	10	14	12	2	13	10	2	23	230	12%
Ruin	0	0	0	0	0	0	0	0	0	1	0	0	4	2	0	14	21	1%
Total	94	192	92	70	194	61	171	207	94	169	128	98	118	56	51	63	1858	-
%	5.1%	10.3%	5.0%	3.8%	10.4%	3.3%	9.2%	11.1%	5.1%	9.1%	6.9%	5.3%	6.4%	3.0%	2.7%	3.4%	-	100%

6.2 INTERIOR PHYSICAL CONDITION

Interior conditions were assessed only if the residents permitted physical access inside their home. Per the inspection protocol outlined on page 8, the assessors requested interior access from residents during: 1) the initial visit if contact was made; 2) the two follow-up visits if contact wasn't made upon first visit; and 3) a resident scheduled the interior assessment.

The following charts reflect the four hundred eighteen (418) homes where residents permitted the interior surveys for Sections B & C of the mobile app. With the exception of Chart 6.2.5, these charts exclude mobile/manufactured homes as interior conditions were not assessed per direction of the Zuni Housing Authority.

Chart 6.2.1. Overall Interior Evaluation

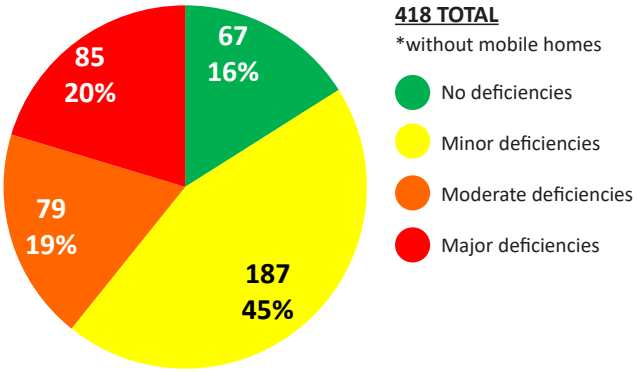
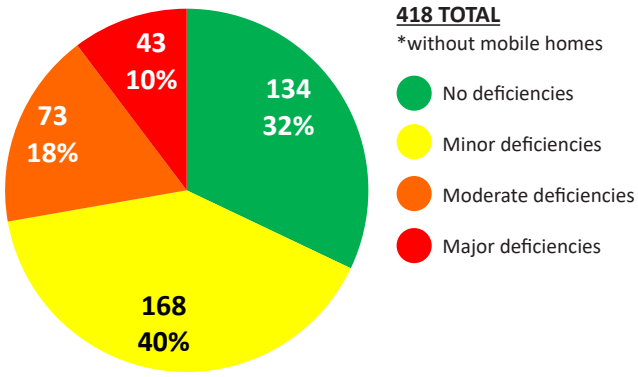


Chart 6.2.2. Floor Evaluation



6.2.1. OVERALL INTERIOR CONDITION

Chart 6.2.1 shows the overall interior condition. This chart takes into account evaluations for floor, wall, ceiling, building systems, and any interior structural concerns or life safety hazards. As seen in the chart, more homes interiors assessed to date have only minor (45%) interior deficiencies noted. A combined 39% of the homes interiors have moderate or major deficiencies. 67 homes (16%) were noted with no interior deficiencies. Refer to Appendix Volume III for examples of homes with good conditions. Refer to Appendix Vol. II for mapping on overall interior conditions.

6.2.2. FLOOR CONDITION

Chart 6.2.2 shows the interior floor conditions. More interior floors assessed have only minor (40%) or no (32%) interior deficiencies. A combined 28% of the interior floors have moderate or major deficiencies.

6.2.3. WALL CONDITION

Chart 6.2.3 shows that the majority of homes have interior walls with minor (35%) or no (41%) deficiencies. The chart shows a combined 24% of the homes interior walls with moderate or major deficiencies.

6.2.4. CEILING CONDITION

Chart 6.2.4 shows the interior ceiling conditions. The majority of homes ceilings have minor (33%) or no (40%) deficiencies. The chart shows a combined 27% of the ceilings with moderate or major deficiencies.

Chart 6.2.3. Interior Wall Evaluation

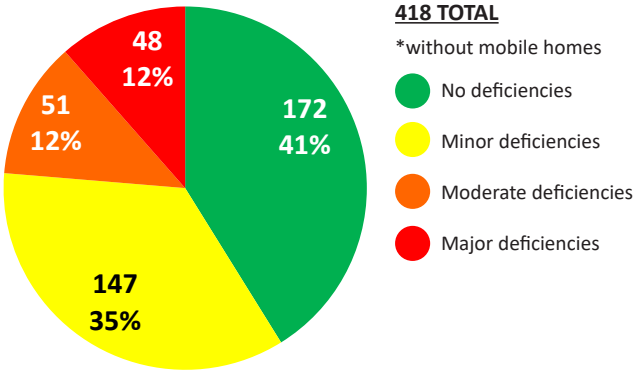
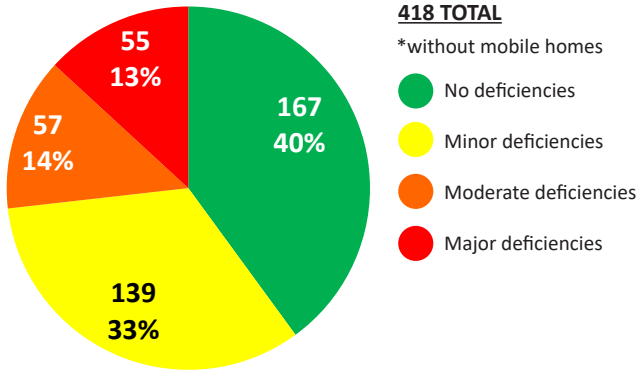
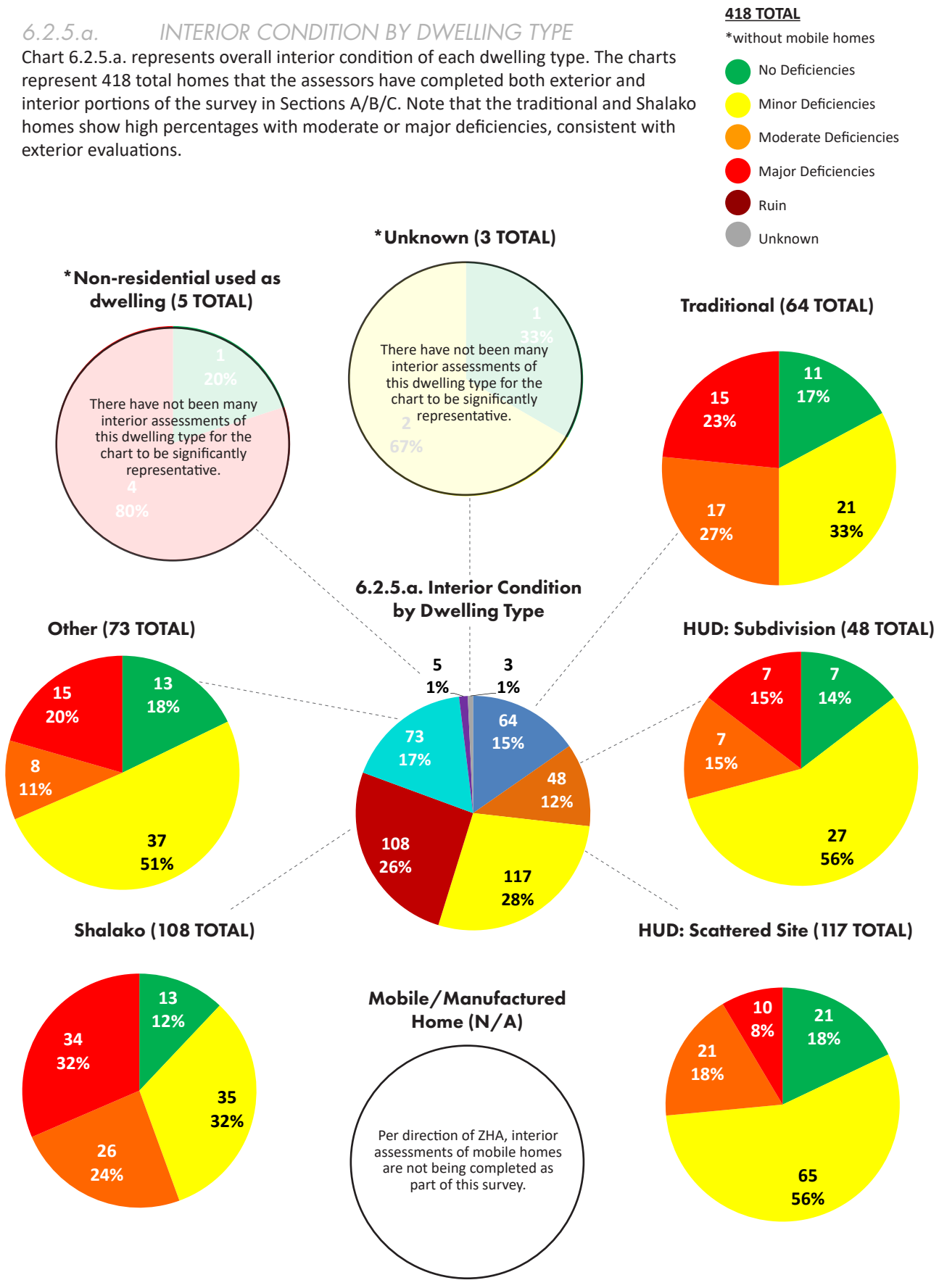


Chart 6.2.4. Ceiling Evaluation



6.2.5.a. INTERIOR CONDITION BY DWELLING TYPE

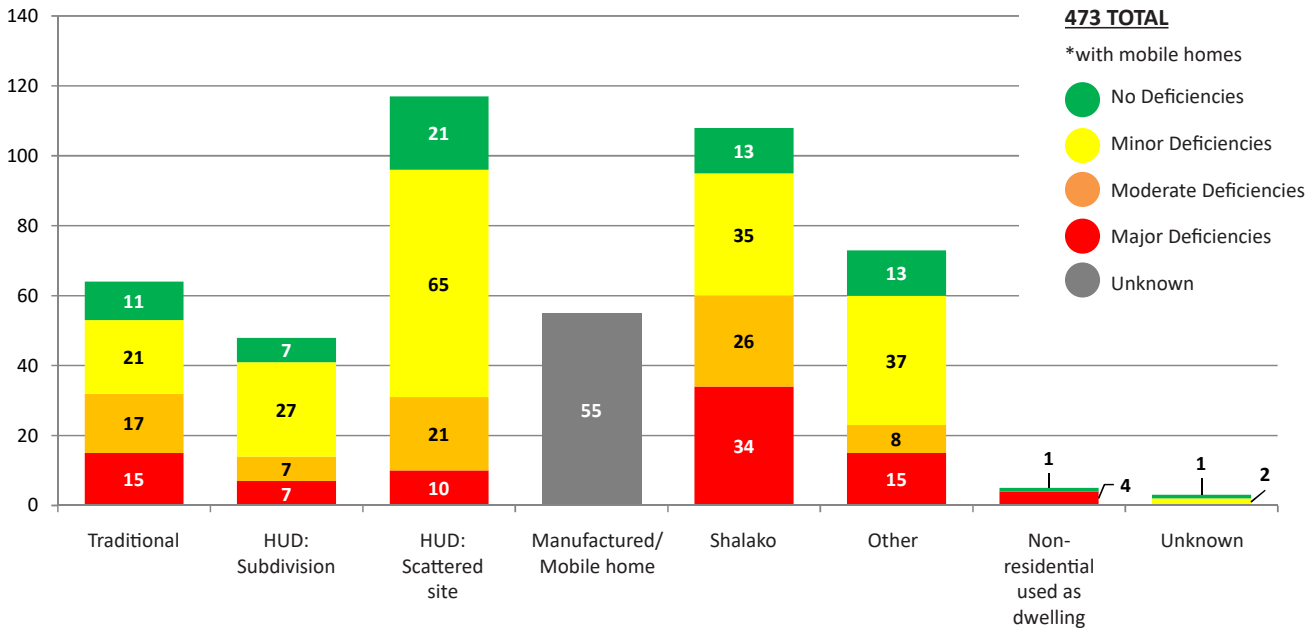
Chart 6.2.5.a. represents overall interior condition of each dwelling type. The charts represent 418 total homes that the assessors have completed both exterior and interior portions of the survey in Sections A/B/C. Note that the traditional and Shalako homes show high percentages with moderate or major deficiencies, consistent with exterior evaluations.



6.2.5.b. INTERIOR CONDITION BY DWELLING TYPE

Chart 6.2.5.b. represents overall interior condition broken down by dwelling type. Refer to page 19 for descriptions of each dwelling type. As noted in previous sections of this report, manufactured/mobile homes did not receive extensive interior evaluations.

Chart 6.2.6. Interior Condition by Dwelling Type



Type	No deficiencies	Minor deficiencies	Moderate deficiencies	Major deficiencies	Unknown	Total
Traditional	11	21	17	15	0	64
HUD: subdivision	7	27	7	7	0	48
HUD: scattered site	21	65	21	10	0	117
Manufactured/Mobile	0	0	0	0	55	55
Shalako	13	35	26	34	0	108
Other	13	37	8	15	0	73
Non-residential dwelling	1	0	0	4	0	5
Unknown	1	2	0	0	0	3
total	**67**	**187**	**79**	**85**	**55**	**473**
%	**14%**	**40%**	**17%**	**18%**	**12%**	**100%**

*NOTE: The percentages in this table slightly differ from Chart 6.2.1. because mobile homes are included with an 'unknown' percentage here.

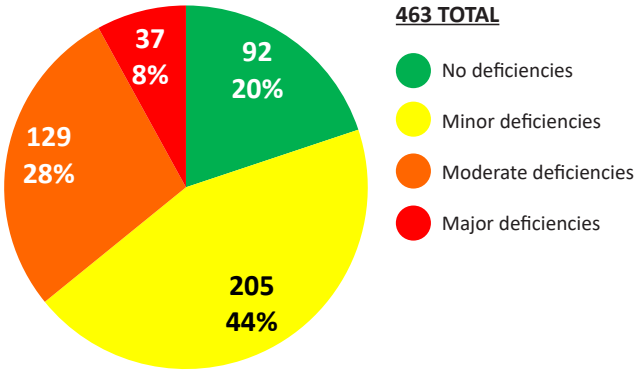
6.3 MANUFACTURED/ MOBILE HOMES

"Manufactured/Mobile" are interchangeable terms for ZHA standards and include readily movable manufactured homes both single-wide or double-wide. The mobile homes received a quick exterior overall evaluation which are documented on the following charts. Exterior physical conditions of the mobile homes were recorded and photographed if the resident permitted. Refer to page 8 for the protocol followed by assessors to document and photograph homes when residents were not present.

6.3.1. OVERALL MOBILE EXTERIOR CONDITION

Chart 6.3.1 shows the overall exterior condition of the mobile homes in Zuni. More mobile homes have minor deficiencies (44%) than other categories. The chart shows 129 mobile homes (28%) were noted with moderate deficiencies. An additional 92 mobile homes (20%) were noted with no deficiencies. 37 mobile homes (8%) were noted with major deficiencies.

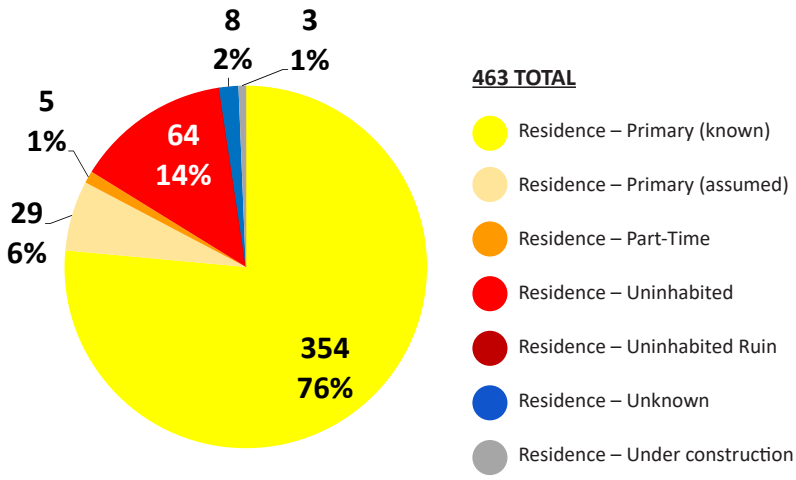
Chart 6.3.1. Overall Mobile Evaluation



6.3.2. MOBILE HOME RESIDENTIAL USE

Chart 6.3.2 shows the distribution of residential use for the 463 mobile homes assessed in Zuni. Of these 463, the majority (76%) of the mobile homes are currently used as primary residences (used full-time for sleeping). An additional 64 mobile homes (14%) were noted as uninhabited.

Chart 6.3.2. Residential Use



7.0 AVAILABLE INFRASTRUCTURE & SYSTEMS

7.1 INFRASTRUCTURE

Site utilities and building systems conditions were assessed only if the residents permitted. The following charts reflect the homes where residents permitted the interior surveys for Sections B & C of the mobile app. Several of the following charts exclude mobile/manufactured homes as interior finishes and systems were not evaluated of this dwelling type.

7.1.1. WATER SYSTEM TYPE

Chart 7.1.1 shows the water system types for the homes (including mobile/manufactured and six homes categorized as 'residence uninhabited') with surveyed interiors and site. The majority (74%) of homes are connected to "city water."

7.1.2. WORKING WATER

Chart 7.1.2 shows the resident responses about whether their water services was "working." 8% of the residents indicated their water was not working or not present. **Note that the category 'not present' was added three months into the survey. Some homes falling under the 'not working' response may also have no water infrastructure present in the home.

Chart 7.1.1. Water System Type

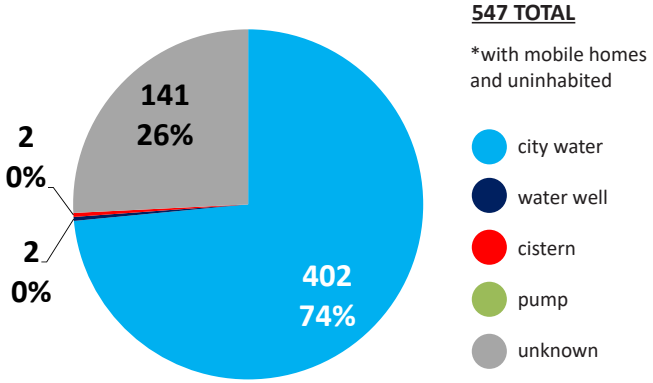
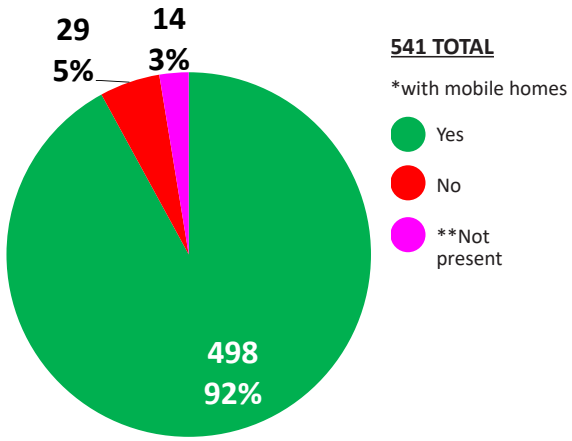


Chart 7.1.2. Working Water



7.1.3. SANITARY SYSTEM TYPE

Chart 7.1.3 shows the sanitary system type of the homes in Zuni. The inhabited dwellings all feature a range of sanitary system types. The majority (70%) of residences are connected to the city sewer system. An additional 20 homes (4%) have a septic tank: above ground. Just 3 homes (1%) utilize an outhouse as their primary sanitary system. 139 homes (25%) have unknown sanitary systems.

7.1.4. MOBILE HOMES CONNECTED TO SEWER

Chart 7.1.4 shows the existing sewer connections for 123 mobile homes. 14 residences (11%) were not connected to the sewer infrastructure.

Chart 7.1.3. Sanitary System Type

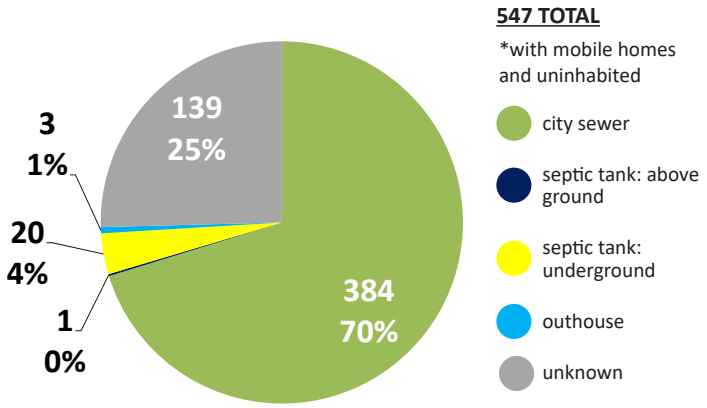
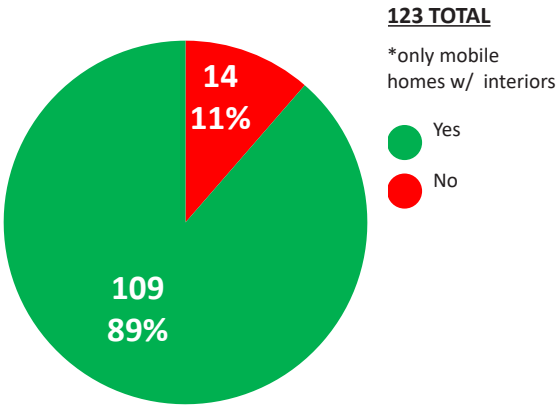


Chart 7.1.4. Connected to Sewer



7.2 BUILDING SYSTEMS

Building systems and their condition were assessed in 418 homes in Zuni. As mentioned previously in this report, mobile home evaluations had limited survey information gathered for mechanical (including heating and cooling), plumbing, and electrical systems. These charts also exclude several homes categorized as 'residence - uninhabited' (5 homes) and 'residence - under construction' (1 home). For evaluations of the interior building systems, utilities, and fixtures, it should be noted that the assessors are not certified and did not utilize any special tools or equipment for testing. The assessments were conducted in person through visible inspections and physical use of fixtures.

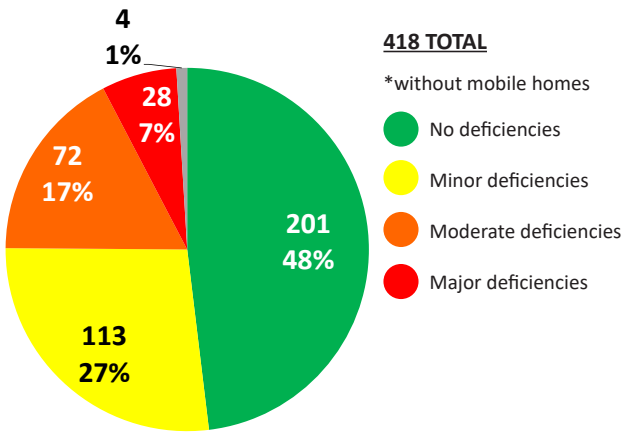
7.2.1. MECHANICAL SYSTEM CONDITION

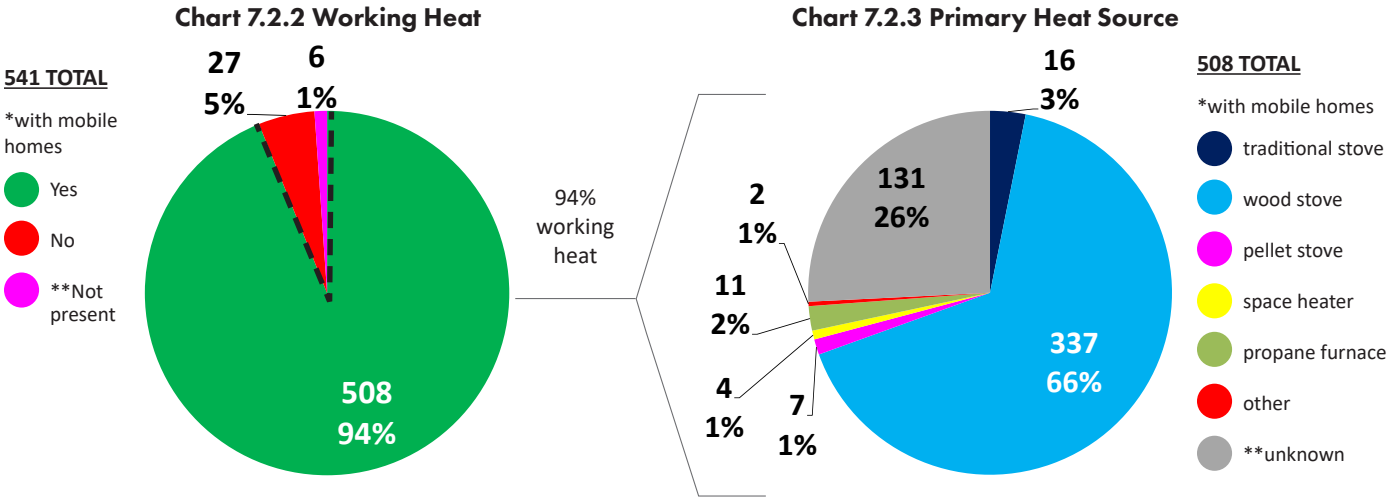
The mechanical systems (heating and cooling) of the households were surveyed. This overall mechanical evaluation considered conditions of the heat sources, A/C systems, and ventilation systems. Chart 7.2.1 shows the breakdown of conditions for mechanical systems. More homes (48%) were noted with no mechanical deficiencies. 24% of the homes were noted with moderate (17%) or major (7%) mechanical deficiencies.

7.2.2. WORKING HEAT

The evaluation of heating systems considered primary and secondary sources. During the winter months of the survey, the assessors were able to walk around the home checking heating. In addition, they would ask residents if all rooms felt like they were getting a source of heating including the bathroom, kitchen, and laundry rooms. Chart 7.2.2 shows the breakdown of homes with working heat. 27 homes (5%) do not have working heat. An additional 6 homes (1%) have no heating system present in the dwelling. Installation of

Chart 7.2.1 Mechanical System





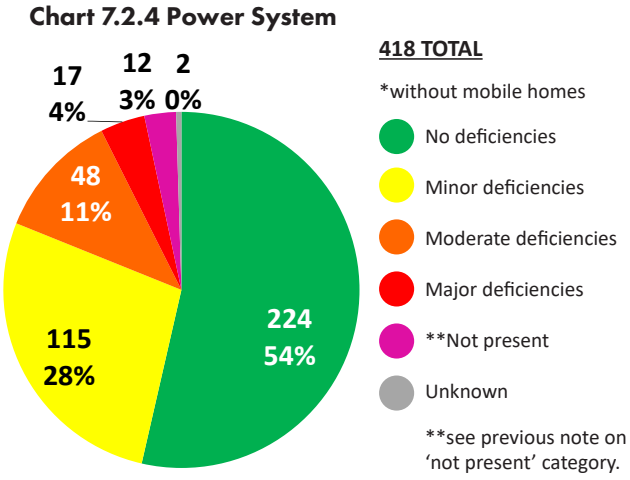
modern, efficient heating systems is necessary to ensure the safety and health of occupants. These homes have been added to the list of residences with critical life safety concerns. Refer to page 52 for more details. **Note that the category 'not present' was added three months into the survey. Some homes falling under the 'not working' response may also have no water infrastructure present in the home. Additional questions in the app gathered information on any damage present to the heating source vents or inlets (data not presented in this report).

7.2.3. PRIMARY HEAT SOURCE

Of the 508 residences with working heat, Chart 7.2.3 shows the breakdown of type of heat source primarily used in each home. The majority of homes utilize a wood stove as their primary source of heat. Secondary sources of heat were also recorded in the app. **Note that this survey question was added three months into the project. As such, the chart has 26% 'unknown' responses.

7.2.4. POWER SYSTEM CONDITION

Evaluations for the power systems of homes involved looking at conditions of electrical receptacles, wiring, and switches. This evaluation also considered whether the home is old, uses a lot of power strips, and had deficient cables/wires (old and brittle). Chart 7.2.4 shows the condition of the power systems in the residences surveyed. The majority of homes (54%) were noted with no deficiencies in power systems. 115 homes (28%) had minor power deficiencies. As additional 48 homes (11%) were assessed with moderate deficiencies in power systems. 12 homes (3%) were noted with no power system present in the household.



7.2.5. WORKING ELECTRICITY

The assessors would briefly inspect electrical systems around the home looking for any receptacles not working in rooms and other locations. It should again be noted that the assessors were not certified and used no equipment for testing. Chart 7.2.5 shows the reported working electricity for residences. 21 homes (4%) do not have working electricity. Of these 21 homes, 7 homes do not have electricity present at all. **Note that the category 'not present' was added three months into the survey. Some homes falling under the 'not working' response may also have no water infrastructure present in the unit.

7.2.6. LIGHTING SYSTEM CONDITION

This evaluation considers if lights were working whether it be an issue with the light bulbs or the system not working at all. Chart 7.2.6 shows the breakdown of lighting system evaluations for the homes assessed. The majority of units (61%) were noted with no deficiencies. An additional 94 homes (23%) were evaluated with minor lighting system deficiencies. 41 homes (10%) were noted with moderate lighting deficiencies. Just 20 homes (5%) had major lighting deficiencies with lighting.

7.2.7. PLUMBING SYSTEM CONDITION

This evaluation looks at the condition of water pipes and faucets at showers/tubs, toilets, and sinks. In addition, the evaluation considers whether the systems appeared to have enough water pressure, showed leaks, and drained well. It should again be noted that the assessors were not certified and used no equipment for testing. Chart 7.2.7 shows the plumbing system conditions of the 418 homes with interior surveys. The percentage of homes surveyed with moderate or major plumbing deficiencies remains high at approximately 26%. Throughout this survey, plumbing remained the biggest concern with the home building systems.

Chart 7.2.5 Working Electricity

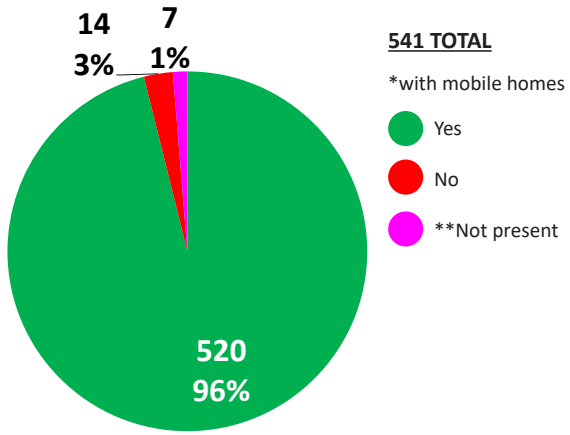


Chart 7.2.6 Lighting System

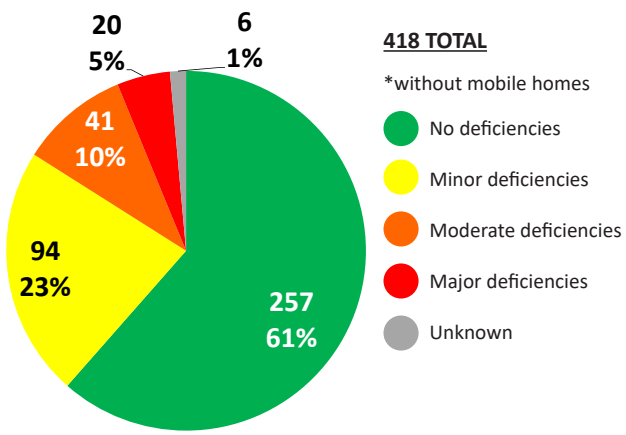
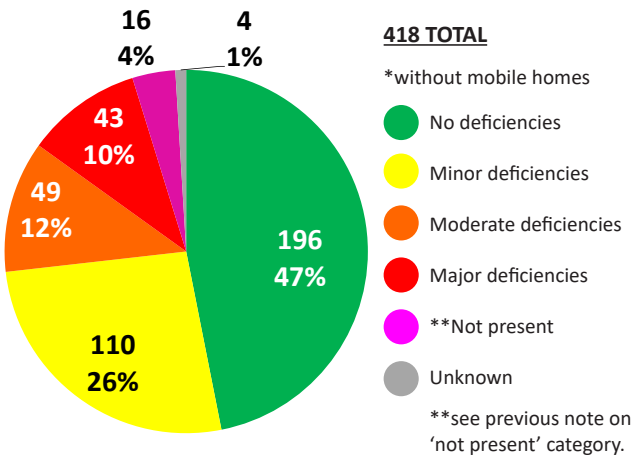


Chart 7.2.7 Plumbing System



7.3 RESIDENTIAL AMENITIES

In Section B of the survey, residents were interviewed about the functioning of their residential amenities. The survey included questions regarding the functioning of their restrooms, kitchen and laundry facilities. The charts below represent the 418 homes where interiors were surveyed (excluding mobile homes).

7.3.1. WORKING RESTROOM

Chart 7.3.1 shows the reported working restrooms in homes. This evaluation considers the function of the toilet, sink, bathtub or shower, and related fixtures. Most homes at Zuni feature a restroom, in various conditions. The majority of homes (90%) were noted with a working restroom. 41 homes (10%) reported no working restroom in the household. Of these 41 homes, 10 homes (2%) did not have a restroom facility present at all.

7.3.2. WORKING KITCHEN

The assessors asked residents about the adequacy of their kitchens, looking for the presence of a kitchen hood, cooking range, and kitchen sink. The evaluations considered the functioning of this kitchen equipment and fixtures. Chart 7.3.2 shows the majority (93%) of homes reporting a working kitchen. 30 homes (7%) do not have a working kitchen. Of these 30 homes, 10 homes (2%) did not have a kitchen present in the house.

Chart 7.3.1 Working Restroom

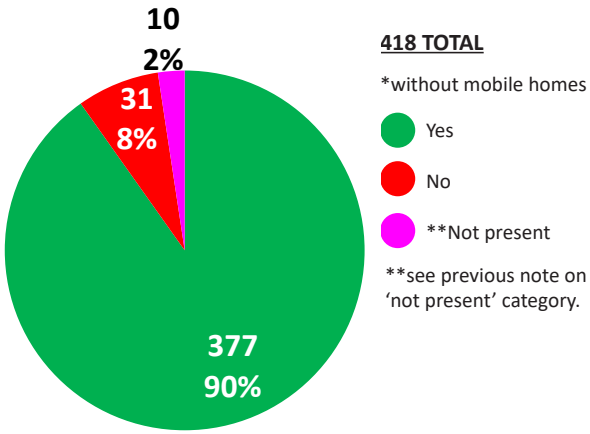
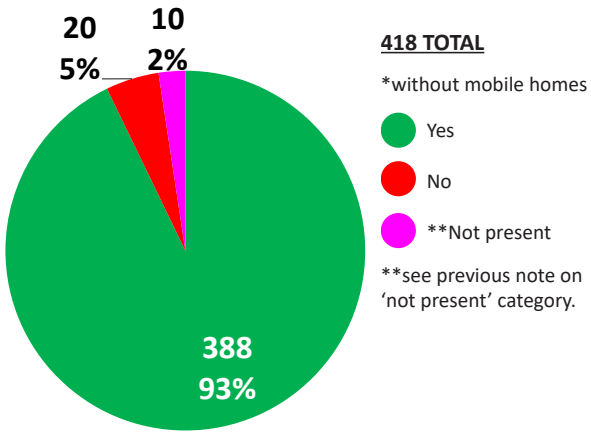


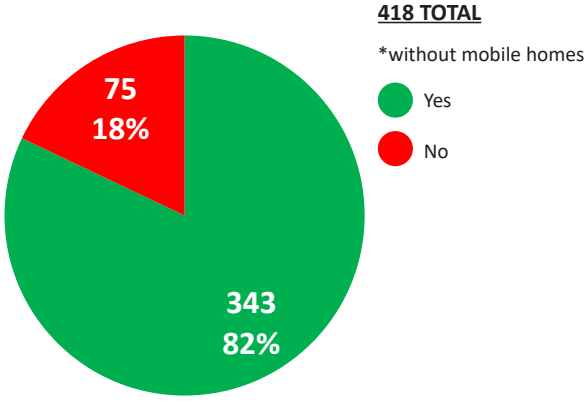
Chart 7.3.2 Working Kitchen



7.3.3. WORKING LAUNDRY

This evaluation of laundry facilities considers if the equipment drained well, were slow to drain, and had enough water pressure. Chart 7.3.3 shows 344 homes (82%) had working laundry facilities. 75 homes (18%) were noted with no working laundry.

Chart 7.3.3 Working Laundry



8.0 LIFE SAFETY

Life safety analysis is the most important and actionable part of this assessment project, as it identifies homes with critical concerns where we have urgent concerns for the well-being of Zuni families. Throughout the assessment process, ZHA was notified about our life safety concerns via monthly reports that included brief narrative discussion and photos regarding 54 specific homes. ZHA staff followed up with each identified home to inspect conditions, take appropriate action, and educate residents on applicable assistance programs. Section 8.3.1 in Appendix Volume III outlines ZHA procedures for following up with these homes. The charts that follow summarize life safety concerns. Information on specific concerns can be found in Section 8.3.1 of the Appendix Vol. III.

8.1 STRUCTURAL

Structural concerns were documented in the buildings exterior and interior. Dwellings indicated as having "structural issues" range from buildings that are in severe deterioration or have isolated structural concerns. The structural concerns include issues related to walls, roof, foundation, ceiling and floors. The survey recorded details of each concern by documenting any major cracks (greater than 1/2 inch) and minor cracks (less than 1/2 inch) in building exterior/interior, visible deflection in roofing, foundation settlements, and wall settlements.

8.1.1. EXTERIOR STRUCTURAL CONCERNS

Chart 8.1.1 shows 255 homes (19%) noted with an exterior structural concern.

8.1.2. ENDANGERED BUILDING - EXTERIOR

Chart 8.1.2 shows 90 homes (7%) noted as in danger and threatened by a safety hazard. Refer to Appendix Vol. II for mapping on endangered buildings.

8.1.3. EXTERIOR STRUCTURAL ISSUES

Chart 8.1.3 shows the breakdown of the structural issues noted out of the 255 homes from chart 8.1.1. The majority of the structural concerns are related to walls and foundations. Refer to Appendix Vol. II for mapping on exterior structural issues.

Chart 8.1.1 Ext. Structural Concerns

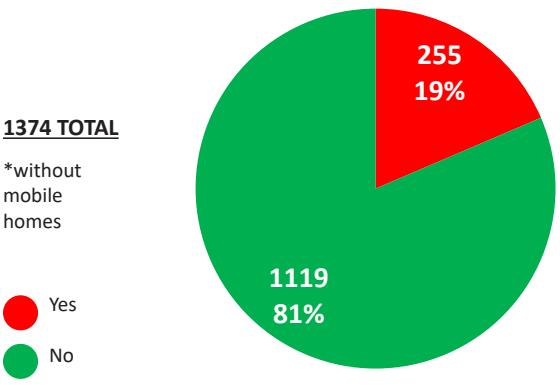
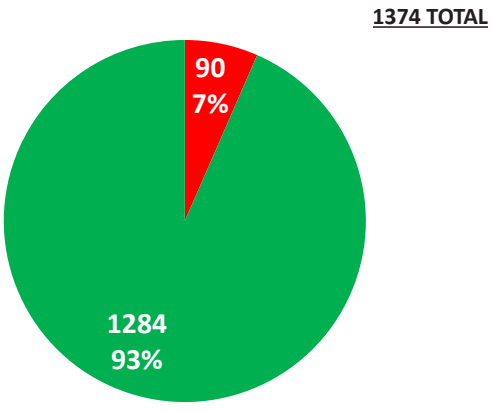


Chart 8.1.2 Exterior Endangered



8.1.4 EXTERIOR STRUCTURAL CONCERNS BY DWELLING TYPE

Chart 8.1.4 shows the breakdown of exterior structural concerns by dwelling type for the 255 homes flagged from chart 8.1.1. The majority of the homes with structural concerns were noted as 'traditional' or 'Shalako' dwelling types.

OF THOSE 255 WITH EXTERIOR STRUCTURAL CONCERNS

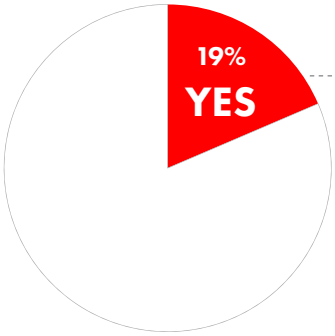
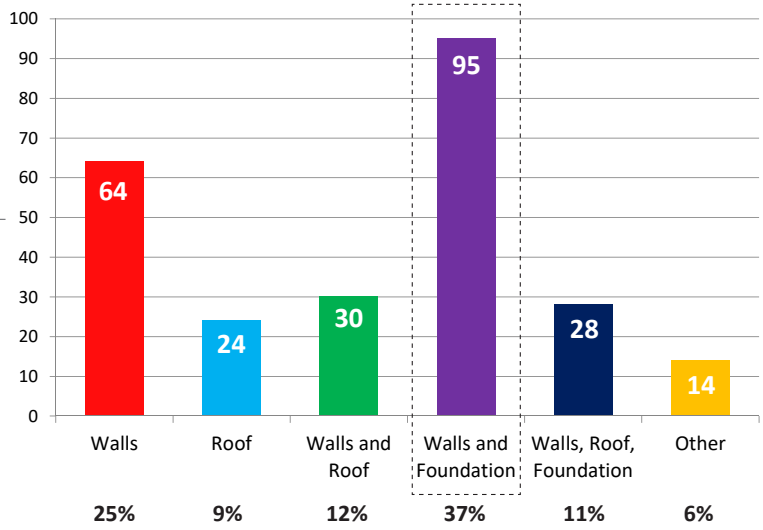


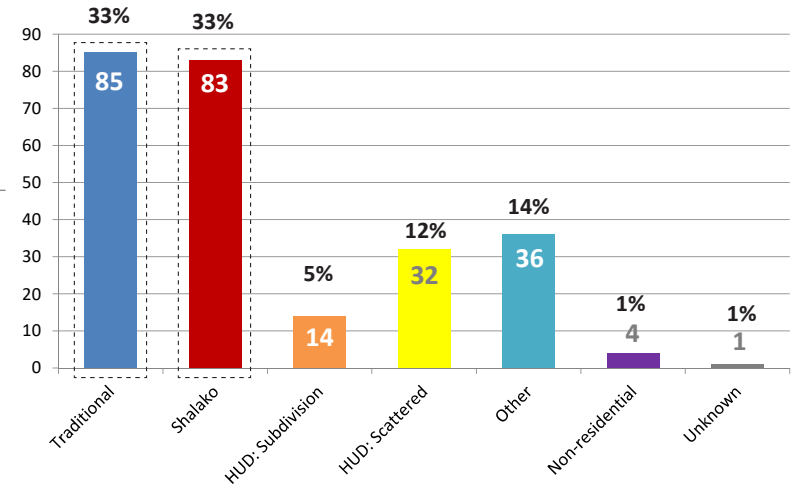
Chart 8.1.3 Structural Issues



255 TOTAL

*without mobile homes

Chart 8.1.4 Structural Concerns By Dwelling Type



255 TOTAL

*without mobile homes

8.1.5. INTERIOR STRUCTURAL CONCERNS

Chart 8.1.5 shows 96 homes (23%) noted with an interior structural concern. This evaluation considered any hazards located in interior walls, ceilings, and floors.

8.1.6. ENDANGERED BUILDING - INTERIOR

Of the 96 homes with interior structural concerns, Chart 8.1.6 shows 47 homes (11%) noted as in danger from a possible safety hazard and/or threatened by a health concern. Refer to Appendix Vol. II for mapping on endangered buildings.

Chart 8.1.5 Interior Structural Concerns

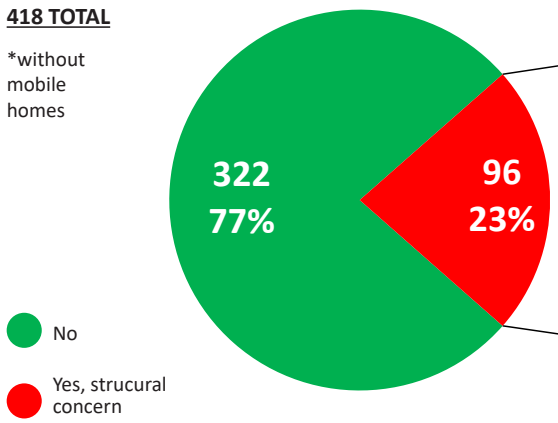
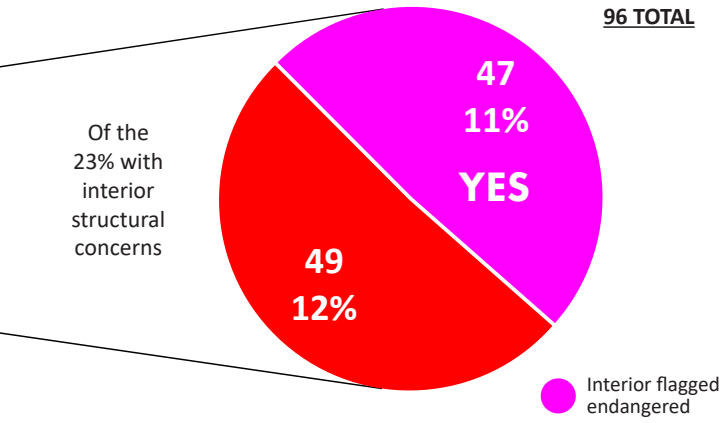


Chart 8.1.6 Interior Endangered



8.2 OTHER HAZARDS

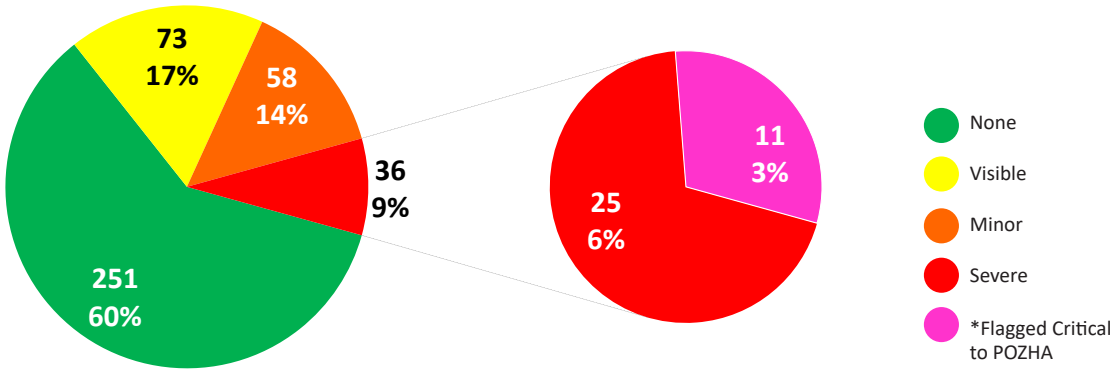
The assessment documented other potential hazards in the homes that may present a threat to the health and safety of the occupants. These hazards include suspected mold, fire safety deficiencies, and egress concerns.

8.2.1. SUSPECTED MOLD

The assessors recorded any presence of water damage, stains, and leaks that may lead to suspected mold. These observations were based solely on visual conditions and no testing was completed. Common areas for mold growth were surveyed including bathrooms, around sinks, and any possible roof leaks. These included evaluations on mold friendly materials, i.e. drywall, paneling, ceiling tiles, carpets, bathroom surfaces, etc. as well as HVAC systems that may have mold contamination near intake.

Chart 8.2.1 shows the breakdown of suspected mold in the homes surveyed. Of the 418 homes interiors assessed, 73 homes (17%) had visible mold. This evaluation noted homes were small amounts of mold growth were seen but assumed to not be of great concern, typically in bathrooms or other damp areas of the home. 58 (14%) had minor mold growth suspected. 36 homes (9%) were noted with severe suspected mold. Of this severe evaluation, 11 homes (3%) were flagged as critical to ZHA.

Chart 8.2.1 Suspected Mold



8.2.2. WORKING SMOKE DETECTORS

Chart 8.2.2 shows the breakdown of reported working smoke detectors in the homes assessed. 165 (39%) of homes were noted with no working smoke detector. An additional 58 homes (14%) were noted with no smoke detector fixture present in the home. **As noted in other sections of this report, we modified the survey to distinguish between homes with non-working fixtures versus homes with no fixture present. It should be noted that some homes falling under the 'not working' response may also have smoke detectors 'not present' in the home.

The high percentage of non-working or non-existent smoke detectors continues to be of great concern, and remains relatively consistent with findings throughout the assessment. The Zuni tribe should work to develop a program to distribute smoke detectors if no such program exists.

8.2.3. CARBON MONOXIDE DETECTORS

Chart 8.2.3 shows the reported working carbon monoxide detectors in homes. The majority of homes (79%) do not have carbon monoxide detectors that are working (34%) or present (45%) in the home. See previous comment on the 'not present' category outlined in section 8.2.2. An additional 21% of homes reported working carbon monoxide detectors.

Chart 8.2.2 Working Smoke Detectors

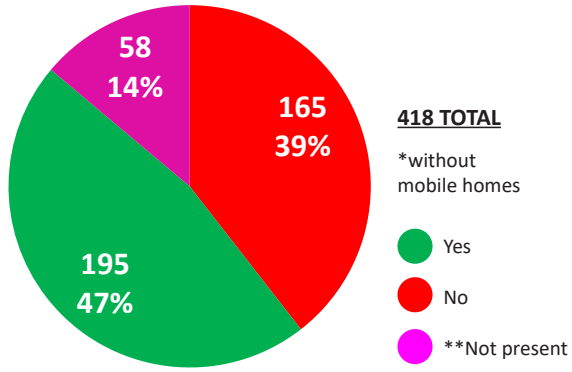


Chart 8.2.3 Working CO Detectors

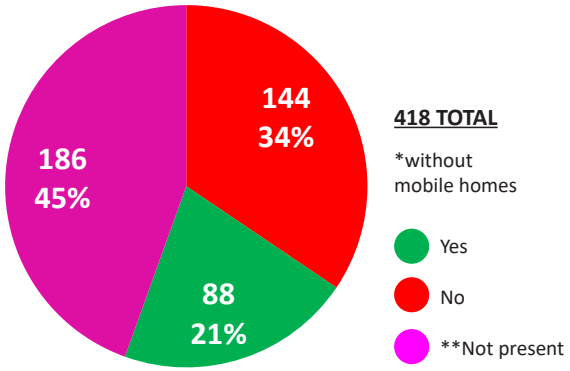
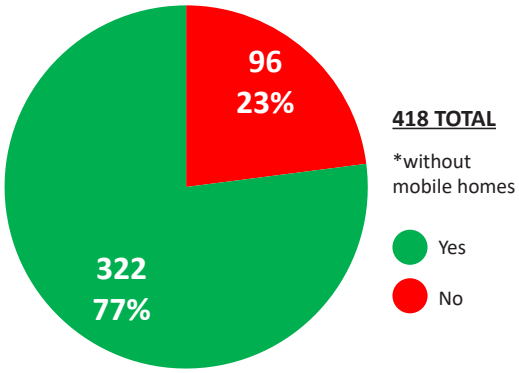


Chart 8.2.4 Clear Egress Route



8.2.4. CLEAR & QUICK EGRESS ROUTE

The assessors briefly evaluated egress routes within each household. This evaluation checked for egress in bedroom windows for entry or exit in case of an emergency such as a fire. The assessors looked at minimum window opening width, height, and sill height above floor. It should be noted that the assessors did not physically measure each bedroom window, rather they made visual observations and approximations. Chart 8.2.4 shows the egress concerns within the homes surveyed. 96 homes (23%) were noted with no clear and quick egress route out of the bedroom.

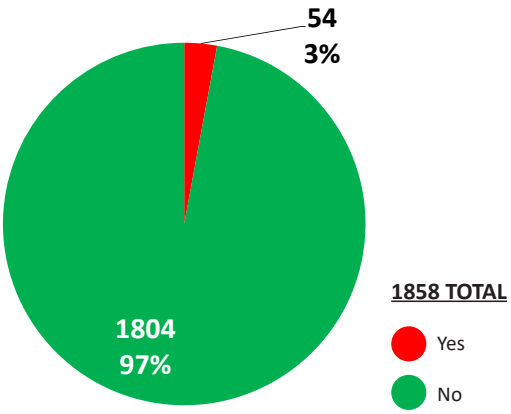
8.3 CRITICAL LIFE SAFETY

Over the duration of the inventory, several homes were flagged for critical life safety concerns by AOS staff. Fifty-four (54) homes (2.9% of total 1858 homes surveyed) have either been noted by our assessors or ourselves as having critical life safety issues. Over the duration of the inventory, ZHA was notified in monthly reports of such life safety hazards that should require a follow-up visit and inspection. For the list of specific homes with urgent life safety concerns, refer to Section 8.3.1 in Appendix Volume III. In this list and the following charts, we provide a categorization of the severe conditions identified. Causes for critical safety include severe structural issues, severe roof leaks, severe mold, and specific health concerns related to the previously listed items. We have also included lack of working heat which presents obvious threats during winter months.

8.3.1. FLAGGED TO POZHA

Chart 8.3.1.a. shows the percentage of homes flagged for critical life safety concern compared to the total homes assessed. 54 homes (3%) were noted with critical concerns.

Chart 8.3.1.a. Flagged Critical



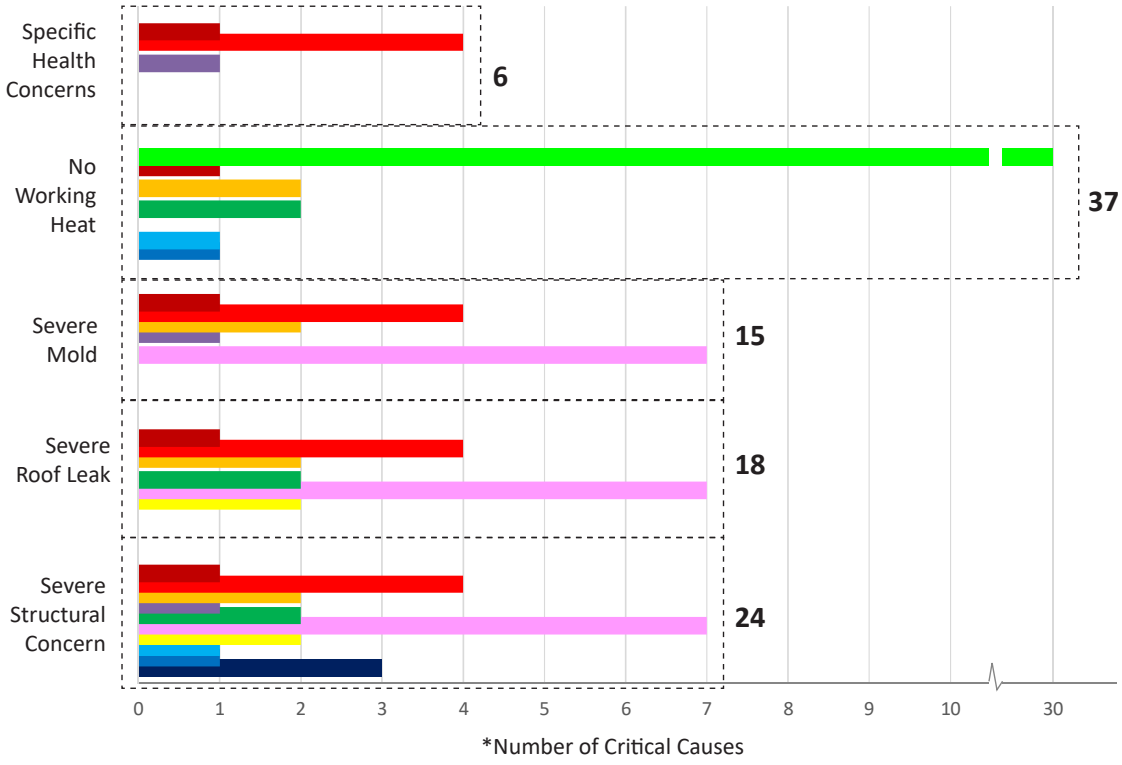
CRITICAL CAUSES

- Severe Structural Concern
- Severe Roof Leak
- Severe Mold
- No Working Heat
- Specific Health Concerns

NOTE: The causes listed above overlapped for multiple homes. See chart 8.3.1.b. on the next page for a breakdown of the homes with multiple causes for critical safety.

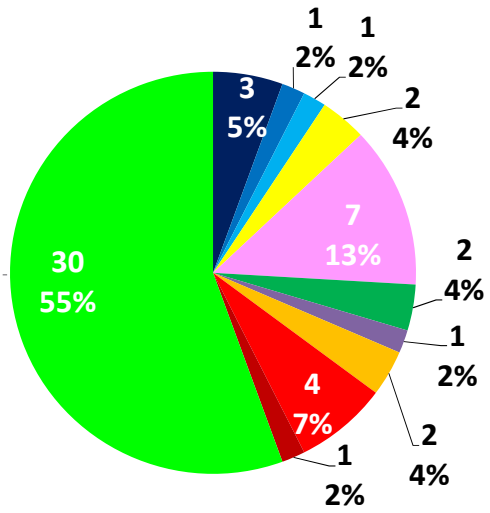
Of the fifty-four (54) homes flagged for critical life safety concerns, the majority of homes were noted with multiple concerns. Chart 8.3.1.b. shows the breakdown of the overlapping critical concerns across the 54 flagged homes. The x-axis shows the number of multiple concerns, in other words the 7 pink homes shown with severe mold are the same 7 homes shown with severe roof leaks. Refer to Legend 8.3.1.b for the total quantity of homes with overlapping concerns.

Chart 8.3.1.b. Multiple Critical Causes



Legend 8.3.1.b

TOTAL HOMES	Severe Structural Concern	Severe Roof Leaks	Severe Mold	No Source Working Heat	Specific Health Concerns
3	X				
1	X			X	
1	X			X	
2	X	X			
7	X	X	X		
2	X	X		X	
1	X		X		X
2	X	X	X	X	
4	X	X	X		X
1	X	X	X	X	X
30				X	



54 TOTAL FLAGGED

9.0 NEXT STEPS

9.1 ACTIONS TO IMPLEMENT ASAP

9.1.1. COMMUNICATE WITH ZUNI TRIBAL ADMINISTRATION

The planning team met with Zuni Tribal Administration early in the process to discuss the goals of this study and the procedures used to gather data. Additionally, several Tribal Council members have participated in progress meetings with the ZHA Board, thus the Tribal Administration has an awareness of the study and a sense of the issues it was bringing to light. A presentation and discussion should be scheduled for ZHA staff and board members to share findings and recommendations with the Governor and Tribal Council. This is particularly important as many of the recommendations of this study go beyond the current responsibilities of the Zuni Housing Authority.

ZHA should seek the guidance of Tribal Administration with respect to communicating the findings of this study with tribal members, addressing critical life safety issues, and prioritizing rehabilitation. Of particular importance is the discussion of how to address the existing Shalako homes and the possibility of improving the Shalako program to better ensure that homes are completed and well-built. See further discussion in section 9.4.3 below.

This study is an important step towards making tremendous improvements in the quality of housing throughout the Zuni reservation. Success in implementing these improvements will require a collaborative approach and partnership between ZHA, Tribal Administration, other Zuni departments, and the cultural leadership of the tribe.

9.1.2. COMMUNICATE WITH ZUNI TRIBAL MEMBERS

This assessment effort, the field work of which began just over a year ago, has resulted in communication with the overwhelming majority of Zuni families. As shown in section 3.1, 1,958 homes were visited, with information gathered on all but 100 homes. Detailed conversations on housing quality were held with over 500 families (Sections B/C) and flyers were left at all homes briefly explaining the project and how the information would be used. See section 1.5.3 for a discussion of the inspection protocol and Appendix Vol. I, Supplemental Documents for the community, neighborhood, and resident notices.

The assessors explained that this was an information gathering exercise needed for planning, and that there was no current funding for repairs, but that the effort was a much-needed exercise to give the ZHA information on how to improve living conditions on the Pueblo. The assessors heard a fair amount of frustration from the tribal members they surveyed, and it quickly became clear that Zuni tribal members do not have a good understanding of how the ZHA operates or the policies and procedures which result in certain homes being approved for rehabilitation, while other applications are placed on a waiting list for a number of years, and some families are ineligible for assistance. Housing policy is exceptionally complex, as are the restrictions that come with various funding sources, so it is understandable that there is some confusion. The ZHA should explore ways to improve the understanding that tribal members have of how it operates and how it serves families in need. ZHA should continue to make information available at its offices and at the Tribal Administration Building and other community facilities such as the Senior Center and the Library. ZHA should continue to utilize technology to disseminate information, using resources like Facebook and email, but should ensure that information is available to everyone, including those without connectivity to the internet. ZHA should build on the success of its annual housing fair and explore continued topical discussions that will increase awareness of its programs.

The various notices that were distributed stated that individual reports would be generated for each home and that these would be available to families at a later date. The resident notice suggested that families contact the ZHA to request a copy of the report on their home. AOS has provided individual pdf reports for

each home to the ZHA. The ZHA staff and board should make a general review of these reports and determine how and when to distribute them. We suggest that ZHA prepare a letter to accompany the report that explains the process, the preliminary nature of the assessment, and how to remain in contact with the ZHA as rehabilitation efforts are prioritized.

9.1.3. ADDRESS CRITICAL LIFE SAFETY ISSUES

One of the main goals of this project was to understand the general condition of housing quality at Zuni Pueblo. The data analysis contained throughout this project provides that information, affording an understanding of general patterns of various aspects of dwellings that we reviewed over the last year. The development and implementation of a plan to improved housing conditions across the Pueblo will take some time. As discussed in section 8.3.1 of Appendix Vol. III and section 8.3 of this report, the assessors encountered living conditions in a number of homes that cannot wait for further studies on a reservation-wide approach to rehabilitation. -four homes were flagged by the assessors as having critical life safety concerns. Monthly reports on the assessment effort identified these homes to the ZHA and each home was visited by ZHA staff to review the conditions. Five of these homes are not currently inhabited but pose dangers to passers-by, 1 home has since been demolished, while 48 of these homes are currently inhabited. 95% of these homes flagged received some level of an interior assessment. Issues that resulted in reporting include critical structural concerns (24 homes), severe roof leaks (18 homes), severe mold (15 homes), no working heat source (37 homes), or specific health concerns of residents (6 homes). As shown in section 8.3, most of the 54 homes have more than one critical life safety concern.

The 54 reported homes represent 3% of the total homes, but represent nearly 10% of the homes that had some level of interior assessment or interview. It is unknown how many critical life safety concerns might be found within the 1,311 homes that only received exterior surveys or the 100 homes that declined participation. If the 10% pattern holds true, there could be another 140 homes with critical concerns that remain unreported. Efforts should be made to identify other homes facing these critical concerns.

The 54 known homes with critical conditions are not in livable condition. As noted above, just five of these homes are not currently occupied. We recommend that ZHA work with the families of these homes (and homes with other critical conditions as they are identified) to find alternate living accommodations. We understand that this is challenging and that there are not available empty homes. Given the scale of the situation, and also understanding that other housing rehabilitation efforts at Zuni create a need for temporary housing, we suggest that ZHA consider developing new housing specifically designed to be used by families on an interim basis.

Many of the identified homes have severe structural settlement concerns and several homes were identified at risk of collapse. As most of these homes are historic, we recommend that they be shored to prevent collapse while the feasibility of rehabilitation can be explored. Fencing should be provided at these properties as well to ensure that passers-by are not endangered.

9.1.4. DEVELOP PLAN TO PROVIDE SMOKE AND CARBON MONOXIDE DETECTORS

As discussed in section 8.2.2 and 8.2.3 of this report, of the 418 homes whose interiors were assessed, just 195 (47%) were noted to have working smoke detectors, with many homes having smoke detectors without batteries, non-working smoke detectors, or no smoke detectors at all. Fewer homes had working carbon monoxide detectors. The ZHA should discuss this situation with Tribal Administration and the Zuni Fire Department to review existing programs that may exist or new possibilities to provide these inexpensive life-saving devices to every inhabited home at Zuni Pueblo.

Stone masonry home in Middle Village showing signs of structural settlement. Major cracks (+1/2 inch) visible from exterior.

Stone masonry home in Middle Village with visible structural settlement

9.1.5. COMMISSION AN ENGINEERING STUDY FOR STRUCTURAL SETTLEMENT

The traditional homes at Zuni Pueblo are stone masonry. Designed without architects or engineered, and typically constructed by families without robust foundations, many of the homes are showing signs of structural settlement, particularly in the Middle Village, where layers of previous dwellings lie underneath the current homes. (*See sample photos above of homes with these conditions*). While several of these homes, as noted above, are at risk of collapse and pose a danger to passers-by, the vast majority of homes with structural settlement are not in immediate risk. The cracks in these homes, however, do provide a means for water infiltration and for other health concerns such as mold inside the homes. The lack of engineered foundations has also contributed to roof settlement and collapse in some homes, creating bigger health concerns. Refer to Appendix Vol. II, Map 8.1.3. for homes with structural issues.

AOS Architects is aware that a study was made over a decade ago to utilize helical piers under traditional stone homes to stabilize the settlement. Helical piers are essentially large steel screws that are threaded into the earth and can be placed underneath existing structures to hold them in place without extensive and expensive concrete underpinning. Helical piers are known to be the least invasive solution in the stabilization of existing structures above sensitive archaeological contexts. It is our understanding that the helical piers were not implemented and that an effective system for stabilizing settlement has not been developed at Zuni.

Understanding the variety of soil conditions across the Pueblo is an important aspect of a structural engineering study. A geotechnical engineer should be engaged in concert with a structural engineer with expertise in stone masonry. ZHA should assemble all geotechnical reports that they have commissioned as part of larger housing initiatives and they should contact other departments who have commissioned geotechnical studies as part of their development efforts. New borings should be done at strategic locations throughout the developed areas of the reservation to understand the variety of soil conditions.

The challenges of structural settlement are not limited to the traditional stone homes in and near the Middle Village. Many of the newer built homes of CMU (concrete block) are showing signs of structural settlement, particularly at building corners. Settlement at these CMU homes should be investigated by engineers as well and solutions developed for stabilization. (*See sample photos on next page of homes with these conditions*).

We suggest that the engineering study develop a range of standard foundation details for a variety of soil conditions in different areas of the reservation. These details could be provided to homeowners constructing their own homes as well as to the groups constructing the Shalako homes. While it is probably too ambitious that specific foundations would be engineered for each new home at Zuni, the creation of foundation guidelines, including standards for slab thickness, foundation depth, and reinforcement would be beneficial to the tribe. Exactly what an engineer can prescribe without site-specifics will need to be determined.

CMU constructed home with visible foundation settlements from exterior corner. Back door no longer operable from wall settlements.

CMU constructed home with visible foundation settlements from exterior. This type of wall patching is common in homes experiencing settlement issues.

CMU home (partially constructed with stone) with visible foundation settlements from exterior corner.

9.2 ADDITIONAL DATA COLLECTION

This assessment effort is (as far as we know) an unprecedented initiative by a tribal housing authority to inventory and assess housing conditions and quality across an entire reservation. The assessors gathered a tremendous amount of data, with at least some data on nearly every owner-occupied home. ZHA has hired one of the assessors, Angel Yatsayte, to continue the data collection and update the data already gathered so that the database can continue to provide a current view into housing quality. Although just 28% of the interiors were visited and assessed, these 28% are representative (in terms of dwelling type, construction materials, and general condition) of the remaining 72% of homes that were assessed only on the exterior. Accordingly, the continued efforts at data collection should not just focus on completing sections B and C of the inventory, but should instead focus on key aspects of the data in order that this critical data is available to those that begin planning rehabilitation efforts based on the available data.

9.2.1. COMPLETE PRIORITY INFORMATION FOR IHBG FUNDING

There are several important data points that are utilized to establish the level of Indian Housing Block Grant (IHBG) funding that ZHA receives every year. While the inventory project has greatly increased the accuracy of these data points, continued data collection should be prioritized to ensure that the Pueblo of Zuni is receiving every dollar possible through IHBG. There are three key factors currently considered – overcrowding, homes without plumbing, and homes without kitchens. In an ever-shifting national political environment, these factors are bound to change, thus the database should be frequently compared with federal requirements to ensure that ZHA has the appropriate information.

The three current factors needed for IHBG funding all require at least some portion of the resident interview (Section B) be completed. See section 5.1 of this report for a discussion of overcrowding, section 7.2.7 for data on plumbing condition and 7.3.2 for data on kitchens.

9.2.2 UPDATE ASSESSMENTS TO INCLUDE RECENT AND CURRENT REHAB WORK

The data gathered in this inventory and assessment effort represents a specific moment in time for each home at Zuni Pueblo. The ZHA and homeowners themselves are continually involved in improving living conditions across the reservation, thus this database will need to be maintained, particularly with respect to the rehabilitation and repair efforts that ZHA undertakes. The database can be easily maintained, either through the Fulcrum app or through a database software. This effort to update data should be carefully planned and managed by someone trained to use the Fulcrum app. We suggest that home records be updated

at the conclusion of each renovation project. We understand that some repair efforts have already been completed on assessed homes, thus the data is already out-of-date. Tracking specific rehabilitation projects should include gathering information on the specific repair effort and funding source, and the conditions of various components should be adjusted accordingly. For instance the roof of a house changed from "major deficiencies" to "no deficiencies." Additional photos can be taken of the homes during and after repairs. We recommend saving all photos and generating pdf reports of specific homes prior to adjusting the data so that all records are kept.

9.2.3 EXPAND COVERAGE FOR INTERIOR ASSESSMENT SECTIONS B/C

As noted above in section 9.1.3, critical life safety concerns were noted in 10% of the homes where resident interviews or interior assessments were made. It remains unknown whether the homes that have not had interior assessments have critical concerns of comparable proportion. Rather than proceeding to complete the interior assessments for the remaining homes zone by zone as the initial assessments were completed, ZHA should seek to identify homes with critical life safety concerns and asses these homes first. How this can be accomplished requires some thought and diligence. Additional notifications could be distributed, public meetings can be held, and other means of identifying those tribal members living in dangerous conditions should be undertaken.

9.2.4 EXPAND COVERAGE TO BLUE BIRD

The one area of owner-occupied housing at Zuni that was not included in the assessment effort was Blue Bird, located in Zone 1, northwest of the Middle Village. This decision was made as these homes are of relatively recent construction and housing quality will be better. The assessment efforts should be expanded to this area so that the analysis of gathered data truly represents the condition of all owner-occupied housing at Zuni.

9.2.5 EXPAND COVERAGE TO ZHA RENTAL HOUSING

We recommend that the inventory and assessment efforts also be expanded to the rental housing developments, primarily located in Black Rock. This is important so that ZHA can report to tribal administration on the complete living conditions at Zuni. A separate section of the questionnaire should be developed to track different information that would be helpful to ZHA in managing that housing stock.

9.3 FUNDING FEASIBILITY STUDIES

9.3.1. RESEARCH FUNDING SOURCES

The Zuni Housing Authority is already doing its best to complete repairs in Zuni homes with the funding sources it has demonstrated success with. We encourage the ZHA to look back on the last ten years of funding applications and determine which programs have provided success. We recommend that ZHA retain a grant writer with a reputation for creative fundraising to identify grant sources that ZHA might not be aware of or has not had successful applications.

9.3.2. EXPLORE LEVERAGE

The largest source of rehabilitation funding that ZHA utilizes is the Indian Community Development Block Grant (ICDBG), a HUD program that is competitively awarded. ICDBG funds can be spent on projects other than housing, thus these grants need to be coordinated with the tribe. The biggest challenge with ICDBG grants is the restriction that grant dollars are capped per home at approximately $65,000. Unfortunately, the needed investments in most homes exceed this amount. This leaves two options for rehabilitation investment. The first option is what ZHA has been doing, limiting rehabilitation scope to $65k, resulting in partial repair scopes, limited to roofing, door & windows, or other isolated scopes of work. The second option allows for expanded scopes, but requires leveraging funds with non-federal sources, such as New Mexico HOME funds, tribal contributions, or private philanthropic sources. Implementing the second option is highly complex as the sources and uses for each house must be carefully tracked and competing restrictions and requirements carefully managed. Some funding sources have very restrictive timelines in which grant funds must be spent, further complicating the efforts.

9.3.3. FEASIBILITY STUDIES ON POTENTIAL COSTS

It is possible to utilize the data collected on individual houses and the condition of various components to generate cost models that approximate the cost of renovation and repair. Such costs would not be accurate for any given home, but taken as a group would provide usefulness in a planning context. Cost modeling such as this would utilize recent cost data from the ZHA as well as information from other Pueblo tribes on rehabilitation of traditional homes.

9.4 REHABILITATION PRIORITIZATION

9.4.1 PLANNING A PRO-ACTIVE APPROACH

Housing rehabilitation through the ZHA is currently reactive, relying on families to have the awareness of ZHA programs and that families have the initiative to stay on top of annual assistance applications. The need for assistance far exceeds current levels of funding, resulting in waiting lists for assistance. Critical conditions in homes understandably can cause new applications to advance in front of families who have spent years on the waiting lists. The data now available through this inventory and assessment project can provide the ZHA to take a pro-active approach to housing assistance in order to better address critical needs or respond to specific grants that might focus on a certain type of project.

9.4.2 CRITICAL LIFE SAFETY

The most logical focus that ZHA could attend to first are homes facing critical life safety issues. As discussed above in section 9.1.3, 54 homes have been identified with conditions severe enough that we have identified the specific homes for which urgent action is needed. As 95% (51) of these homes were identified through the interior assessment or resident interview, it should be assumed that many more homes on the reservation have similarly dangerous conditions. Additionally, many more homes were identified with roof leaks or structural settlement that will result in similar critical concerns if these conditions are not addressed soon. We recommend that ZHA seek to identify other homes with critical life safety conditions and recruit these families to submit applications for assistance. ZHA should consider policy changes that specifically enable it to focus on life safety.

9.4.3 POTENTIAL FOCUS AREAS

Assuming critical life safety concerns have been addressed, or planning to address them is underway, ZHA could shift its focus to other possible efforts. The available data provides ZHA with the ability to target specific issues and the families whose homes are facing certain concerns. Some of the possibilities are expanded upon below:

- Structural Concerns – See discussion above in section 9.1.5
- Geographic focus – ZHA could target a rehabilitation effort in a certain geographic area of the Pueblo. Focusing rehabilitation efforts in tighter geographic areas will bring cost efficiency. The Middle Village has been a focus for rehabilitation in the past. Its presence as the historic and spiritual center of the tribe makes this a logical focus. Funding possibilities specific to historic preservation could be targeted. Alternatively, ZHA could focus on other areas that have received less attention and investment.
- Elders and/or Children/Youth – ZHA could target housing occupied by elders, with a focus on accessibility improvements. It is likely that this could open doors to specific funders and grants. Similarly, ZHA could focus on dwellings with young children, setting sights on reducing health impacts such as asthma and other ailments common in youth through improvements in housing quality. A focus on demographics will require the completion of resident surveys (section B of the inventory).

- Cultural focus – The Shalako program is an extraordinary tradition, unique to Zuni, in which six to eight new homes are constructed each year. These large homes are the focus of a cultural activities in early December. The inventory project identified the location of past Shalako homes, many of which are in disrepair. Because of their size, typical ICDBG rehabilitation budgets are tight. Exploration of leveraged grants (see section 9.3.2 above) will be required.
- Component focus – ZHA could utilize the information in the assessment to target repair projects specific to certain building components such as roofing, doors and windows, stucco, restrooms, kitchens, mechanical systems, etc. Perhaps corporate sponsorship from building product manufacturers could be sought.

9.4.4 STRATEGIC PLANNING - POLICIES AND PROCEDURES

The information contained in this report and in the database provided, has the potential to drive fundamental changes to the ways ZHA serves the Zuni people. Policies and procedures may need to be adjusted to maximize the effectiveness of this newly gained data. We encourage the ZHA to fold the possibilities explored in this report into a comprehensive planning process that will shape the efforts of the Housing Authority in line with your cultural values.

AOS ARCHITECTS

Zuni Housing Authority

GIS Housing Needs Assessment & Inventory

FINAL REPORT

August 2018

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