Chapter 5. Community Assessments

The risk exposure discussions provided in Chapter 4 of this document provide the reader with an overview of the types of hazards the Coeur d'Alene Reservation faces and the mechanisms of their impact. These discussions can be used for a consideration of "macro-risk assessment", when hazards such as high winds are considered, because there is little to prevent high winds from negatively impacting homes and businesses anywhere on the Coeur d'Alene Reservation (thus the moniker of "macro"). On the other hand, a hazard such as a wildfire shows specific risks to structures and infrastructure, where certain conditions are present, but are not present in others (a location specific risk). The same comparisons can be applied to all hazards affecting the Coeur d'Alene Reservation.

In this Chapter of the Coeur d'Alene Reservation Tribal Hazards Mitigation Plan, we will address the "Macro Hazards" first, and then articulate the risk exposure to the location specific hazards on a community basis. Each discussion will articulate the current exposure to existing structures as well as describe the current exposure challenges for new structures.

5.1. Culturally Significant and Sacred Sites

The involvement of the THPO and Tribal Cultural Resource program when dealing with natural disasters in combination with culturally significant or sacred sites has been introduced in Section 2.3.

Natural hazards as described in this document can impact all culturally significant and sacred resources of the Coeur d'Alene Reservation. In some cases, it is the progression of the natural events of the earth that lends the site a portion of its significance. In other situations, the progression of a cycle of disaster may destroy the physical characteristic of a site, but not the cultural significance of it. Natural processes that can be considered natural disasters today may be considered a part of the larger scheme of cultural significance.

The Coeur d'Alene Tribal THPO office is aware of the extent of natural disasters articulated within this Tribal Hazards Mitigation Plan, participated in the development of it, and will monitor the occurrence of disaster events and participate in emergency response and potential mitigation measures to ensure that culturally significant and scared sites are not artificially or inadvertently disturbed.

Generally speaking, floods, river meandering, and landslides can exert the greatest potential impact on site-based sacred sites where the site is partially defined through the physical presence of past activities such as burial sites, sites with signs of past habitation, or those sites that bear witness to pictographs or other markings. While the natural disaster may destroy or alter the characteristics of the site, the importance of the site is not diminished.

Vandalism, theft, and artificial concealment of a site's physical attributes of cultural significance or sacred nature cannot be tolerated. This form of destruction breaks the natural cycle of earthly changes and leaves scars to the cultural tapestry of the Coeur d'Alene Tribal people.

5.2. Planning and Zoning

A review of the Population Density Indices developed for this planning effort (Figure VII), reveals that there are currently no structures located in the "wildland" category of population density, but this should be expected since the definition of that category is the absence of current structures in the zone. The distribution of the privately owned structures on the Coeur d'Alene Reservation (Table 45) is concentrated within the Low Density Suburban category (65% by value), within the Moderate Density Suburban category (19% by value), within the High Density Suburban category (5% by value), within the Low Density Urban category (5% by value), and in the Rural

category (6% by value). Although the highest concentration of structures within a small geographic area is within the area of the City of St. Maries, only about 200 structures are located here, but those structures are all located within a limited area (Figure VII). Most of the structural value on the Coeur d'Alene Reservation is located within the Low Density Suburban zone, where approximately 2,438 structures are located (68% of the total number of privately owned structures)

The non-privately owned structures within the Coeur d'Alene Reservation follow a similar, but not identical, population-distribution pattern (Table 46). The highest concentration of non-privately owned structures is located in the Low Density Suburban category where 28% of the total value of structures is located (58% of the non-privately owned structures). Approximately 31% of the non-privately owned structures, representing 18% of the total value, are located in the Moderate Density Suburban category. Roughly 4% of the structures, representing $4% of the value, are located within the High Density Suburban category. Just over 10 structures (4% of the total number of structures), representing 1% of the total value are located in the Low Density Urban Category. Surprisingly, the remaining structures are located within the Rural population density category with a total value representing 49% of the total non-privately owned structures (3% of the total count of structures). Much of this non-privately owned value can be attributed to the Coeur d'Alene Casino, which is located just inside the Rural population density category of population density (Figure VII).

The Coeur d'Alene Tribe Public Works Department is currently refining zoning guidelines for the Coeur d'Alene Reservation. These findings of current population density indices, the number of structures, and structural value distribution, helps to illuminate the current conditions existing on the Reservation. Future efforts can recognize the existing profile of population distribution as guidelines are established for future expansion to existing areas, and new areas.

Table 45. Private Structure values and total number arranged by community area and Population Density Condition.

Community Name	Rural	Low Density Suburban	Moderate Density Suburban	High Density Suburban	Low Density Urban	Count
BELLGROVE	$-	$1,789,557	$-	$-	$-	28
BENEWAH	$8,049,181	$2,773,111	$-	$-	$-	179
CHATCOLET	$224,700	$10,986,202	$-	$-	$-	183
CONKLING PARK	$-	$15,372,474	$-	$-	$-	233
DE SMET	$198,298	$2,150,345	$-	$-	$-	47
HARRISON	$-	$10,251,922	$-	$-	$-	171
LACON	$-	$5,888,920	$-	$-	$-	108
MEDIMONT	$411,236	$8,360,124	$-	$-	$-	145
MOWRY	$2,754,677	$472,229	$-	$-	$-	65
PLUMMER	$819,367	$10,256,897	$22,185,335	$-	$-	494
ROCKFORD BAY	$-	$46,904,843	$-	$-	$-	703
SANDERS	$584,809	$4,511,881	$-	$-	$-	97
SETTERS	$2,129,322	$2,598,103	$-	$-	$-	89
ST. MARIES	$382,750	$19,408,251	$9,399,334	$6,687,489	$12,147,978	719
TENSED	$1,164,320	$6,197,680	$-	$-	$-	127
WORLEY	$506,363	$11,050,169	$-	$-	$-	190
Count	300	2,438	536	105	199	3,578
Value	$19,248,409	$194,584,269	$55,754,854	$14,949,100	$13,945,135	$298,481,767
Value Distribution	6%	65%	19%	5%	5%	
Structure Count Distribution	8%	68%	15%	3%	6%	

Table 46. Private Structure values and total number arranged by community area and Population Density Condition.

Community Name	Rural	Low Density Suburban	Moderate Density Suburban	High Density Suburban	Low Density Urban	Count
AGENCY	$-	$1,303,983	$-	$-	$-	7
CHATCOLET	$-	$2,750,000	$-	$-	$-	4
CONKLING PARK	$-	$1,372,688	$-	$-	$-	5
DE SMET	$-	$15,247,304	$-	$-	$-	42
HARRISON	$-	$674,000	$-	$-	$-	5
HEYBURN STATE PARK	$-	$8,600,000	$-	$-	$-	13
LACON	$-	$112,680	$-	$-	$-	2
MOWRY	$304,000	$-	$-	$-	$-	2
PLUMMER	$-	$280,000	$39,864,417	$-	$-	96
ROCKFORD BAY	$-	$1,060,424	$-	$-	$-	9
SANDERS	$-	$304,000	$-	$-	$-	2
SETTERS	$-	$12,000,000	$-	$-	$-	1
ST. MARIES	$-	$-	$361,260	$8,951,228	$2,859,353	30
TENSED	$-	$2,269,387	$-	$-	$-	13
WORLEY	$110,415,268	$17,553,325	$-	$-	$-	82
Count	10	180	98	14	11	313
Value	$110,719,268	$63,527,791	$40,225,677	$8,951,228	$2,859,353	$226,283,317
Value Distribution	49%	28%	18%	4%	1%	
Structure Count Distribution	3%	58%	31%	4%	4%	

5.3. Macro Hazards

Macro hazards are those natural hazards that reach virtually every populated place on the Coeur d'Alene Reservation, with little variability in the magnitude of the severity based on location. These macro hazards can be addressed as a group as the mitigation measures will be generally uniform in prescription and application.

5.3.1. Radon Exposure

The Coeur d'Alene Reservation, North Idaho, and most of the US located on the continental batholith is located within a zone of radon exposure that puts people at risk to lung cancer. All existing homes on the Coeur d'Alene Reservation should be tested for radon concentrations and if found high, corrective and appropriate mitigation measures should be taken to reduce the risk. New construction on the Coeur d'Alene Reservation should use pre-construction techniques to limit the vector of radon penetration into the structure. Testing of the new structure's radon levels should be conducted as appropriate.

Periodic testing of structures should be conducted within the Coeur d'Alene Reservation on a frequency of no less than once every 5 years, even if sites have not shown action-level concentrations of radon in previous tests.

5.3.2. High Wind Damage

The first hazard in this category is wind damage to structures and infrastructure on the Coeur d'Alene Reservation. Literally, this hazard can, and does, impact every home, business, and power line on the Coeur d'Alene Reservation. There is no area on the Coeur d'Alene Reservation that has any form of structure or infrastructure that has not been effected by historical windstorms. In addition to the structures and infrastructure that has been impacted by high winds, the losses to standing timber volume have been substantial.

Standing trees can be felled by high winds, tops can be broken off trees, and one tree (or many) can fall against another tree (or many) to cause bark scarring or gouging of the stem. When this happens, the impacted tree might stay standing, but be damaged in a way that allows pathogens or insects to attack the standing tree, resulting in loss of vigor or even causing death to the tree within 5 years.

When trees are felled by high winds, the damage can be in the form of trees dropped in a line (from straight line winds) or in a "jack-straw" pattern from downbursts. In either scenario, the falling trees can easily snap power lines, drop on structures, block roads, or cause river debris jams. The prevention of these episodes is difficult to accomplish without causing a vector for another high wind damage. For instance, if all trees are cut down around a group of homes to prevent wind damage from dropping trees on the homes, the winds may have a more direct access to the homes in a way that roofing materials are compromised during the high winds. At the same time, the removal of the trees from the site may cause the soils to become less stable with the loss of the tree roots leading to more erosive soils and even causing slope stability to weaken and lead to landslides.

These scenarios are not detailed to infer that nothing can be done to reduce wind damage potential, but only to elucidate the interrelatedness of hazard exposures while attempting to mitigate one hazard at a time.

Across the Coeur d'Alene Reservation, forest management activities have treated timberlands adjacent to the major access routes where power lines are located, resulting in a power delivery infrastructure that is currently at reduced risk. These are positive activities that should be

conducted when the management of the forestlands can help to protect the investment in the power supply system and not adversely affect homes and businesses on the Coeur d'Alene Reservation. As an example, the powerlines adjacent to US95, at the southern extent of the Coeur d'Alene Reservation have been placed with a right-of-way devoid of trees to prevent wind damage.

Around homes on the Coeur d'Alene Reservation several factors give rise to concerns, one of which is the standing timber within "reach" of structures and the power lines. Thinning of trees may seem like an intuitive way to preserve the aesthetic pleasure of the standing trees around the homes while removing a portion of the risk exposure from falling trees; however, the soils and the forest species of the Coeur d'Alene Reservation may not respond to a large-scale thinning by growing more stable root systems and tree stems. On the contrary, trees in this region may become wind susceptible and fall to a lower velocity wind after thinning (the extreme example of risk is the stands of lodgepole pine). Of course, each site is unique and has a different mix of tree species, some native and some introduced, and tree husbandry must be considered on a case-by-case basis.

Other factors that homeowners, businesses, communities, and the Coeur d'Alene Tribe should consider, include:

- Roofing stability for the roofing materials and the edging around the roofing materials,
- Securing siding attachments,
- Protecting power supply lines from the main line (at the road) to the structure, in terms of trees and branches that can cut the power line during a high wind,
- Conducting verification of the wooden power poles strength (due to a possible wear and tear) along roads and inside communities,
- Installing window shutters on windows exceeding a three-foot span in either direction.

There are several structures located in all of the communities of the Coeur d'Alene Reservation, and most of them that were built more than 25 years ago are showing signs of roofing materials that have either been blown off the structure, or have been dislodged by high winds and falling branches. These structures should be evaluated and improved before more high winds continue the damage. When roofing materials are compromised, rains and more winds have the ability to cause storm damage.

Window shutters are a common fixture in the hurricane zones of the American southeast where -force winds from hurricanes are seen. The utility of window shutters is to secure the breakable glass against the direct force of the winds. Although the force of wind gusts within the Upper Columbia Plateau are moderately comparable to the force of many hurricanes, the attachment of window shutters has been adopted by homeowners much less here. These fixtures should be considered on many homes where the high force of winds is frequently seen, and on new construction where the frequency of high winds may not have yet been documented.

5.3.3. Snow Loading

Snow loading on the roofs of buildings has been a recurrent challenge throughout the Upper Columbia Plateau generally, and within the Coeur d'Alene Reservation specifically (4.3.3.1). Because of the frequency of late winter warm weather systems (generally in February) that drop rain on an established snowpack, the result often leads to heavy weight loads on the roofs of structures. Often, the response by residents has been to shovel the snowload from the roofs as snow accumulates. Some portion of the population cannot access the roof tops to shovel the snow off, and in many cases helping-hand-neighbors and Tribal staff have responded to assist those in need.

A relationship has been made between the synergistic effects of multiple factors that can lead to structural collapse, or structural damage, from heavy snow loads. In general, the factors that lead to an increased risk to structural damage include:

- Flat or low pitch roofs that hold deep accumulations of snow,
- Broad roof surface area (maximum span between vertical supports),
- Roofing material and roofing span supports (material and truss spacing) not suited to bear heavy snow loads,
- Low amounts of ceiling insulation that allows heat to escape to the roof, causing snow accumulations to partially melt – leading to wet and heavy snow,
- Lines of tall vegetation surrounding the home (trees) that cause blown snow to 'drift' onto the structure, but shade solar radiation that would normally melt the snow (requires site investigations to confirm these episodes as they may happen frequently or infrequently on the same structure).

The first three of these components for future developments can be guided through the administration of building codes to ensure that suitable precautions are built into the construction plans of new structures (private, non-private, and commercial). The last two components on this list are driven by the homeowner who must make personal decisions about maintaining adequate levels of insulation in their ceilings, and maintaining vegetation around their homes.

The question of adequate insulation can be addressed by taking advantage of some of the available federal tax incentives in combination with the electric companies of the region, to insulate the attic of a structure, while receiving a reduced cost service and a tax credit on federal income taxes.

The question of managing vegetation around the structure can be addressed not only for snow load issues, but also for reducing wind damage and wildfire risks. In order to implement these activities in a manner that reduces the overall risk to the structures, communities, and the Coeur d'Alene Reservation, site-specific assessments must be made, action plans developed, funded, and implemented.

5.3.4. Seismic Shaking Hazards

Seismic shaking hazards have been addressed in Section 4.5 to address the seismic shaking risks that the entire region faces. The exposure to these risks is generally seen by the preponderance of URM structures on the Coeur d'Alene Reservation. There are also many structures with URM construction chimneys. Roughly 40% of the residential structures on the Coeur d'Alene Reservation use wood burning heat (visual estimate). The other homes use either electric or gas heating with no wood-burning chimney present. Of those homes with brick or masonry chimneys, there is a mix of approximately 50% of homes using URM materials, and the other 50% using stove-pipe construction (metal). That narrows down the number of structures at risk to approximately 20% of the total number of privately owned structures, or approximately 700 homes.

Mitigation measures for homes can be initiated by installing bracing structures vertically on all four corners of the chimney, extending from the top of the chimney to the ground or the entrance to the structure. The bracing structures can be built with angle iron jointed horizontally (welded in place) periodically along the chimney's height, every few feet (a metal wrap around the chimney horizontally, connecting the vertical braces, and welded together). The supports are tethered to the structure's frame through the roofing material. The intent of the support is to ensure that during a seismic event (earthquake) the chimney does not shake apart and fall on

people or assets on the ground that could be killed or damaged from the impact. These activities are recommended across all of the Coeur d'Alene Reservation and for all new construction (through building codes) with external chimneys extending more than three feet above the roofing structure. One practitioner even suggested painting the support structures to match the color of the chimney for aesthetic reasons.

5.4. Community Based Risk Exposure

Seven populated places will be addressed in this section of the planning document, to augment the series of tables offered within Chapter 4 dealing with each natural hazard and the value of structures in those locations.

5.4.1. DeSmet & Tensed

The community of DeSmet and the City of Tensed are located at the southern extent of the Coeur d'Alene Reservation on either side of Hangman Creek (Figure LXIX). Regional access to these population centers is provided by US95, and the communities rest only a few miles from the southern extent of the current external boundaries of the Coeur d'Alene Reservation. The community of DeSmet includes about 47 privately owned structures, and 42 non-privately owned structures. The City of Tensed includes approximately 127 privately owned structures and 13 non-privately owned structures. Combined, these structures represent a total value of approximately $24.8 million (Table 3). These summaries combine all of the structures that are located closest to these communities, not just the structures within the city limits of Tensed, or within the community area locally called DeSmet. This summary includes structures located miles away, that are not 'closer' to any other community.

As already defined in Section 5.3 (Macro Hazards), the risk exposure to high winds is uniformly high in DeSmet & Tensed, as well as the other populated places of the Coeur d'Alene Reservation. There are few softwood trees surrounding homes, but ornamental hardwoods have been planted throughout these communities, and there are a few homes with compromised roofing materials that would benefit from reinforcement . The prevalence of URM chimneys is not extensive in this area.

One condemned structure, the 'Sisters House' located at the top of the hill in DeSmet, still stands. It was made from URM materials and used by the Catholic Church when the mission was moved to DeSmet. Flooring has rotted, and the sidewalls show signs of failure. Remodeling of this structure should not be attempted.

Figure LXVII. Sister's House in DeSmet – URM and condemned.

5.4.1.1. Flood Risks

Flood risks in DeSmet & Tensed are attributed to the shorelines of Hangman Creek (Figure LXXII, Table 27, Table 28). The floodplains determined and approved by FEMA were updated in September 2009 and used for this analysis. As of the time of writing this Tribal Hazards Mitigation Plan, FEMA has been working with the City of Tensed and Benewah County to reassess the floodplain within the City of Tensed. Although new floodplain maps have been made available to the city, the release of new floodplain geospatial data has not been obtained for use in this analysis. The analysis summarized here is based on the September 2009 data.

Floodplain mapping for all of Hangman Creek has been completed and is presented here (Figure LXXII, Table 27, Table 28). These floodplains indicate that several structures all along the Hangman Creek valley are located within the zone considered most at-risk to flooding. Most of the value of structures within this area are located close to, and within the City of Tensed.

Storm-water accumulation within the area of DeSmet & Tensed is isolated generally to areas where rainfall accumulates within small depressions and adjacent to the shoreline of Hangman Creek. These stormwater accumulations have occurred in response to road maintenance, farming, and site clearing activities. Generally, these areas can be mitigated for water accumulation damages by developing drainage ditches that link the water accumulation areas into larger drainage systems.

Caution should always be applied to reducing these surface stormwater accumulations by draining the water directly into the river. These surface-water accumulations can become contaminated by oils, detergents, salts, and other water soluble contaminants that would harm fisheries in the river and degrade water quality. A filtration system should be applied to any such activity. The risks of this occurrence in this area is low because of the residential nature of the communities. However, there are commercial enterprises here including the gas station / mini mart.

Both DeSmet and the City of Tensed maintain wastewater treatment facilities within and adjacent to the floodplain; the City of Tensed within the Hangman Creek watershed, and the community of DeSmet adjacent to the King Valley watershed. The City of Tensed wastewater treatment facility can be overtopped by floodwaters during high water flow conditions. The DeSmet community wastewater treatment facility has little 'freeboard' clearance for highwater from the King Valley stream. Both systems are at risk to being overtopped by floodwaters and eroded by high velocity flows across the boundaries of the systems. Both have been placed in their respective locations for the desire to use gravity to move effluent from homes to the facilities (Figure LXVIII).

Figure LXVIII. DeSmet Wastewater Treatment Facility (center); farm fields and King Valley drainage in the foreground, the community of DeSmet in the background, and Hangman Creek to the north (left).

The temporary fix of these sites is to build up the retaining walls of the facilities to a height of an additional 3 to 6 feet using large diameter rock. This would serve as a 'levee of sorts' to hold the river's water out of each wastewater treatment facility and vice versa.

A long-term improvement for both the DeSmet & Tensed facilities is to relocate each one to higher ground outside of the floodplain, away from erosion susceptible areas, and where topographic relief allows for a functional sewer main to provide treatment to wastewater from the communities. Cost estimates for this project may easily exceeded $2.0 million for each site (*estimate only!*).

5.4.1.2. Seismic Shaking and Fault Lines

The seismic shaking risk within and around the communities of DeSmet & Tensed is relatively low (Figure LXXIII and Table 30), the lowest on the Coeur d'Alene Reservation; the distribution of fault lines is isolated to scattered lines to the south of the communities. The exposure to earthquakes in the areas surrounding homes and businesses within DeSmet and Tensed are documented in Section 5.3.4, Seismic Shaking Hazards.

5.4.1.3. Landslide

Landslide risk assessments in DeSmet and Tensed are responsive to the topographic relief of the area. Within Tensed, the risks are rated as very low (in response to the relatively flat terrain), while isolated places within DeSmet show higher risk attributes in response to steep slopes (Figure LXXIV). This area defines the dividing line between rich farming lowlands and forested uplands. Where forestry practices remove the stable vegetation, the sites can respond with localized landslides, slumping, and erosion. The soils in this area are derived from loess parent materials and can respond to rapid erosion, when vegetation is removed and the slopes are steep.

Landslides within these communities have been rare, and isolated to small events.

5.4.1.4. Expansive Soils

Expansive soils and expansive clays within the area of DeSmet and Tensed, for light residential (without basements) are a mix of low-, to-moderate risks (Figure LXXV). Within the City of Tensed developments are located on sites rated as moderate for expansive soils, while in DeSmet they are all located on sites rated as low in risk.

Conversely, the profile for light commercial structures (and Residential with a basement) are rated as low risk in Tensed and moderate risk in DeSmet (Figure LXXVI). This divergence in ratings is due to the depths of consideration for the light residential (without a basement) allowing for only soils between 10 and 40 inches, while the light commercial and residential with a basement considers the soil characteristics between 10 and 60 inches. The extreme variations in the zone between 40 and 60 inches has led to these differential ratings.

In this entire area, expansive soils require that pre-construction building techniques be considered for all new structures to integrate recommendations. Even low risk soils in the Upper Columbia Plateau can respond with adverse results if the soil moisture is not moderated at near constant levels.

5.4.1.5. Wildfire

Most of the structures located in the area surrounding DeSmet and the City of Tensed are at low risk to wildfire (Figure LXXVII, Table 43, Table 44). These communities are located in close proximity to Hangman Creek, where agricultural enterprises dominate the landscape. Wildland fuels are present south of Hangman Creek, and northeast of the communities. Wildfires are

capable of igniting and growing within these areas; access to these sites is rapid and facilitated by US95 and forest roads throughout this area.

Homes scattered around these two communities are located within zones of wildfire risk. Some of the homes have received WUI fuels mitigation work, while others have not. Even some of those homes that have received fuels mitigation attention in the past are facing the need to 'update' the treatments and maintain an acceptable level of 'protection'.

Figure LXIX. Aerial Imagery of DeSmet & Tensed, 2009.

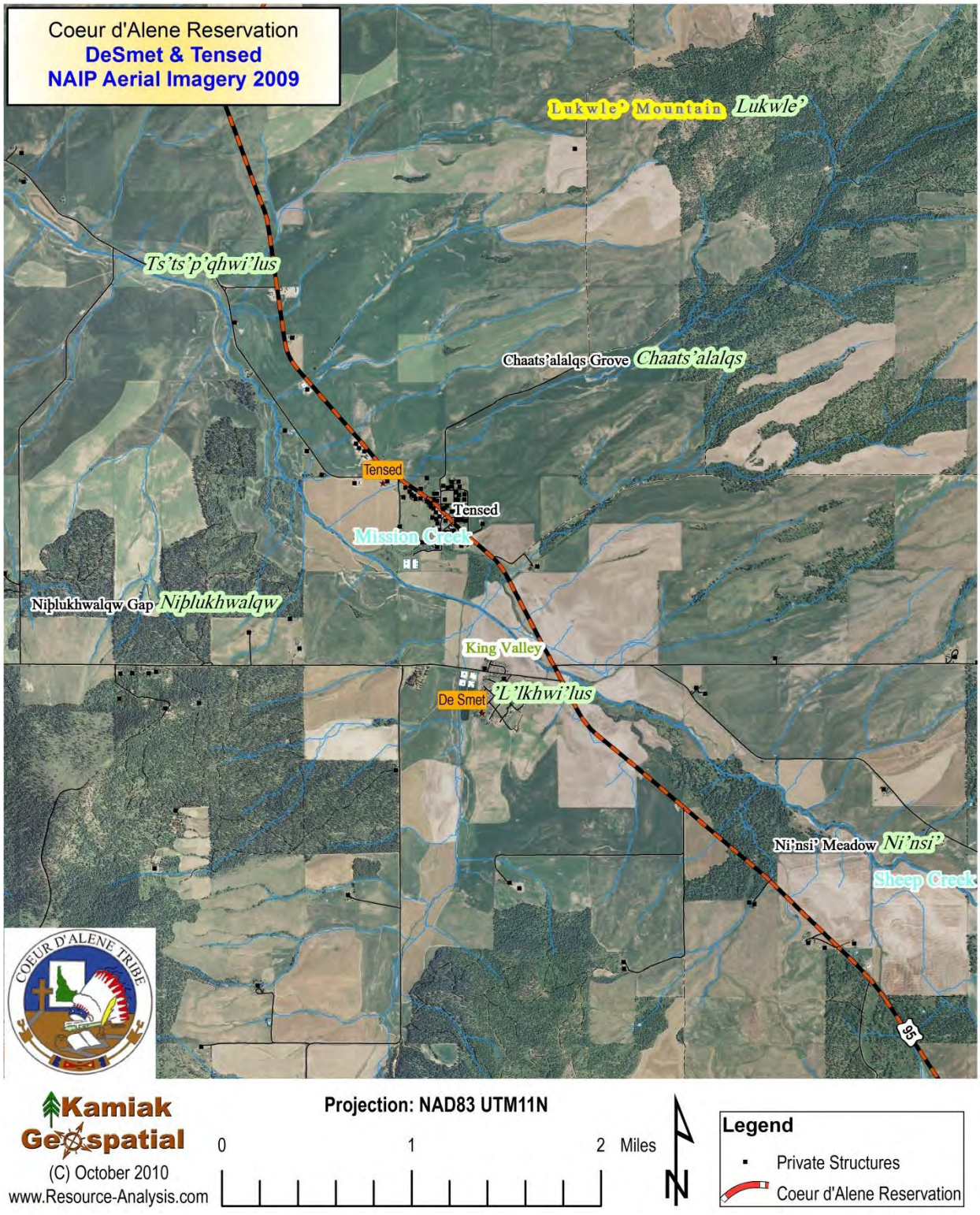


Figure LXX. Topographic Relief of DeSmet & Tensed.

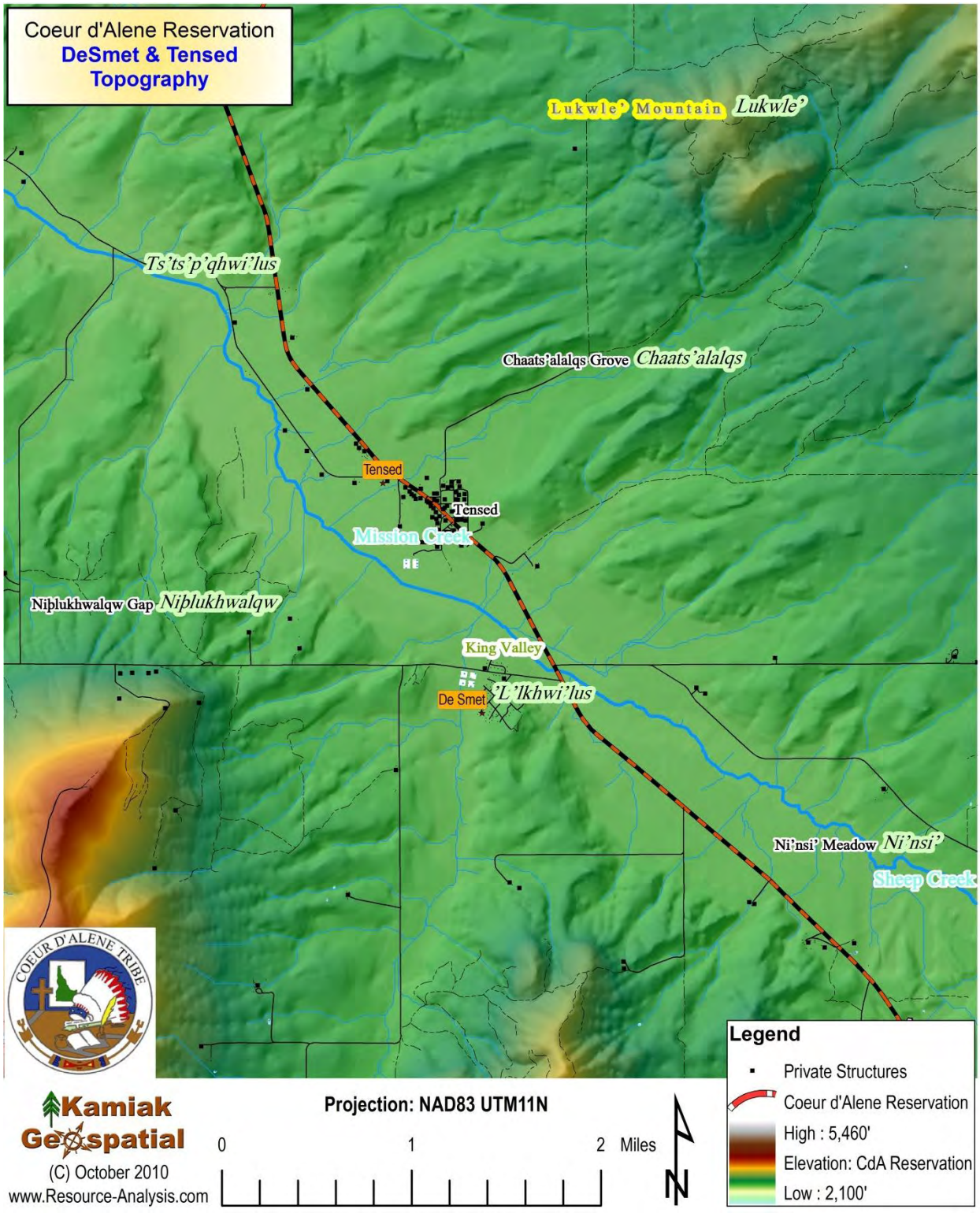


Figure LXXI. Population Density Assessment in DeSmet & Tensed.

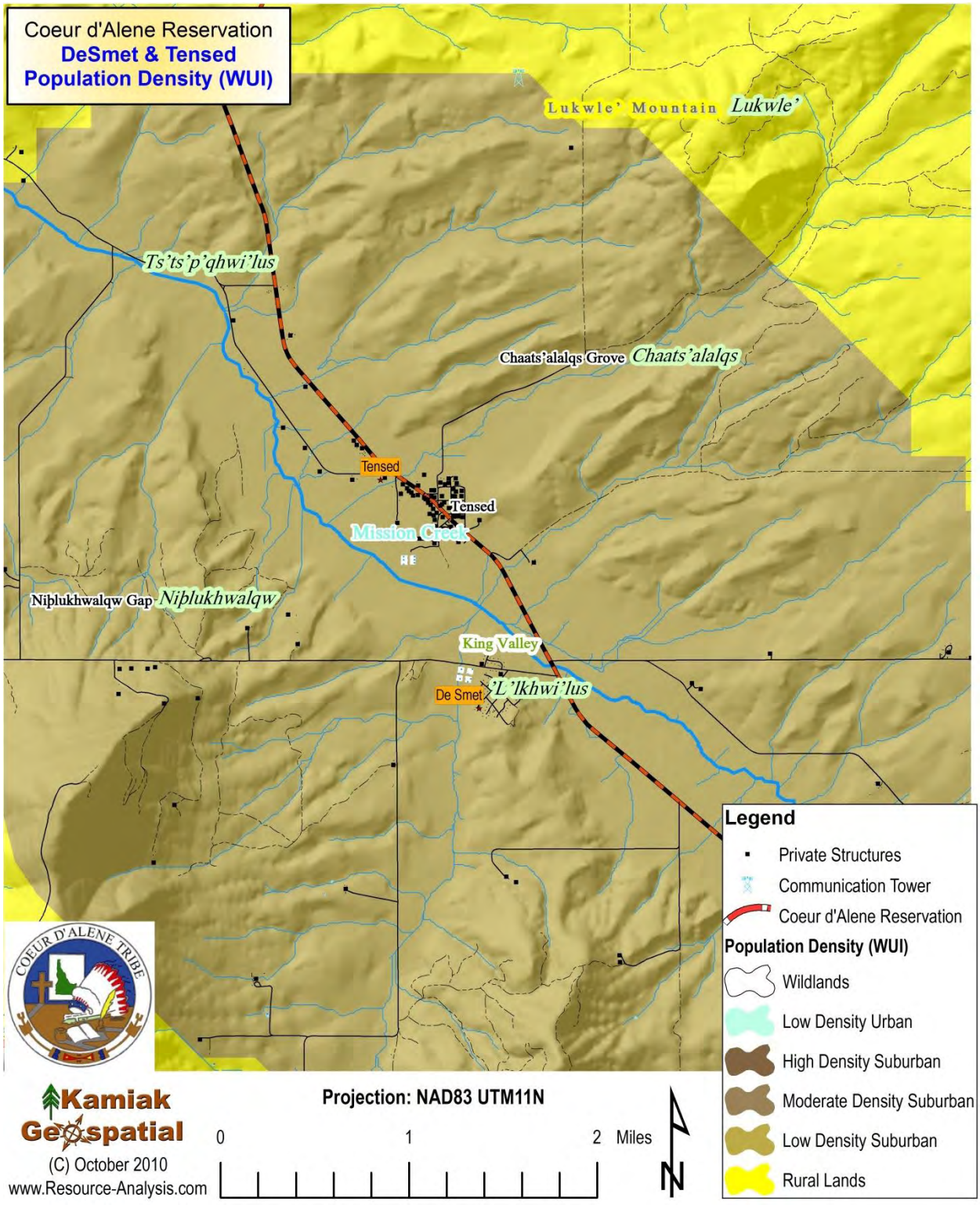


Figure LXXII. Floodplain Mapping of DeSmet & Tensed.

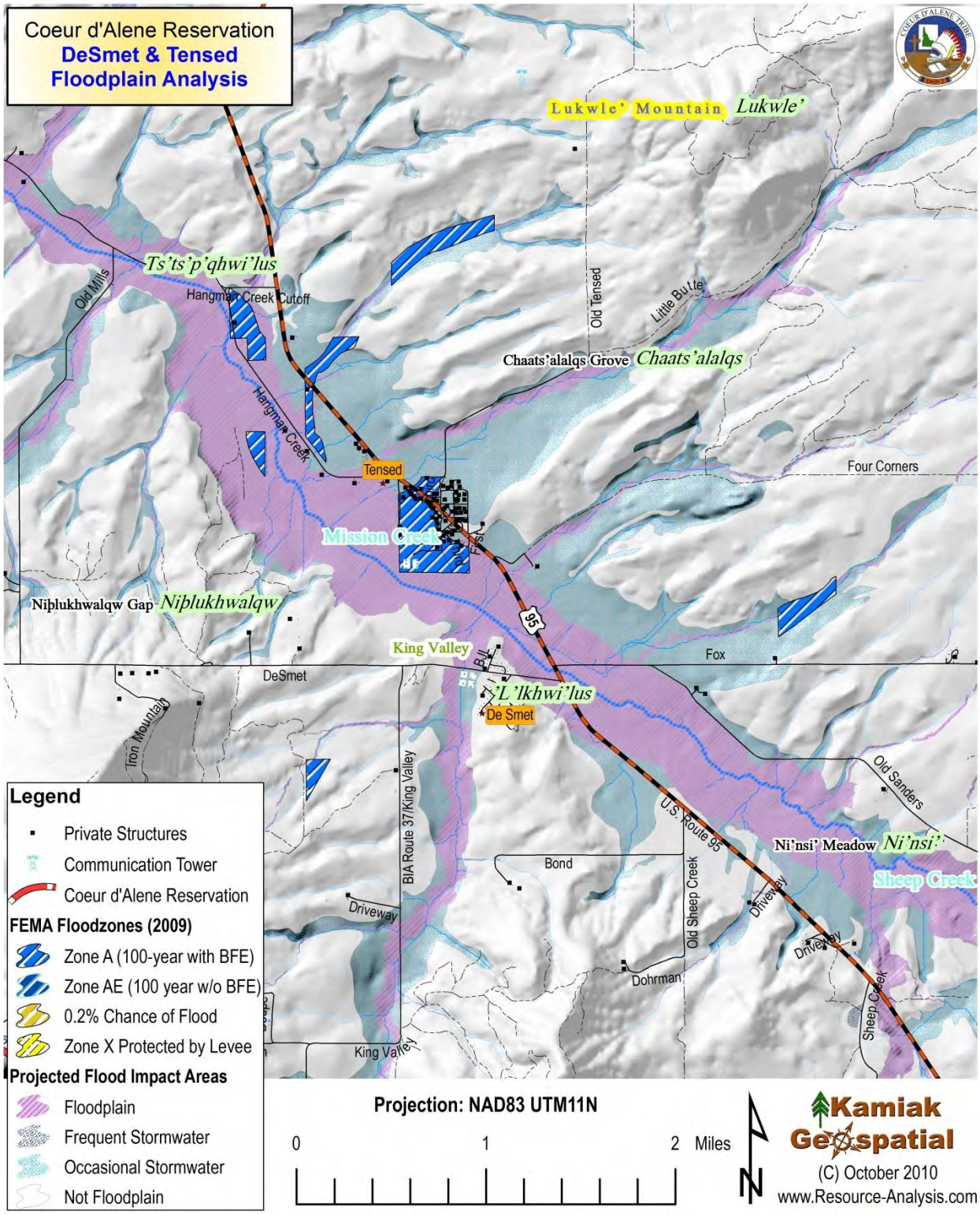


Figure LXXIII. Seismic Stability & Fault Lines in DeSmet & Tensed.

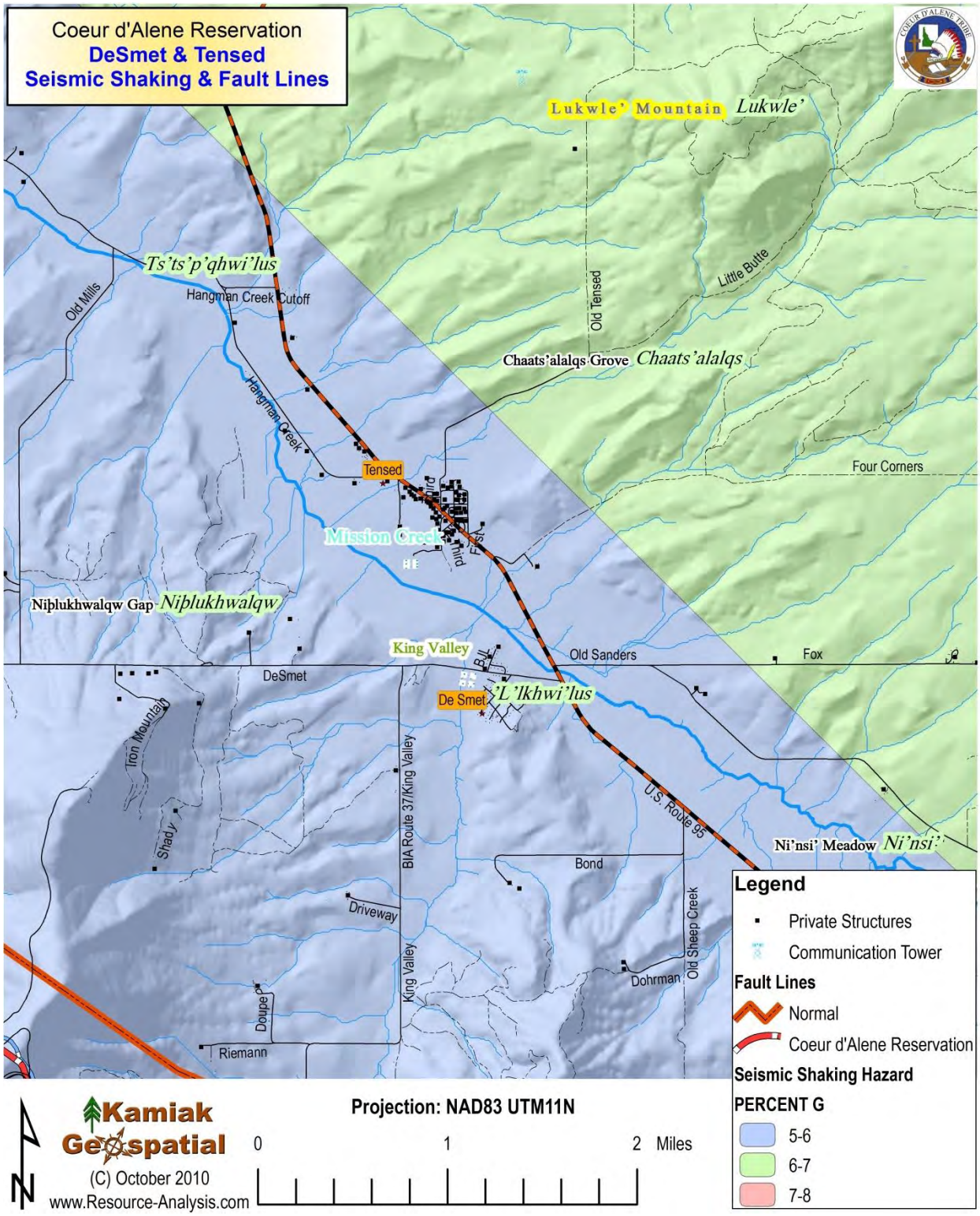


Figure LXXIV. Landslide Prone Landscapes in DeSmet & Tensed.

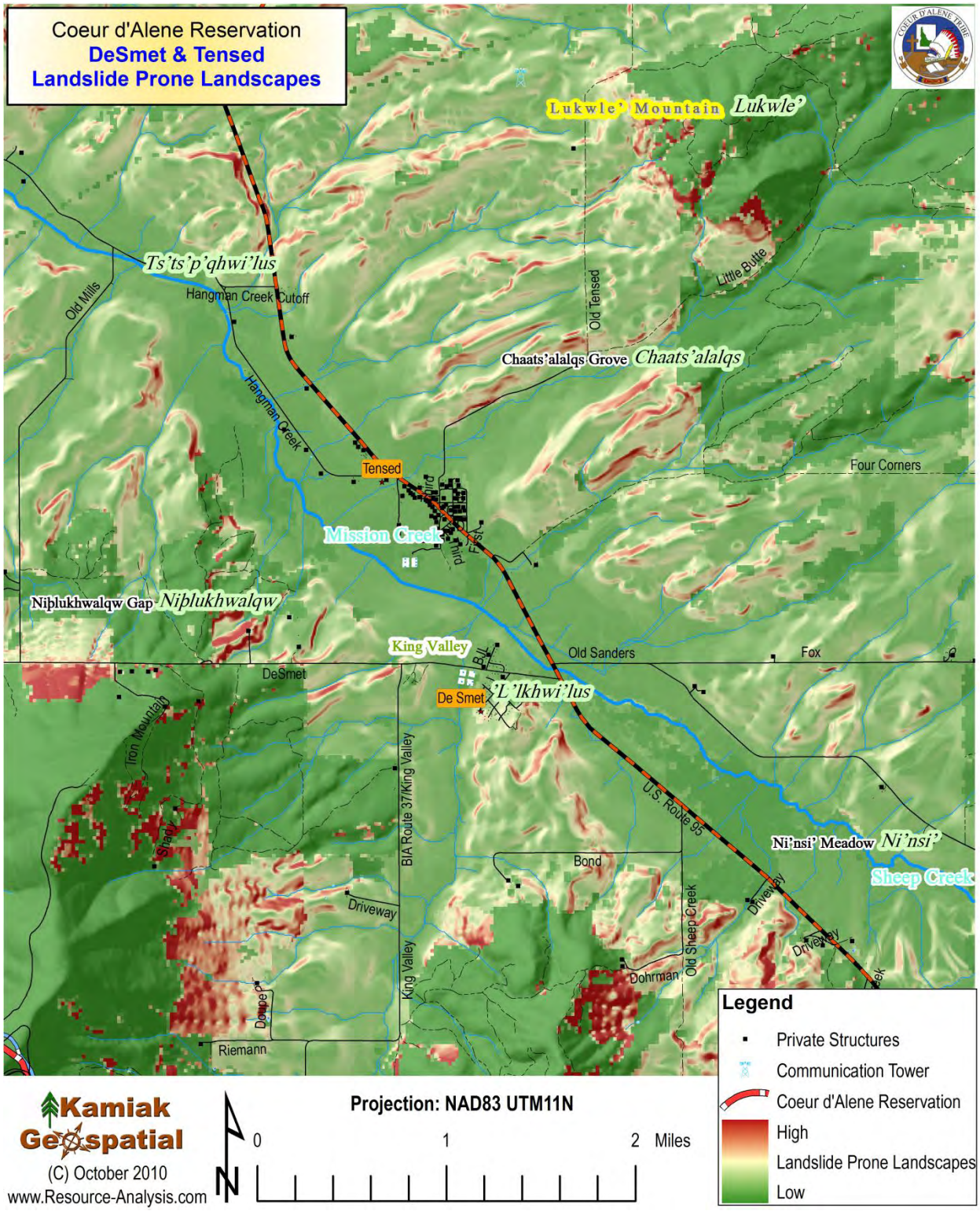


Figure LXXV. Expansive Soils and Expansive Clays – Residential without Basement Assessment in DeSmet & Tensed.

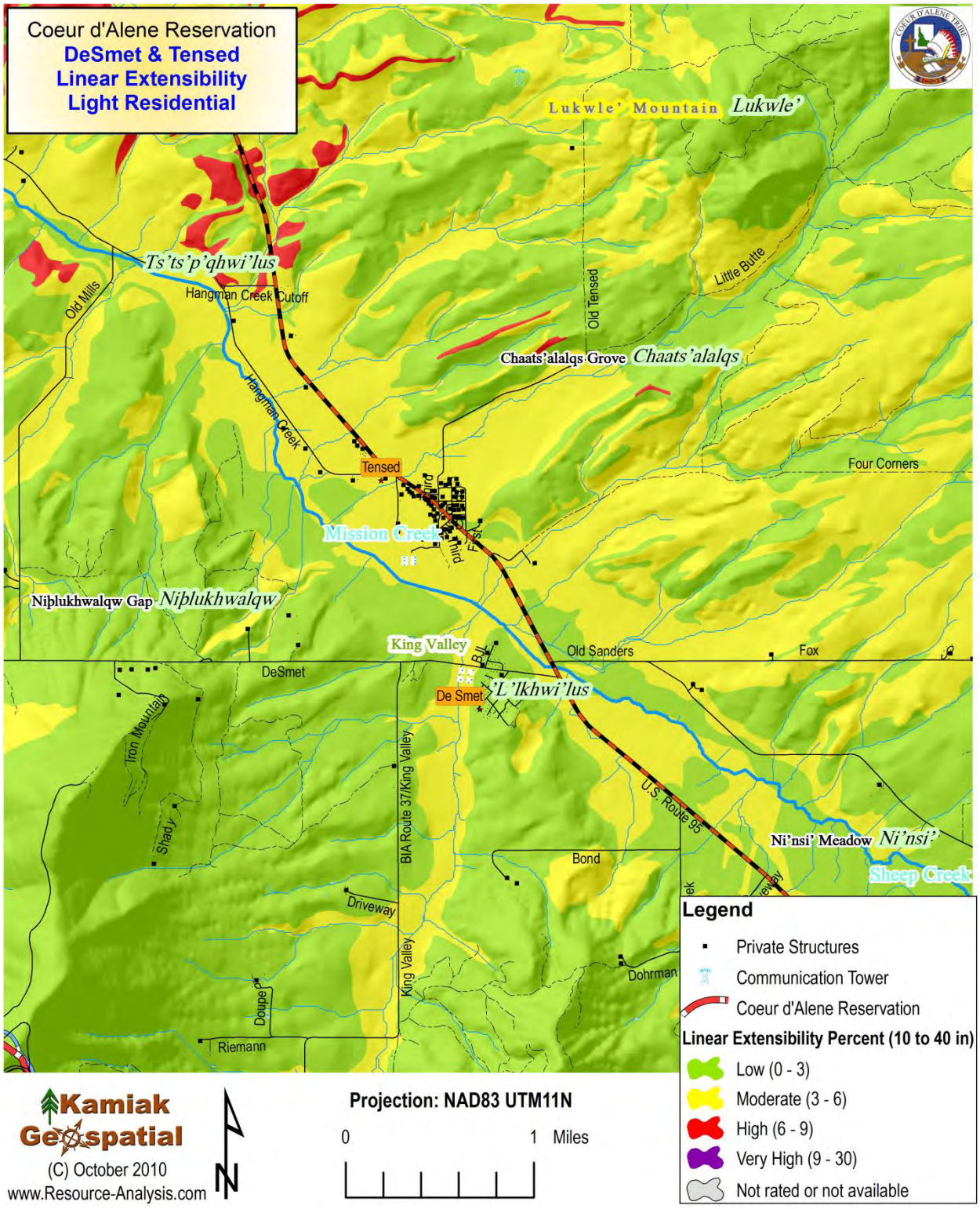


Figure LXXVI. Expansive Soils and Expansive Clays – Light Commercial Assessment in DeSmet & Tensed.

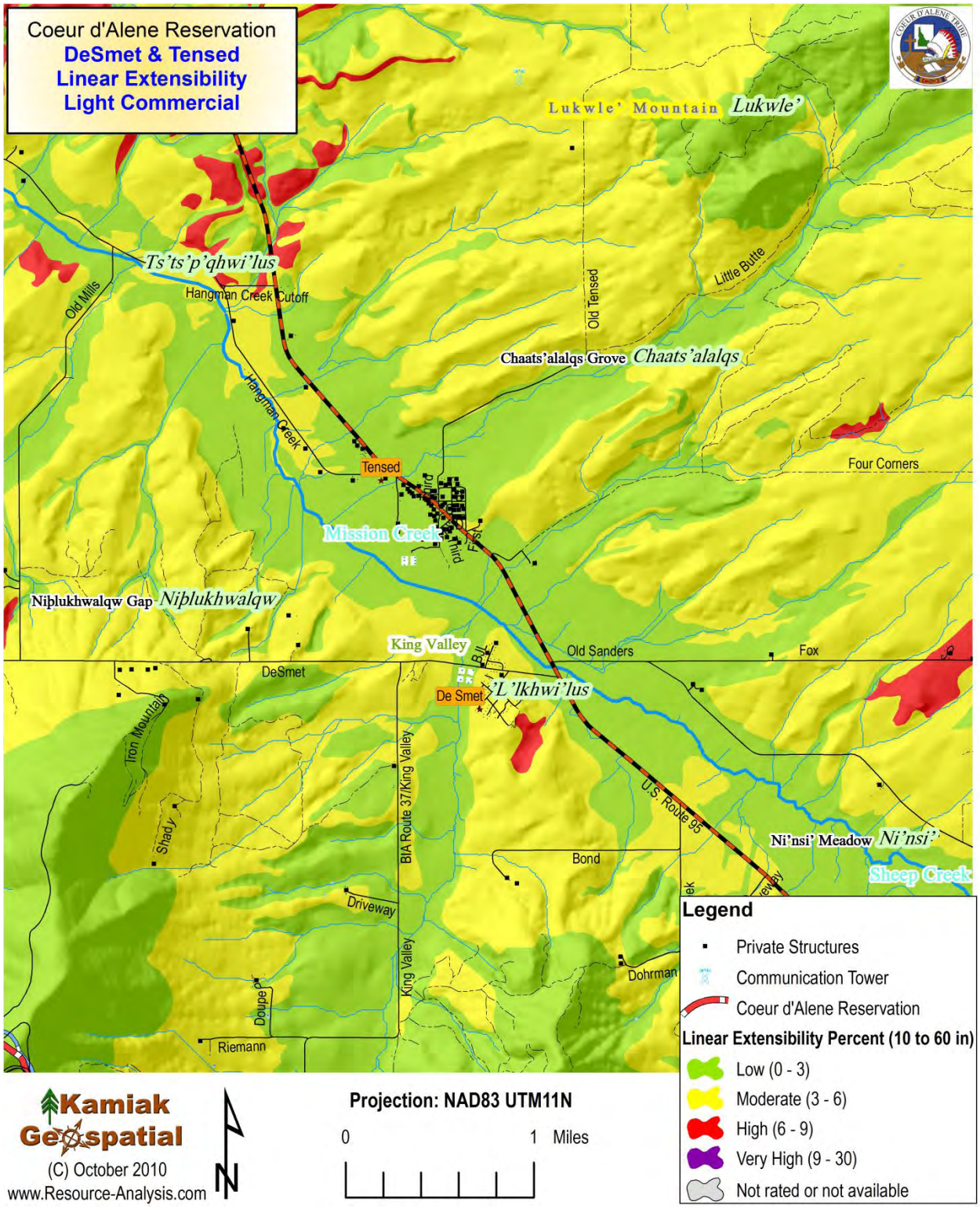
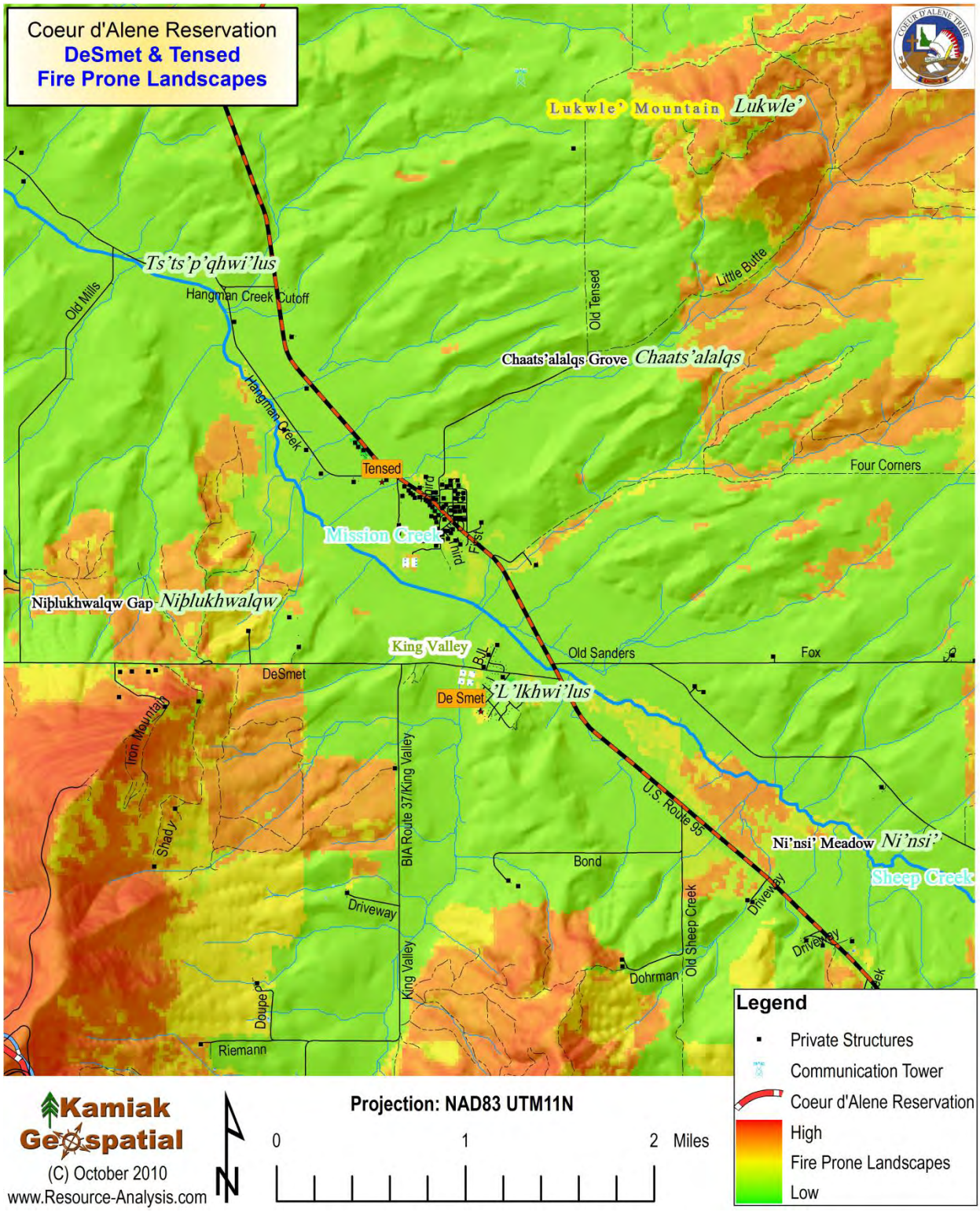


Figure LXXVII. Fire Prone Landscapes in DeSmet & Tensed.



5.4.2. City of Plummer and Surrounding Areas

The area of Plummer is the home to the Coeur d'Alene Tribal Headquarters and many Tribal resources (Figure LXXX). US95 links this community to the areas both north and south of Plummer, while State Highway 5 connects Plummer and St. Maries. Several surface streets are accessible from here.

Plummer is located approximately 30 miles south of Coeur d'Alene and 18 miles west of St. Maries along Highway 95. Plummer Creek enters the city from the south and then cuts through the city from the southern edge to the northeastern corner. This drainage system drains agricultural fields and nearby timberland. The city is home to several residential structures, businesses, schools, and the Coeur d'Alene Tribal Headquarters. Plummer lies within fairly flat agricultural land. The lowlands surrounding Plummer consist mostly of agricultural fields, while the uplands consist mostly of moderate-to-steep forestland.

As of the census of 2000, there were 990 people, 336 households, and 257 families residing in the city. This population has remained fairly stable and by 2008 the population is estimated at 997 people (Census 2009). The population density is approximately 875 people per square mile. In 2008 there were 380 housing units at an average density of 336 per square mile (Census 2009). Plummer is the largest city located entirely within the Coeur d'Alene Reservation.

The area surrounding of Plummer includes about 494 privately owned structures, and 96 non-privately owned structures. Combined, these structures represent a total value of approximately $79.9 million (Table 3). This summary combines all of the structures located closest to this community, not just the structures within the city limits of Plummer; it includes structures located miles away, that are not 'closer' to any other community.

As already defined in Section 5.3 (Macro Hazards), the risk exposure to high winds is uniformly significant in Plummer, as well as the other populated places of the Coeur d'Alene Reservation. There are few softwood trees surrounding homes, but ornamental hardwoods have been planted throughout this community (Figure LXXVIII), and there are a few homes with compromised roofing materials that would benefit from reinforcement as a protection against the wind and falling debris of surrounding trees. The prevalence of URM chimneys is common in this area.

Figure LXXVIII. Softwoods, hardwoods, and power lines dominate the above-the-ground atmosphere around homes in Plummer.

5.4.2.1. Flood Risks

The City of Plummer was assessed by FEMA for the creation of FIRM analyses published in 2004 and 2009. These maps were estimated for the City of Plummer while excluding the outlying areas of Benewah County and the Coeur d'Alene Reservation. The placement of the floodplain within the city is concentrated along the narrow path of Plummer Creek, traversing property owned by the City of Plummer and the Plummer Forest Products mill within the area of the log storage yard. There is one private structure located within the FIRM floodway.

The City of Plummer sent an official letter to FEMA on April 20, 2009, identifying no discrepancies in the draft FIRM maps issued in September 2008 by FEMA, and later informed FEMA that the City had reconsidered its participation in the NFIP. This letter was accepted by FEMA, and the city was removed from NFIP participation. Since that date, residents of the city have not been eligible to purchase NFIP flood insurance within the City of Plummer.

Flood risks in Plummer are attributed to a limited floodplain of Plummer Creek (Figure LXXXIII, Table 27, Table 28). The floodplains determined and approved by FEMA were updated in September 2009 and used for this analysis.

Floodplain mapping for all of Plummer Creek has been completed and is presented here (Figure LXXXIII, Table 27, Table 28). These floodplains indicate that several structures are located along the Plummer Creek headwaters and its tributaries, and only a few are located within the zone considered most at risk to flooding. Most of the structures of value within this area are located close to, and within the City of Plummer.

Storm-water accumulation within the area of Plummer is isolated generally to areas where rainfall accumulates within small depressions and adjacent to the banks of Plummer Creek and its tributaries. Rain-on-snow events are notorious for causing stormwater accumulations around structures in the late winter months (February-March). Generally, these areas can be mitigated for water-accumulation damages by developing drainage ditches that link the water-accumulation areas into larger drainage systems. This mitigation measure has been identified as a plausible means of mitigating the frequent stormwater drainage problems surrounding the Coeur d'Alene Tribe's Wellness Center in Plummer.

Caution should always be applied to reducing these surface stormwater accumulations by draining the water directly into the river. These surface-water accumulations can become contaminated by oils, detergents, salts, and other water soluble contaminants that would harm fisheries in the river and degrade water quality. A filtration system should be applied to any such activity. The risks of this occurrence in the area is low because of the residential nature of the communities. However, there are commercial enterprises here including the gas stations (x3), store, and commercial enterprises.

The City of Plummer has maintained a wastewater treatment facility that has been within and adjacent to the Plummer Creek floodplain. As of the time of preparing this report, the City of Plummer wastewater treatment facility is being retired (Figure LXXIX) in favor of a new site located higher in elevation and near to the old site.

Figure LXXIX. Plummer Wastewater Treatment Facility within the Plummer creek watershed being retired in favor of a new site located above the floodplain.

Efforts to retire this facility and return the site to normally functioning floodplain conditions has been initiated. The lagoons are going to be dewatered, the solids removed and disposed of properly, and the site will be fully remediated by the city of Plummer as stipulated in the lease agreement between the Tribe and the city. This is expected to occur during the summer of 2011.

5.4.2.2. Seismic Shaking and Fault Lines

The seismic shaking risk within and around the community of Plummer is moderate (6% to 7% G rating) (Figure LXXXIV and Table 30). A series of normal faults transect the region oriented mainly east-west with some level of fault-line density. As this density increases, the tendency of tectonic stresses to distribute themselves within these areas increases. The exposure to earthquakes in the areas surrounding homes and businesses within Plummer are documented in Section 5.3.4, Seismic Shaking Hazards.

The unreinforced masonry buildings of Plummer are primarily among the school district buildings located along E Street. The exact status of these structures as reinforced or unreinforced has not been determined; however, they were all built in an era that places them at concern for these risks. The mitigating factor for these structures is their profile as single- and two-level buildings. As the number of levels increases, the seismic shaking hazards increase. There are additional masonry construction buildings in Plummer that were built within the past 15 years. These structures appear to have been built to incorporate building codes for seismic shaking standards.

Chimney construction in the city consists of both brick and metal pipe construction. The brick-chimney constructions on many homes erected in the 1960s and prior, show signs of mortar crumble and cracking. Some homes placed the chimney external to the outer wall of the structure, while others have the chimney located internal to the structure, cresting near the apex of the roof.

The external wall chimneys have the greatest amount of exposed surfaces and extended height and represent a greater hazard during a seismic event such as an earthquake. These are the structures that can experience chimney breakage and damage to the resources adjacent to the structure.

5.4.2.3. Landslide

Landslide risk assessments in Plummer are responsive to the topographic relief of the area. Within Plummer and the surrounding areas, the risks are rated across the entire spectrum from low to moderate, to high (Figure LXXXV). This area, as with many areas within the western side of the Coeur d'Alene Reservation, defines the dividing line between rich farming lowlands and Figure LXXXVIII forested uplands. Where forestry practices remove the stable vegetation, the sites can respond with localized landslides, slumping, and erosion. The top soils in this area are derived from loess parent materials and can respond to rapid erosion, when vegetation is removed and the slopes are steep.

Landslides within these communities have been rare, and isolated to small events. Inspections along State Highway 5 between Plummer and Heyburn State Park reveal a late winter / early spring occurrence of freeze/thaw events. The underlying columnar basalt can be wedged apart releasing rock to land on the surface below, generally noticed on the road surfaces.

5.4.2.4. Expansive Soils

Expansive soils and expansive clays within the area of Plummer, for light residential (without basements) are a mix of low-to-moderate risks, with most of the prime building locations (outside the floodplain) showing low risks to expansive soils (Figure LXXXVI). Within the City of Plummer developments are located on sites rated as low risk for expansive soils.

The profile for light commercial structures (and Residential with a basement) are rated as moderate risk in Plummer (Figure LXXXVII). This divergence in ratings is due to the depths of consideration for the light residential (without a basement) allowing for only soil layers between 10 and 40 inches in depth, while the light commercial and residential with a basement considers the soil characteristics between 10 and 60 inches in depth. The variations in the zone between 40 and 60 inches of depth has led to these increased risk ratings.

In this entire area, expansive soil pre-construction building techniques should be considered for all new structures to integrate recommendations. Even low risk soils in the Upper Columbia Plateau can respond with adverse results if the soil moisture is not moderated at near-constant levels.

5.4.2.5. Wildfire

Plummer region is located within an area showing a mix of agricultural and forestland characteristics. Although a few wildfire ignitions have been responded to in the past decade in areas surrounding Plummer, none of the fires exceeded one acre before being extinguished.

Most of the structures located in the area surrounding the City of Plummer are at low-to-moderate risk to wildfire (Figure LXXXVIII, Table 43, Table 44). This community is located between two peaks where forestland vegetation is present, and aesthetic conditions favor a dominant forestland condition. This being stated, past wildfire mitigation efforts have done an excellent benefit leading to moderate concerns for unchecked wildfire spread. The Coeur d'Alene Tribe wildfire resources are all located in this area, and equipment with highly trained professionals are available to respond to events with short notice.

Local wildfire mitigation efforts in the area have been very successful in limiting the risk exposure to wildfire. Although wildfire fuels are evident adjacent to homes and businesses, there are few conditions posing a wildfire risk to require immediate attention. As with other areas on the Coeur d'Alene Reservation, some of the homes have received WUI fuels mitigation work in the past, while others have not. Even some of those homes that have received fuels mitigation attention in the past are facing the need to 'update' the treatments and maintain an

acceptable level of ‘protection’. Continued attention to maintaining a low level of risk to wildland fire surrounding homes should be maintained.

One mitigating factor for the City of Plummer is the break in continuous wildfire fuels. This break comes in the form of changing land uses (agriculture to forestry to home sites, and commercial property). High risk is seen when the wildfire risk profile is extensive and continuous across a large area. Within the Plummer area, the risk is not continuous nor is it extreme.

Figure LXXX. Aerial Imagery of Plummer, 2009.

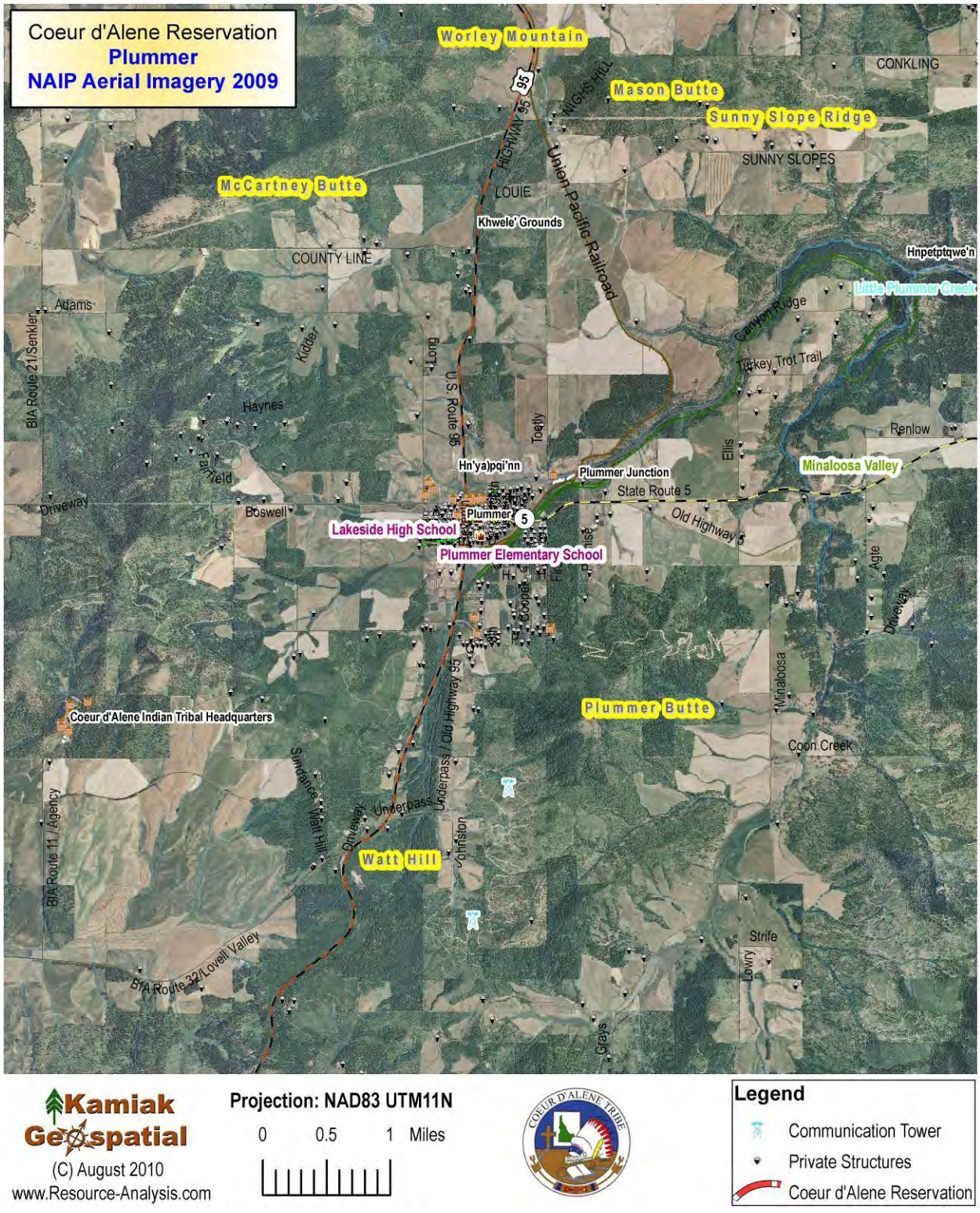


Figure LXXXI. Topographic Relief of Plummer.

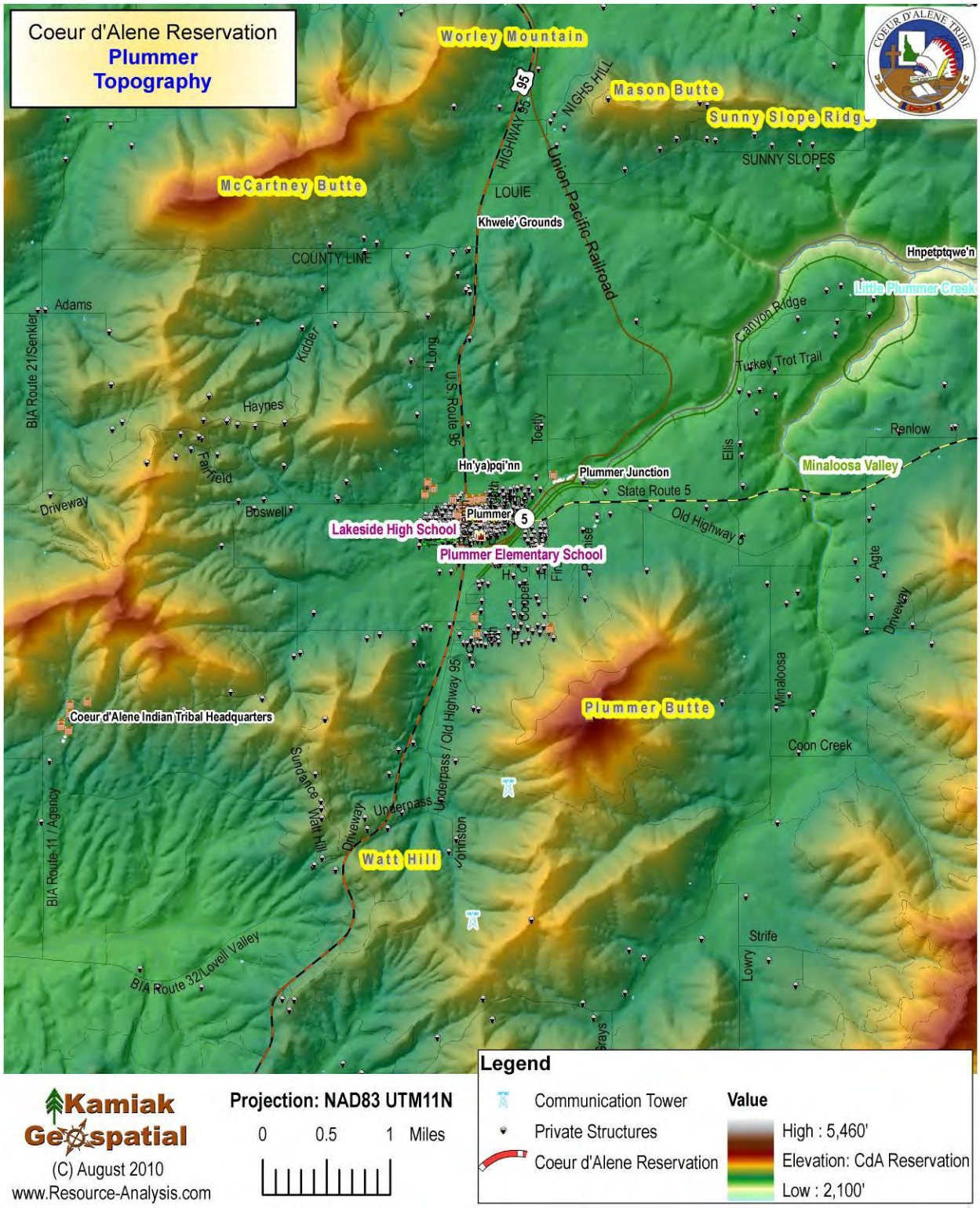


Figure LXXXII. Population Density Assessment in Plummer.

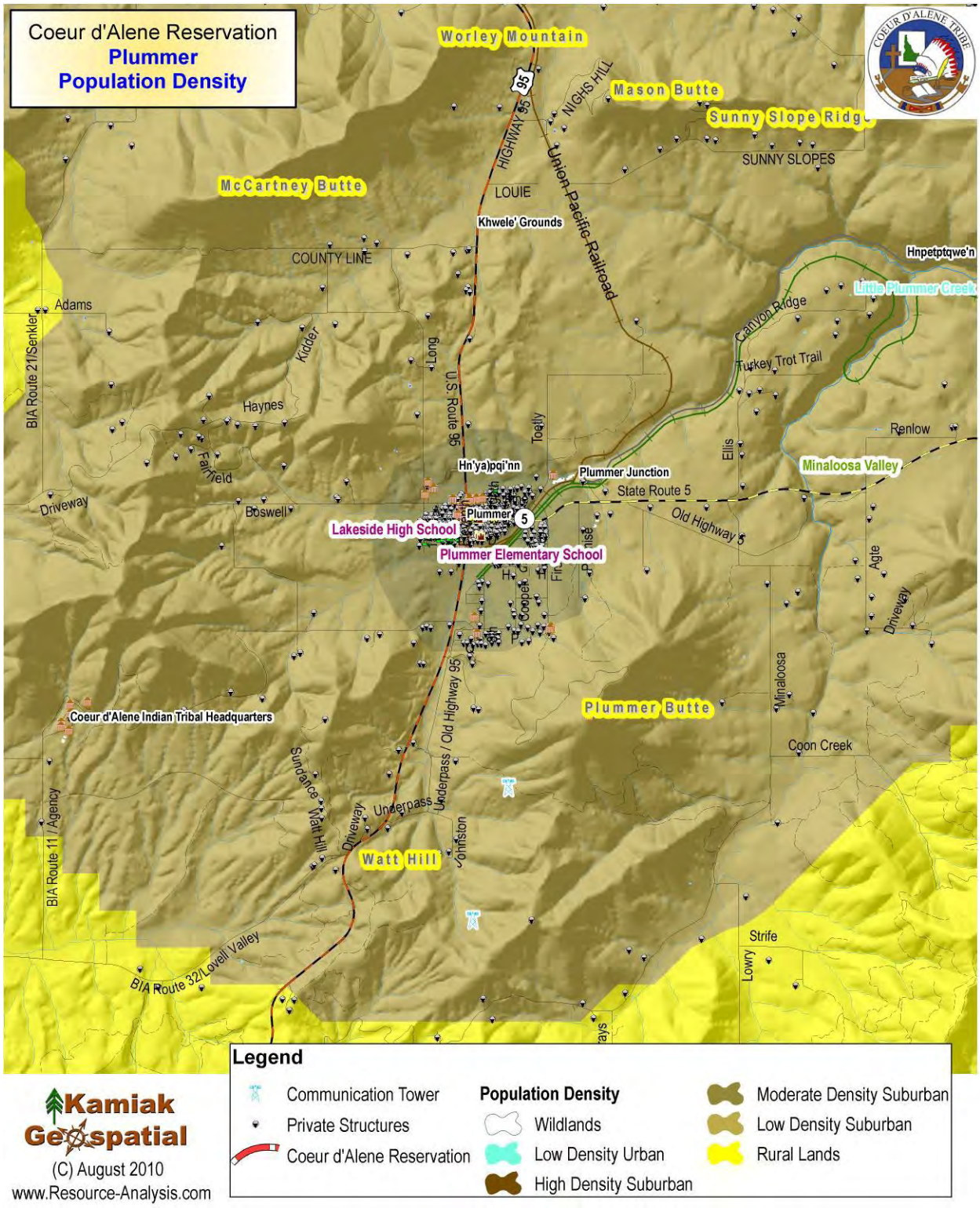


Figure LXXXIII. Floodplain Mapping of Plummer.

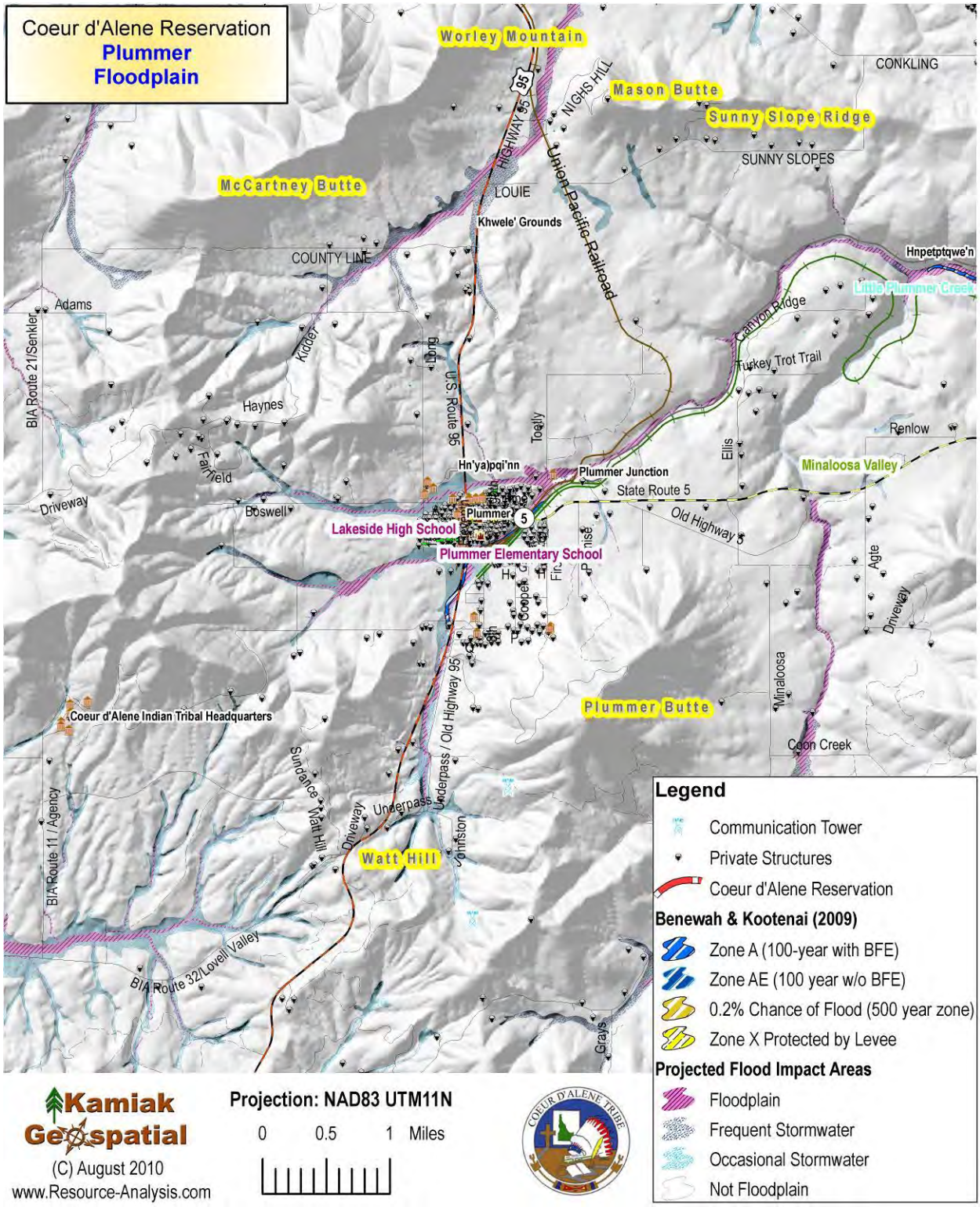


Figure LXXXIV. Seismic Stability & Fault Lines in Plummer.

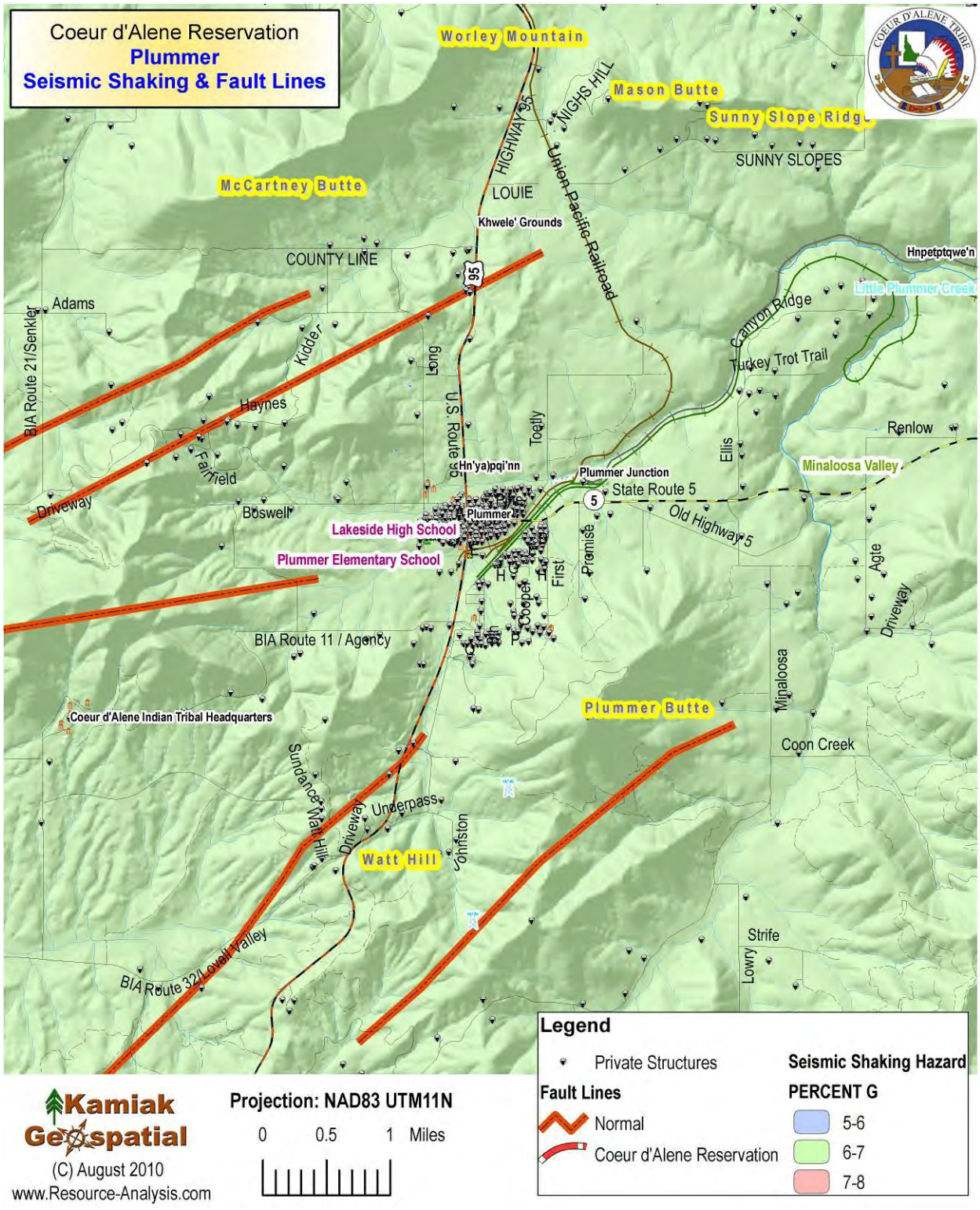


Figure LXXXV. Landslide Prone Landscapes in Plummer.

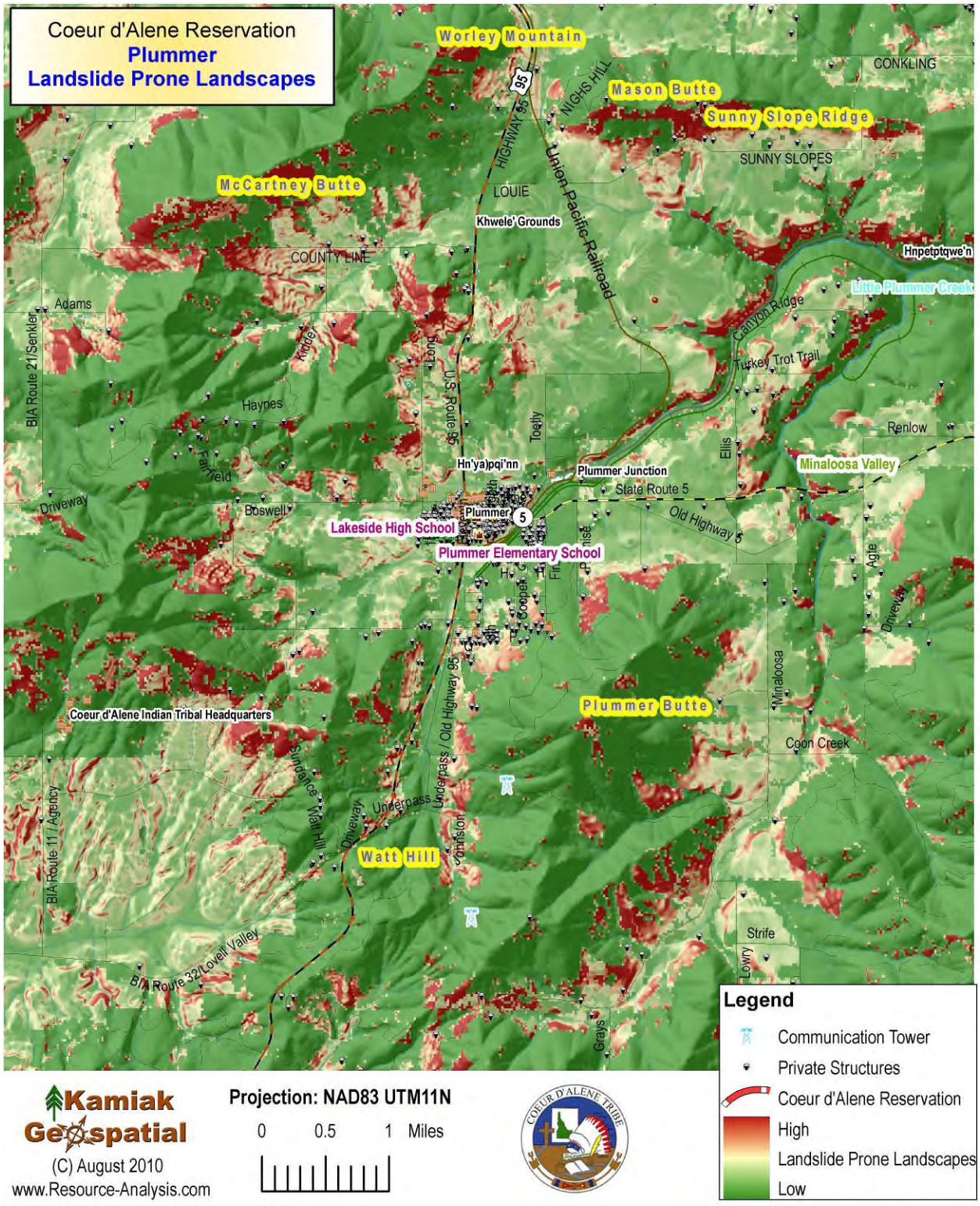


Figure LXXXVI. Expansive Soils and Expansive Clays – Residential without Basement Assessment in Plummer.

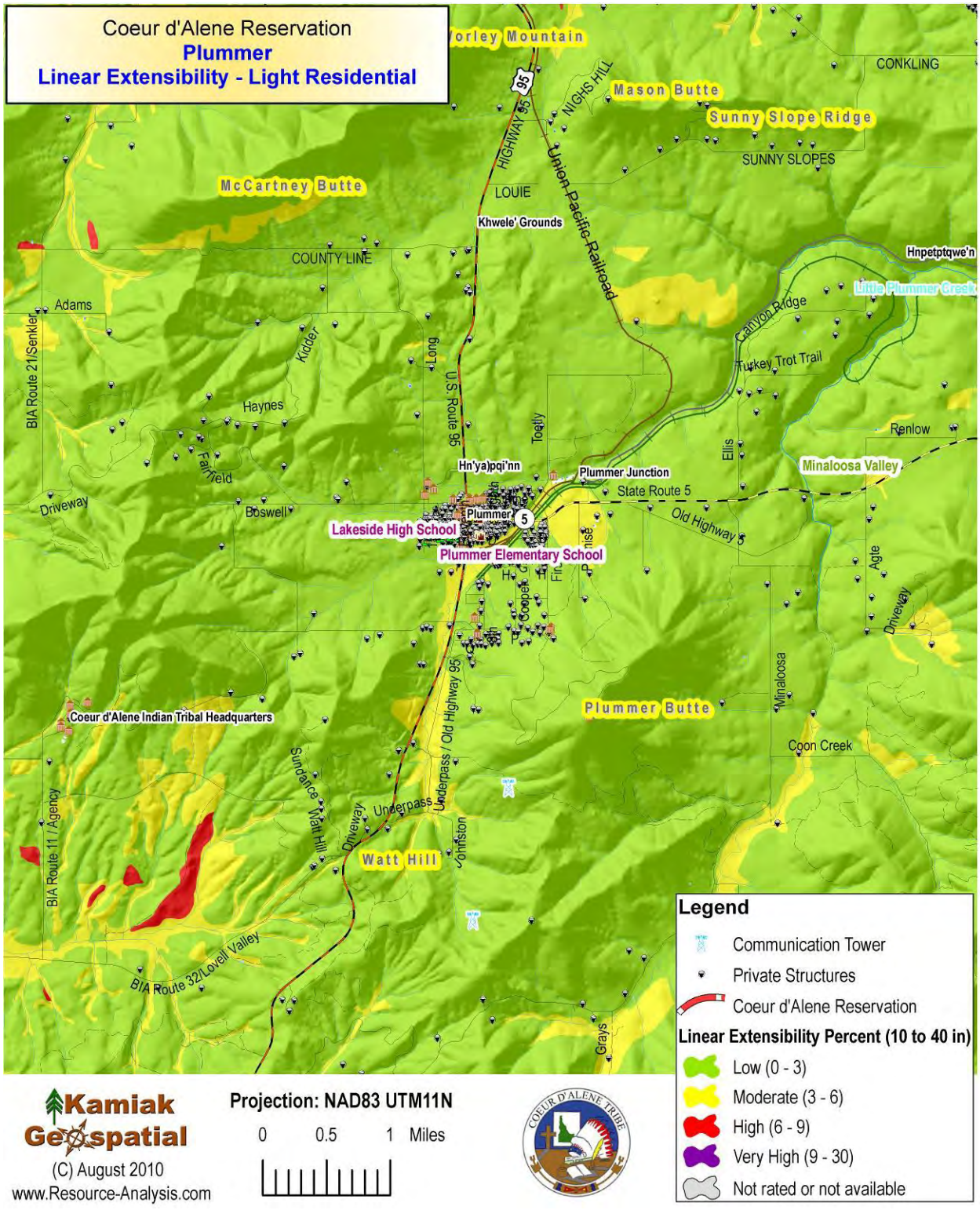


Figure LXXXVII. Expansive Soils and Expansive Clays – Light Commercial Assessment in Plummer.

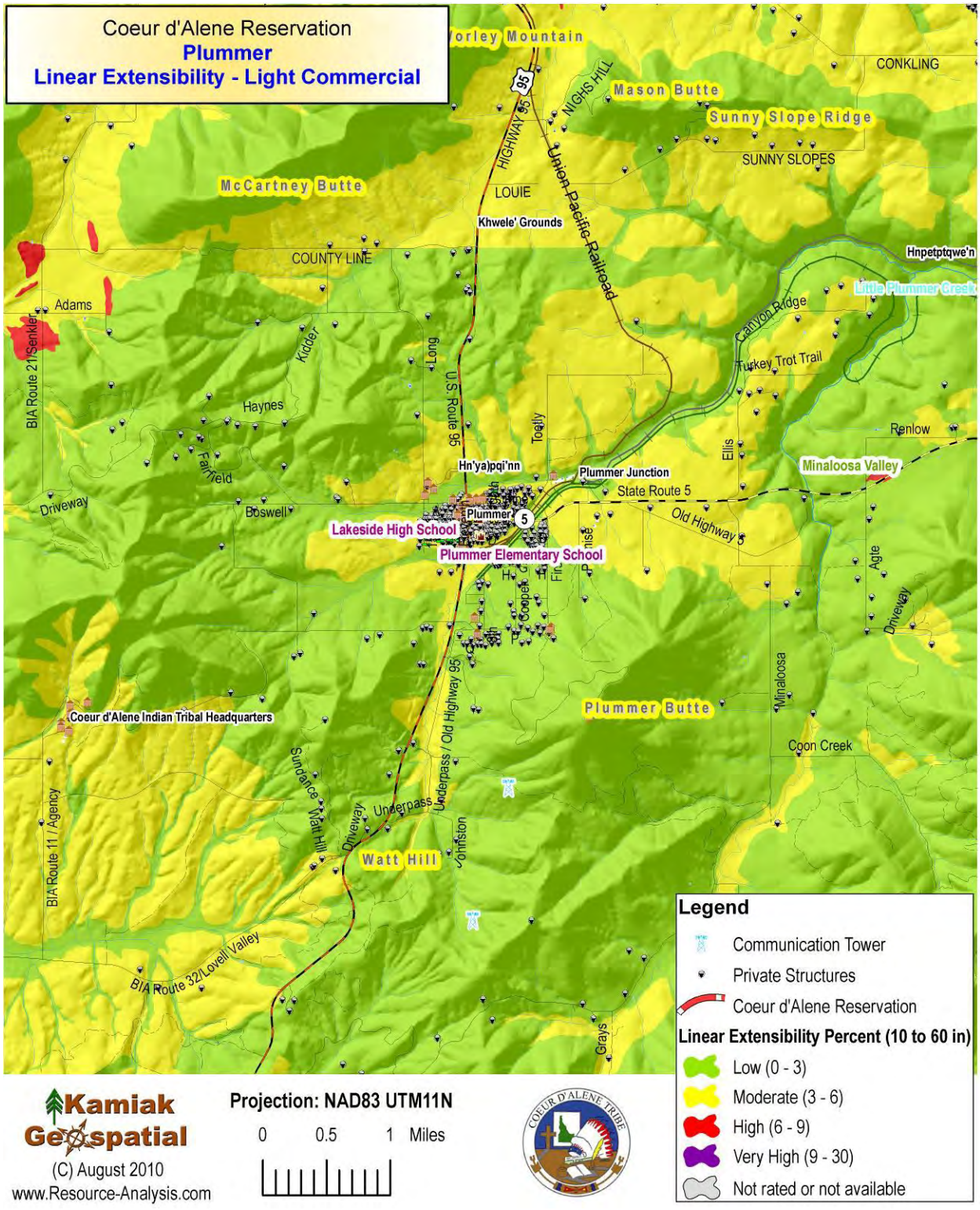
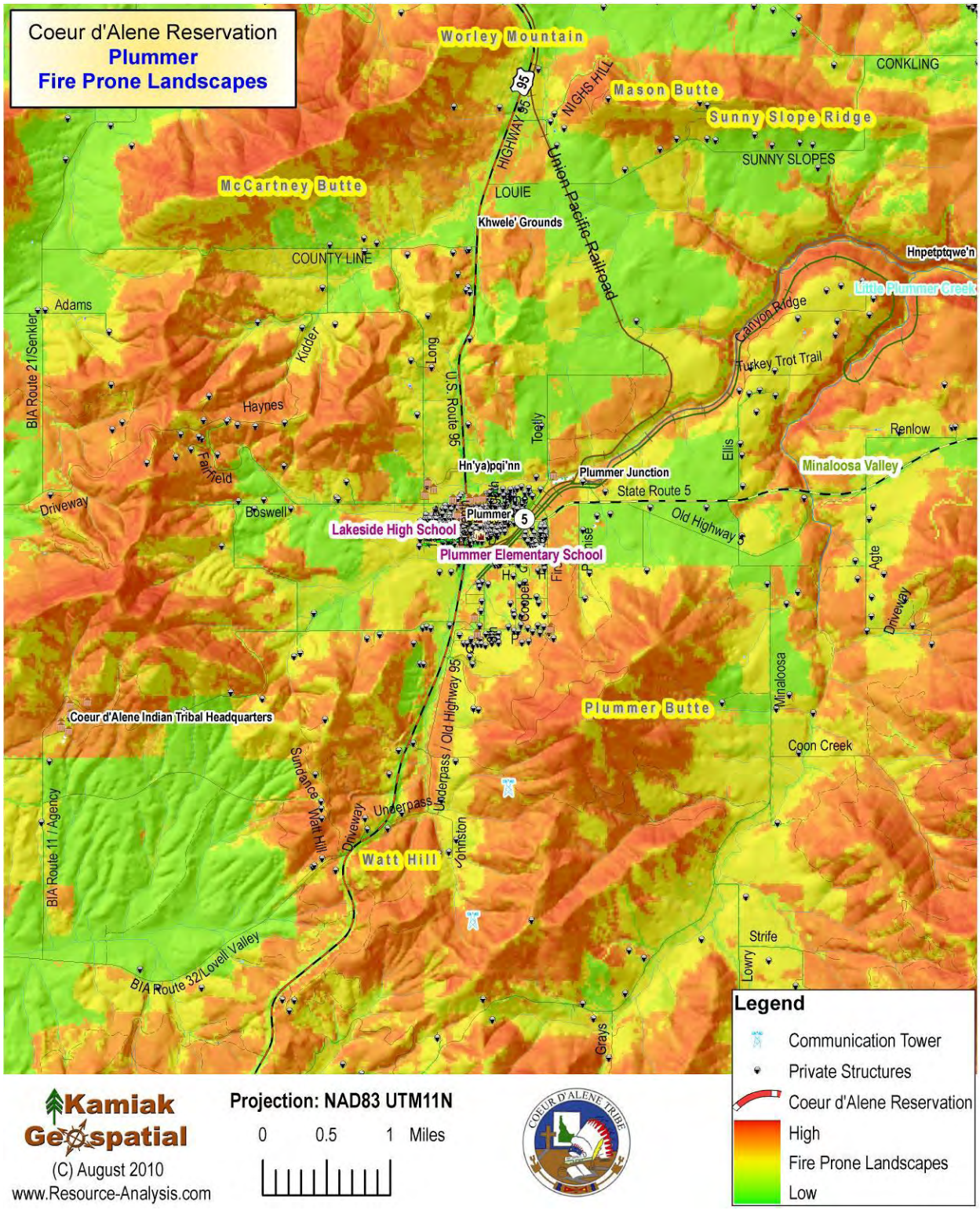


Figure LXXXVIII. Fire Prone Landscapes in Plummer.



5.4.3. St. Maries

St. Maries professes to be the “Home of the Shadowy St. Joe River”. The steep canyon walls surrounding the community and the major rivers of the area give rise to this notable reference.

The Saint Maries River and the Saint Joe River each meet and run through St. Maries. The town was developed to take advantage of the lower cost logging transportation with the two rivers and rail networks located close by. The local economy has traditionally been driven by the timber industry, complemented by some mining operations and a solid base of farming. The remarkable beauty of the region combined with the exceptional quality of life has spawned a considerable retirement community in the area in recent years.

The City of St. Maries is located partially within the external boundaries of the Coeur d’Alene Reservation, and partially off Reservation.

As already defined in Section 5.3 (Macro Hazards), the risk exposure to high winds is uniformly significant in St. Maries, as it is in the other populated places of the Coeur d’Alene Reservation. Along the St. Joe River straight line winds blow along the Coeur d’Alene Lake and are funneled up the St. Joe River Valley (easterly). High winds of straight-line force are commonly seen and drop trees and rip roofs (Figure LXXXIX).

There are several trees surrounding homes, and there are many homes with compromised roofing materials that would benefit from reinforcement against the wind and falling debris from surrounding trees. Although the structures within the city limits are generally moderate to risk from high winds, the homes outside the city and within the external boundaries of the Coeur d’Alene Reservation face higher levels of risk due to tree proximity to these homes.

Figure LXXXIX. Example of windstorm damages to a structure near Rocky Point, on State Highway 5, west of St. Maries.

5.4.3.1. Flood Risks

Flood risks in the area of St. Maries are mainly attributed to the St. Joe River (Figure XCIV, Table 27, Table 28). The floodplains determined and approved by FEMA were updated in September 2009 and used for this analysis.

The St. Joe River and the St. Maries River join at the western edge of the City of St. Maries, beyond the current boundaries of the Coeur d’Alene River. Both of these river systems belong to high Shreve Stream Order river drainages carrying a riverine flood profile of the slow kind.

Rain-on-snow events and weather inversions in the upper reaches of both rivers can lead to above-capacity flow rates in the lower St. Joe River.

FIRM maps (2009) of the area show a combination of risk profiles from regulatory floods in the 1% probability of occurrence (100-year flood zone) category to areas with a 0.2% probability of occurrence (500-year flood zone). The northern extent of the City of St. Maries includes an area that would normally be in a regulatory flood zone (100-year flood zone); however, the construction and maintenance of levees along the St. Joe River provide a level of protection such that these areas of the city have been removed from the regulatory flood zone and are mapped as “protected by a levee” (Figure XCIV).

Storm water accumulations are mostly restricted to areas adjacent to the levee systems and the rivers. Apparatuses associated with the levee systems move both flood waters and storm waters into the river channels.

Although the flood control systems along the St. Joe River are well developed, the potential for flood waters to breach the confines of the river channels and the dikes is present. This has been witnessed when extreme events such as ice jams and rapid snow melt occur on the upper reaches of either the St. Joe or the St. Maries Rivers. The elevation relief between St. Maries and the full-pool elevation of Coeur d’Alene Lake is only 6.5 feet. The St. Joe River follows a nearly 14 mile stretch that drops only 6.5 feet, meandering through an expansive floodplain, farmlands, Benewah Lake, and Chatcolet Lake on its way to Coeur d’Alene Lake.

5.4.3.2. Seismic Shaking and Fault Lines

The region surrounding the City of St. Maries is potentially impacted by a series of fault lines fracturing the region in a west-to-east line of fissures located mainly north of the St. Joe River (Figure XCV and Table 30). These faults are mainly of the normal fault type. The Lewis & Clark Fault Line extends through this region. It is an aeromagnetic and gravitational anomaly, with surveys suggesting its extension into the interior of the continent. Seismically, it is considered significant although it exhibits characteristics of a normal fault zone structure. None of the fault lines in this area are of the thrust-fault type. The region is within an expansive zone of moderate risk to seismic shaking hazards with a 6% to 7% G rating.

Earthquakes are felt in this area when they occur within a zone of 200 miles or more. The Hoyt Mountain earthquakes referenced earlier in this document were felt and reported within St. Maries. The risks for the residents of this area concentrate on the unreinforced masonry construction of a few buildings and the widely distributed brick masonry chimneys attached to wood frame construction homes.

The unreinforced masonry buildings of St. Maries primarily include the brick and masonry buildings constructed between 1890 and 1970 (Figure XC). Attention to the wide-spread presence of these buildings within the St. Maries community has received focused attention by the city officials and the Benewah County Emergency Manager (Schlosser 2010).

Figure XC. Heyburn Elementary School rests within the Coeur d'Alene Reservation and within the City of St. Maries, and is an example of a high-use URM building.

Observations of these URM buildings reveal signs of cracking mortar, disintegrating bricks, and failing structural stability. The exacerbating factor for these structures is their profile as multi-level masonry construction buildings. As the number of levels in a masonry building increases, the seismic shaking hazards increase.

Chimney construction in the area has used both brick and metal pipe construction. The brick-chimney constructions on many homes erected in the 1960s and prior, show signs of mortar crumble and cracking. Some homes placed the chimney external to the outer wall of the structure, while others have the chimney located internal to the structure, cresting near the apex of the roof.

The external wall chimneys have the greatest amount of exposed surfaces and extended height and represent a greater hazard during a seismic event such as an earthquake. These are the structures that can experience chimney breakage and damage to the resources adjacent to the structure.

There are a number of low-cost remedies for these masonry chimney exposure instances, and those have been detailed in this document. In case the chimney's materials have deteriorated a complete replacement must be considered. A visual assessment of the structures and inspection of masonry chimneys in the area is warranted, leading to repair to avoid this risk. Funding for this effort and a public awareness of the issue should be undertaken.

5.4.3.3. Landslide

The slopes in some areas of this region are steep, and the soils of this area are largely formed from unconsolidated river sediments placed on top of Columbia River columnar basalts and exposed continental batholithic materials. Landslides are possible unless the risk is mitigated (Figure XCVI).

The landslide profile for this area is influenced primarily by the presence of steep slopes in combination with mobile surface soils, as found along the sides of the St. Joe River, and to the south of State Highway 5. Roads in this latter area are few, but several private structures are located here. Some of these private homeowners utilize retaining walls and other methods to hold the soils in place. Vegetation on these sites includes a combination of hardwood and softwood tree species, shrubs, and home-site landscaping.

The north side of State Route 3 shows areas of high risk to landslides. In these areas, the slopes are generally stable, but they can respond abruptly to site disturbances such as flooding, road construction, vegetation modifications, and building placement. Many homes have been placed here and small-scale landslides have occurred as a result.

5.4.3.4. Expansive Soils

Expansive soils and expansive clays within the area of the lower St. Joe River, for light residential (without basements) are a mix of low-to-moderate risks, with some inclusions of high-risk areas (Figure XCVII). Within the City of St. Maries, developments are located on sites rated as moderate for expansive soils. Large expanses of the St. Joe River floodplain are rated as moderate-to-high risks to expansive soils for residential without basements. Beyond the St. Joe River basin, looking north, areas of the low risk are interrupted by areas of high risk. One such area is crossed by State Highway 3 near the Kootenai High School. Several of these inclusions are seen.

The profile for light commercial structures (and Residential with a basement) are rated similar to the light residential analysis within the St. Joe River Valley floodplain (Figure XCVIII). However, when observing the areas north of the river bottom, the risk increases from low to moderate across much of this region, with the areas of high risk remaining fairly constant.

In this entire area, expansive soil pre-construction building techniques should be considered for all new structures to integrate recommendations. Even low-risk soils in the Upper Columbia Plateau can respond with adverse results if the soil moisture is not moderated at near-constant levels.

5.4.3.5. Wildfire

The lower St. Joe River Valley is surrounded by elevated scores of Fire Prone Landscapes assessment (Figure XCIX, Table 43, Table 44). The forestlands that are so attractive also present some level of risk from wildfire spread. Past wildfires have threatened this region. The 1910 wildfire extended to the northern shores of the St. Joe River, but did not reach to the southern shore.

Numerous wildfire ignitions have been recorded in these areas during the past 20 years, but all have been controlled while still below 2 acres. Recognition of wildfire risks by the residents of the region has been evidenced by the implementation of wildfire fuels mitigation efforts over the past 10 years. Many residential areas display mature conifers, shrubs, and grasslands. Left unmitigated, these areas could pose an increased risk to wildfire losses.

Figure XCI. Aerial Imagery of St. Maries, 2009.

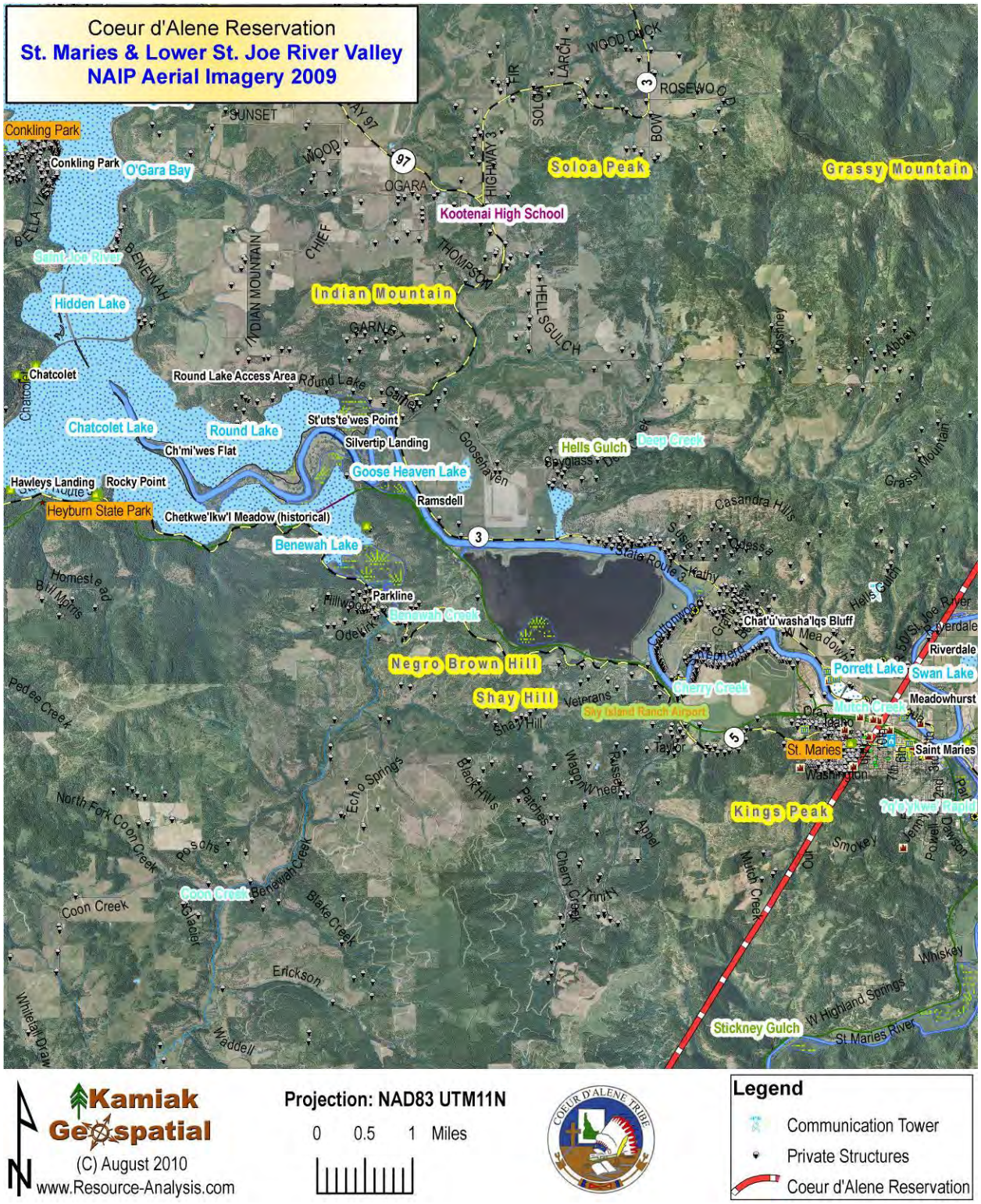


Figure XCII. Topographic Relief of St. Maries.

Figure XCIII. Population Density Assessment in St. Maries.

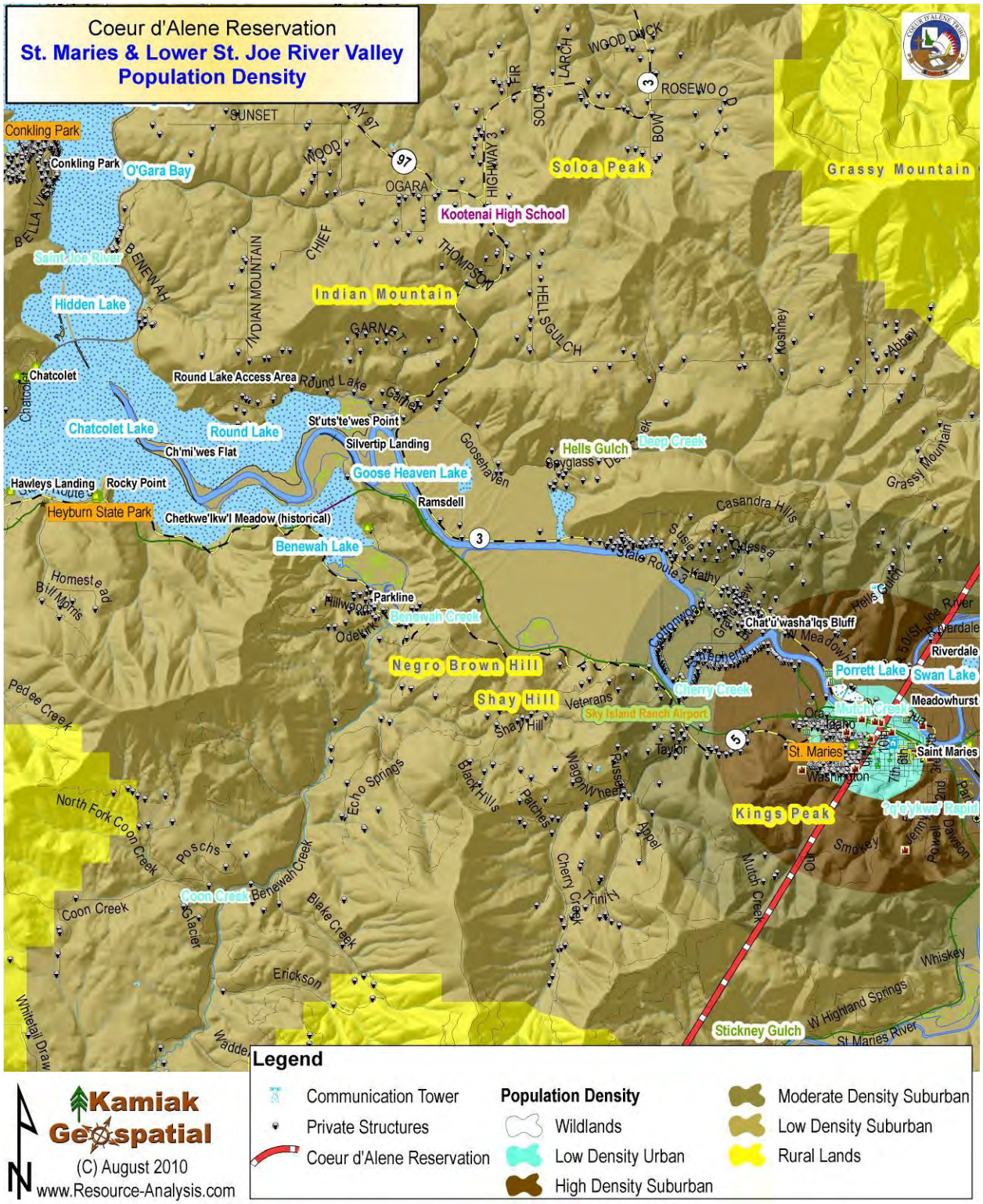


Figure XCIV. Floodplain Mapping of St. Maries.

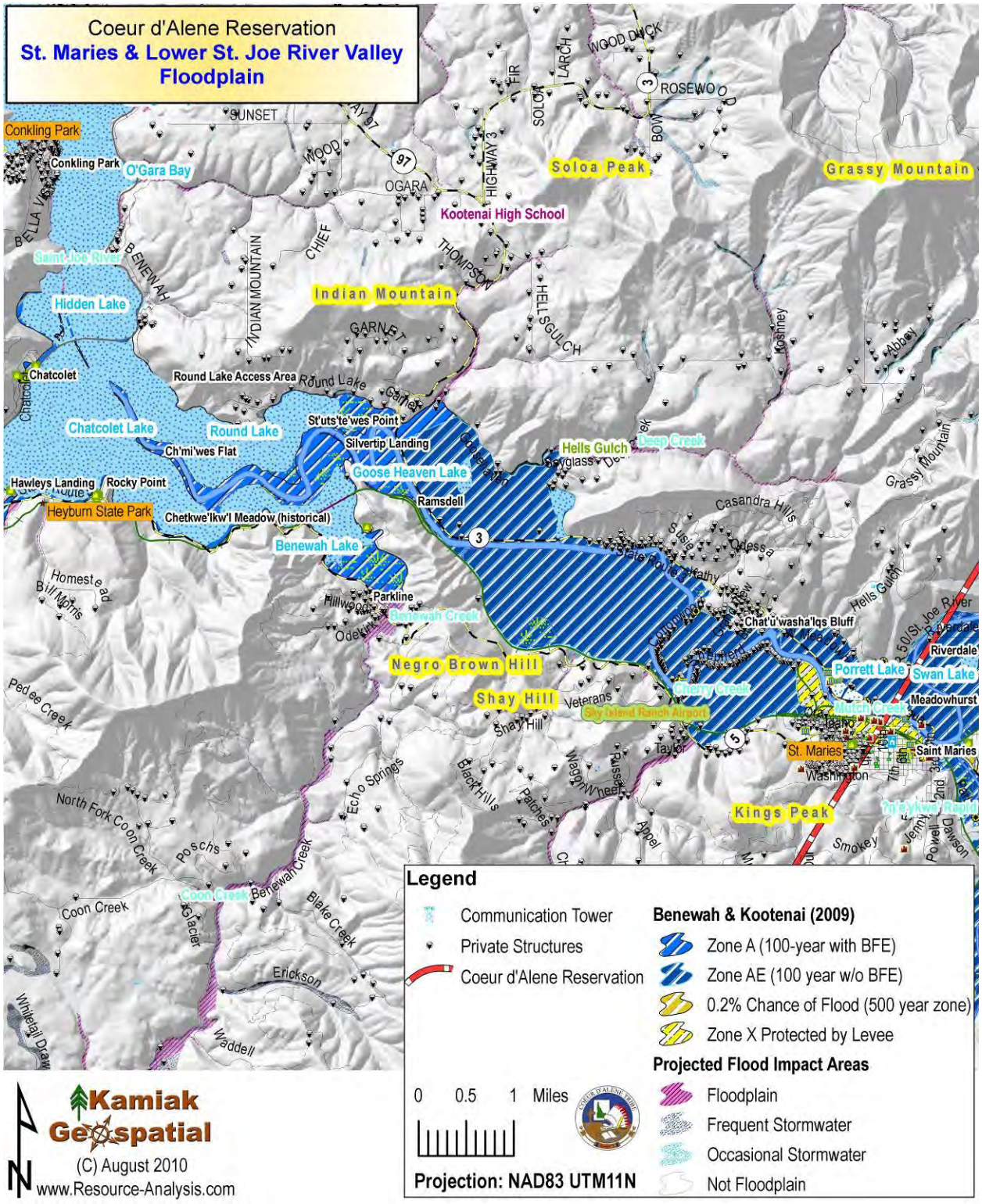


Figure XCV. Seismic Stability & Fault Lines in St. Maries.

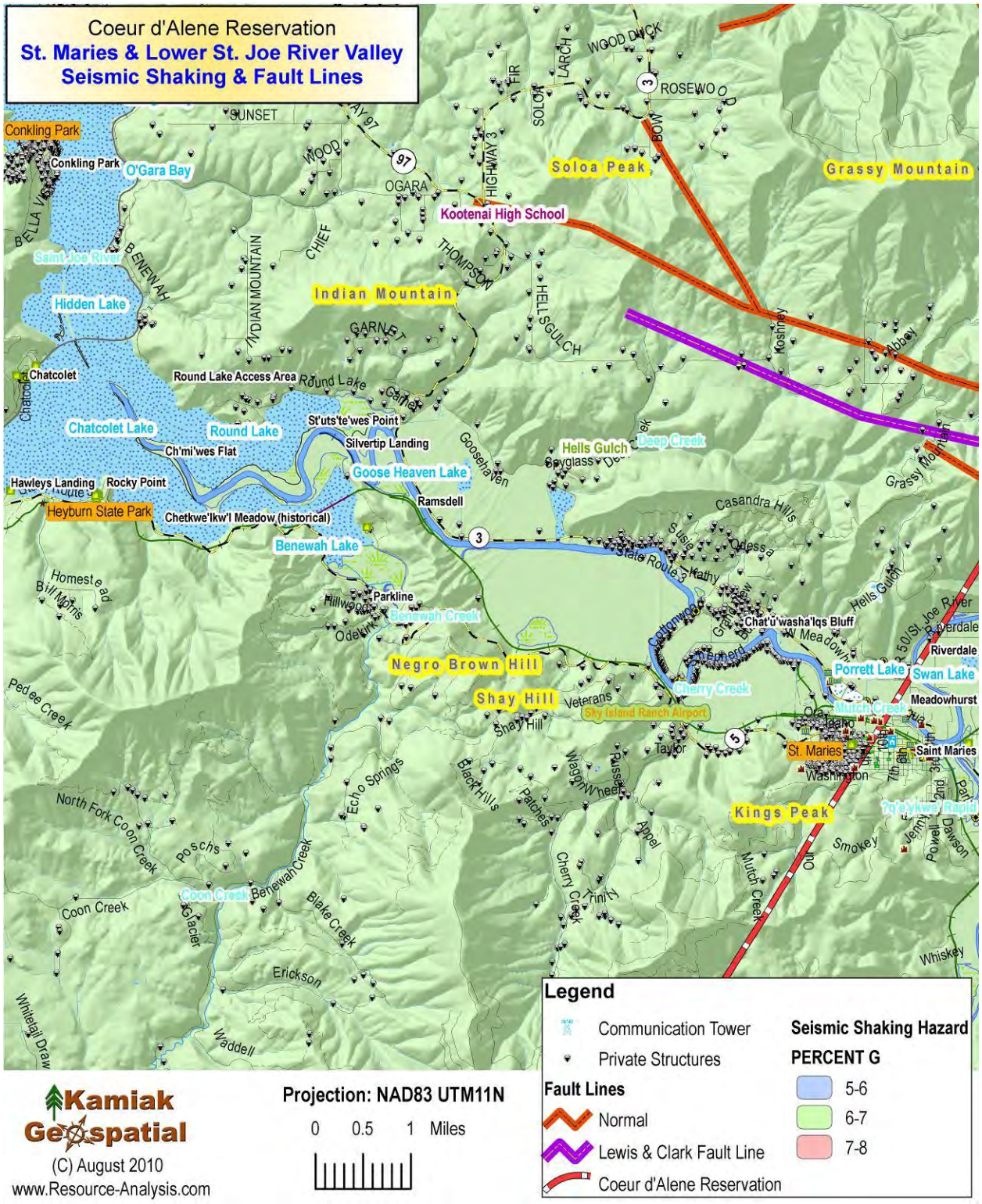


Figure XCVI. Landslide Prone Landscapes in St. Maries.

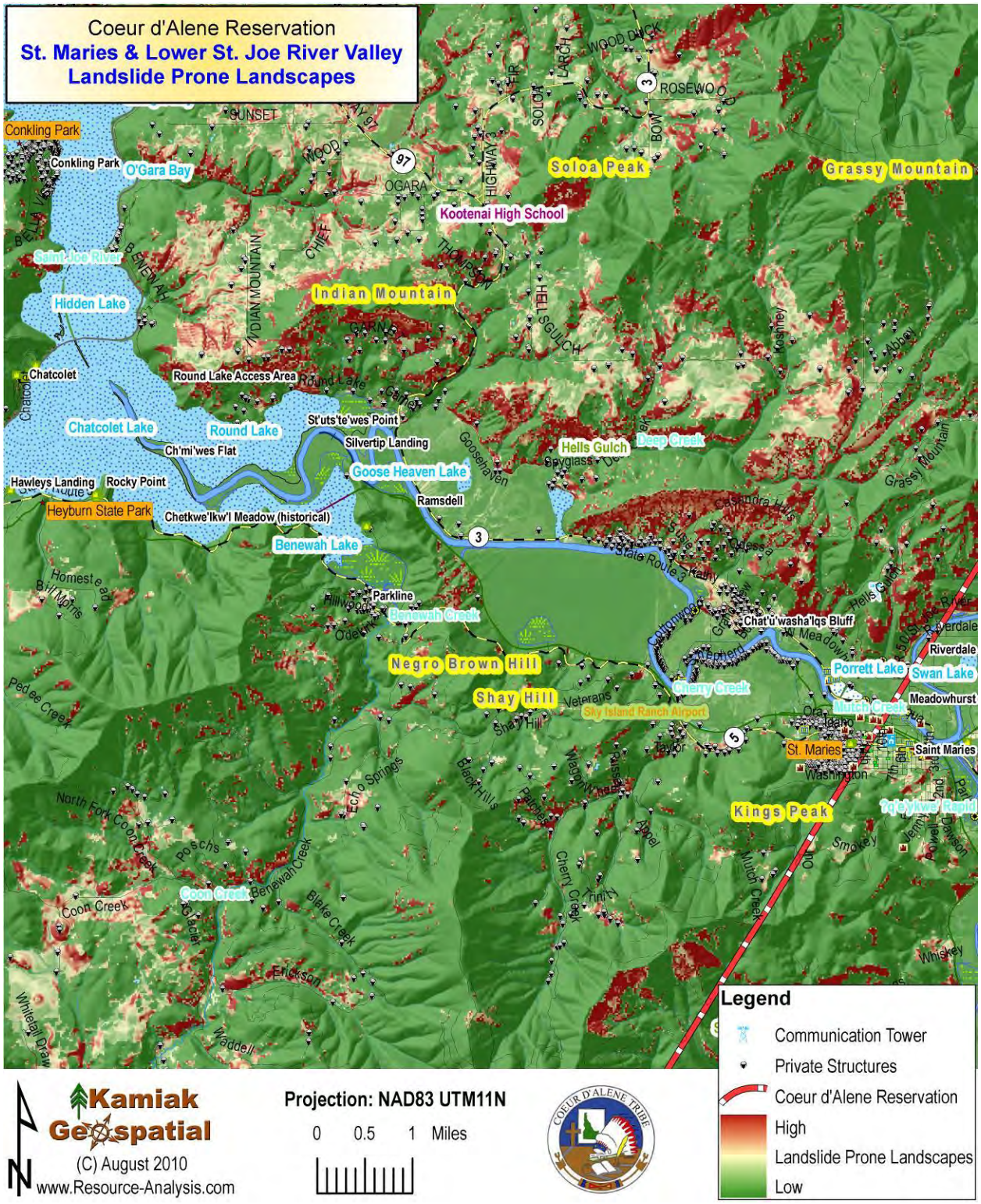


Figure XCVII. Expansive Soils and Expansive Clays – Residential without Basement Assessment in St. Maries.

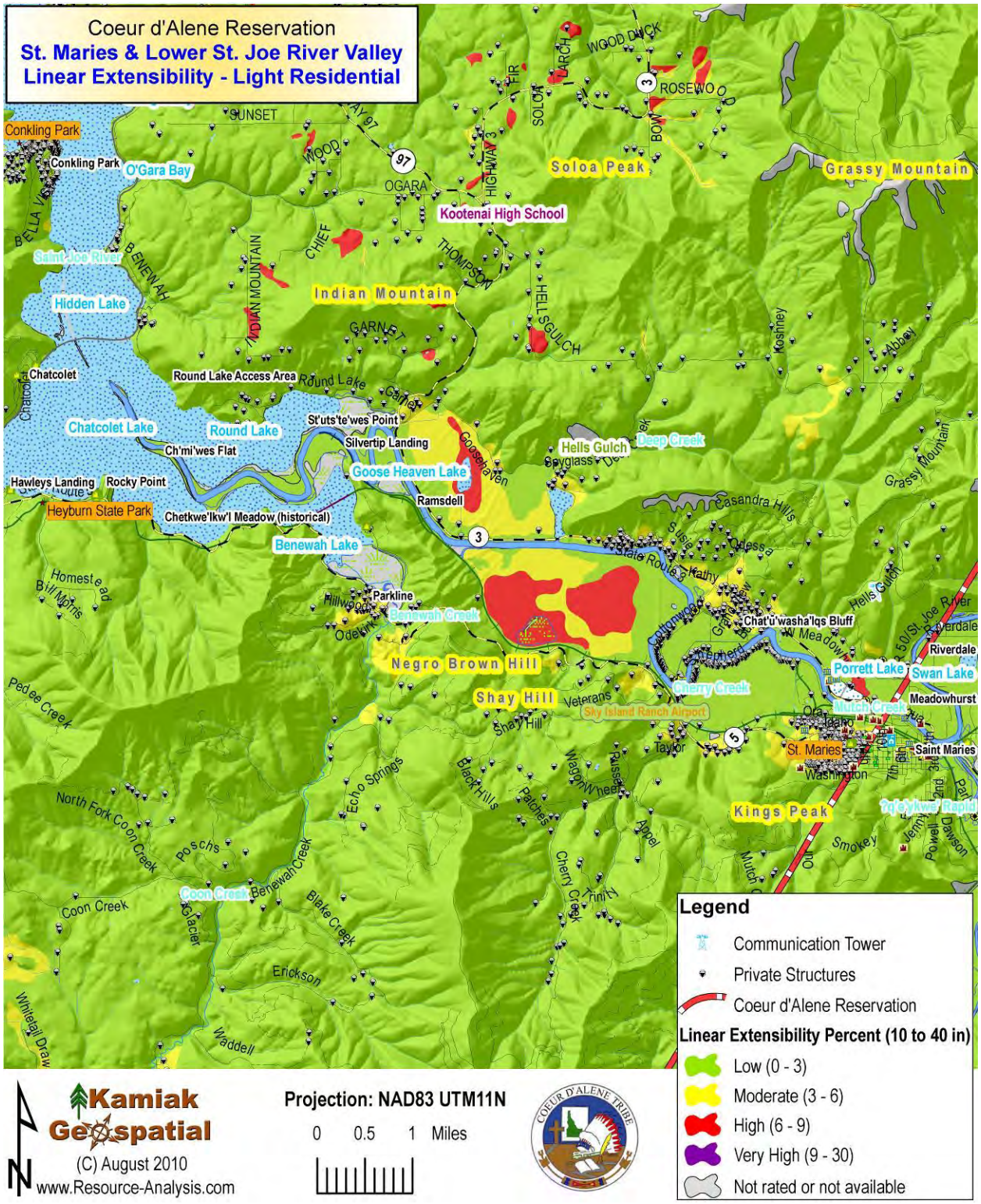


Figure XCVIII. Expansive Soils and Expansive Clays – Light Commercial Assessment in St. Maries.

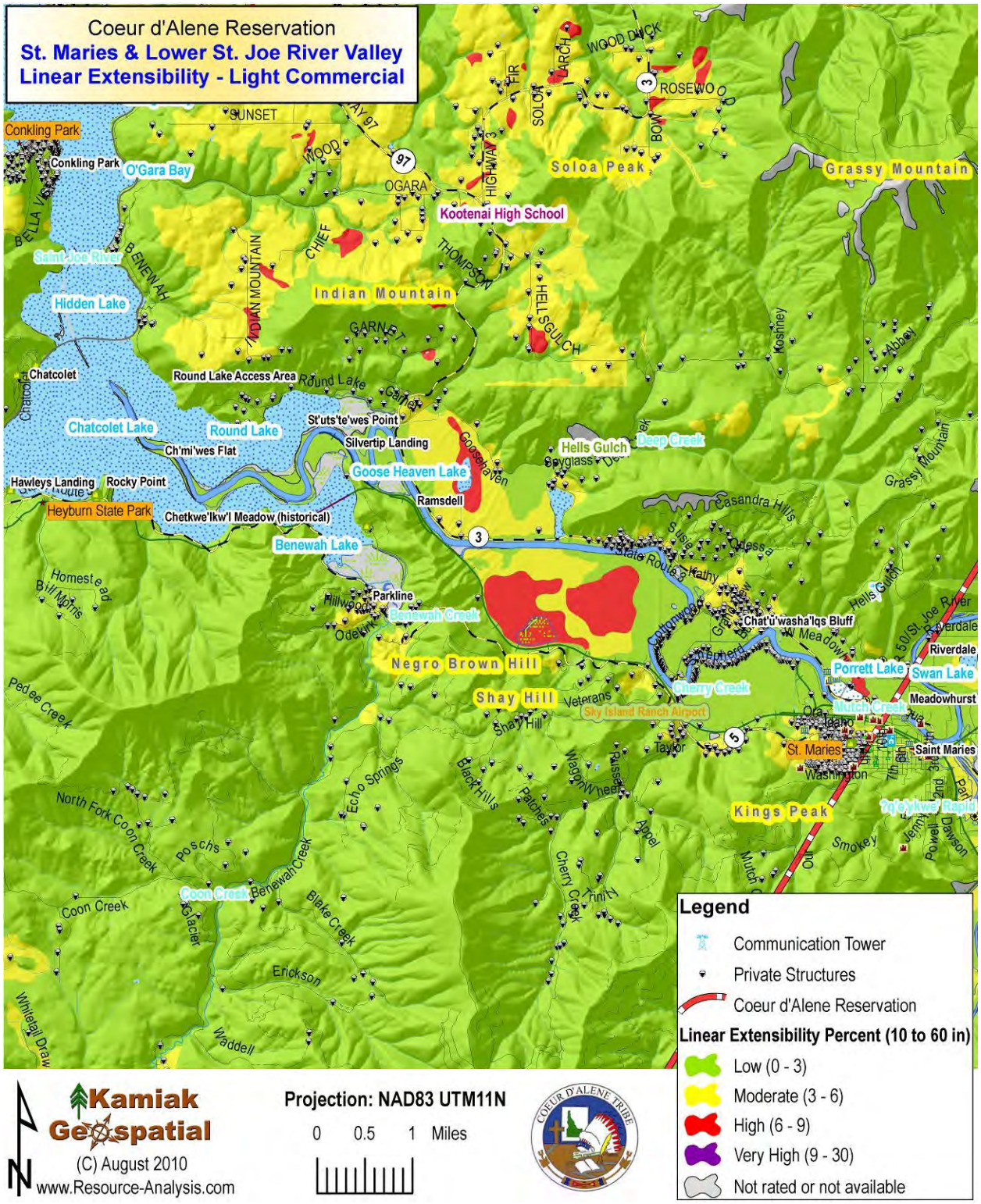
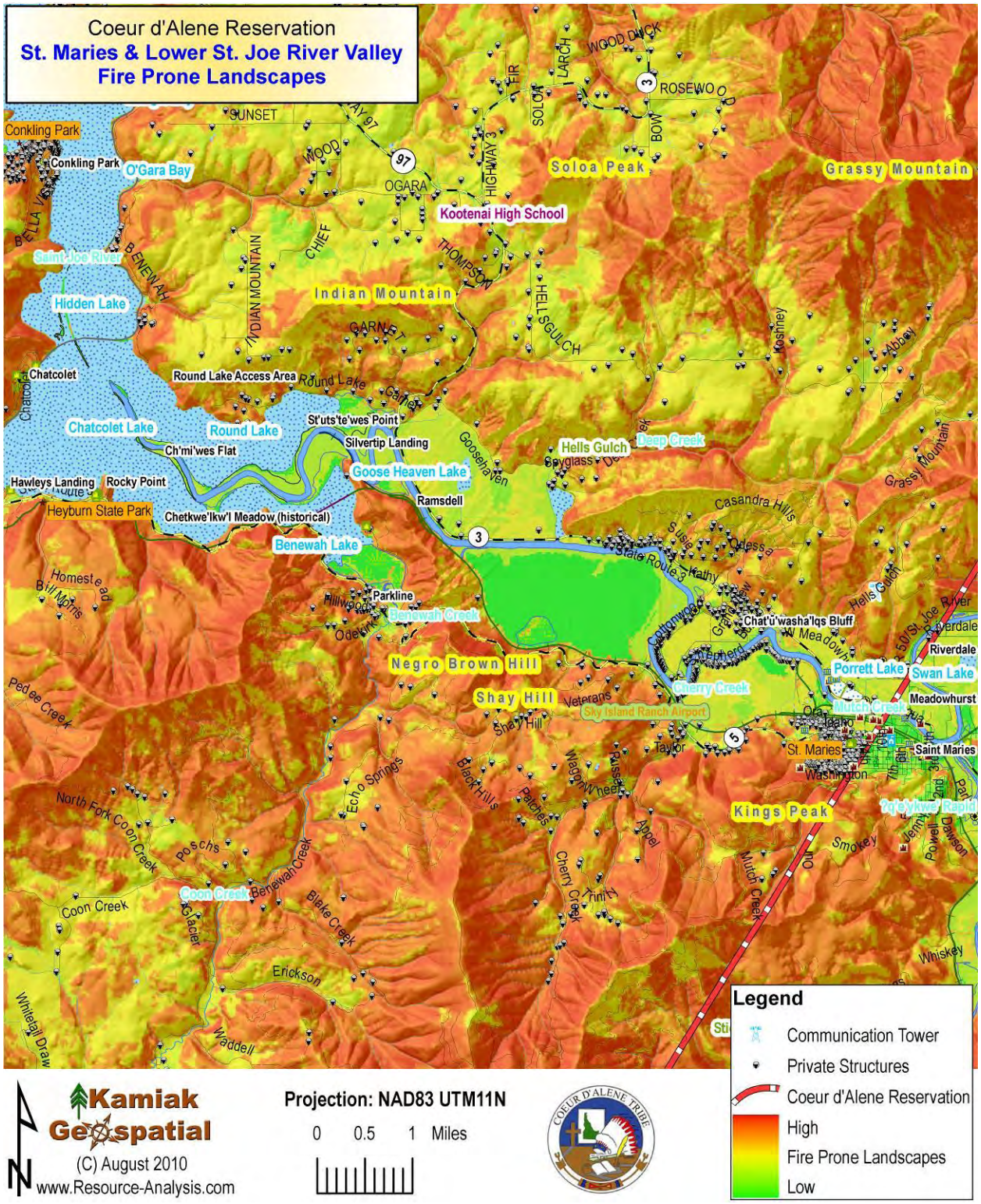


Figure XCIX. Fire Prone Landscapes in St. Maries.



5.4.4. Worley

The City of Worley is the most northerly incorporated city within the Coeur d'Alene Reservation (Figure C). The Coeur d'Alene Tribe manages many structures for Tribal housing use within this city and adjacent to it. Located to the north of Worley Butte and McCartney Butte, the location is picturesque. The Circling Raven Golf Club is located northwest of Worley adjacent to Rock Creek and is accessed by US95. This main infrastructure route, in addition to Highway 58, provides access to visitors of the Tribal Casino for day trips and extended stays.

5.4.4.1. Flood Risks

Flood risks along Rock Creek and within Worley have been mapped as part of this planning effort (Figure CIII, Table 27, Table 28). FEMA has not determined the location of the floodplains in this area. The total value of privately owned structures is approximately $995,000, and approximately $757,000 of non-privately owned structures in this area within the floodplain. While these values seem significant, they are only a portion of the total value of structures attributed to Worley as their 'closest community'. Very few of the structures shown in Figure CIII are located within the floodplain illustrated here.

The City of Worley, like Tensed, DeSmet, and Plummer, has a wastewater treatment facility located within the floodplain and adjacent to the city. The Coeur d'Alene Tribe has recently been working with the city to locate a new facility location, outside the floodplain, in order to retire the existing facility.

The Circling Raven Golf Club located downstream of the City of Worley represents an excellent land use adjacent to the Rock Creek Floodplain.

5.4.4.2. Seismic Shaking and Fault Lines

The seismic shaking risk within and around Worley is moderate, 6-7%G (Figure CIV and Table 30). Only one fault line is near the community, and it is located south of Worley Butte, part of the matrix of fault lines located around Plummer.

The exposure to earthquakes in the areas surrounding homes and businesses near Worley are documented in Section 5.3.4, Seismic Shaking Hazards.

5.4.4.3. Landslides

Landslide risk assessments surrounding Worley and surrounding areas are responsive to the topographic relief of the area. In the immediate vicinity to Worley, the risks are rated as very low (in response to the relatively flat terrain), while isolated places show higher risk attributes in response to steep slopes (Figure CV). This area possesses a dividing line between rich farming lowlands and forested uplands. Where forestry practices remove the stable vegetation, the sites can respond with localized landslides, slumping, and erosion. The soils in this area are derived from loess parent materials and can respond to rapid erosion when vegetation is removed and the slopes are steep.

Landslides within this area have been rare, and isolated to small events.

5.4.4.4. Expansive Soils

Expansive soils and expansive clays within the area of Worley, for light residential (without basements) feature a mix of low-to-moderate risks (Figure CVI). Within the City of Worley, and in adjacent areas, developments are located on sites rated as moderate for expansive soils.

The profile for light commercial structures (and Residential with a basement) is rated as almost uniformly a moderate risk (Figure CVII). Several areas rate the sites as high in risk for both

analyses of expansive soils, most of these are located north of Rock Creek. The home depicted in Figure LII (pg 210) was photographed in Worley, and was erected on a moderate risk site. This home is a residential category with a basement, but the draining of the gutters through their downspout onto the ground at the corner of the foundation led to the shrinking and swelling of the soils, and the cracking of the foundation.

In this entire area, expansive soil pre-construction building techniques should be considered for all new structures to integrate recommendations. Even low risk soils in the Upper Columbia Plateau can respond with adverse results if the soil moisture is not moderated at near-constant levels.

5.4.4.5. Wildfire

Structures located within Worley and within the fields surrounding it, are located within a mix of low risk to wildland fire, to moderate and high risks (Figure CVIII, Table 43, Table 44). The homes located within the agricultural lands are at low risk for most of the year and the resistance to wildfire control is minimal. The homes located within and adjacent to the City of Worley, especially to the south of it, are all within a contiguous zone of elevated forestlands and wildfire fuels. Although fuel mitigation efforts have been implemented in this zone, many are in need of continued treatments and others need initial treatment.

Forest management in the area of Worley Mountain and McCarthy Butte have maintained relatively healthy forests with ample surface infrastructure to use during wildfire response. Continued attention by the Coeur d'Alene Tribe Fire Management staff is given to this area with respect to the homes located adjacent to the buttes.

Figure C. Aerial Imagery of Worley, 2009.

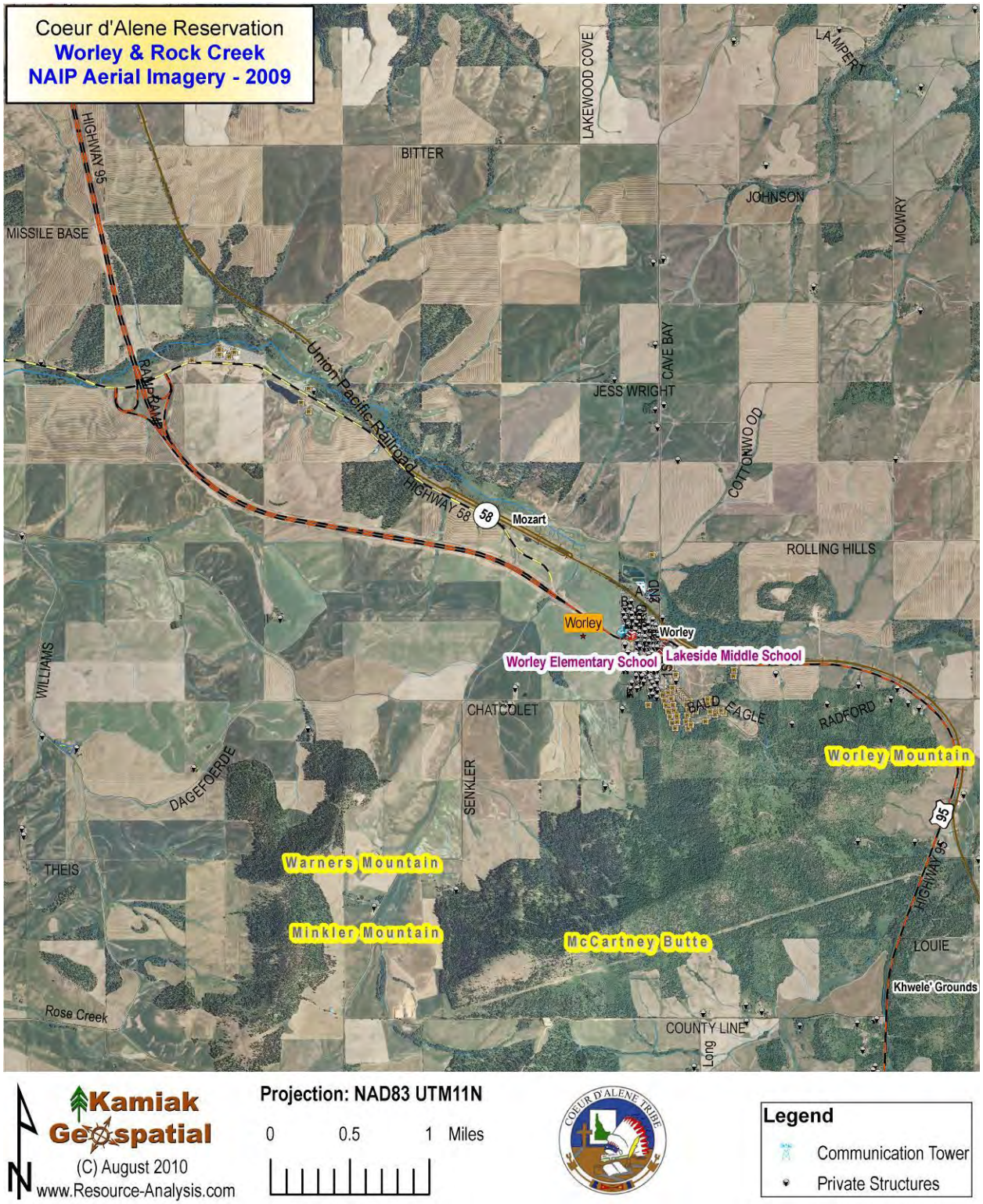


Figure CI. Topographic Relief of Worley.

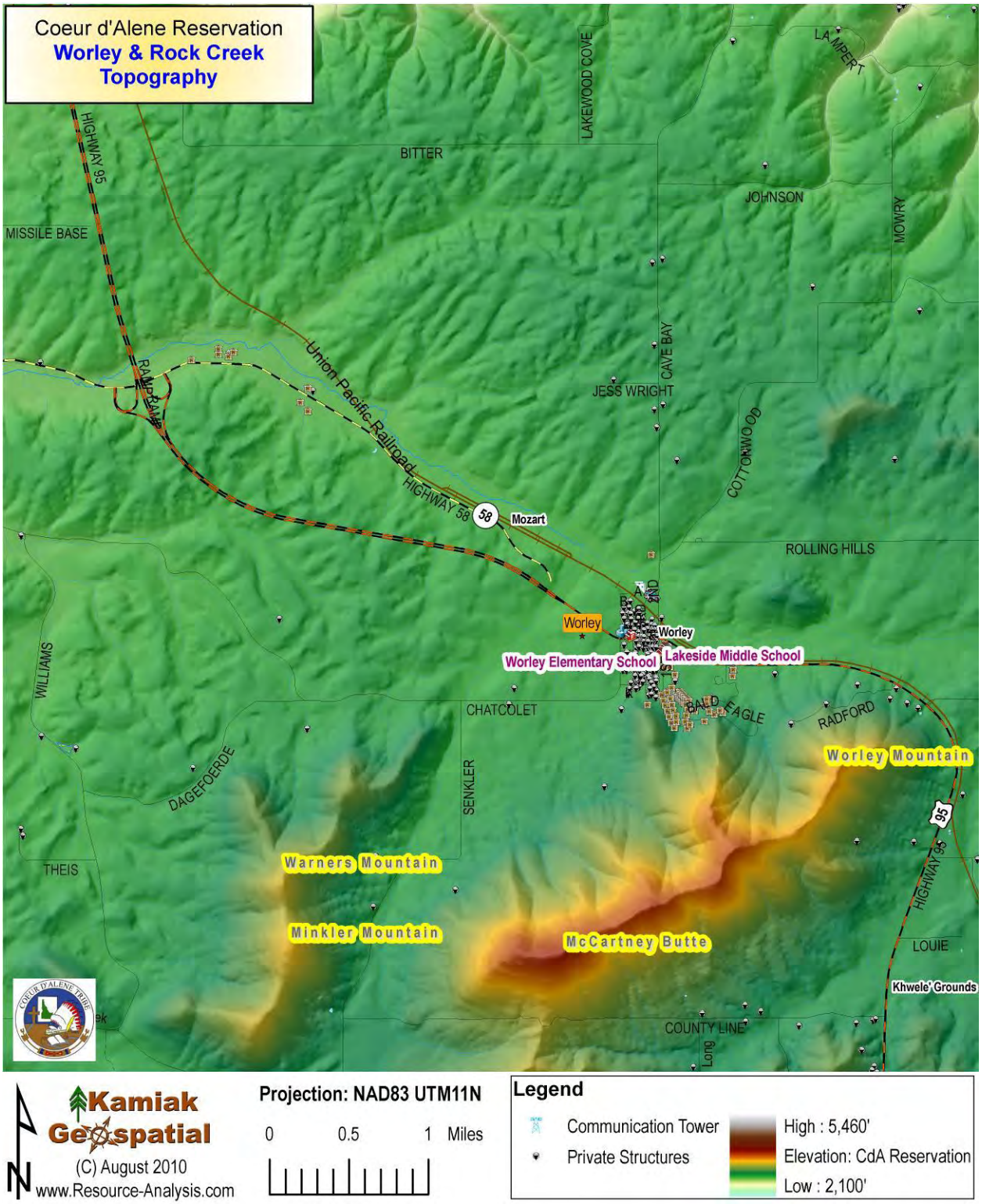


Figure CII. Population Density Assessment in Worley.

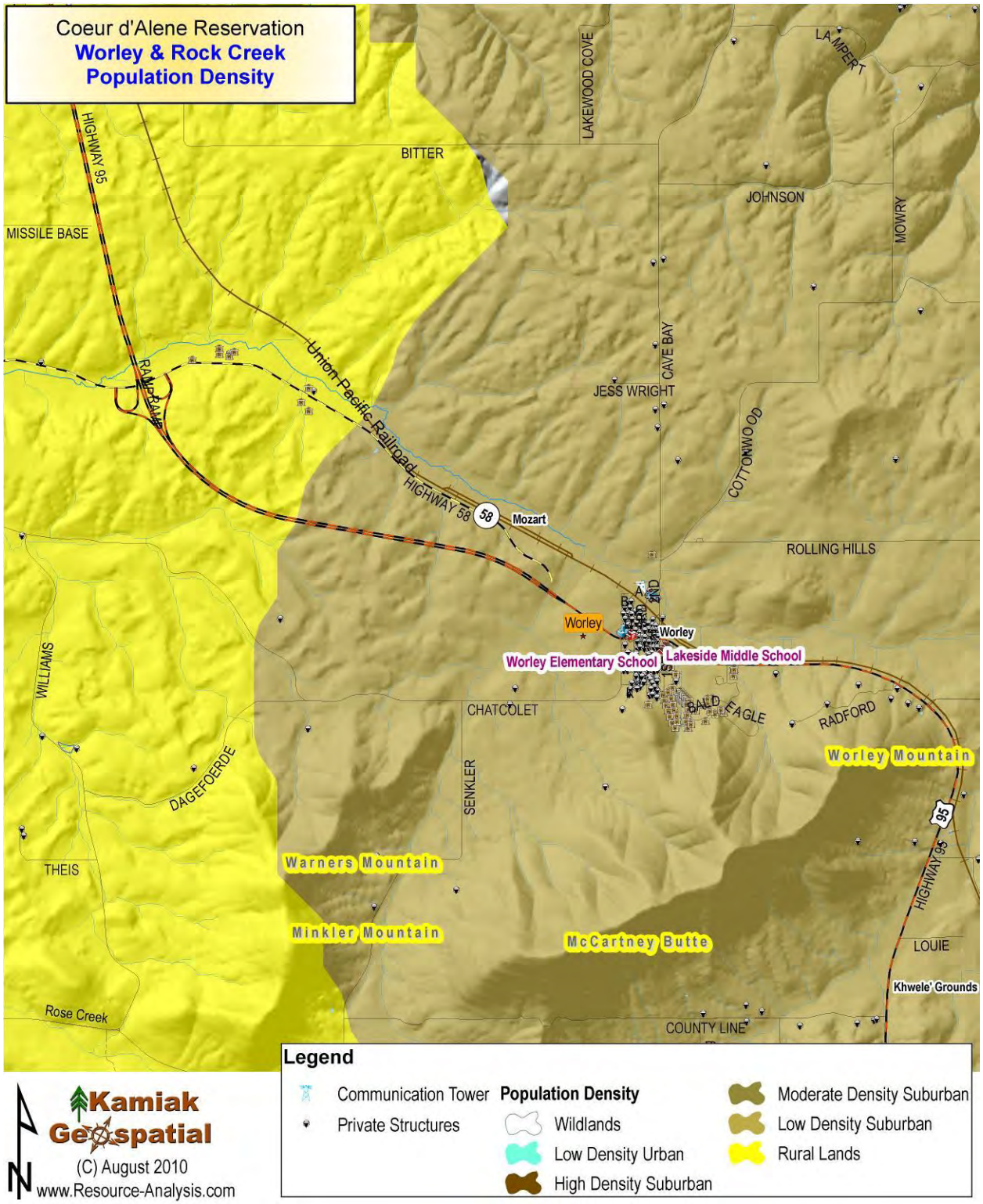


Figure CIII. Floodplain Mapping of Worley.

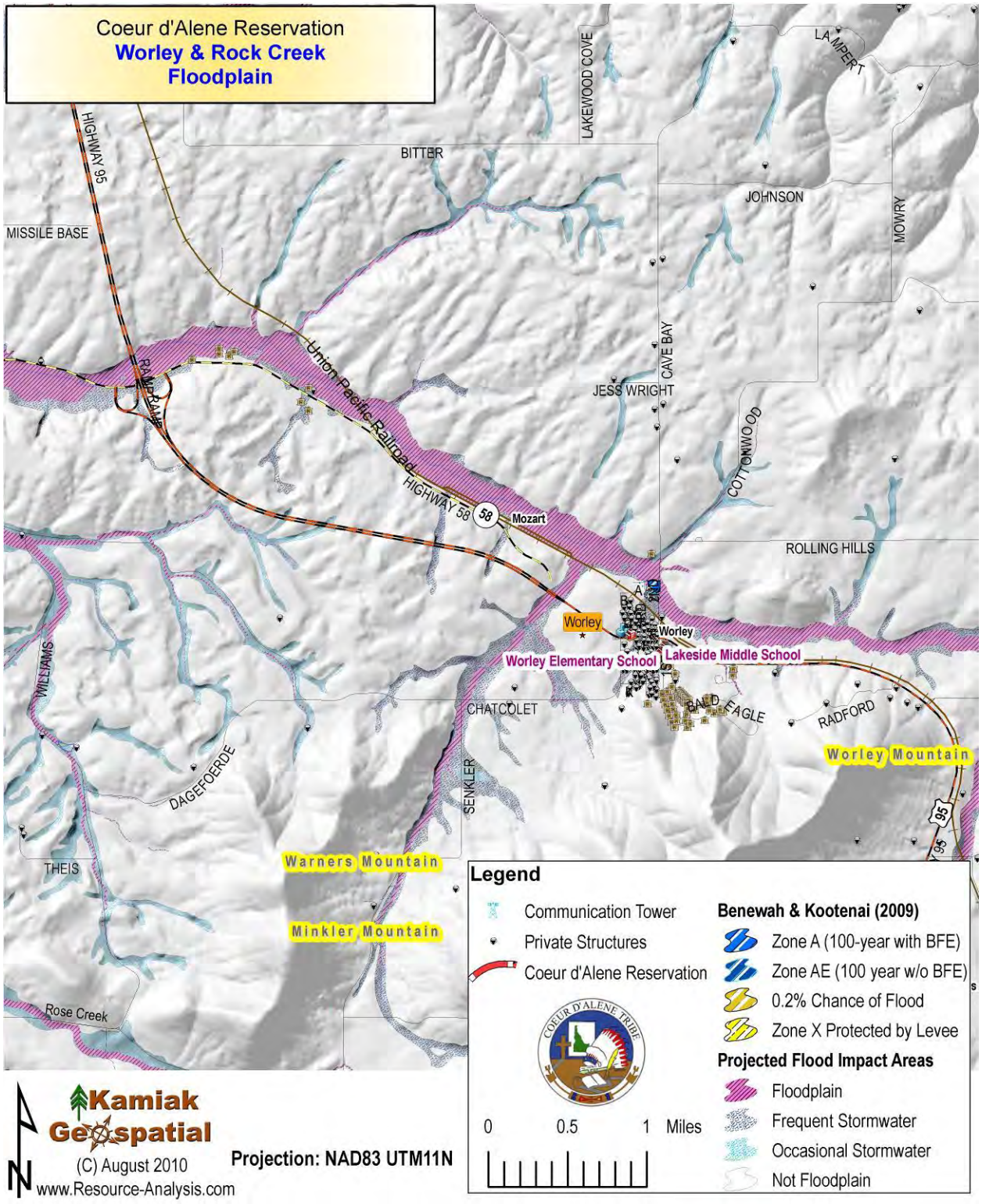


Figure CIV. Seismic Stability & Fault Lines in Worley.

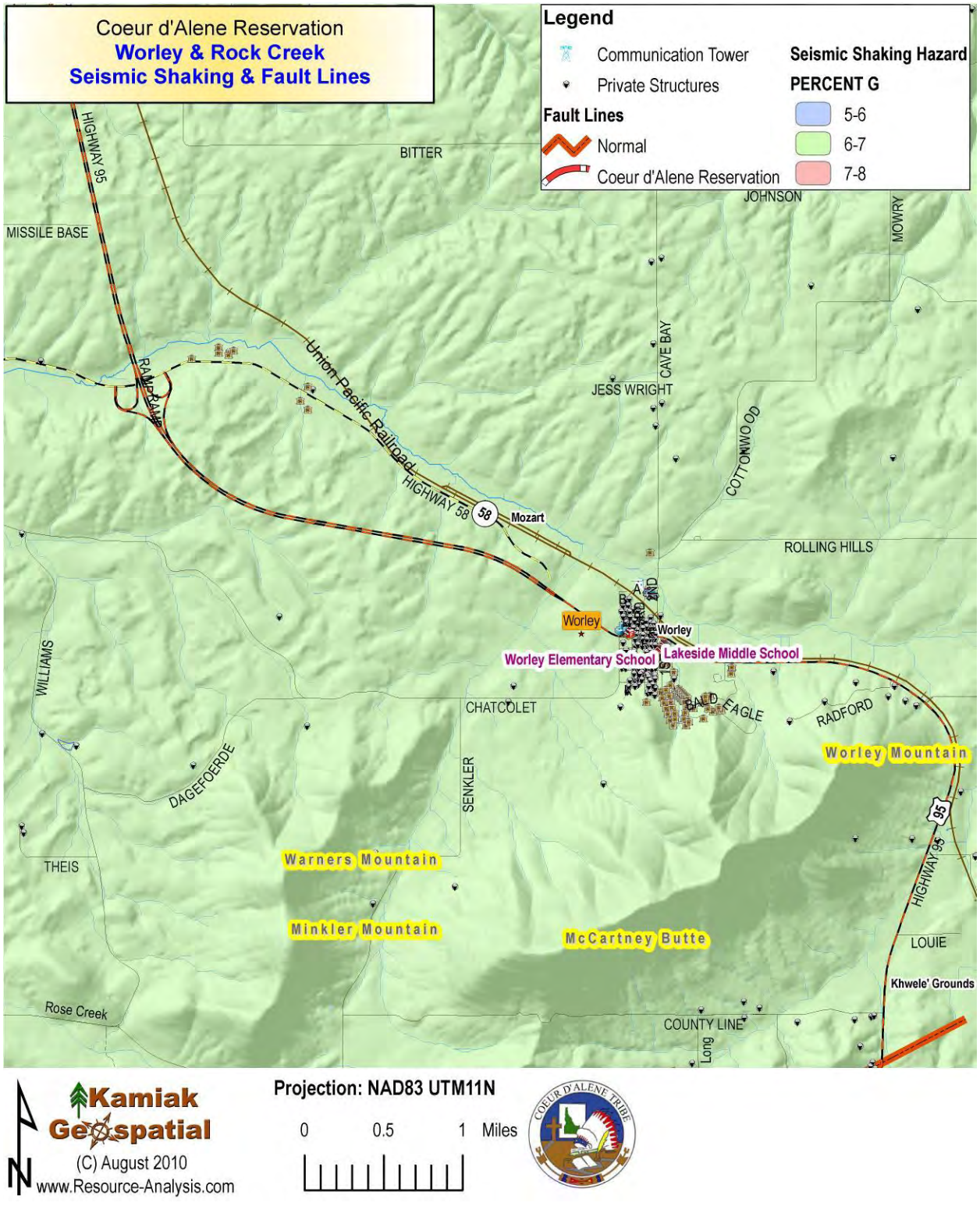


Figure CV. Landslide Prone Landscapes in Worley.

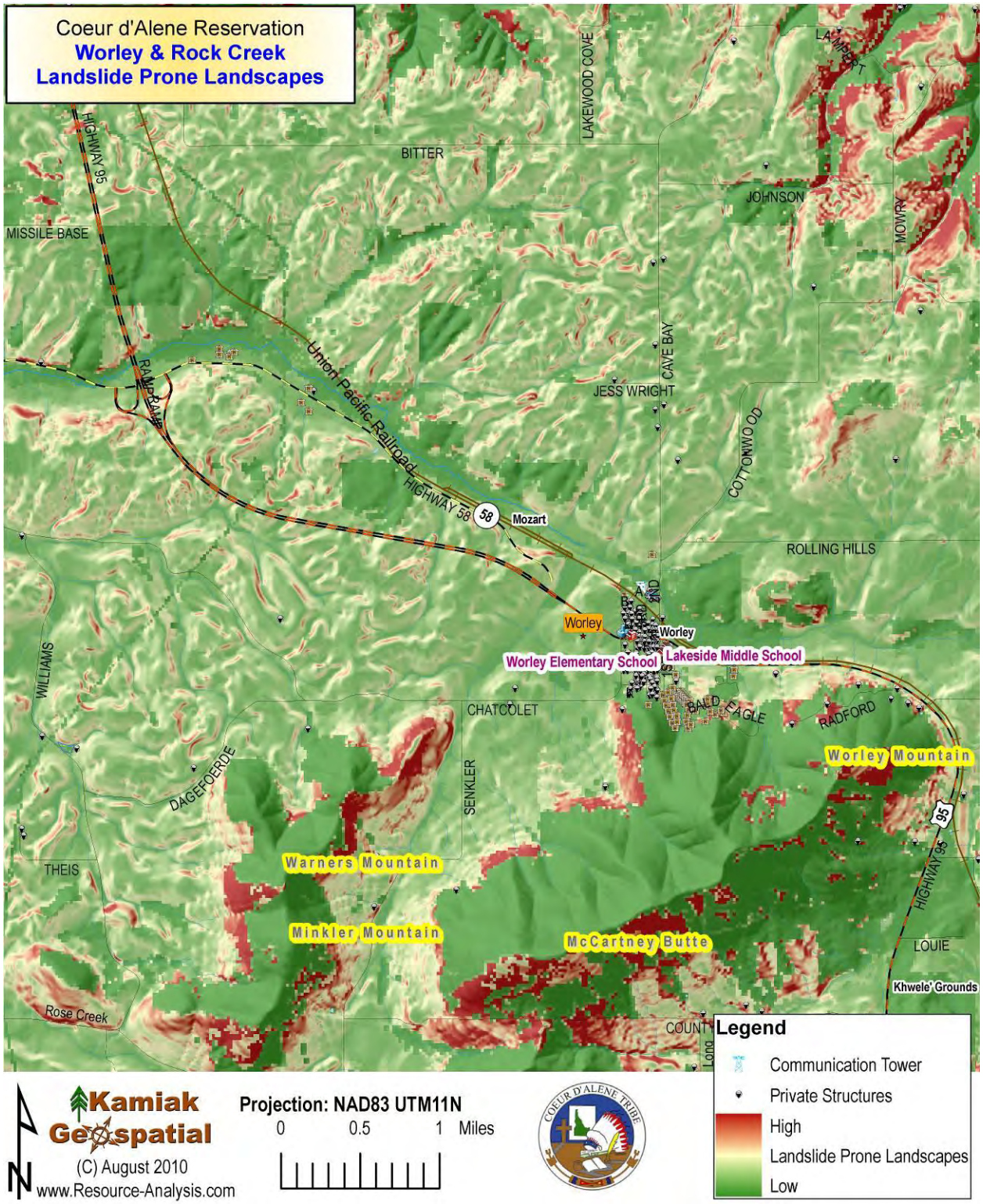


Figure CVI. Expansive Soils and Expansive Clays – Residential without Basement Assessment in Worley.

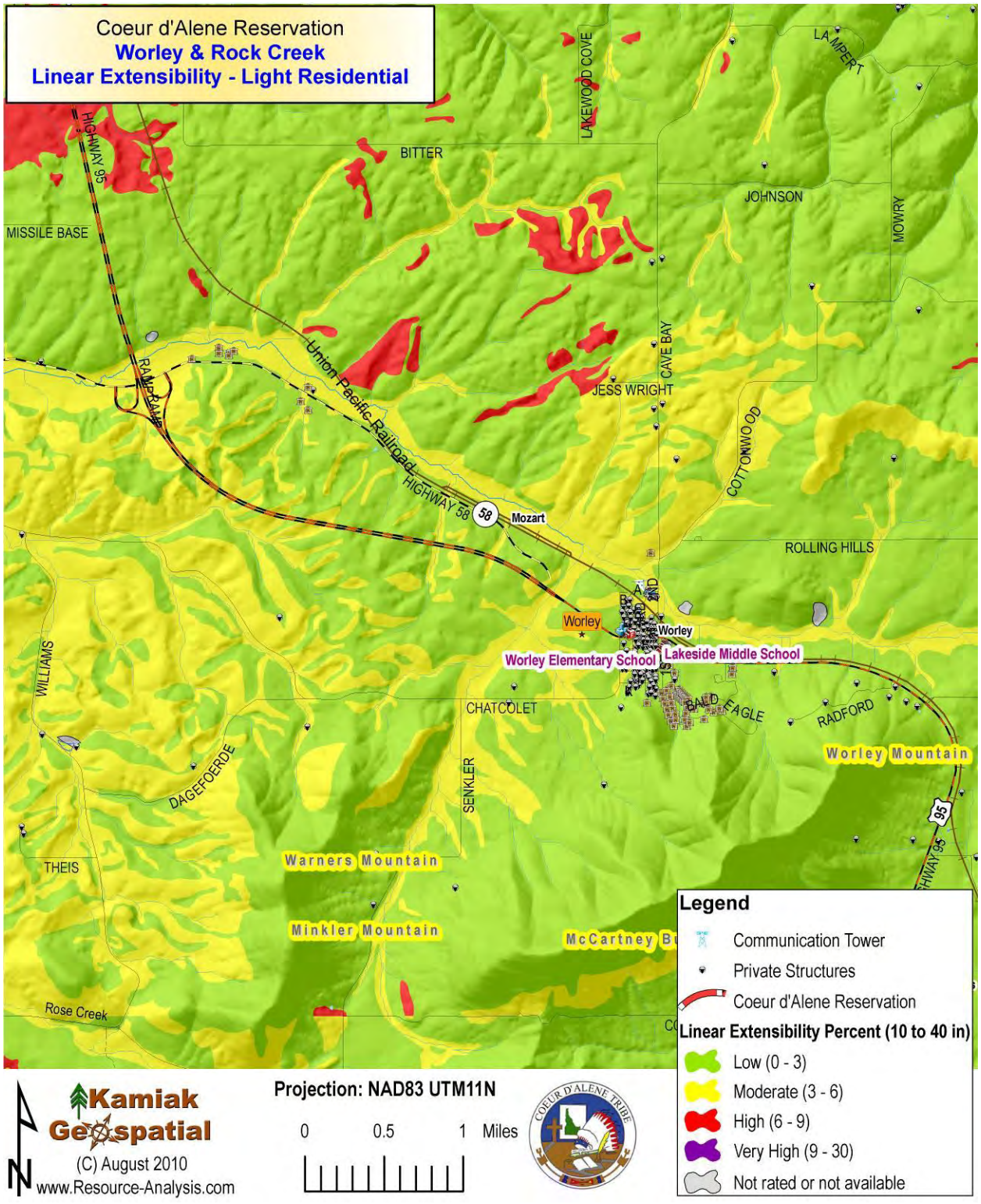


Figure CVII. Expansive Soils and Expansive Clays – Light Commercial Assessment in Worley.

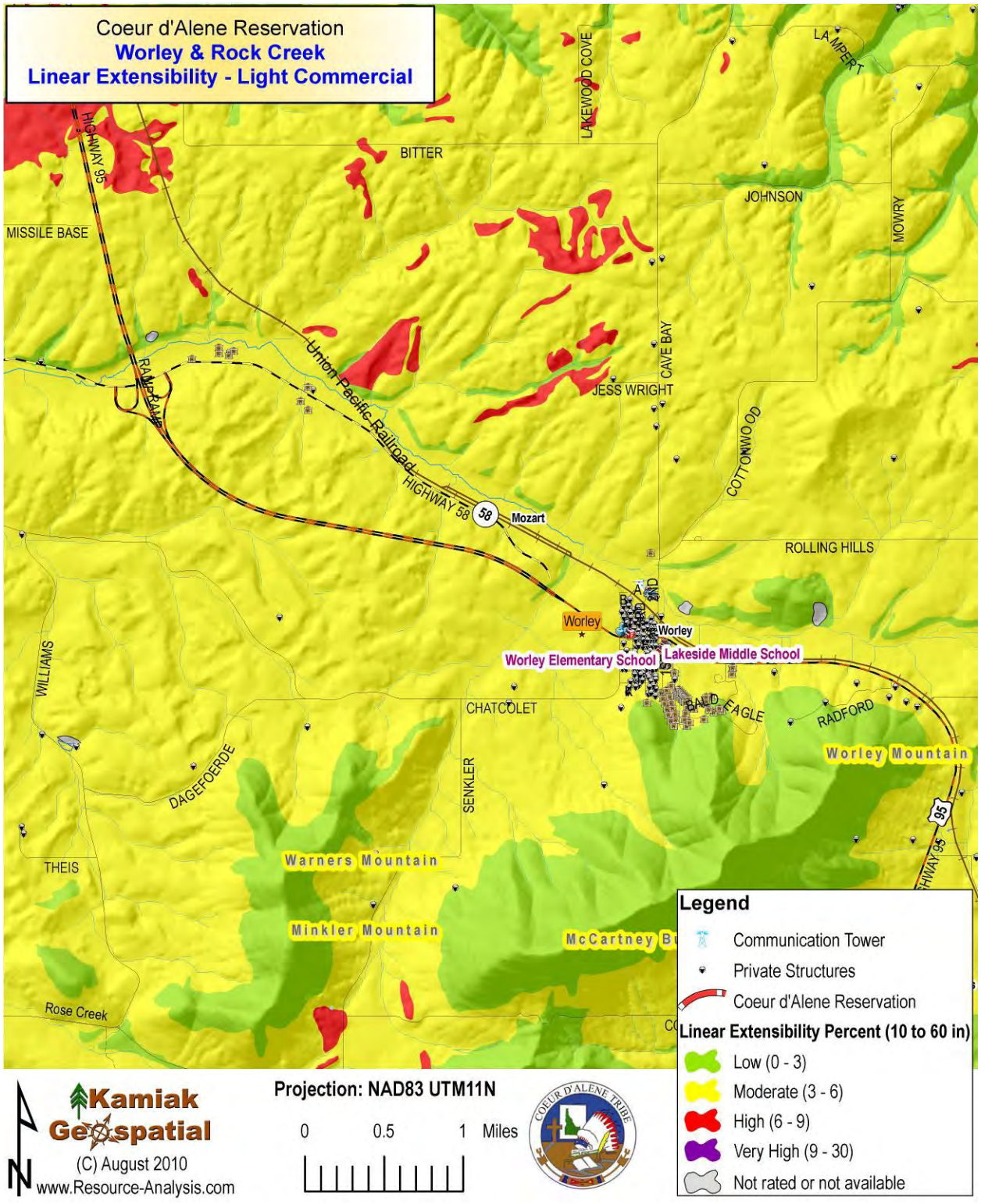
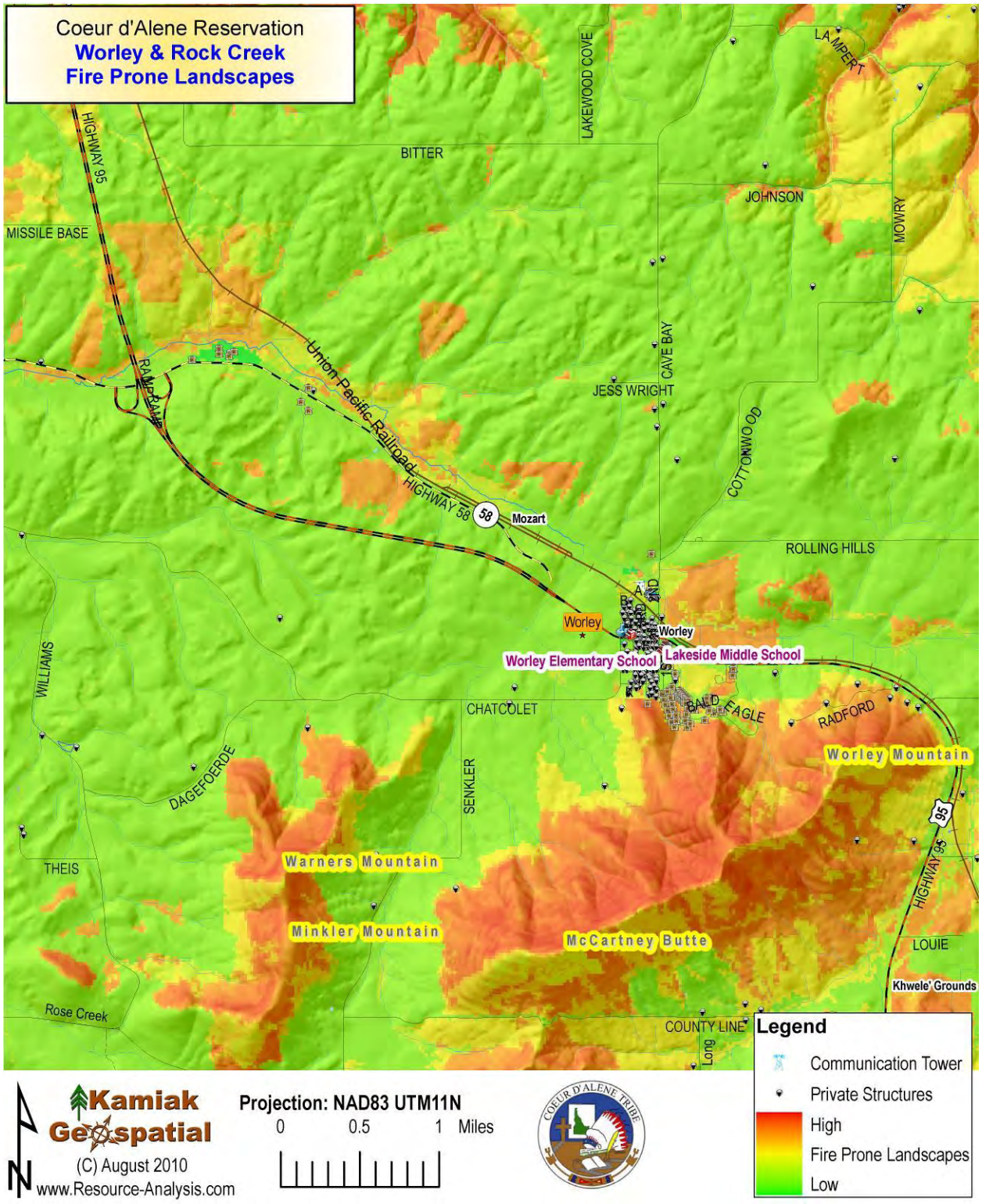


Figure CVIII. Fire Prone Landscapes in Worley.



5.4.5. Benewah Valley

The Benewah Valley has received increased development during the past 10 years as new homes are built in this area (Figure CIX). Two main access points to this valley are provided: one from near St. Maries (between Parkline and St. Maries) to the north, and the other from the west and US95 north of Tensed.

In comparison to the population density analysis conducted for this for this area in 2004, the similar analysis conducted for the current planning effort (Figure CXI) concluded that the population density at the northern end of the valley has increased substantially transitioning from a rural population density category to a low density suburban density.

As already defined in Section 5.3 (Macro Hazards), the risk exposure to high winds and seismic shaking hazards is uniformly high in the Benewah Valley, as well as the other populated places of the Coeur d'Alene Reservation. Native tree species surrounding homes are common; there are many homes with compromised roofing materials that would benefit from reinforcement against the wind and falling debris from surrounding trees. The prevalence of URM chimneys (**Error! Reference source not found.**) is well noted in this area.

5.4.5.1. Flood Risks

Flood risks in the Benewah Valley are attributed to Benewah Creek (Figure CXII, Table 27, Table 28). FEMA has not developed floodplain assessments of this valley. These floodplains indicate that very few structures along the Benewah Creek valley are located within the zone considered most at risk to flooding.

Stormwater accumulation within the Benewah Creek valley is very limited owing to the steep terrain and forested soils. All of the homes in this area use domestic septic systems; there are no public septic systems in this valley.

5.4.5.2. Seismic Shaking and Fault Lines

The seismic shaking risk within the Benewah Valley is moderate (Figure CXIII and Table 30). The distribution of fault lines is concentrated to the southern edge of this valley, with more to the north of the valley along the St. Joe drainage. Although most structures in this area use wood heat and support URM chimneys, there are no URM buildings.

5.4.5.3. Landslides

Landslide risk assessments in the Benewah Valley are responsive to the topographic relief of the area (Figure CXIV). This area is completely dominated by forestland vegetation with surface access provided by dirt and gravel roads. Site disturbances leading to landslides have been minimal and confined to isolated small events.

5.4.5.4. Expansive Soils

Expansive soils and expansive clays within the area of the Benewah Valley, for light residential (without basements - Figure CXV), and for light commercial structures (and Residential with a basement - Figure CXVI), are both characterized by low risks. The dominance of basaltic-derived soils in this valley leads to the reduced risks for this assessment.

5.4.5.5. Wildfire

Most of the structures located within the Benewah Valley area at moderate risk to wildfire (Figure CXVII, Table 43, Table 44). However, the surrounding terrain is covered by moderate-to-high risk wildfire fuels.

Homes scattered within this valley face elevated wildfire risks due to the continuous nature of the wildfire fuels coupled with poor access into and out of this valley. A local commentary about access to this valley refers to “a trip that would normally take 30 minutes (based on distance), takes 4 hours to complete in the Benewah Valley!” This problematic infrastructure challenges homeowners when evacuating the area with the firefighters trying to enter the site in an emergency. To further complicate the situation, the access is a lane-and-a-half gravel road with “as many potholes as it has raindrops”.

Some of the homes have received WUI fuels mitigation work, while others have not. Even some of those homes that have received fuels mitigation attention in the past are facing the need to ‘update’ the treatments and maintain an acceptable level of ‘protection’.

Figure CIX. Aerial Imagery of Benewah Valley, 2009.

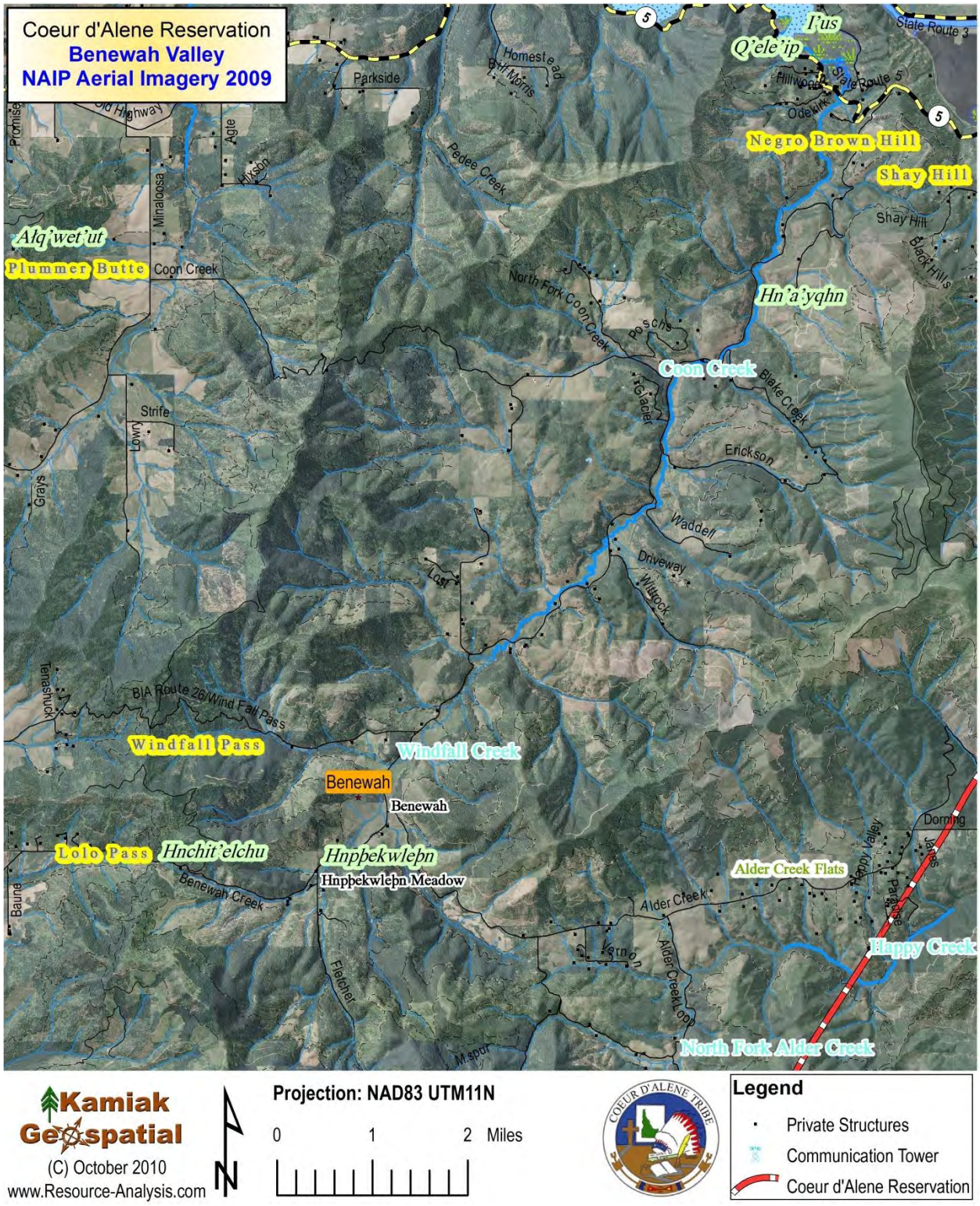


Figure CX. Topographic Relief of Benewah Valley.

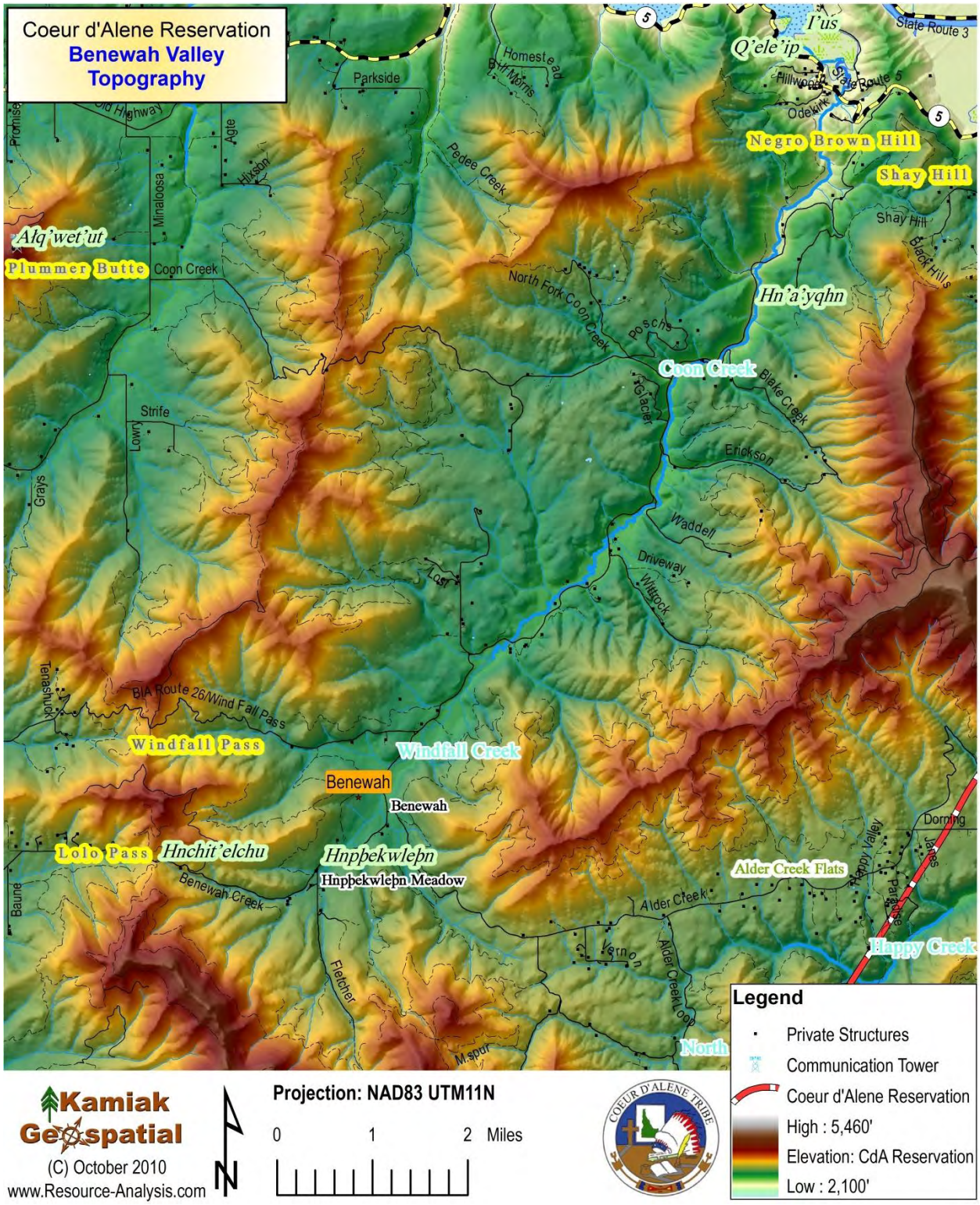


Figure CXI. Population Density Assessment in Benewah Valley.

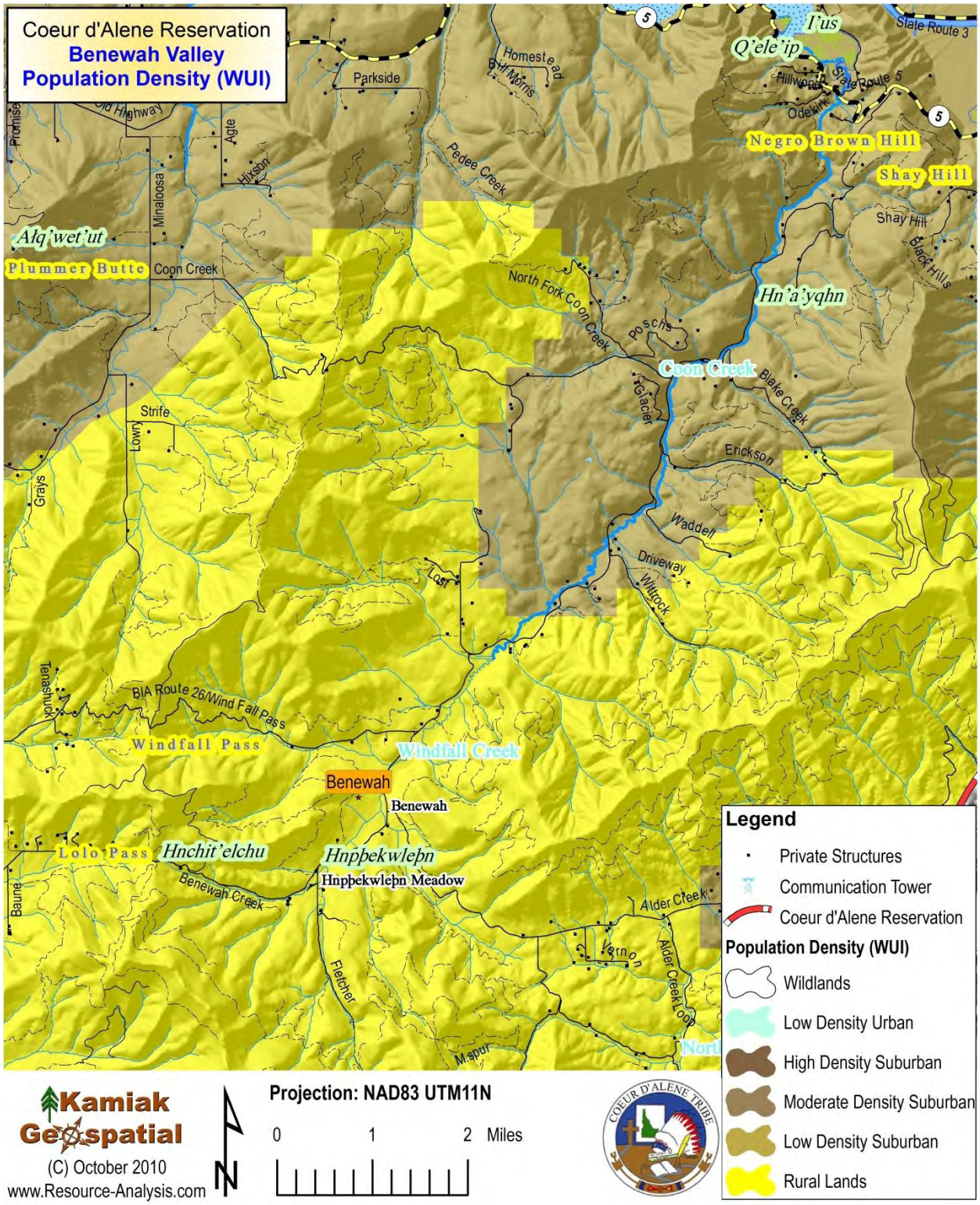


Figure CXII. Floodplain Mapping of Benewah Valley.

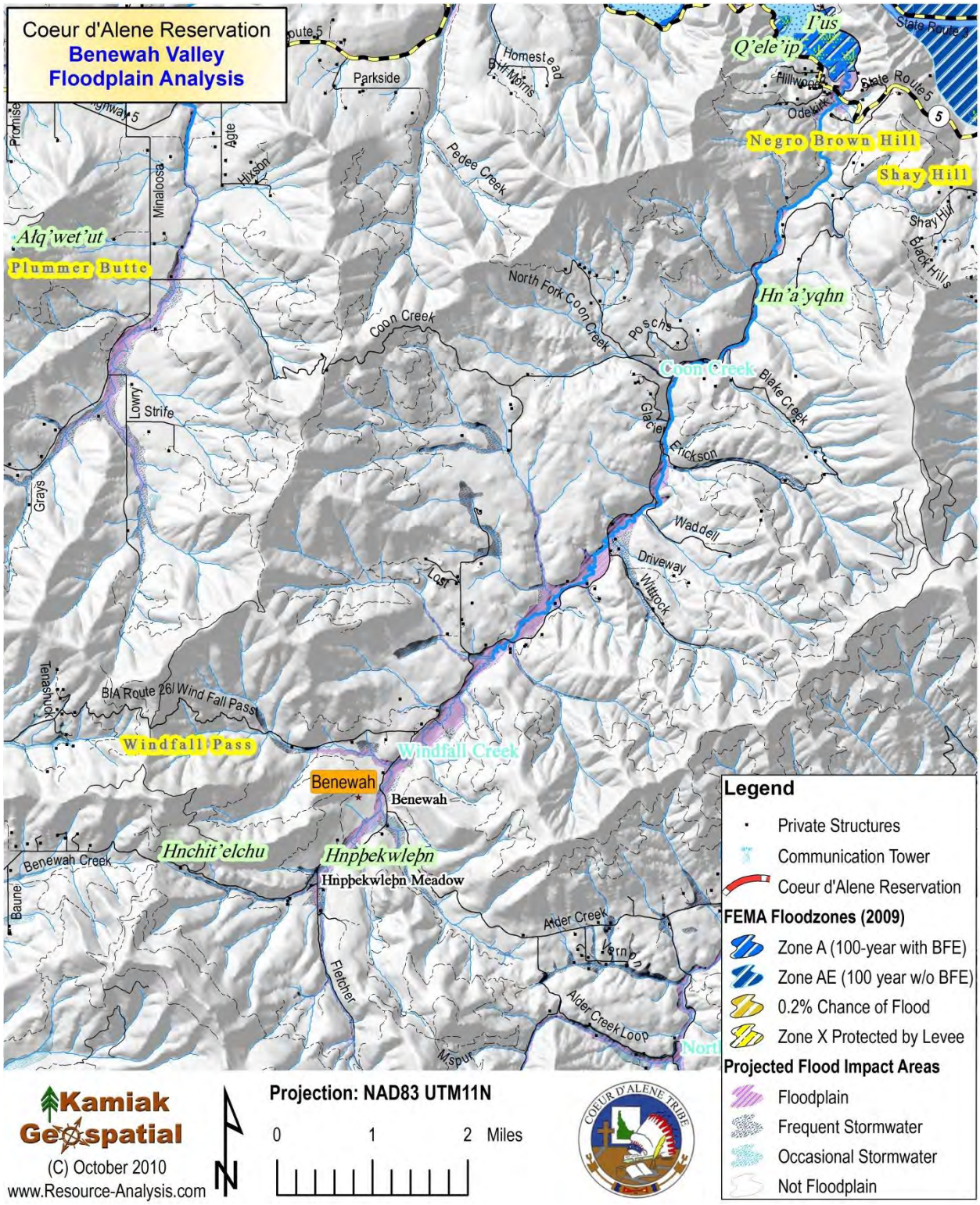


Figure CXIII. Seismic Stability & Fault Lines in Benewah Valley.

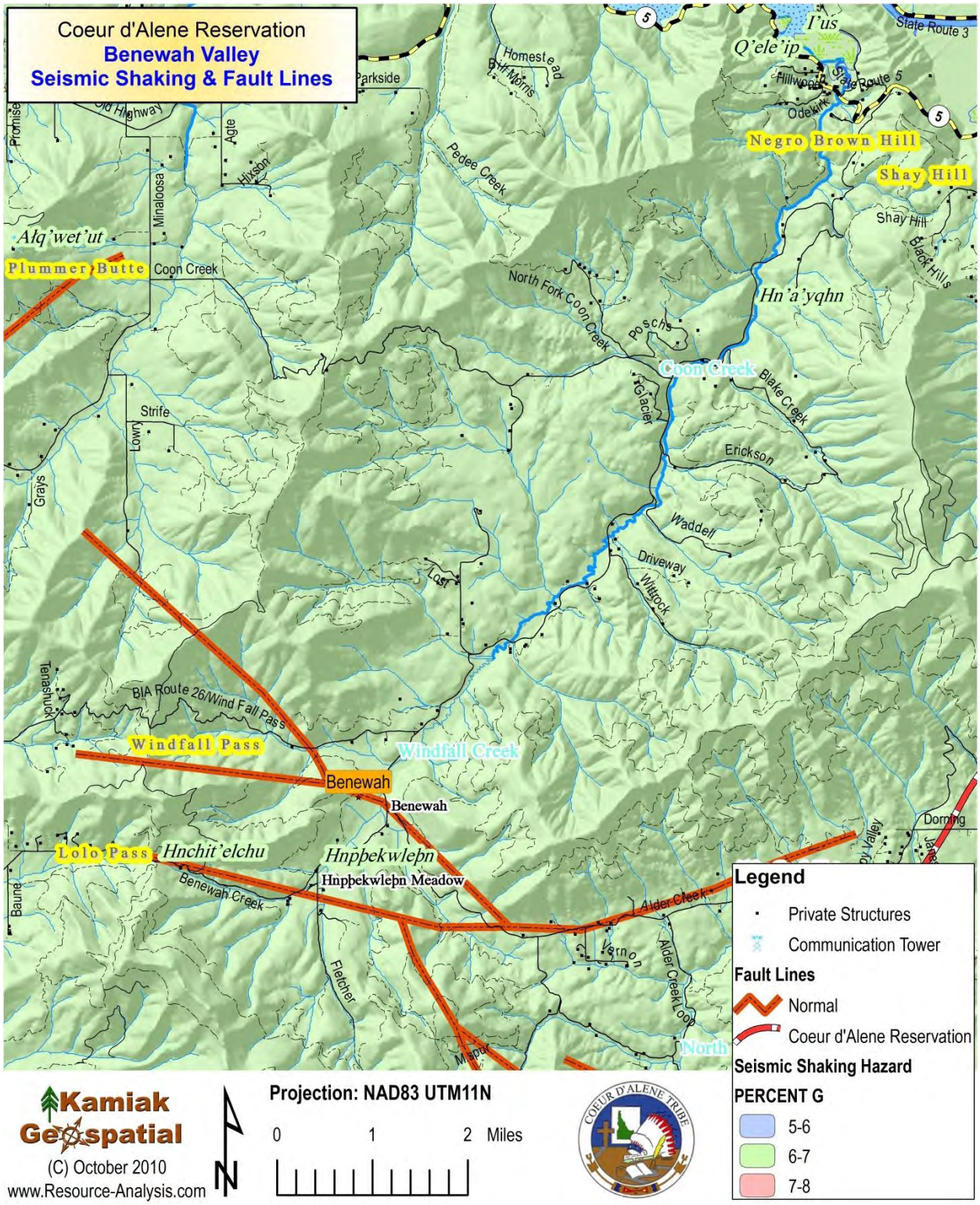


Figure CXIV. Landslide Prone Landscapes in Benewah Valley.

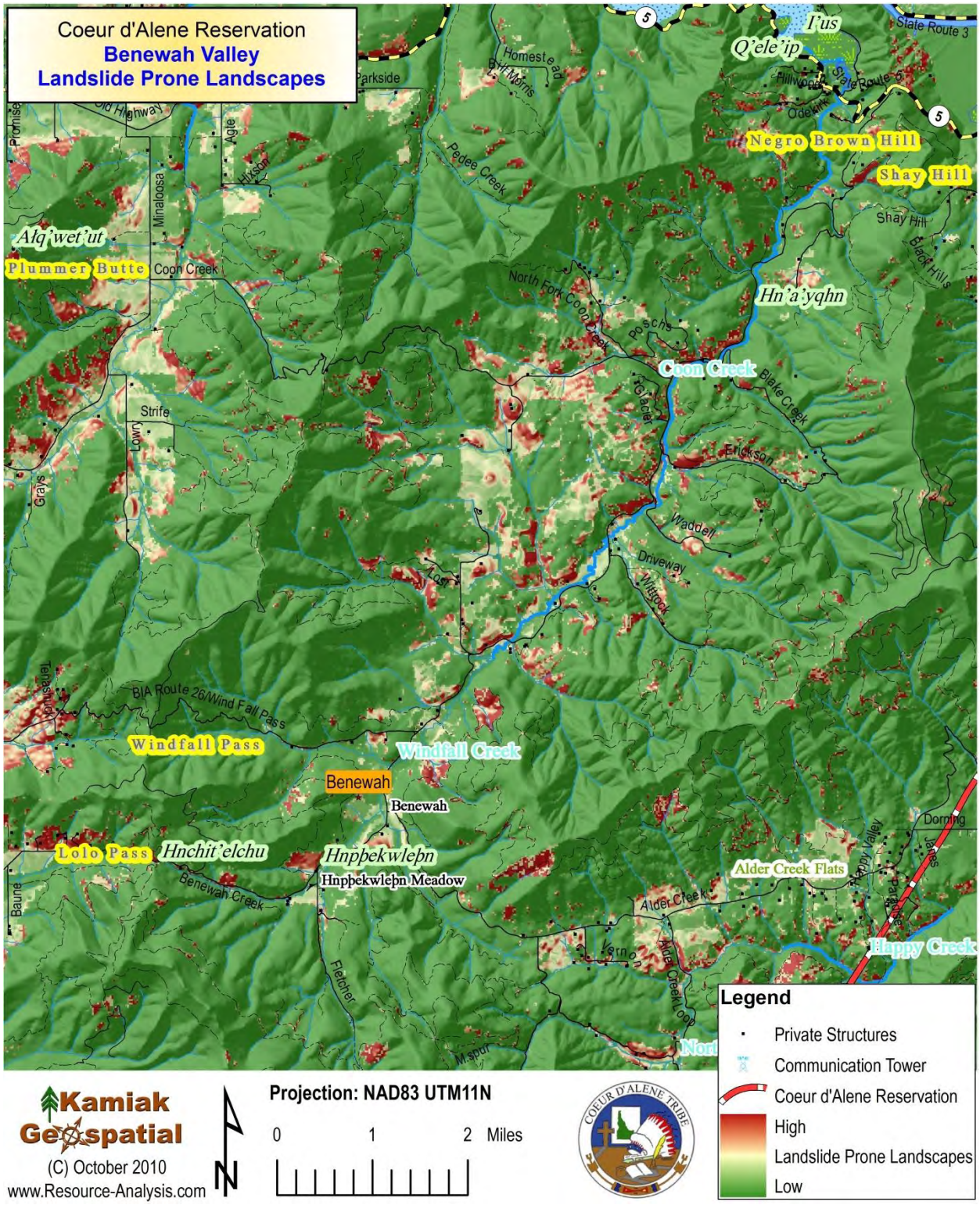


Figure CXV. Expansive Soils and Expansive Clays – Residential without Basement Assessment in Benewah Valley.

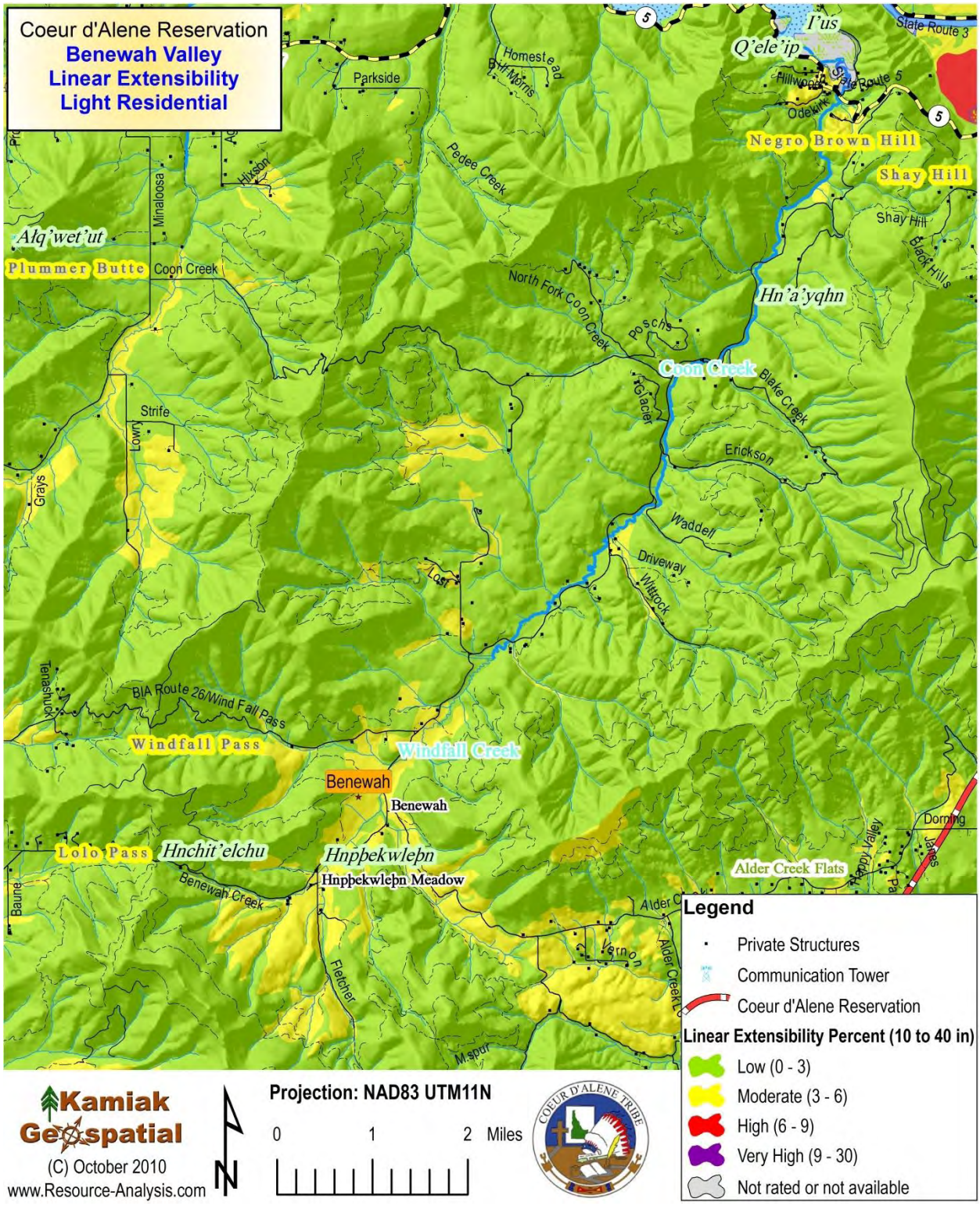


Figure CXVI. Expansive Soils and Expansive Clays – Light Commercial Assessment in Benewah Valley.

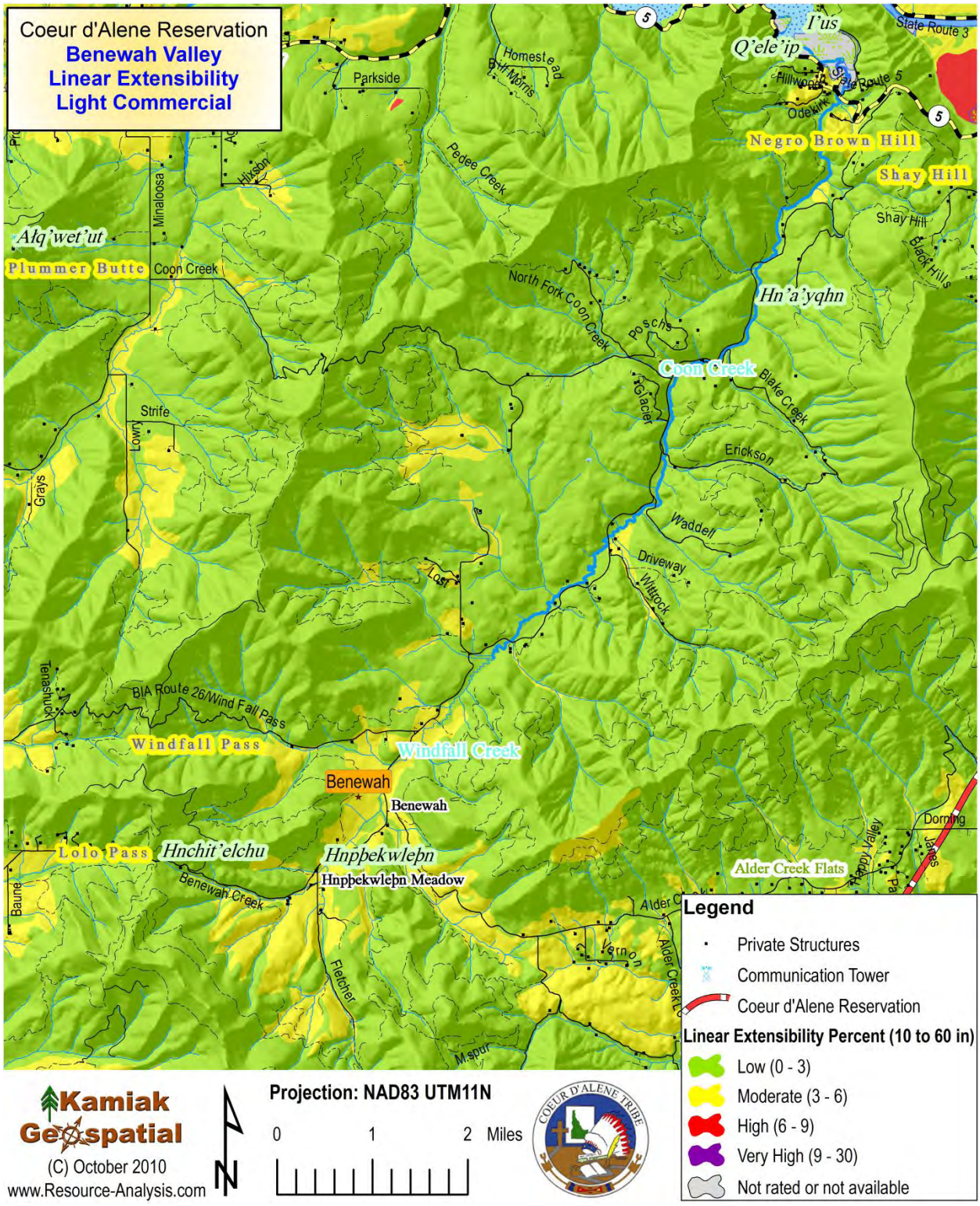
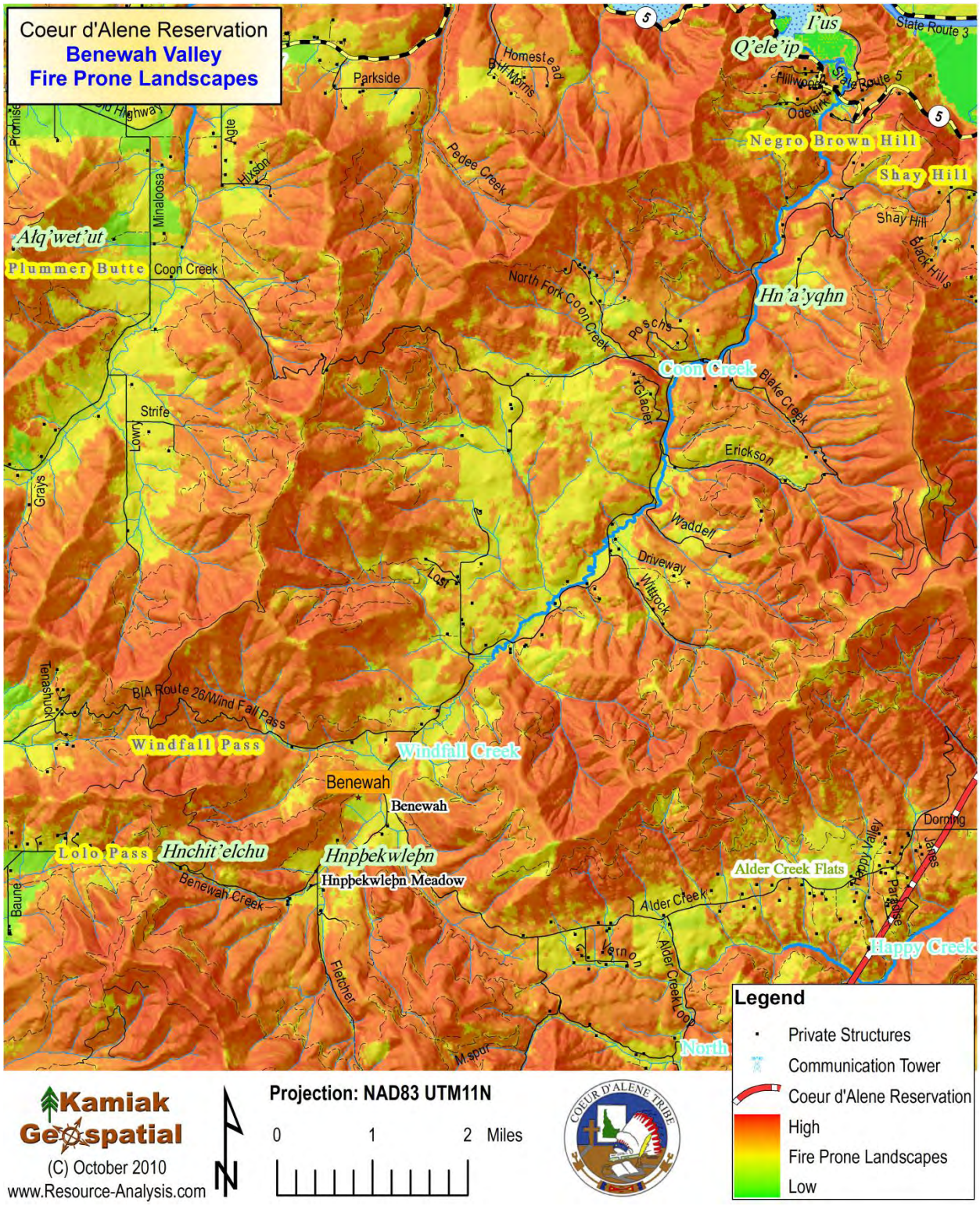


Figure CXVII. Fire Prone Landscapes in Benewah Valley.



5.4.6. Communities along Coeur d'Alene Lake

Over the past few decades, many homes have been built along the bluffs overlooking Coeur d'Alene Lake (Figure CXVIII), especially along the western shoreline at Conkling Park, Fullers Bay, and Chatcolet. Heyburn State Park, managed by the State of Idaho Department of Parks and Recreation, is located to the southwestern edge of Coeur d'Alene Lake near the pour point of Plummer Creek to Chatcolet Lake.

As already defined in Section 5.3 (Macro Hazards), the risk exposure to high winds and seismic shaking hazards is uniformly significant in this region. There are several trees surrounding homes, but because of the relatively young age of the structures, homes with compromised roofing materials are few. The prevalence of URM chimneys (**Error! Reference source not f ound.**) is common in this area.

5.4.6.1. Flood Risks

There are no floodplain risks to structures in this area (Figure CXXI).

5.4.6.2. Seismic Shaking and Fault Lines

The seismic shaking risk within and around the communities in the Coeur d'Alene Lake region is moderate (Figure CXXII and Table 30). There are no fault lines in this region, although several have been documented to the southeast in the lower St. Joe River watershed.

5.4.6.3. Landslide

Landslides are moderated within the slopes of the lake where columnar basalt forms the substrate to the soils of the shorelines (Figure CXXIII). The upper reaches of the bluffs surrounding the lake show variable conditions that could lead to isolated landslides and these are often triggered by site developments, road building, or vegetation modifications. State Route 97 (east side of the lake near Harrison) has experienced several small-scale site failures from these events.

The area known as 'Round Lake Access Area', located on the western sides of Indian Mountain (Figure CXXIII) shows characteristics of surface exposure to landslides. When impacted by site disturbances, this area can expose structures to damage and roads to failure. These sites should be well considered prior to site modifications.

5.4.6.4. Expansive Soils

Expansive soils and expansive clays within this region, for light residential (without basements), exhibit dominantly low risks (Figure CXXIV). The profile for light commercial structures (and Residential with a basement) is rated slightly higher with moderate risks for most sites (Figure CXXV). As with the assessment for landslide prone landscapes, the exposure to structures for expansive soils is moderated substantially on the steep slopes of the lake where columnar basalt serves as the underlying (and exposed) parent material.

In this entire area, expansive soil pre-construction building techniques should be considered for all new structures to integrate recommendations. Even low risk soils in the Upper Columbia Plateau can respond with adverse results if the soil moisture is not moderated at near-constant levels.

5.4.6.5. Wildfire

While the steep slopes of Coeur d'Alene Lake reduced the potential for landslides and expansive soils, the reverse is true for wildland fire risks (Figure CXXVI, Table 43, Table 44).

These communities are located within extensive spreads of forestland vegetation where fuels have accumulated, access is limited, and escape routes often involve using watercraft for escape. Several homes within this area have participated in conducting both home and access fuels mitigation efforts. Others are striving to maintain these improvements. The combination of 'high-value homes', with limited access, sometimes high concentrations of homes in small enclaves, and extensive areas of wildland fuels risks has led to bigger concerns for wildfire risk abatement for many wildfire resource managers.

Figure CXVIII. Aerial Imagery of Communities along Coeur d'Alene Lake, 2009.

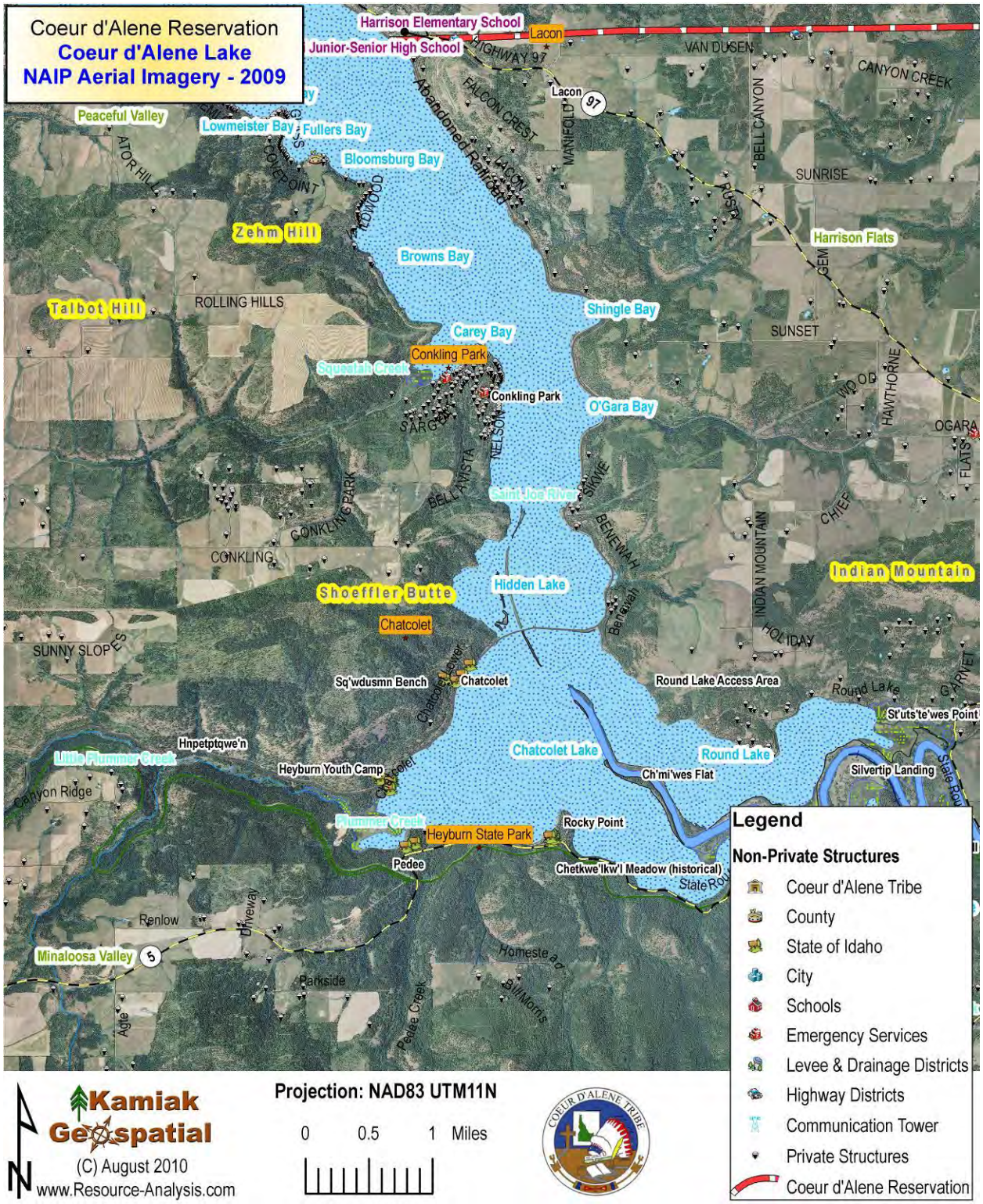


Figure CXIX. Topographic Relief of Communities along Coeur d'Alene Lake.

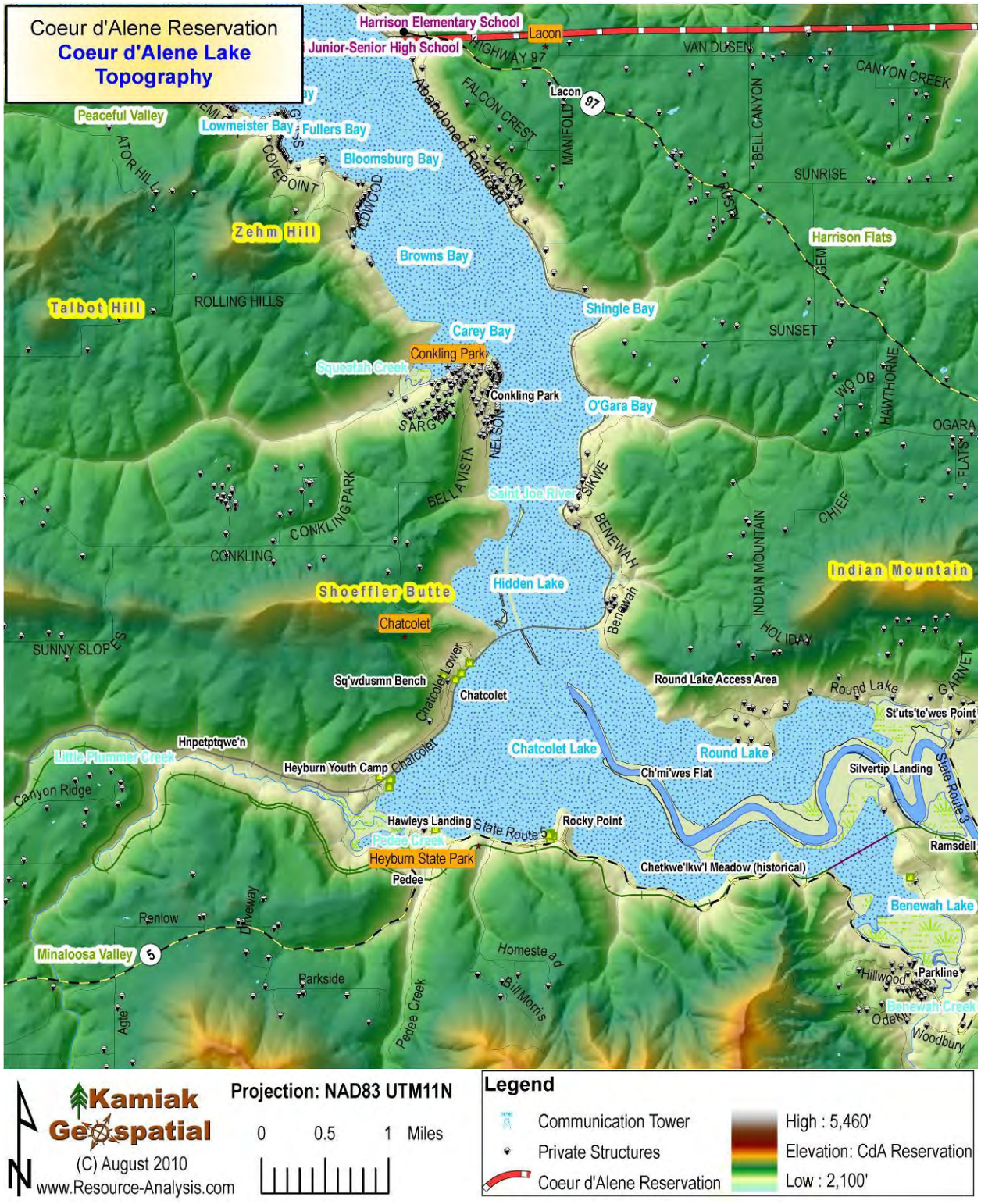


Figure CXX. Population Density Assessment in Communities along Coeur d'Alene Lake.

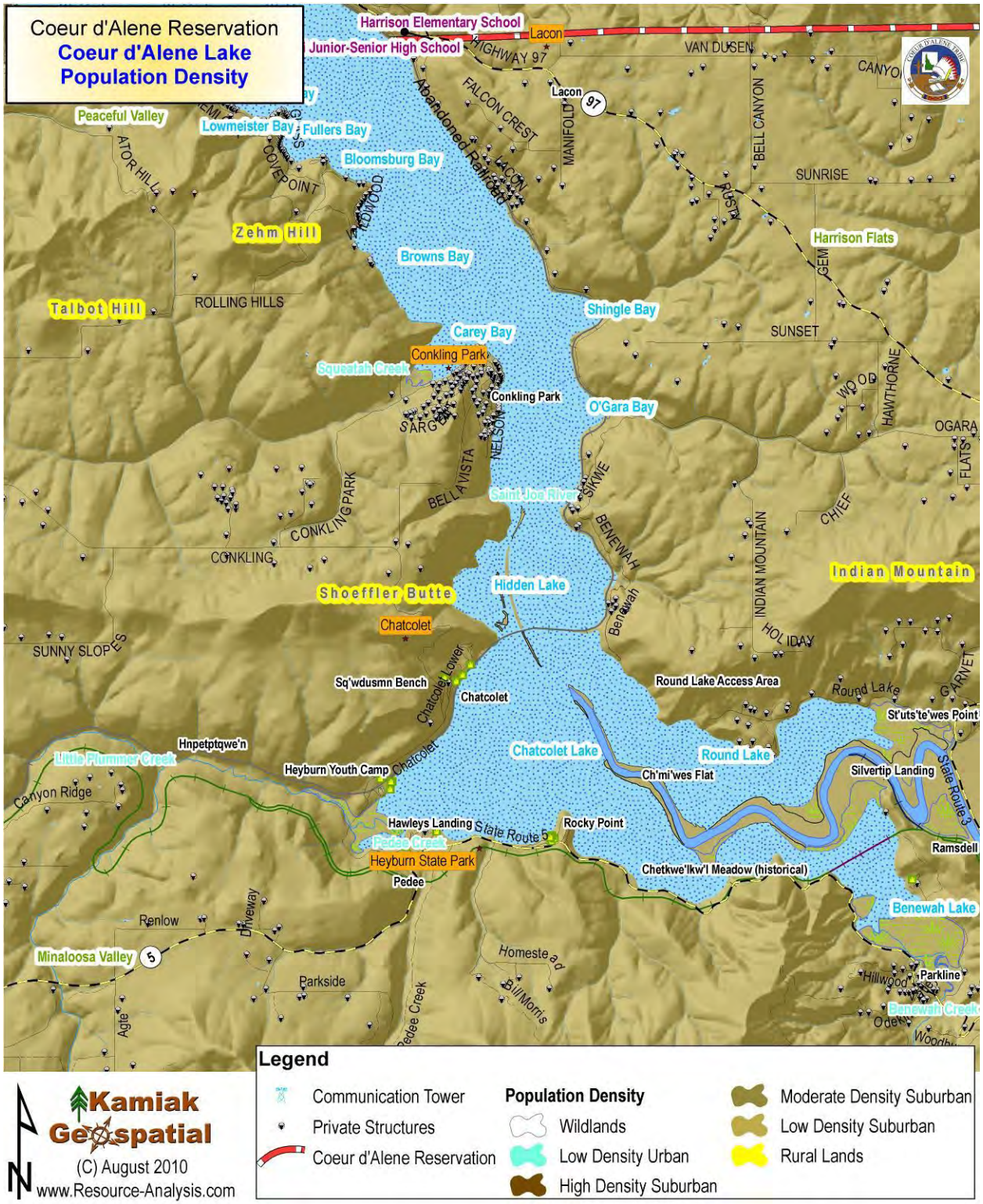


Figure CXXI. Floodplain Mapping of Communities along Coeur d'Alene Lake.

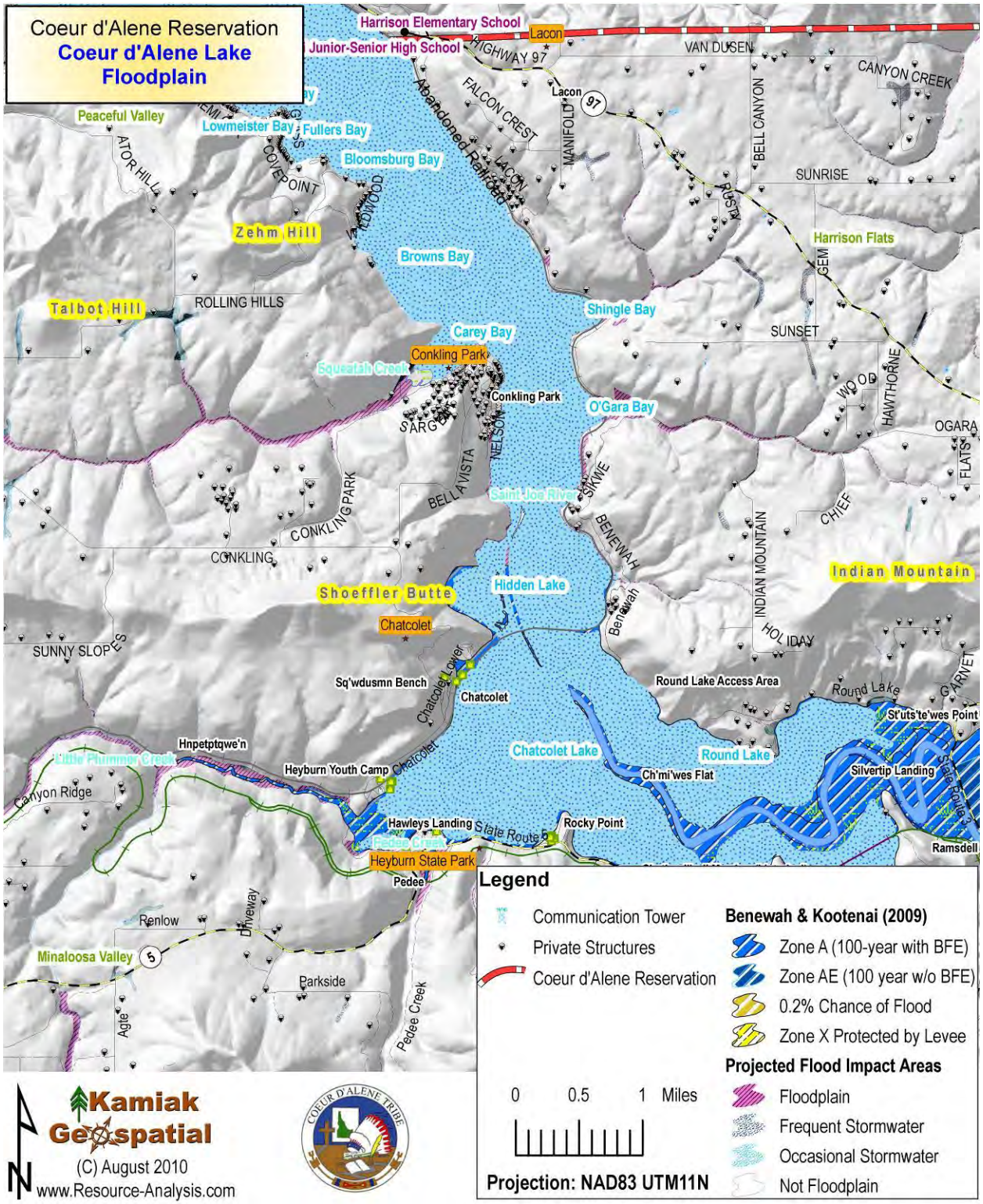


Figure CXXII. Seismic Stability & Fault Lines in Communities along Coeur d'Alene Lake.

Figure CXXIII. Landslide Prone Landscapes in Communities along Coeur d'Alene Lake.

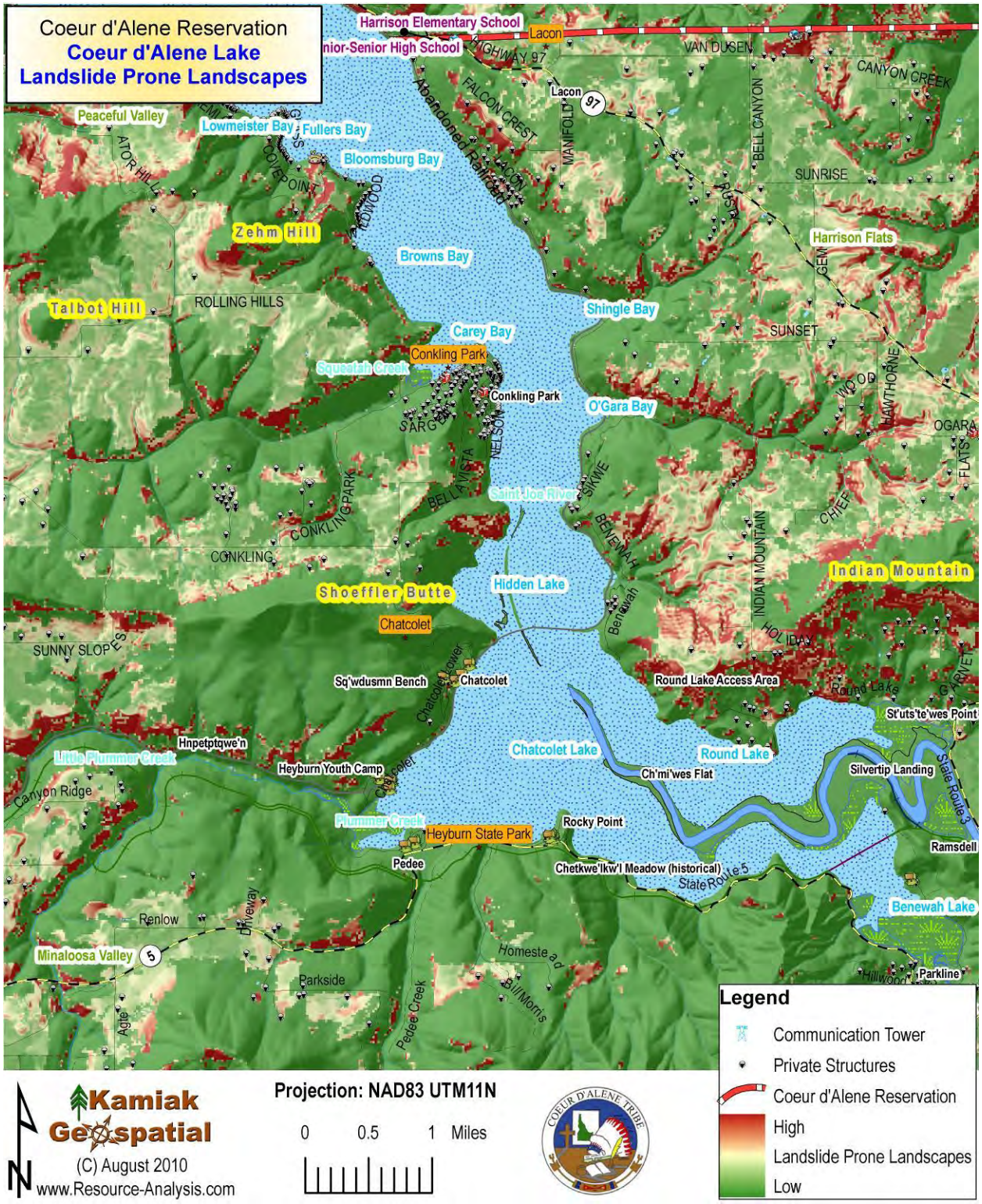
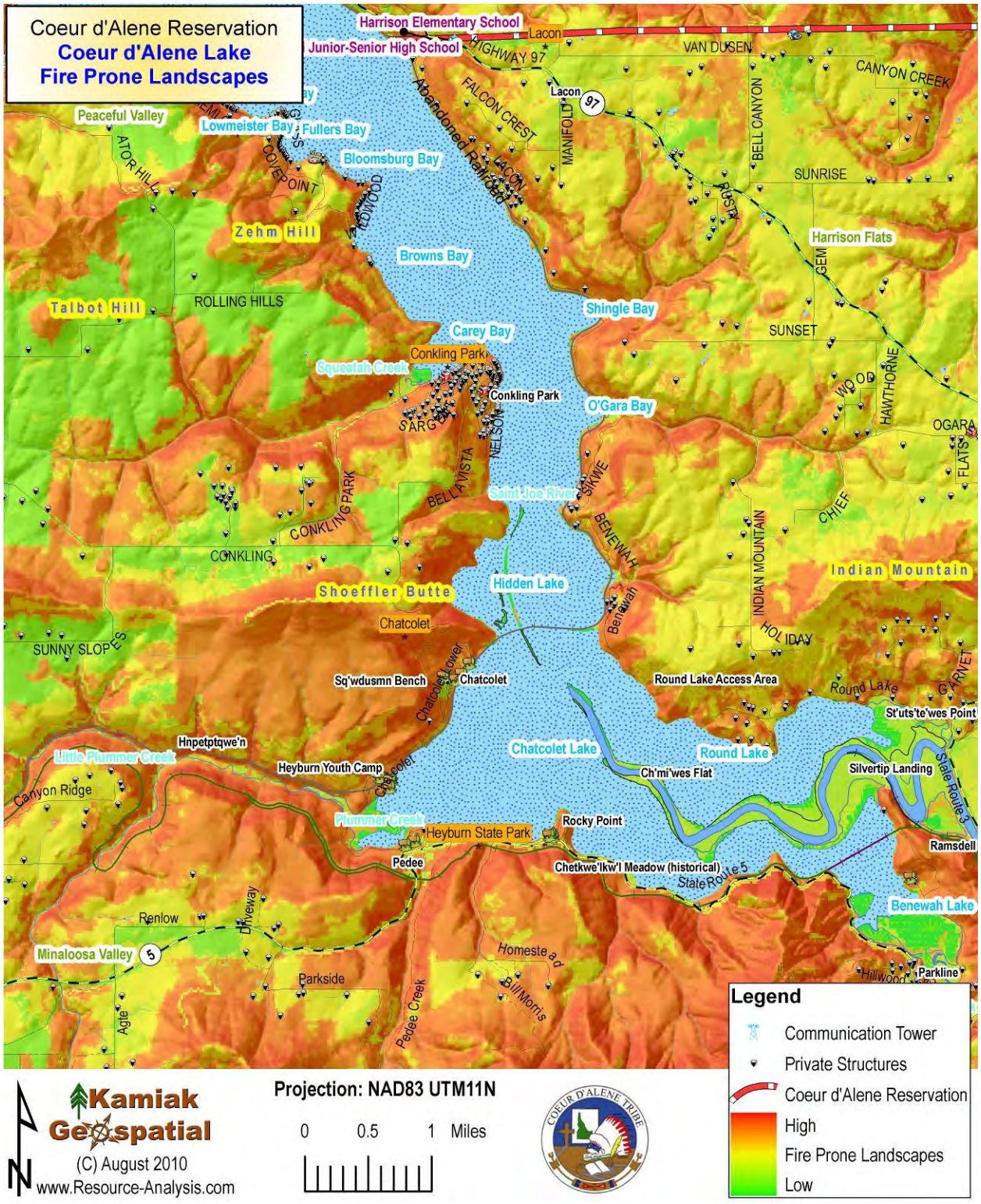


Figure CXXIV. Expansive Soils and Expansive Clays – Residential without Basement Assessment in Communities along Coeur d'Alene Lake.

Figure CXXV. Expansive Soils and Expansive Clays – Light Commercial Assessment in Communities along Coeur d'Alene Lake.

Figure CXXVI. Fire Prone Landscapes in Communities along Coeur d'Alene Lake.



5.4.7. Rockford Bay and Windy Bay Communities

The movement of people to the shorelines of Coeur d'Alene Lake over the past few decades has led to an increase of developments in the area of Rockford Bay and Windy Bay along the

bluffs overlooking Coeur d'Alene Lake (Figure CXXVII). These areas are located closest to the City of Coeur d'Alene, a major population center of the region, near to another population center in Spokane, Washington. Some people commute from their homes to Coeur d'Alene each day while others use these homes as partial year vacation homes, or lakeside cabins.

As already defined in Section 5.3 (Macro Hazards), the risk exposure to high winds and seismic shaking hazards is uniformly significant in this region. There are several trees surrounding homes, but because of the relatively young age of the structures, homes with compromised roofing materials are few. The prevalence of URM chimneys (**Error! Reference source not f ound.**) is common in this area.

5.4.7.1. Flood Risks

There are no floodplain risks to structures in this area (Figure CXXX).

5.4.7.2. Seismic Shaking and Fault Lines

The seismic shaking risk within and around the communities near Rockford Bay and Windy Bay in the Coeur d'Alene Lake region is moderate (Figure CXXXI and Table 30). There are only two fault lines in this region, although several have been documented to the southeast in the lower St. Joe River watershed.

5.4.7.3. Landslide

Landslides are moderated within the slopes of the lake where columnar basalt forms the substrate to the soils of the shorelines (Figure CXXXII). The upper reaches of the bluffs surrounding the lake show variable conditions that could lead to isolated landslides; these are often triggered by site developments, road building, or vegetation modifications.

5.4.7.4. Expansive Soils

Expansive soils and expansive clays within this area, for light residential (without basements), exhibit mainly low risks (Figure CXXXIII). The profile for light commercial structures (and Residential with a basement) are rated slightly higher with moderate risks for most sites (Figure CXXXIV). As with the assessment for landslide prone landscapes, the exposure to structures for expansive soils is moderated substantially on the steep slopes of the lake where columnar basalt serves as the underlying (and exposed) parent material.

In this entire area, expansive soil pre-construction building techniques should be considered for new structures. Even low risk soils in the Upper Columbia Plateau can respond with adverse results if the soil moisture is not moderated at near-constant levels.

5.4.7.5. Wildfire

While the steep slopes of Coeur d'Alene Lake reduced the potential for landslides and expansive soils in this area, the reverse is true for wildland fire risks (Figure CXXXV, Table 43, Table 44). These communities are located in expansive spreads of forestland vegetation where fuels have accumulated, access is limited, and escape routes often involve using watercraft for escape. Several homes within this area have participated in conducting both home and access fuels mitigation efforts. Others are striving to maintain these improvements. The combination of 'high-value homes', with limited access, sometimes high concentrations of homes in small enclaves, and extensive areas of wildland fuels risks has led to bigger concerns for wildfire risk abatement for many wildfire resource managers.

The Coeur d'Alene District of the BLM has proposed two significant projects associated with lands managed by the BLM adjacent to Coeur d'Alene Lake at Windy Bay. These projects are

reactive to the identification of the WUI on the Coeur d'Alene Reservation and the assessment of wildfire fuels present on the site. These two priority projects include:

1. Windy Bay Rough Fescue Project: Fuel's reduction/species propagation for the rough fescue. The Windy Bay area is home to a rare BLM endemic species, the rough fescue, that is thought to be dependent upon fire to propagate. The BLM plans to inventory the species and then conduct fuel reduction and reduce conifer encroachment into this rare species' habitat. This may include prescribed fire and/or mechanical treatments.
2. Fuel's reduction along the BLM Windy Bay Recreation Site: Currently, the BLM recreational site is very remote with a small two track road as the only access. If a wildfire were to start from either a natural or man caused ignition, the response time to the area would be very slow. The proposed project includes increased access and turn around sites within the BLM managed lands for firefighter ingress and egress.

Figure CXXVII. Aerial Imagery of Rockford Bay and Windy Bay, 2009.

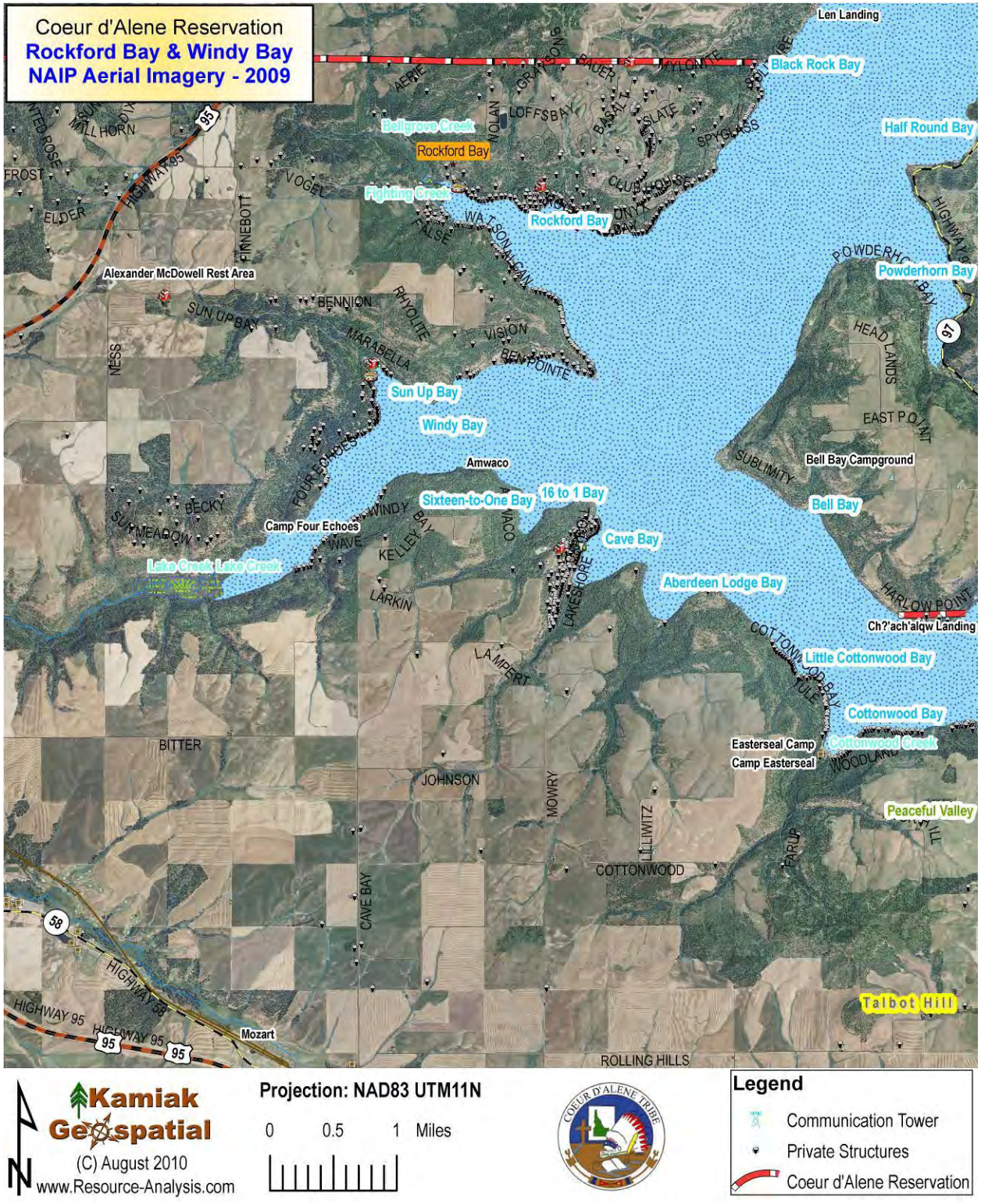


Figure CXXVIII. Topographic Relief of Rockford Bay and Windy Bay.

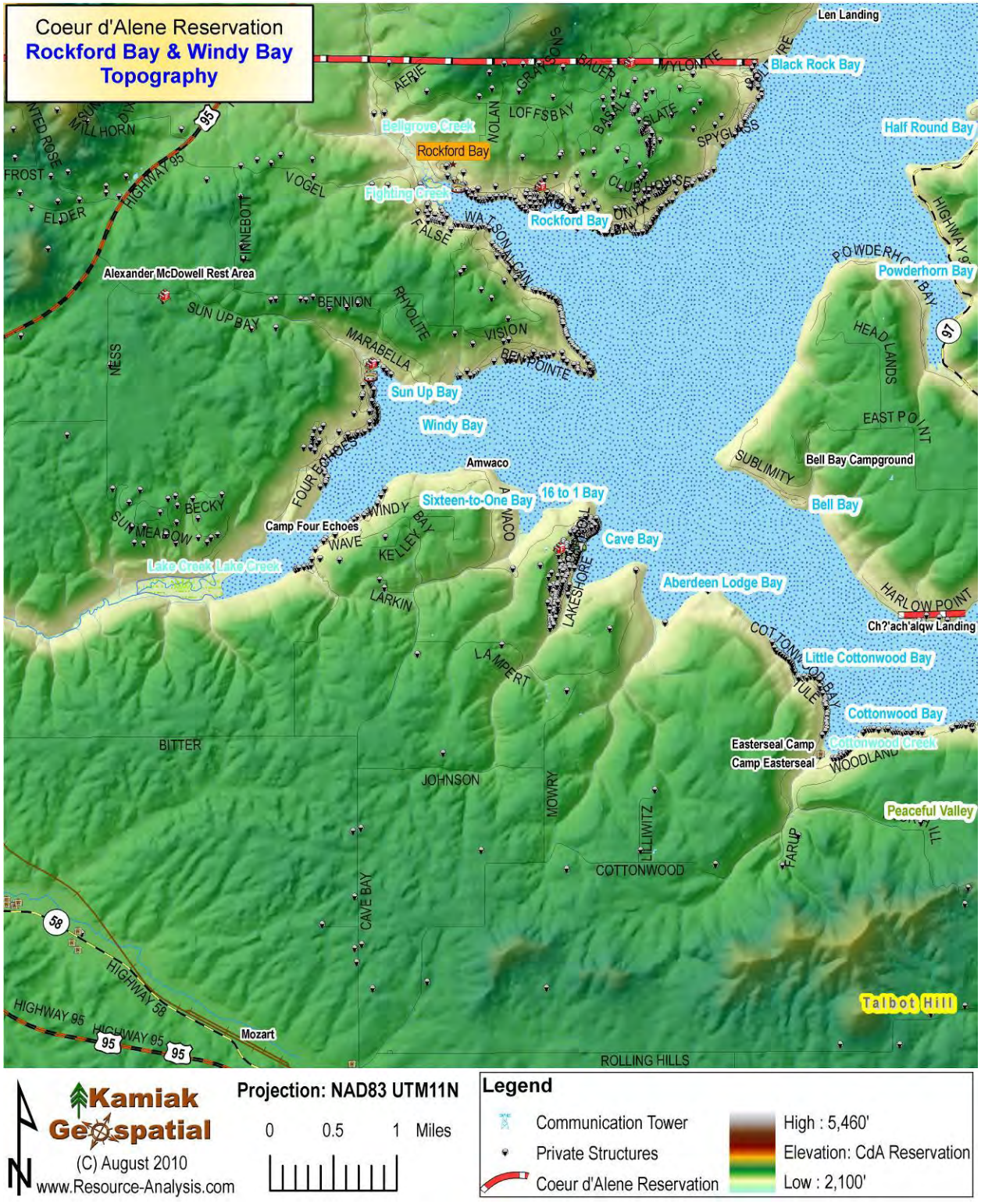


Figure CXXIX. Population Density Assessment in Rockford Bay and Windy Bay.

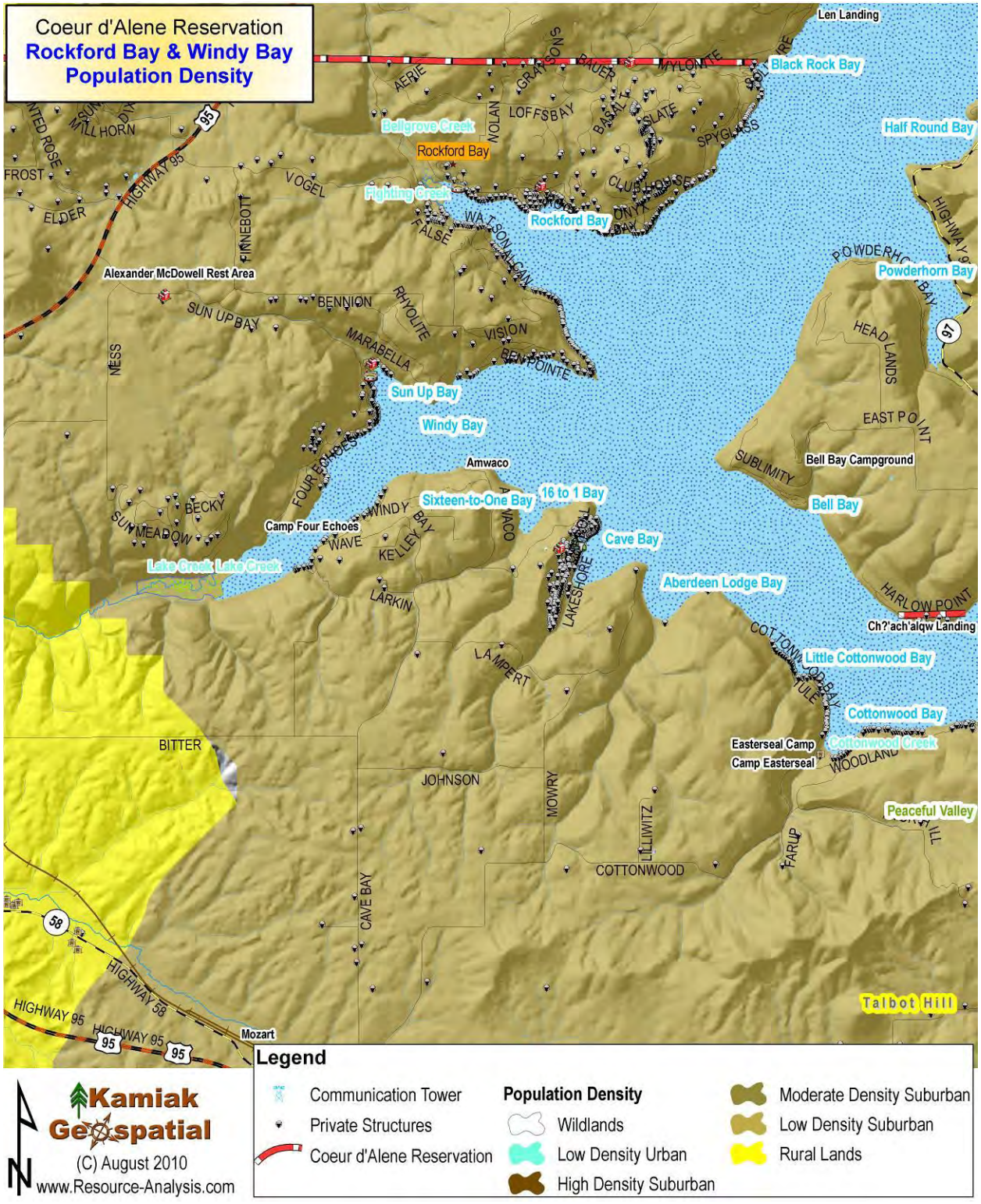


Figure CXXX. Floodplain Mapping of Rockford Bay and Windy Bay.

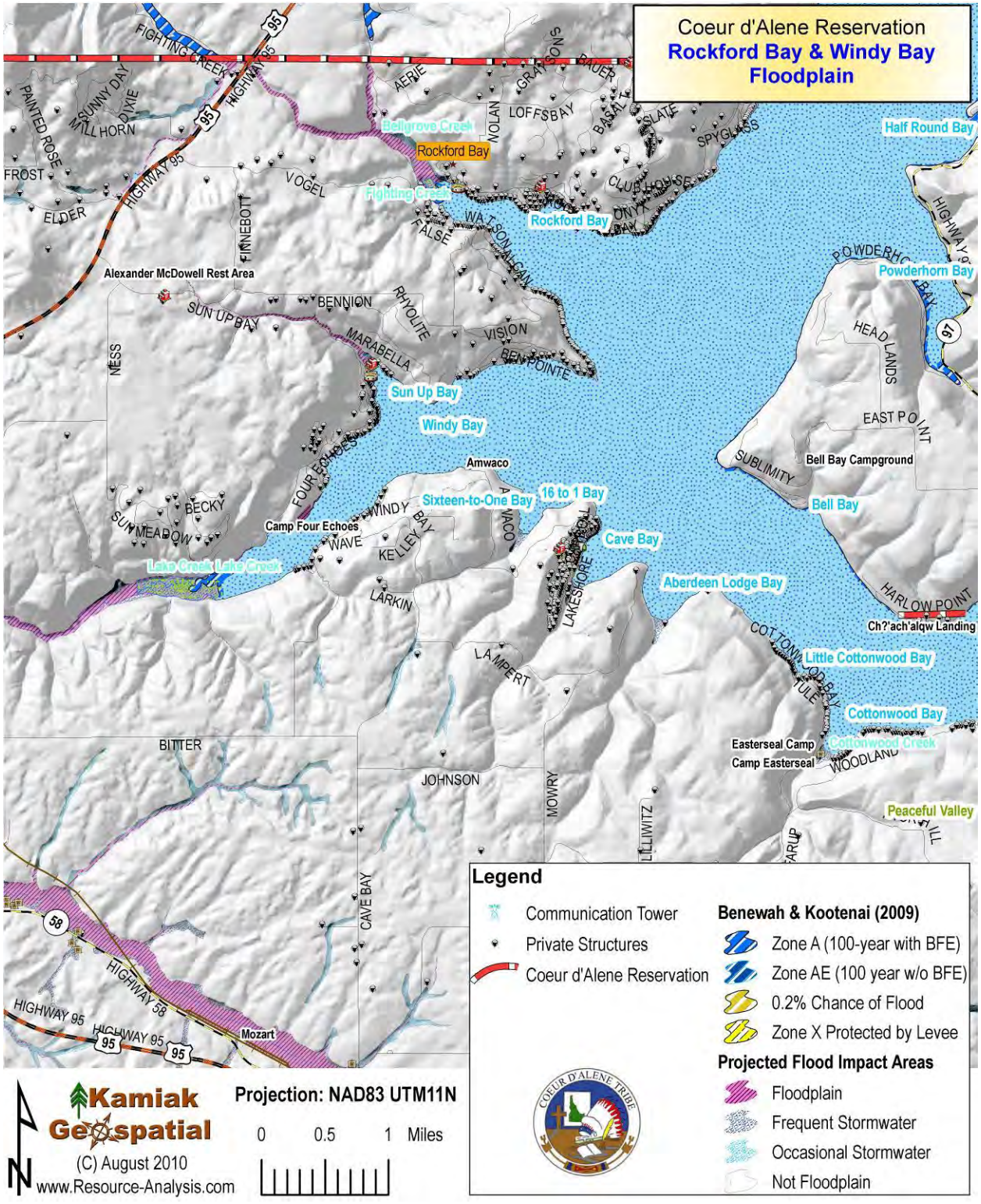


Figure CXXXI. Seismic Stability & Fault Lines in Rockford Bay and Windy Bay.

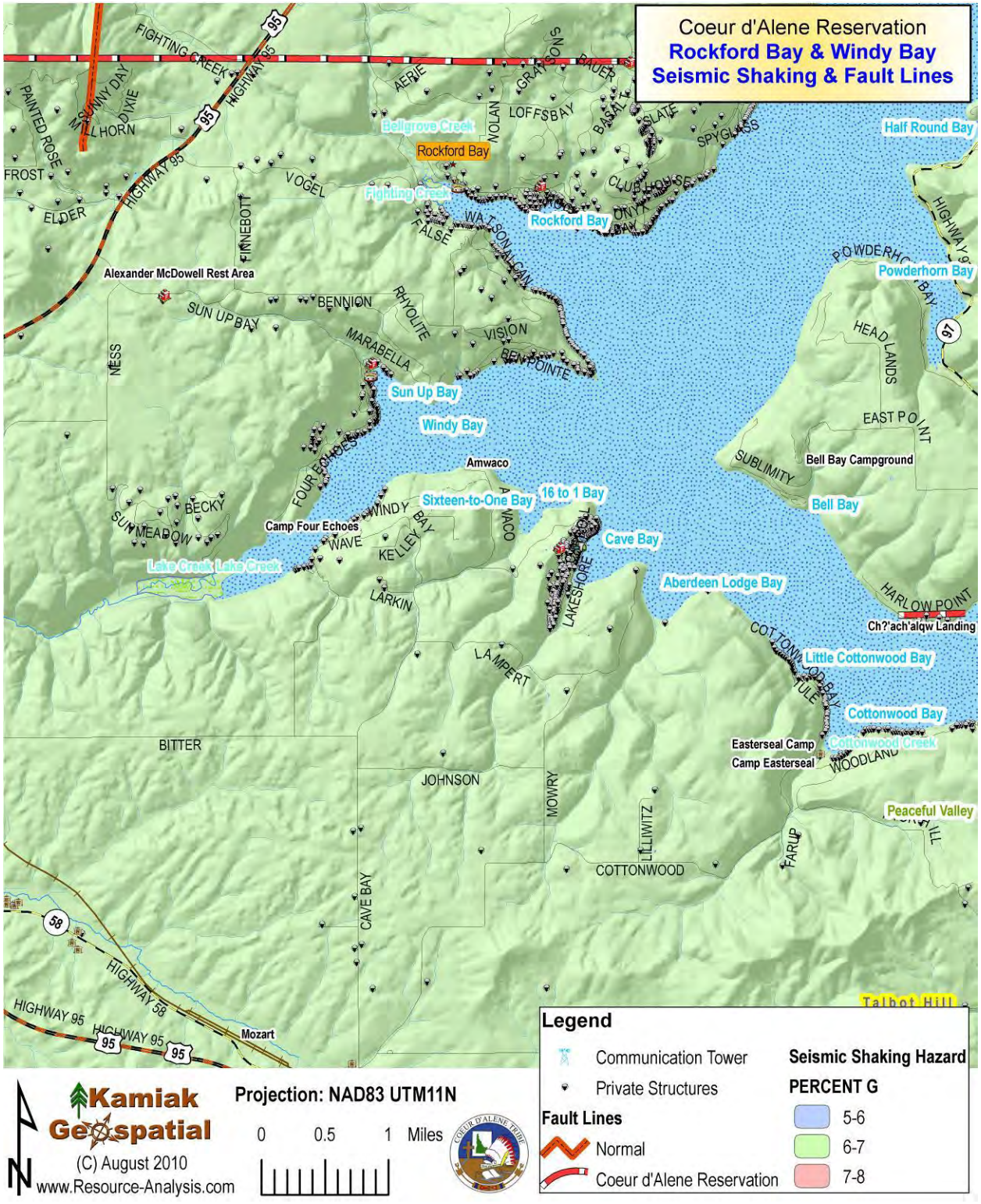


Figure CXXXII. Landslide Prone Landscapes in Rockford Bay and Windy Bay.

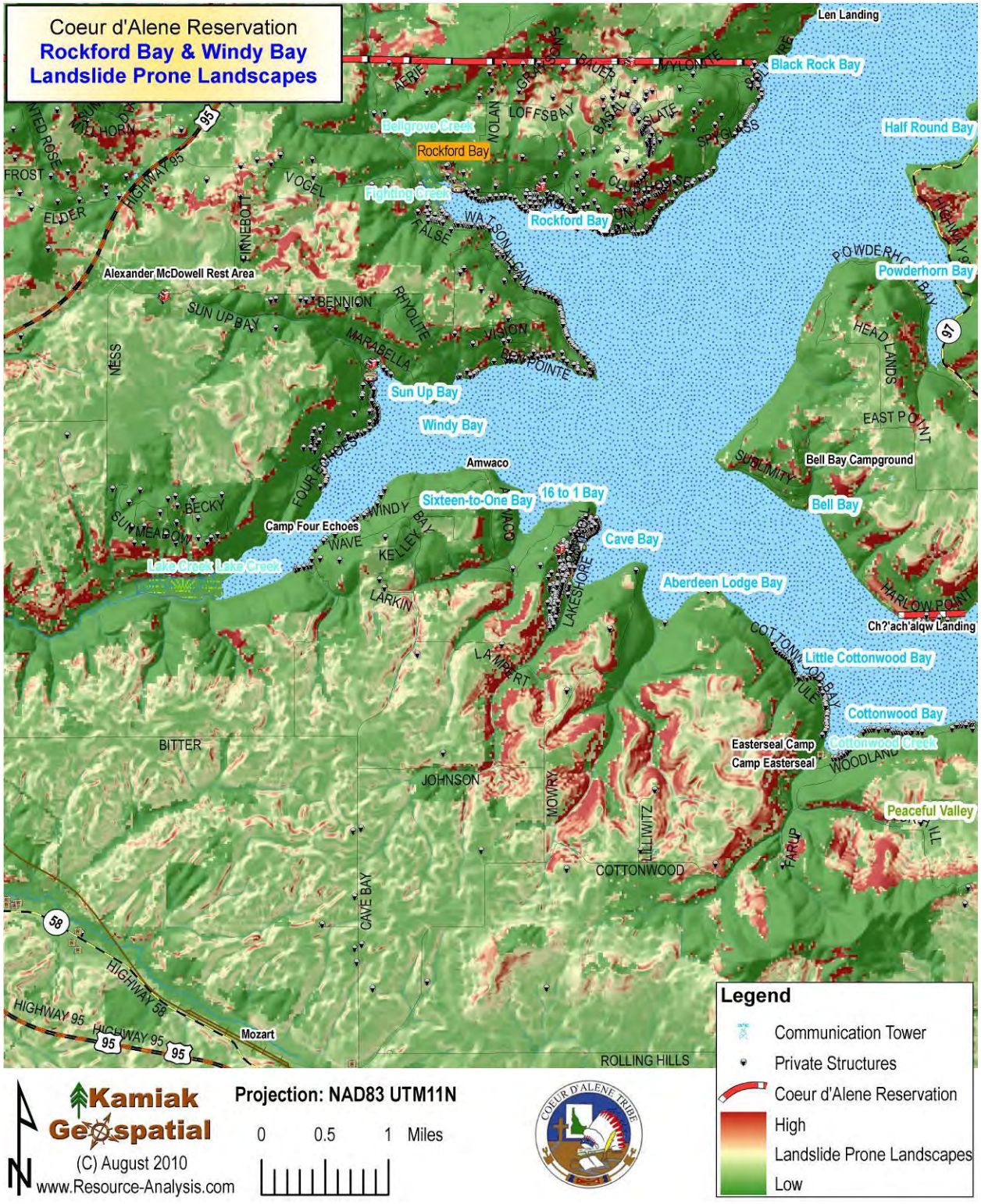


Figure CXXXIII. Expansive Soils and Expansive Clays – Residential without Basement Assessment in Rockford Bay and Windy Bay.

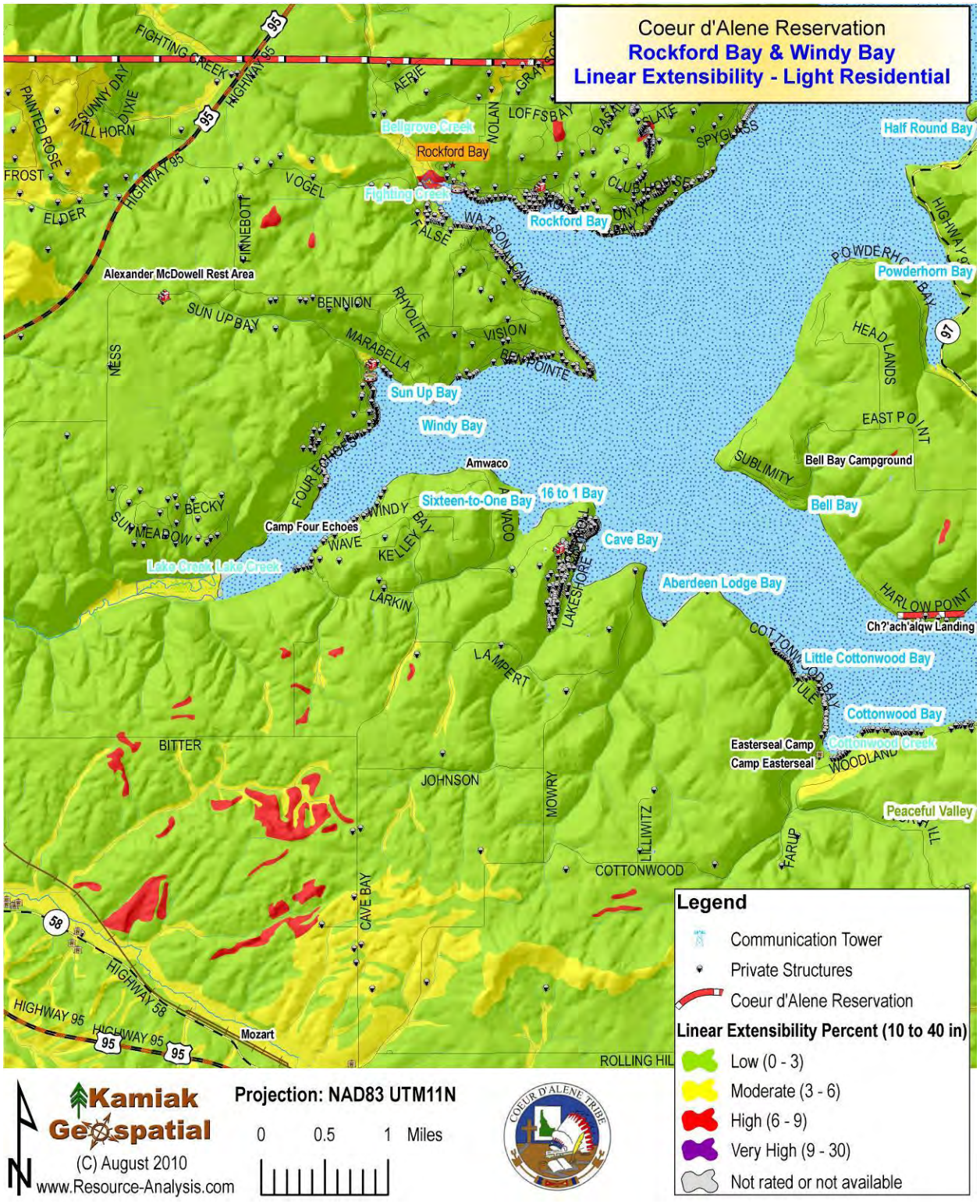


Figure CXXXIV. Expansive Soils and Expansive Clays – Light Commercial Assessment in Rockford Bay and Windy Bay.

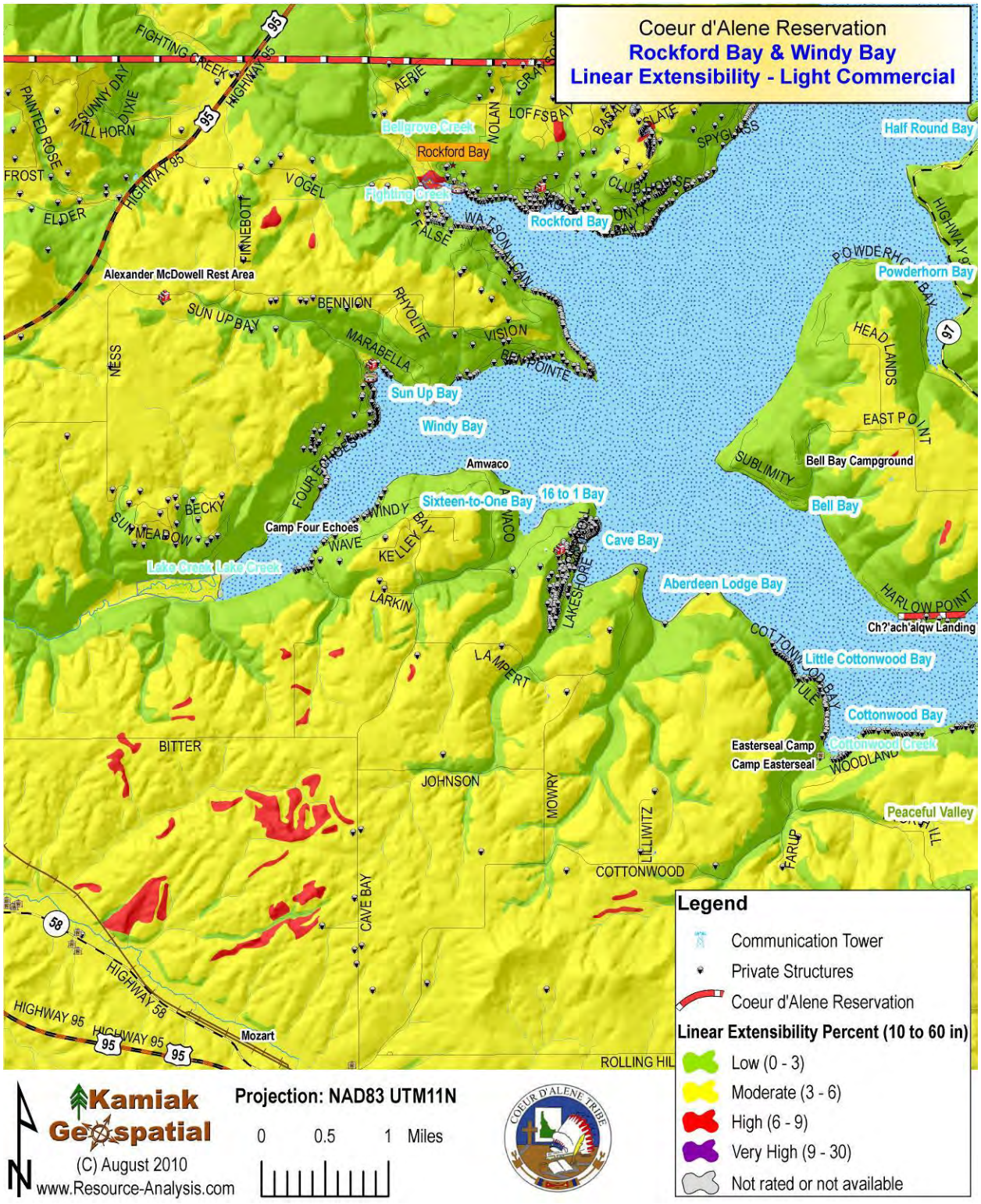
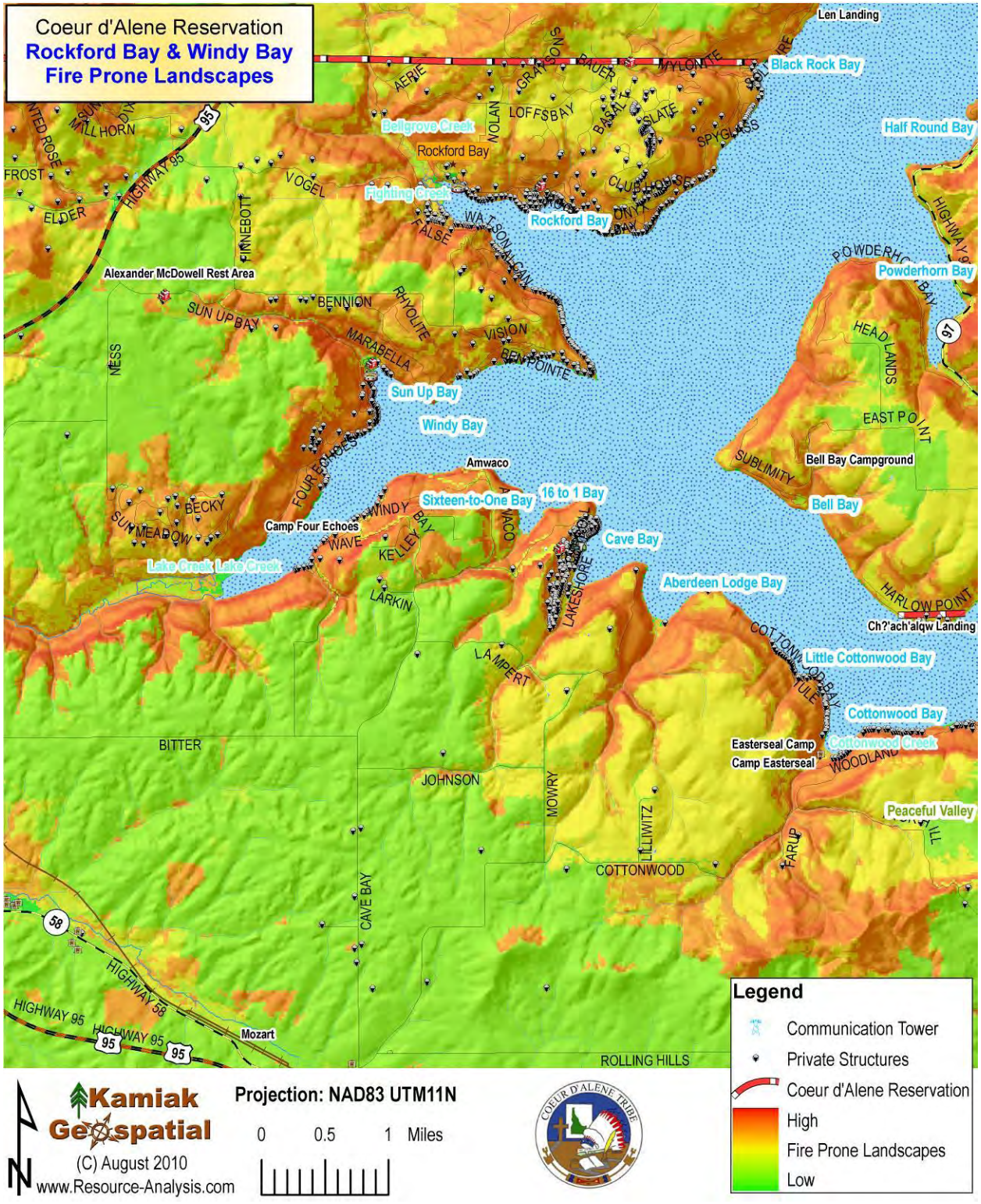


Figure CXXXV. Fire Prone Landscapes near both Rockford Bay and Windy Bay.



5.5. Natural Systems Mitigation Efforts

Although much of this section has focused on potential mitigation measures with respect to the location of homes, communities, and infrastructure at risk to natural hazards, this portion of the document will discuss one particular watershed within the Coeur d'Alene Reservation, Hangman Creek. Three communities; DeSmet, Tensed, and Sanders are located within this watershed. The DeSmet Tribal School is located in DeSmet (Figure CXXXVI). In addition to the homes and businesses located in this watershed, US95, SR274, SR60, and several less used roads, traverse this area.

Figure CXXXVI. Coeur d'Alene Tribal School located in DeSmet.

Lovell Valley and Moctelme Creek both drain the watersheds to the north of Hangman Creek, and join near the western edge of the Coeur d'Alene Reservation near Willard, Washington. Both SR274 and SR60 are located within the floodplains of these drainages. After joining, the streams flow into Hangman Creek just 2 miles west of the exterior boundaries of the Coeur d'Alene Reservation (Figure CXXXVII).

Hangman Creek drains the watershed within the extreme south of the current Coeur d'Alene Reservation. The watershed is extensive but exhibits a relatively flat floodplain from the departure of the exterior boundary of the Coeur d'Alene Reservation to Sanders; a distance of about 75,000 feet (14.2 miles) with a total elevation change of only 154 feet (average slope of approximately 0.2%). The floodplains within this valley are as wide as 3,500 feet near DeSmet and Tensed (Figure CXXXVIII).

Figure CXXXVII. Lovell Valley & Moctelme Creek Watershed Floodplains.

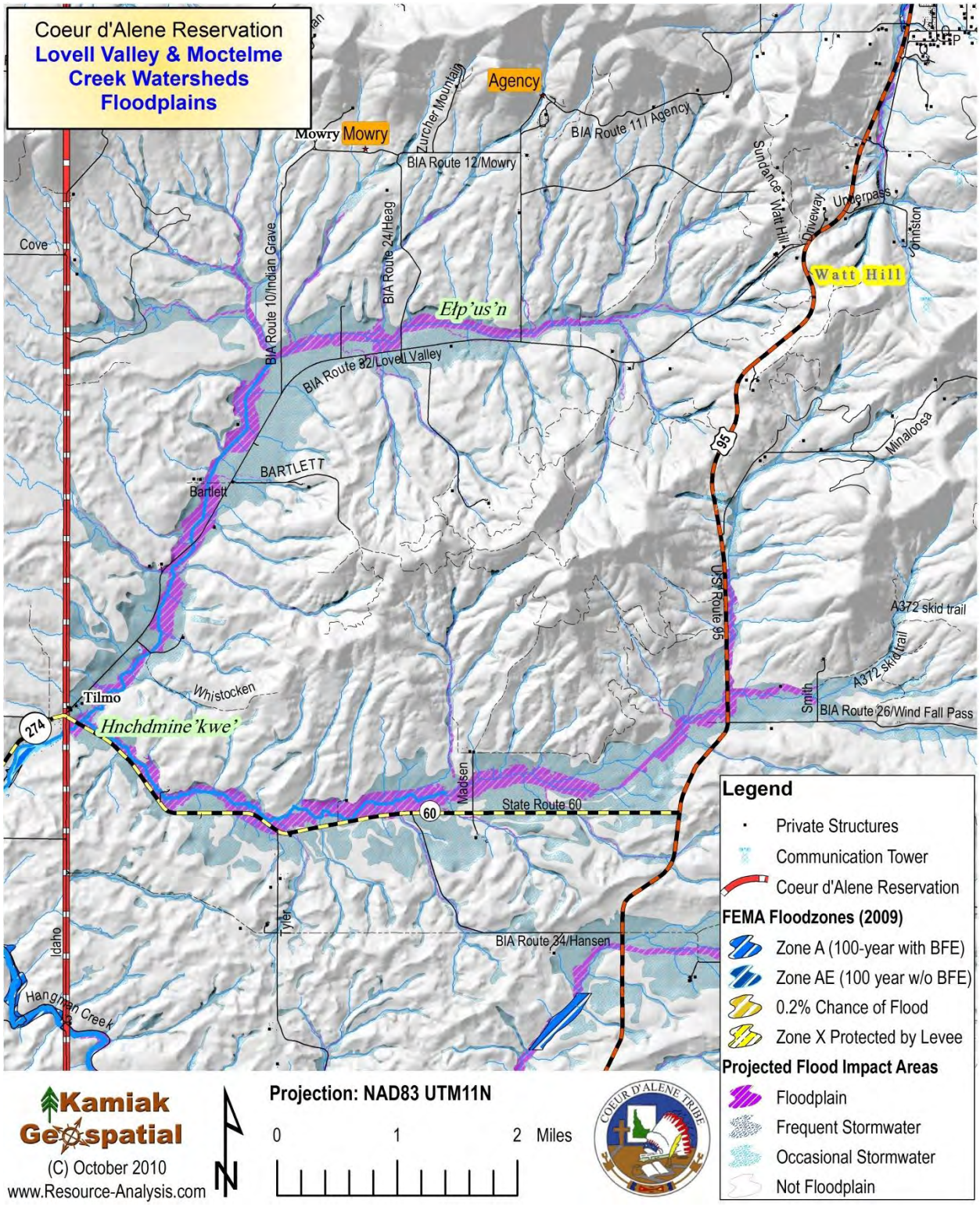
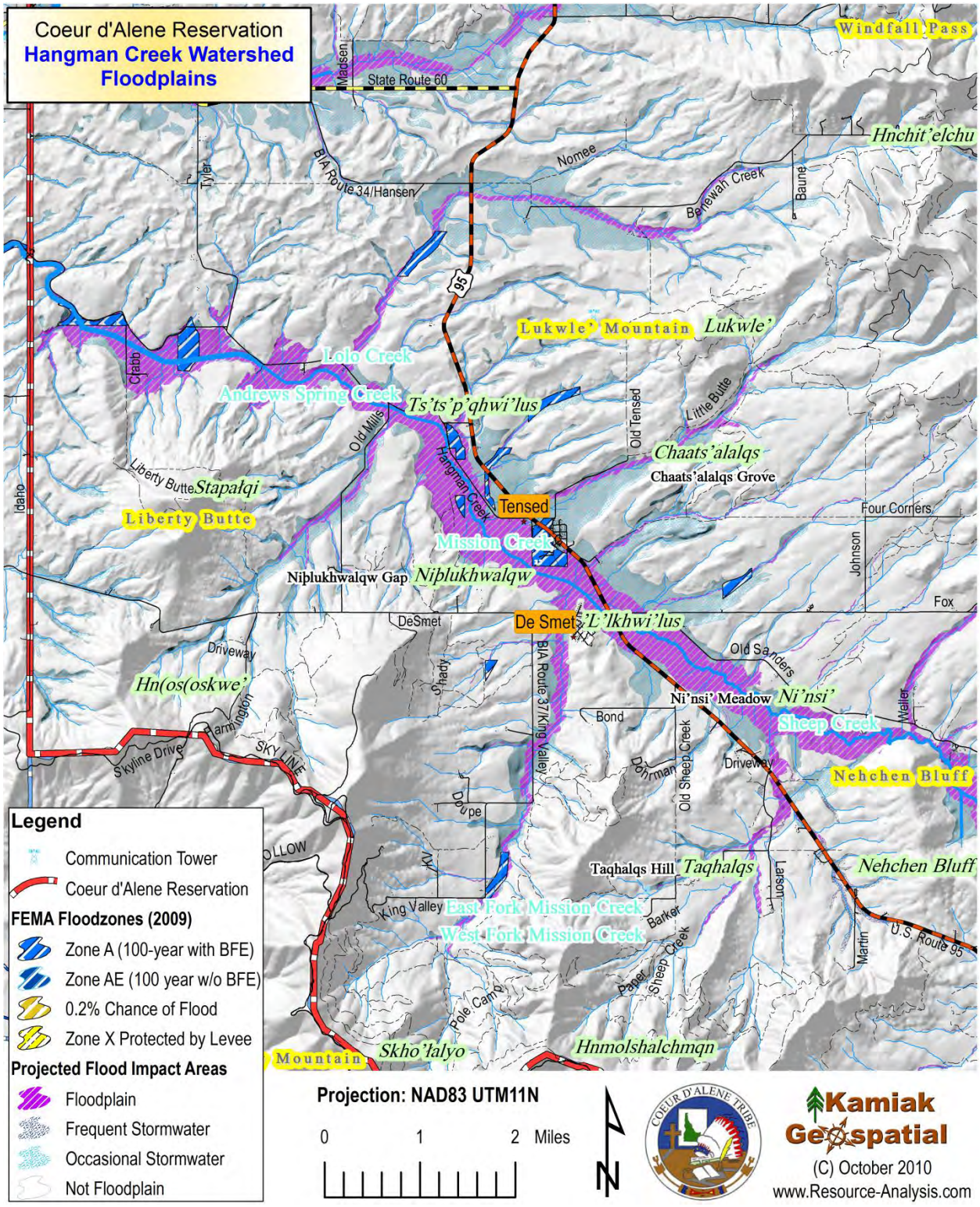


Figure CXXXVIII. Hangman Creek Watershed Floodplains.



Both of these watersheds are formed by the expansive loess soils known for their agricultural productivity. These productive soils overtop the basalt foundation of the region. Water infiltration is high in the early months of the autumn, but become saturated as the winter rains progress and turn into winter snows and spring rains. This condition of soil saturation and spring rains

coupled with snowmelt has led to several flood events within these valleys. Within recent history, floods cresting on May 22, 2004 (Figure CXL), and then on January 6, 2009 (Figure CXXXIX) compromised local access and flooded homes and infrastructure of Hangman Creek.

Figure CXXXIX. Images of the January 6, 2009, flood within the Hangman Creek watershed.

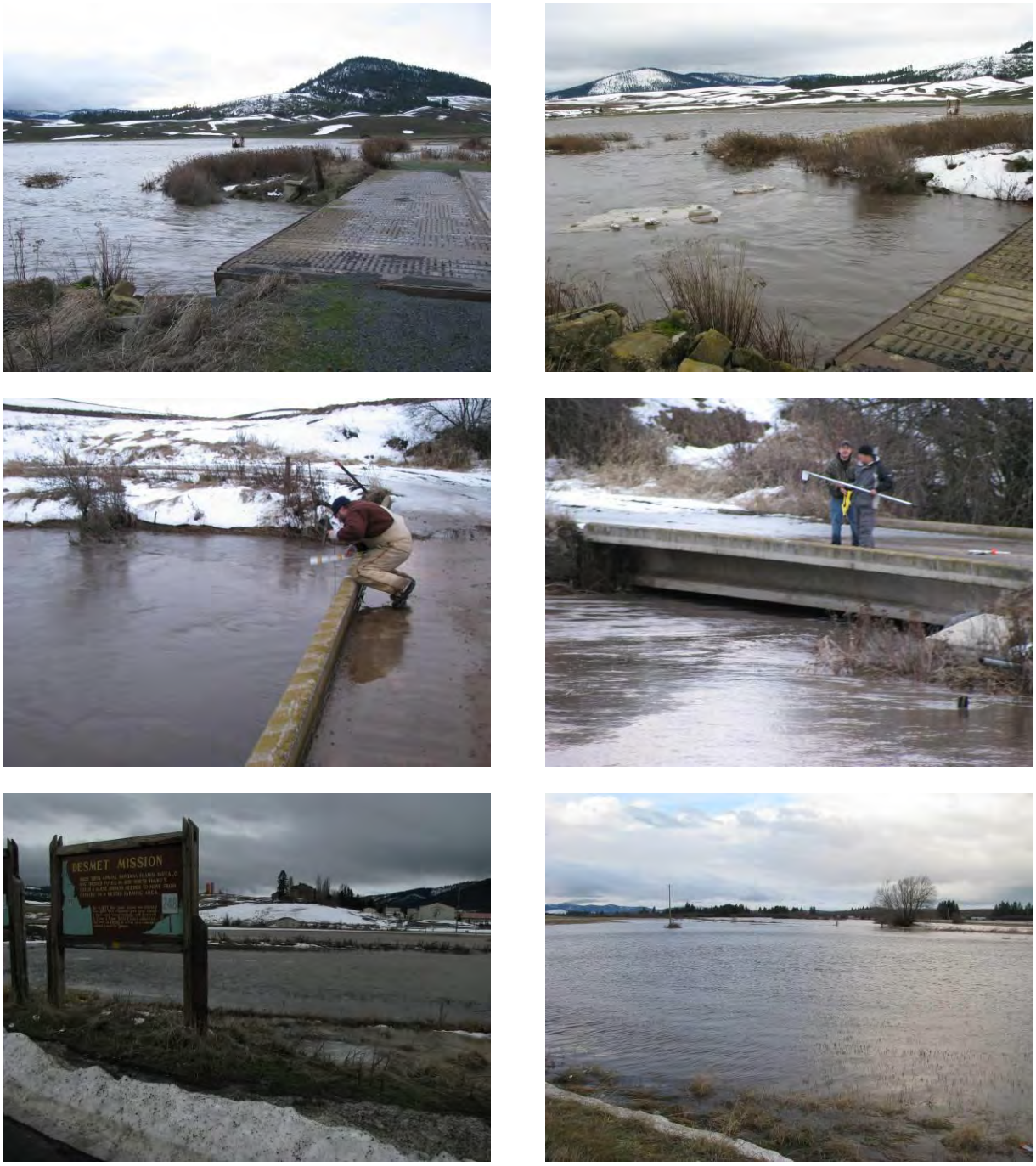


Figure CXXXIX. Images of the January 6, 2009, flood within the Hangman Creek watershed.

Photos by Bruce Kinkead, provided by Gerald I. Green, both of Coeur d'Alene Tribe (2009).

Figure CXL. Images of the May 22, 2004, flood within the Hangman Creek watershed.

Photos by Bruce Kinkead, provided by Gerald I. Green, both of Coeur d'Alene Tribe (2004).

The challenges of floodplain management in the face of local infrastructure, can be seen along most of the crossings of Hangman Creek and other tributaries, by US95 and several local access roads (Figure CXLI). Many of these road crossings of Hangman Creek and its tributaries have been created so that the stream is restricted from normal meandering and the floodplain is restricted in its ability to move water efficiently during high water events.

The diminishment of the floodplain has led to increased flooding potential upstream of each bridge crossing followed by increased incised stream meanders downstream of the crossing. The reader can view many of the scenes in Figure CXLI and compare them to the views of flood events in 2004 (Figure CXL) and 2009 (Figure CXXXIX) to see the impacts on the areas between low flow and high water flooding.

Figure CXLI. Bridge Crossings of Hangman Creek and the restriction of the floodplain.

[Above] US95 crossing of Hangman Creek on June 5, 2010, a time of relatively low water flows. Note the height of debris hanging in the vegetation, deposited by previous high water marks, and the relative height of the bottom of the bridge crossing provided by US95.

Figure CXLI. Bridge Crossings of Hangman Creek and the restriction of the floodplain.

[Above] US95 crossing of Tensed Creek on June 5, 2010, a time of relatively low water flows. Note the absence of freeboard between the water level and the bottom of the road crossing. Both are upstream views.

[Above] US95 crossing on June 5, 2010, a time of relatively low water flows. The constriction of the stream for the road crossing causes water to accumulate at the surface upstream of the crossing.

[Above] Local access road crossing Hangman Creek on June 6, 2010, a time of relatively low water flows. The bridge crossing has restricted the width of Hangman Creek and eliminated a major portion of the normally functioning floodplain at this point. The supporting structure of the bridge has been failing and is depositing debris into the river channel.

Figure CXLI. Bridge Crossings of Hangman Creek and the restriction of the floodplain.

[Above] Scenes of Hangman Creek looking upstream (left) and downstream (right) of the bridge featured above. The restriction of the floodplain at the road crossing has decreased the slope of the upstream portion of the stream, leading to a release of stream-carried sediment. Downstream of the crossing, water velocity increases (with less sediment) causing a cutting into the channel and entrenchment of the waterway.

Additional challenges for the Hangman Creek watershed, and its tributaries, can be found in the historical vegetative management of the watershed. Both upland forest management and riparian agricultural management practices have led to a reduced functioning of the floodplain (Figure CXLII). The Coeur d'Alene Tribe has taken purposeful actions to restore the functioning of the wetlands and floodplains of Hangman Creek.

One example of this effort, has been the acquisition of lands within the Hangman Creek watershed, used for agricultural purposes, that was lined with subsurface tiles to prevent wetland water accumulations. The farmer was able to cultivate crops by draining the wetlands. The Coeur d'Alene Tribe has removed the tiles and encouraged native vegetation to restore the site as a wetland and floodplain (Figure CXLII - top row, left side)

Figure CXLII. Riparian Zone Management along Hangman Creek and Lovell Valley.

Figure CXLII. Riparian Zone Management along Hangman Creek and Lovell Valley.

Other efforts by the Coeur d'Alene Tribe include the recognition of the benefits of beaver within the watersheds of the Coeur d'Alene Reservation. Gerald I. Green, Coeur d'Alene Tribal Wildlife Mitigation Specialist, provided data for this planning effort to identify 83 locations where beaver dam and den activity have been identified within Hangman Creek (Figure CXLIII). All of the beaver dam activity is located within the floodplain identified for this planning effort.

The Coeur d'Alene Tribe favors the success of beaver along this watershed, and other watersheds, as an indicator of a normally functioning riparian ecosystem. Efforts to restore wetlands and the normally functioning floodplain have shown success. Ongoing efforts will serve the goals of the program.

A critical evaluation of the road/stream crossings within Hangman Creek watershed, and all watersheds, should be conducted to determine the remediation actions necessary to restore the entire riparian ecosystem of Hangman Creek. While it may be desirable to replace bridges and culverts that restrict water flow in all cases where a limitation is observed, the ability to fund these efforts will prove to be insurmountable in the next decade. On the other hand, it is feasible to design greater capacity crossings of the streams as road rebuilding endeavors are implemented. In other cases, some roads may be closed and traffic rerouted through access lines that do not cross the streams.

Figure CXLIII. Beaver Dams and Dens within the Hangman Creek Watershed.

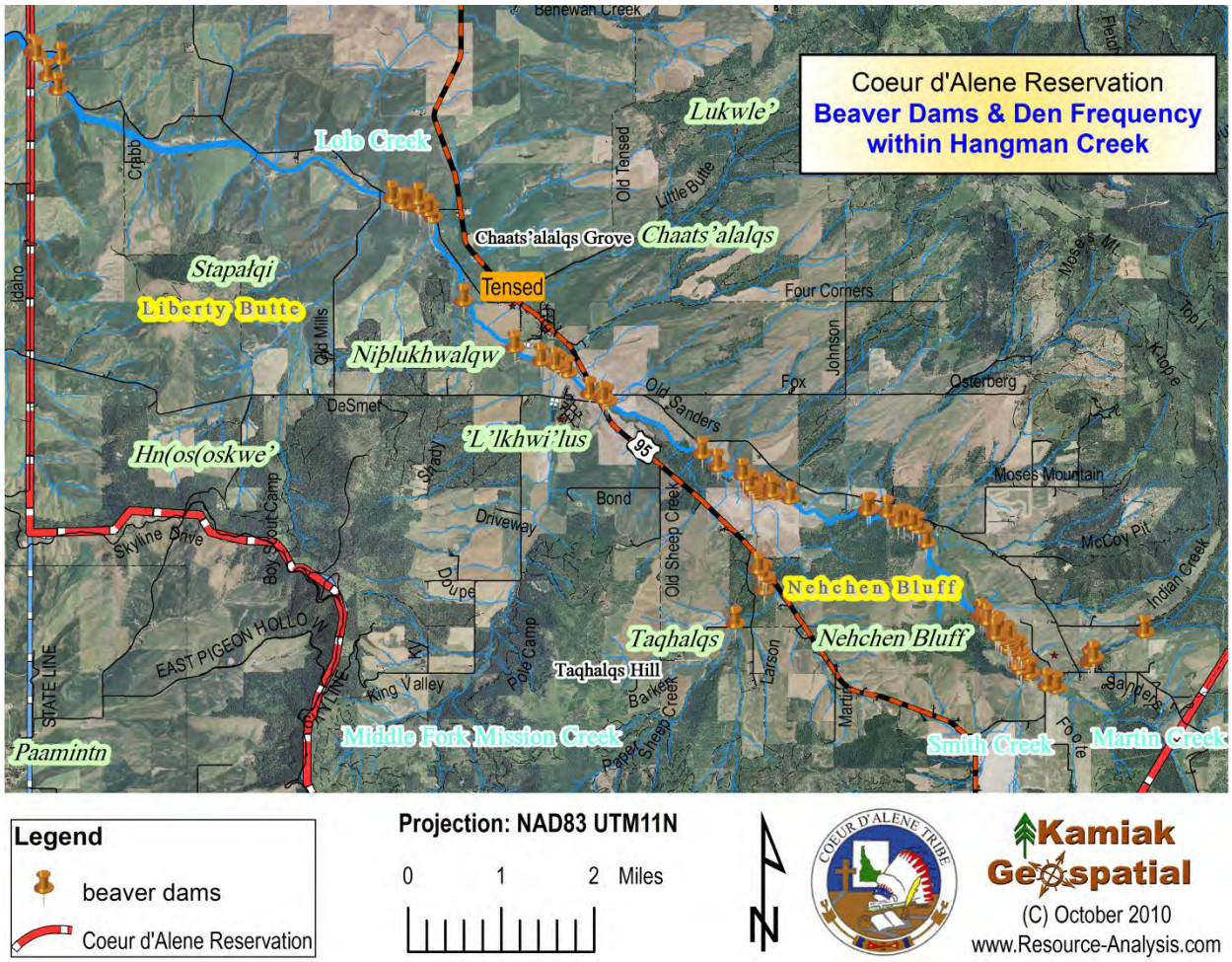


Figure CXLIV. Fire Station in Worley.

Chapter 6. Resources, Capabilities, and Needs Assessment

6.1. Coeur d'Alene Tribe Legal and Regulatory Resources Available for Hazard Mitigation Efforts

The Resources, Capabilities, and Needs Summary was a survey given to all managers of Tribal Divisions, emergency services, agencies, and others involved in the administration of hazard mitigation, preparedness, and protection on the Coeur d'Alene Reservation. It was also intended to collect information to ascertain the current status of protection responsibilities, current resources available to respond to hazard prevention, mitigation, and response, and to collect current information about resources needed by each respondent's organization to better meet the needs of the citizenry of the Coeur d'Alene Reservation.

A total of five surveys have been received and are presented here. The technological and human resource needs identified by the respondents serves to identify needed enhancements to the Coeur d'Alene Tribe's preparedness for natural disaster preparedness.

6.1.1. Wildlife Program

Table 47. Resources, Capabilities, and Needs: Wildlife Program.

Department Name		Wildlife Program
Name & Position of Person Preparing this Summary		Cameron Heusser, Wildlife Program Manager
Address & Telephone		850 A St, PO Box 408, Plummer, ID 83851, 208-686-5521
Service Area		Coeur d'Alene Indian Reservation
Describe your services and organization goals in overview (100 words or less)		The Wildlife Program is responsible for ensuring the protection and preservation of wildlife resources throughout the aboriginal lands of the Coeur d'Alene Tribe. The program strategy is rooted in the protection and enhancement of wildlife habitats as a means of maximizing the potential of traditional lands to support the needs of various wildlife species as well as Tribal members.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	5 trucks, 5 ATVs, 2 snowmobiles, 4 trailers
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	No response entered
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	8 computers, 1 satellite phone, 6 cell phones, 4 handheld radios
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	No response entered
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	1 Program Manager 1 Administrative Assistant 4 Biologists 3 Technicians

Table 47. Resources, Capabilities, and Needs: Wildlife Program.

	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	No response entered

6.1.2. Environmental Programs Office

Table 48. Resources, Capabilities, and Needs: Natural Resource Department – Environmental Programs Office.

Department Name		Natural Resource Department – Environmental Programs Office
Name & Position of Person Preparing this Summary		Tiffany Allgood, EAP Coordinator
Address & Telephone		P.O. Box 408, 850 A Street, Plummer, ID 83851 (208) 686-8802
Service Area		The Coeur d'Alene Reservation and aboriginal territory
Describe your services and organization goals in overview (100 words or less)		The mission of the Environmental Programs Office (EPO) is to conduct multi-disciplinary work in support of the NR Department's mission statement. The EPO strives to protect and improve environmental and human health for the benefit of present and future generations of the Coeur d'Alene people. Services include: Food handling courses, environmental health and safety inspections, commenting on proposed projects, plans, etc. that may affect the environment, long-term natural resources, environmental planning (solid waste, drinking water, Integrated Resource Management Planning, etc.), fundraising, special projects, and other services.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	1 GSA vehicle (leased) – 4 wheel drive small truck 1 emergency radio (once frequency gets programmed)
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	None in terms of the current role of the Environmental Programs Office.
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	4 computers and 1 emergency radio.
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	Unknown.
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	1 EAP Coordinator 1 Environmental Health Specialist 1 Environmental Planner (vacant) 1 Office Manager/Administrative Asst.

Table 48. Resources, Capabilities, and Needs: Natural Resource Department – Environmental Programs Office.

	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Unknown.

6.1.3. Fisheries

Table 49. Resources, Capabilities, and Needs: Natural Resources - Fisheries.

Department Name		Natural Resources - Fisheries
Name & Position of Person Preparing this Summary		Jeff Jordan, Fisheries Program Manager
Address & Telephone		401 Annie Antelope rd, 208-686-8702
Service Area		Coeur d'Alene Reservation
Describe your services and organization goals in overview (100 words or less)		Fisheries related, restoration, monitoring, evaluation, regulatory recommendation, recreational
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	Komatsu D51PX dozer, Bobcat T320 rubber tracked skid steer (various attachments), trash pumps (6 & 3 inch), equipment trailers (two larger and two smaller), travel trailer (purchase early 2010), various power and cordless tools (chainsaws, auger, drills, etc.), ATV's & UTV's, Kubota B3030 tractor (various attachments), larger excavator (purchase early to mid 2010), two dump trucks (military surplus, one 6x6 all wheel drive), motorized boats (3 sizes), 2 smaller portable gas power generators, portable gas metal cutting/welding tanks, dive gear (requiring some servicing and/or repair), several vehicles (pickups, GSA), large portable Traeger electric cooker/smoker
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	Transportation of dozer, excavator
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Equipment operators for mentioned machines, various labor aspects
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	Specialized training and equipment
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	Varies on the response condition(s) Personnel not specialty trained for emergency citations or not current on certifications and/or certification(s) basic short course concept. Have limited personnel trained to operate heavy equipment.

Table 49. Resources, Capabilities, and Needs: Natural Resources - Fisheries.

	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Training and staff depending on the circumstance.

6.1.4. Lake Management

Table 50. Resources, Capabilities, and Needs: Lake Management Department.

Department Name		Lake Management Department
Name & Position of Person Preparing this Summary		Sandra Raskell, Project Engineer
Address & Telephone		PO Box 408 850 A Street Plummer, ID 83851 208-686-1800
Service Area		The Coeur d'Alene Reservation and aboriginal territory
Describe your services and organization goals in overview (100 words or less)		Department responsibilities include but are not limited to; management of lake and river encroachments, water quality protection, lake improvements, aquatic invasive species management, wetlands and riparian lands mitigation, shoreline erosion management, debris management, safe boating, implementation of the recently adopted Tribal /State Coeur d'Alene Lake Management Plan, recreation on Tribal waters (including operation and maintenance of the Trail of the Coeur d'Alenes), and hazardous waste management as it pertains to mining related contamination. The Department Director is designated as lead contact in the Avista / Spokane River Project dam relicensing effort.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	4 GSA vehicle (leased) – 4 wheel drive vehicles (trucks/JEEPs) 1 Spill Response Kits
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	1 Additional GSA vehicle Replace and replenish spill kits as needed
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	5 computers
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	Central Radio System

Table 50. Resources, Capabilities, and Needs: Lake Management Department.

Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	1 Recreation Program Manager 1 Hazardous Waste Management Program Manager 1 Water Resources Program Manager 1 Lake and Rivers Program Manager 1 Project Engineer Other Lake Management Staff
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Unknown

6.1.5. Land Services

Table 51. Resources, Capabilities, and Needs: Natural Resources – Land Services.

Department Name		Natural Resources' Land Service
Name & Position of Person Preparing this Summary		John M. Abraham, Manager Land Service
Address & Telephone		PO Box 408, Plummer, Idaho 83851
Service Area		Coeur d'Alene Reservation
Describe your services and organization goals in overview (100 words or less)		To provide trust management service to Coeur d'Alene Tribe
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	Telephone, Computer, Video Camera, Radio
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	No response entered
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Telephone, Computer, Video Camera, Radio
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	No response entered
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	Smoke Management Staff
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	No response entered

6.1.6. Land Services

Table 52. Resources, Capabilities, and Needs: Natural Resources – Land Services.

Department Name	Natural Resources' Forestry

Table 52. Resources, Capabilities, and Needs: Natural Resources – Land Services.

Name & Position of Person Preparing this Summary		Kurt Mettler, Forest Manager
Address & Telephone		PO Box 408, Plummer, Idaho 83851
Service Area		Coeur d'Alene Reservation
Describe your services and organization goals in overview (100 words or less)		Management of the trust forests within the reservation boundary.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	Fire engines, ATV's, pumps, equipment trailers, radios, transport vehicles, snow plow pickup truck.
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	Water tender, funding for equipment operators.
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Radios, tents, MRE's, Incident Command System (ICS) training, computers/GIS, Emergency Blankets, cots.
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	Narrow band repeater, program specific radio frequency.
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	8/2010 –Twelve fire qualified individuals, various ICS qualified individuals.
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	6 additional equipment operators/fireguards (plus funding).

6.1.7. Forestry Fuels Program

Table 53. Resources, Capabilities, and Needs: Forestry Fuels Program.

Department Name	Forestry Fuels Program
Name & Position of Person Preparing this Summary	Chuck Simpson, Fuels Specialist
Address & Telephone	850 A. Street, Plummer, ID 83851
Service Area	Coeur d'Alene Reservation
Describe your services and organization goals in overview (100 words or less)	The Forestry Fuels Program works to reduce the risk of fire damage to property and the natural habitat, by eliminating brush and other natural materials which fuel wildfires.

Table 53. Resources, Capabilities, and Needs: Forestry Fuels Program.

Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	• 1 Dodge Pickup 2500 Single Cab GSA Vehicle • 1 Chevy Pickup 2500 Crew Cab GSA Vehicle • 1 Chevy Pickup 1500 Crew Cab GSA Vehicle • 2010 Polaris Ranger • Yamaha Grizzly 4 Wheeler • 66 Gallon Fuel Tank & Pump • Briggs & Straton Air Compressor • 2, 50 Feet Air Hoses • Ford F550 • 3 Stihl 350 Brush Cutters • 2 Stihl 85 Brush Cutters • Titan Generator • PJ Tow Trailer • Ford F250
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	No Response
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	• 2 Garmin 60cx GPS Units • Trimble 2008 GEO XT GPS Device
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	No Response
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	No Response
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	No Response

6.1.8. Fire Management

Table 54. Resources, Capabilities, and Needs: Fire Management.

Department Name	Fire Management
Name & Position of Person Preparing this Summary	Daniel Vassar, Training Specialist/Safety Officer
Address & Telephone	187 Agency Loop Road or P.O Box 408 Plummer Idaho 83851, Plummer Idaho 83851 208-686-7004
Service Area	Coeur d'Alene Reservation
Describe your services and organization goals in overview (100 words or less)	The Fire Management Program works cooperatively with local, state and federal agencies to protect tribal, allotted and fee lands against catastrophic wildfires. The Fire Management Program also prescribes burning to prepare planting sites, initiates underburning to increase forage and reduce fuel loading, and maintains a defensible space program to protect tribal homes from fire.

Table 54. Resources, Capabilities, and Needs: Fire Management.

Department Name		Fire Management
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	• 2006 Ford F550 E5561 • 2003 Ford F550 E5562 • 1994 International 4700DT E5541 • 2000 International 4700DT E5551 • 1994 Ford F450 E5571 • 1995 Ford F700 Flat bed • 1984 Chevrolet military Truck (Snow plow) • 2006 Chevrolet Silverado Command truck • 1990 Ford F250 • Kubota (ATV) • 15 chain saws • 2 trailers • 2 welders • Wheel balancing machine • Tire changing machine • John Deere tractor (grapple, bucket, tiller, mower) • Water tender (In poor condition) • DR mower • 2 generators
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	• Replace water Tender • Replace command truck • Replace trailer • Replace type 4 engine • Kubota (ATV) • Passenger Van (transporting personnel) • Update fire cashe (Fire pants, fire shirts, hard hats, ect.) • Land tamer (UTV)
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	• 1 Repeater in Tekeo Washington • 11 truck Radios • 19 hand held radios (Some radios do not work) • 2 cases of MRE's (Meals Ready to Eat) • 3 computers in office • 1 laptop
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	• Update older handheld radios (to digital) • Update older truck radios (to digital) • Replace 2 older computers • 1 laptop
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	1. Thomas Pakootas- Fire Management Officer (FMO) 2. Daniel Vassar- Training Specialist/Safety Officer 3. Donald Pakootas- Engine Boss 4. Michael Hendrickx-Engine Boss 5. Leonard Tomaskin- Firefighter Type 2

Table 54. Resources, Capabilities, and Needs: Fire Management.

Department Name	Fire Management
List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	1. 8 Firefighter type 2 2. 1 dozer operator with CDL (class A) driver's license. 3. 1 Diesel Mechanic

6.1.9. Forestry Roads Program

Table 55. Resources, Capabilities, and Needs: Forestry Roads Program.

Department Name		Forestry Roads Program
Name & Position of Person Preparing this Summary		George Torpey
Address & Telephone		850 A. Street, Plummer ID 83851 (208) 582-2517
Service Area		Coeur d'Alene Reservation
Describe your services and organization goals in overview (100 words or less)		The Forestry Roads Program is responsible for operations of the tribal rock pit in Plummer. Other responsibilities include maintaining tribal roads leading to tribal forest lands.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	• 2006 Trio Impactor Crusher • 1995 Caterpiller D5 Dozer • 1966 Caterpillar D7 Dozer • 1991 Komatsu PC 60 Excavator • 1995 Caterpillar 311 Excavator • 1975 Shop Built Tilt Deck Trailer • 1974 Huber Grader • 1968 Hyster Tire Roller • 1995 Ford Dump Truck • 1996 Ford Dump Truck • 1977 IHC Water Tender • 2003 American Air Burner • 1997 Protogrind 1200 Demolition Grinder • 1971 Caterpillar 950 Front Loader • 1994 Caterpillar 936 Loader • 2003 Freightliner Truck Tractor • 1986 Freightliner Truck Tractor • 1985 Chevrolet Truck Flatbed • 1989 Ford Fuel Truck • 1976 Fruehauf End Dump Trailer • Extec Turbu 5000 • 1985 Ace 1500 Fuel Storage Tank • 1986 Recycle Systems Chip Colorizer • Bri-Mar Dump Bed Insert
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	Heavy Equipment Transport – Lowboy Trailer

Table 55. Resources, Capabilities, and Needs: Forestry Roads Program.

Department Name		Forestry Roads Program
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Portable Radios
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	Back-Up Generator
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	3 Heavy Equipment Operators 1 Equipment Supervisor/Operator
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	1 Supply/Parts Officer 1 Dispatch/Billing & Receiving Officer

6.1.10. Tribal Housing Authority

Table 56. Resources, Capabilities, and Needs: Tribal Housing Authority.

Department Name		Coeur d'Alene Tribal Housing Authority
Name & Position of Person Preparing this Summary		Louis H. Aripa, Sr., Accounts Payable
Address & Telephone		PO Box 267, 1005 8th St, Plummer, Idaho 83851
Service Area		DeSmet, Tensed, Plummer, Worley
Describe your services and organization goals in overview (100 words or less)		Make sure our housing is safe to occupy after or during a disaster.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	None available.
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	Generators, equipment trailers, and snow plows
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	None available
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	Emergency communications, shelter/meals, etc. HazMat equipment
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	Three employees are currently on emergency call list, regarding housing & our office.
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	To be determined once this plan is established.

6.1.11. Public Works

Table 57. Resources, Capabilities, and Needs: Public Works.

Department Name		Public Works
Name & Position of Person Preparing this Summary		Jim Kackman, Director
Address & Telephone		P.O. Box 408 Plummer, ID 83851 208-686-2066
Service Area		All areas within the Reservation Boundary
Describe your services and organization goals in overview (100 words or less)		Manage construction projects, land use planning, road maintenance, grants, transportation planning.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	• 1975 International Dump Truck • 1975 Dodge Water Truck • 1996 Kenworth T800 Dump Truck • 2006 Sterling Dump Truck • 2005 Trailmax TD-20-T • 1996 Ford Truck (1 Ton - F450) • 2002 Sterling Elgin Sweeper • 2006 Dodge R35 (1 Ton - Ram) • 1976 Dodge Pickup • 1972 General Dump Truck (Small) • 1985 Chev Blazer • Equipment John Deere 544J Loader • Equipment Komatsu Excavator
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	Road grader
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	We have a UHF radio frequency for departments to tune into as well as an emergency frequency for others to use as well. Our department can help with hazards in terms of bringing in heavy equipment to do certain work.
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	We could use a few more radios for other departments to access the emergency frequency in the event of an emergency.
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	We have 3 road maintenance employees, a project coordinator and the director who could assist with an emergency or hazard if needed.
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	None.

6.1.12. Pesticide Enforcement

Table 58. Resources, Capabilities, and Needs: Pesticide Enforcement.

Department Name		Pesticide Enforcement
Name & Position of Person Preparing this Summary		Eric Gjevre
Address & Telephone		Agency Road Building 132 Plummer, ID 83851
Service Area		Coeur d'Alene Reservation
Describe your services and organization goals in overview (100 words or less)		Pesticide Enforcement of Coeur d'Alene Tribal Pesticide Code and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	4 DR 4 WD Pickup
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	No response entered
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Cell phone, aircard, related office/field equipment
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	No response entered
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	1 full time, 1 part time temporary
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	No response entered

6.2. State and Federal Cooperator Summaries

State and Federal organizations operating within the Coeur d'Alene Reservation and with the Coeur d'Alene Tribe are summarized for reference purposes. These organizations have cooperated with the Coeur d'Alene Tribe in the development of this Tribal Hazards Mitigation Plan.

6.2.1. Bureau of Land Management

Table 59. Resources, Capabilities, and Needs, Bureau of Land Management.

Department/Organization Name	U.S. Dept. of Interior, Bureau of Land Management (BLM)
Name & Position of Person Preparing this Summary	Kurt Pavlat, Field Manager, Coeur d'Alene Field Office
Address & Telephone	3815 Schreiber Way, Coeur d'Alene, ID 83815 (208) 769-5038
Service Area	Boundary, Bonner, Kootenai, Benewah and Shoshone Counties

Table 59. Resources, Capabilities, and Needs, Bureau of Land Management.

Describe your services and organization goals in overview (100 words or less)		Multiple use and sustained yield management of federal public lands and resources located in the five northern counties of Idaho. BLM resource specialists located in Coeur d'Alene specialize in forest management, hazardous fuels management, botany, cultural resource mgmt., wildlife/fisheries management, lands/realty, noxious/invasive species management, hydrology, geology/mine engineering, GIS, IT, environmental engineering, outdoor recreation management, environmental planning, law enforcement, cadastral survey, public affairs, financial management and abandoned mine land/HAZMAT management.
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	The BLM has a type 6 fire engine located in Coeur d'Alene. The BLM also has various pickup trucks/SUVs and one 1 ton stake truck available for transporting people and hauling equipment and supplies.
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	None
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Hand-held broad-band programmable radios, hand-held GPS units, fire shelters, satellite telephones and various GIS mapping software.
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	None
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	The BLM has four Foresters, two Fuels Management Specialists (one Fire Ecologist and one Fuels Technician), one Law Enforcement Officer (LEO), various ICS qualified personnel (fire), one hydrologist, one mining engineer, one budget analyst, one public affairs officer, one IT specialist, three administrative assistants and one environmental engineer located in Coeur d'Alene.
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	None

6.2.2. Heyburn State Park

Table 60. Resources, Capabilities, and Needs: Heyburn State Park.

Department/Organization Name	Heyburn State Park
Name & Position of Person Preparing this Summary	Ron Hise
Address & Telephone	1291 Chatcolet Rd
Service Area	Western Benewah County

Table 60. Resources, Capabilities, and Needs: Heyburn State Park.

Describe your services and organization goals in overview (100 words or less)		Heyburn State Park consists of 5,700 acres of land and 2,300 acres of water and is situated on the southern end of Coeur d'Alene Lake. Services and amenities include three campgrounds, five day use areas, two marinas, three boat launches, three rental cottages, 16 miles of non-motorized trails, and a visitor information center. The park is also home to 166 privately leased cottages and 20 historic structures. Our goal is to provide for quality recreational opportunities and resource stewardship.
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Resources available: 1 John Deere 450 bulldozer, 1 case backhoe/loader, 1 75 gallon slip in fire pumper, 1 150 gallon slip in fire pumper, 1 17' aluminum work boat w/90hp outboard, 1 one ton 4x4 with 8 ½' snow plow, 1 Yamaha ATV, 1 Kawasaki Mule UTV.
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	No response entered
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	Human resources available: 5.75 full time employees made up of one manager, one assistant manager, three park rangers, and one part time office staff. From June 1st – August 31st there are an additional 6-10 seasonal employees of various backgrounds and skill levels available.
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	No response entered

6.2.3. Idaho Department of Lands

Table 61. Resources, Capabilities, and Needs: Idaho Department of Lands.

Department/Organization Name	Idaho Department of Lands
Name & Position of Person Preparing this Summary	John Pollard – Fire Warden (no longer with IDL as of June 2010)
Address & Telephone	Idaho Dept. of Lands 1806 Main Ave. St. Maries, ID. 83861 208-245-4551
Service Area	Pts. Benewah, Kootenai and Shoshone Co. West St. Joe Fire Protection District
Describe your services and organization goals in overview (100 words or less)	Wildland Fire Suppression and Hazardous Fuels Management

Table 61. Resources, Capabilities, and Needs: Idaho Department of Lands.

Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Engines – Wildland: Type 4, 4X2, 750 gal. (30F11) Type 6, 4X4, 300 gal. (30F10) Type 6, 4X4, 300 gal. (30F27) Water Tender – Type 3, 1,300 gal. (30F13) Dozer, Tractor & Lowboy – Type 3, Cat D4H, (30f16, 30F14 & 43F19) Pickups – 4X4, ½ & ¾ T – 20 Personnel: ICS Qualified Overhead - 10-15 Firefighters (FFT1 or FFT2) - 10-15
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	P-25 compliant portable radios and associated repeaters Training in P-25 compliant radios Adequate number of portable radios Financial assistance in replacing aging equipment in a timely manner
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	No response entered
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Additional permanent, qualified and trained wildland fire personnel

6.3. Municipality Capabilities and Needs

Municipalities located within the Coeur d'Alene Reservation participated with the Coeur d'Alene Tribe in the development of this planning effort and have completed Resource, Capabilities, and Needs assessments. Their analysis results are presented here with only minor editing.

6.3.1. City of Plummer

Table 62. Resources, Capabilities and Needs, City of Plummer

Name & Position of Person Preparing this Summary	Donna Spier City Clerk & Risk Manager
Address & Telephone	PO Box B Plummer, ID 83851
Service Area	City of Plummer
Describe your services and organization goals in overview	Government services, library, parks, cemetery, roads, public safety (police, animal control), utilities within the city (water, sewer, garbage collection, street lights). Electric distribution in Plummer and surrounding areas.
List your currently available technological resources for use in responding to emergencies in your service area (e.g., list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Snow plows, graders, loader used for plowing, and a sander (generally we use all of our equipment to keep up with city streets. Assist other agencies as we can. Dump trucks, link truck, bobcat, backhoe, trash pump, jetter, water truck, roller, and other miscellaneous equipment and power tools. Vehicles include 2 police cars, police / animal control pickup, cell phones, 2 crews, 2 police officers, and city personnel.

Table 62. Resources, Capabilities and Needs, City of Plummer

List your currently available human resources for use in responding to emergencies in your service area (e.g., detail staff by position and number, plus volunteers)	We have a small staff • 3 city maintenance workers • 2 law enforcement • 3 administrative personnel • 2 library staff
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	• Need emergency generators for at least one water service (well) to provide for emergency fire protection and potable water for residents in the city.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	In the case of an emergency we may need to hire outside help depending on the situation.

6.3.2. City of St. Maries

Table 63. Resources, Capabilities and Needs, City of St. Maries.

Name & Position of Person Preparing this Summary	John W. Adams, Council Member
Address & Telephone	602 College Ave., St. Maries, ID
Service Area	City of St. Maries
Describe your services and organization goals in overview	City participates on the County LEPC, WUI committee, and delivers: • water & sewer • law enforcement • garbage services • street lights • public safety • library • cemetery • planning • building • ambulance • maintenance of federally approved levee system
List your currently available technological resources for use in responding to emergencies in your service area (e.g., list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	The city maintains: • 3 ambulances • 5 patrol cars • 2 backhoes • 3 dump trucks • 1 loader • 2 sanders • 2 water trucks • 1 street sweeper • 1 line rodder • 5 mowers • 1 grader • 1 generator • Misc. power tools and equipment • 8 handheld radios with repeater

Table 63. Resources, Capabilities and Needs, City of St. Maries.

List your currently available human resources for use in responding to emergencies in your service area (e.g., detail staff by position and number, plus volunteers)	• 6 police officers • 2 certified water operators • 2 certified wastewater operators • 8 maintenance workers • 12 volunteer EMTs • 2 grounds keepers • 1 cemetery sexton • 2 library staff • 4 administrative personnel
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	• Security system for City's main water source at Rochat Creek • Pumping system for secondary water source at St. Joe River • Storm sewer pumping system • City Hall backup generator

6.3.3. City of Tensed

Table 64. Resources, Capabilities and Needs, City of Tensed.

Name & Position of Person Preparing this Summary	Mayor Faith Harvey
Address & Telephone	PO Box 126, Tensed, ID
Service Area	City of Tensed
Describe your services and organization goals in overview	The City of Tensed is on Hwy 95 half way between Moscow and Coeur d'Alene. We have a floodplain we are addressing with FEMA, to establish a BFE for our town's development. Our current issues include working with Idaho DEQ on water supply for the City.
List your currently available technological resources for use in responding to emergencies in your service area (e.g., list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	• Tensed Fire District • Tensed Ambulance • 1-ton snow plow
List your currently available human resources for use in responding to emergencies in your service area (e.g., detail staff by position and number, plus volunteers)	Fire and Ambulance 911 Services
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	• 10 fire hydrants to be located within the city • Radio communications needs • Improved access to the sewer lagoons and increased protection from flood waters

6.3.4. City of Worley

Table 65. Resources, Capabilities and Needs, City of Worley.

Department Name	City of Worley
Name & Position of Person Preparing this Summary	Brenda Morris, Clerk, Water/Wastewater Operator
Address & Telephone	P.O. Box 219, Worley, Idaho 83876
Service Area	Worley
Describe your services and organization goals in overview (100 words or less)	We provide utility services, such as water, sewer and garbage. We try to provide the best service possible to the customer at a reasonable price.

Table 65. Resources, Capabilities and Needs, City of Worley.

Department Name		City of Worley
Major Equipment Resources	List your currently available major equipment resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. vehicles, generators, equipment trailers, fire protection apparatus, snow plows, search & rescue trucks, etc.)	Snow plow/dump truck Backhoe
	List your major equipment needs for responding to emergencies, or mitigating potential hazard conditions which are not currently in inventory.	Water truck Newer backhoe Generator Confined Space Equipment
Technological Resources	List your currently available technological resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. communications, emergency shelter/meals, etc.)	Emergency shelter at Senior Center.
	List your organization's technological needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently in inventory, in your service area.	Generator for Senior Center.
Human Resources	List your currently available human resources for use in responding to emergencies, or mitigating potential hazard conditions in your service area (e.g. detail staff by position and number, plus volunteers)	City staff - 3 City Council - 5
	List your organization's human resource needs for responding to hazard emergencies, or mitigating potential hazard conditions, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	More volunteers and training.

6.4. Emergency Services Capabilities and Needs

Resource, Capabilities, and Needs forms were completed by each of the fire protection organizations on the Coeur d'Alene Reservation and are presented in this section with only minor editing.

6.4.1. St. Maries Fire Protection District

Table 66. Resources, Capabilities, and Needs, St. Maries Fire Protection.

Name & Position of Person Preparing this Summary	Chief Larry Naccarato
Address & Telephone	308 West Jefferson Ave. 1-208-245-5253- Office
Service Area	Kootenai Harrison and Benewah County St. Maries a total of 80 Square miles. The technical rescue area is over 2,350 square miles.
Describe your services and organization goals in overview	Provide Structure protection Wildland fire protection, and vehicle fire protection. We also provide extrication, and technical rescue.
List your currently available technological resources for use in responding to emergencies in your service area (e.g., list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	4-Type 1 Structure Eng. 2-Type 1 Water Tenders 1- Type 3 Rescue Truck 2-Type 6 Brush Trucks 1 Mobile Support Truck- With portable air system 2- Support vehicles 1- Trailer mounted 750 GPM pump 1- Command vehicle

Table 66. Resources, Capabilities, and Needs, St. Maries Fire Protection.

List your currently available human resources for use in responding to emergencies in your service area (e.g., detail staff by position and number, plus volunteers)	901- Fire Chief 902-A Chief Training Officer EMT-A 903- A Chief of Operations EMT-B 913 Sta. 1 Capt EMT-B 906- Sta. 2 Captain 908-Sta. 3 Capt. 911 Lt. Sta. 1 EMT_B 914,915 Lt. Sta 3 Sta 1, Volunteer FF 20 Sta 2, Volunteers FF 8 Sta 3, Volunteers FF 5
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	1- 1-Mountain top repeater- p-25 2- 3- fixed base stations with page capable/ Communications P-25 3- 40 Handheld radio units/ P-25 4- 1- Water tender 5- 3- F-550 Wildland units 6- 8000 of Structure hose, 11/2, 21/2, LDH 7- New ropes and hardware for technical rescue 8- Need Fire Fighters Personal Protective Equipment (Turnouts)
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	1. More Volunteers 2. Money for sending FF to Specialty training.

6.4.2. Tensed Ambulance Department

Table 67. Resources, Capabilities, and Needs, Tensed Ambulance.

Name & Position of Person Preparing this Summary	Paul E. Damon, President
Address & Telephone	PO Box 6, Tensed, ID
Service Area	Southwestern portions of Benewah County.
Describe your services and organization goals in overview	Our goal is to provide excellent emergency medical services at the EMT Basic level along with rapid ambulance transport for people of the greater Tensed community.
List your currently available technological resources for use in responding to emergencies in your service area (e.g., list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Tensed Ambulance has one 4x4 Ambulance equipped as per the State of Idaho for EMT Basic service.
List your currently available human resources for use in responding to emergencies in your service area (e.g., detail staff by position and number, plus volunteers)	We have 8 certified EMT Basics and 2 non-certified drivers for a total of 10 staff.
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	We currently need radios that are P25 capable. In the next five years we will need to update our ambulance.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	We need additional EMTs and Basic Training.

6.4.3. Gateway Fire Protection District

Table 68. Resources, Capabilities, and Needs, Gateway Fire Protection District.

Name & Position of Person Preparing this Summary	Mike Meagher, Fire Chief
Address & Telephone	PO Box 328, Plummer ID
Service Area	Gateway Fire Protection District
Describe your services and organization goals in overview	Provide fire protection and suppression to approximately 129 square miles. Provide extraction and BLS response to approximately 275 square miles.
List your currently available technological resources for use in responding to emergencies in your service area (e.g., list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	• 4500 gal water tender • 1250 gpm engine • 1000 gpm engine • Extraction / rescue / EMS truck • 1 ton brush truck 1986 • 1 ton brush truck 1987
List your currently available human resources for use in responding to emergencies in your service area (e.g., detail staff by position and number, plus volunteers)	• 1701 – Fire Chief / EMT B • 1703 – Captain / EMT B • 1704 – Captain / EMT B • 1705 – Lieutenant / EMT B • 1707 – Firefighter • 1708 – Engineer • 1709 – Firefighter / EMT A • 1710 – Firefighter • 1711 – Lieutenant / EMT B • 1712 – Firefighter / EMT B • 1713 – Firefighter / EMT B • 1714 – Firefighter • 1715 – Firefighter • 1716 – Firefighter / EMT B • 1717 – Engineer • 1718 - Firefighter
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	• Water Tenders • Radio Communications compliant with P25 System • Laptop computers for trucks • Fire Hose • Construct turnouts on access routes • Extraction equipment • Gas detectors
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	• More volunteers • Training locally for the volunteers in the organization.

6.4.4. Worley Fire Protection District

Table 69. Resources, Capabilities, and Needs, Worley Fire Protection District.

Name & Position of Person Preparing this Summary	Brenda Morris, Clerk, Water/Wastewater Operator
Address & Telephone	P.O. Box 219, Worley, Idaho 83876
Service Area	Worley
Describe your services and organization goals in overview	We provide utility services, such as water, sewer and garbage. We try to provide the best service possible to the customer at a reasonable price.
List your currently available technological resources for use in responding to emergencies in your service area (e.g., list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Snow plow/dump truck Backhoe

Table 69. Resources, Capabilities, and Needs, Worley Fire Protection District.

List your currently available human resources for use in responding to emergencies in your service area (e.g., detail staff by position and number, plus volunteers)	Water truck Newer backhoe Generator Confined Space Equipment
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	Emergency shelter at Senior Center.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	Generator for Senior Center.

6.4.5. Shoshone County Fire District #2

Table 70. Resources, Capabilities, and Needs, Shoshone County Fire District #2.

Name & Position of Person Preparing this Summary	Dale A. Costa, Fire Chief
Address & Telephone	14 W. Market Street, Kellogg, ID 83837 (208) 784-1188
Service Area	Starting at I-90 milepost 55.5 west to milepost 29.5. Down State highway 3 to milepost 103.4. We service both Western Shoshone and Eastern Kootenai County. We only go approximately 2-tenths of a mile up the Coeur d'Alene River from I-90. We take in all the gulches within our jurisdiction. Pinecreek we up 10 miles from the station to the Spokane/Idaho Mine. Approximately 2 miles above the Sunshine Mine. We do have 37 private fire protection contracts up the Coeur d'Alene River. Our district covers approximately 200 square miles.
Describe your services and organization goals in overview (100 words or less)	Shoshone County Fire District No. 2 responds to both structural and wildland fires within our jurisdiction. We provide basic first responder non-transport Emergency Medical Services, Heavy Rescue Extrication and some Backcountry Rescue Operations and are capable of responding to any Hazardous Materials Situation, to provide for rescue operations, and initial size up along with securing the scene until the arrival of the Region 1 Response Team. We also provide mobile decontamination services. In addition, we provide ice rescue services and have six certified drivers that are supported by the Fire District to work with the Shoshone County Dive Rescue Team. Shoshone County Fire District No. 2 is dedicated to providing a Well Trained, Highly Efficient, and Cost Effective Fire / Rescue Entity along with Public Services provided to all the citizens and visitors that are encountered.
List your currently available technological resources for use in responding to emergencies in your service area (e.g. list of fire protection apparatus, snow plows, search and rescue trucks, etc.)	Shoshone County Fire District No. 2 operates out of 4 stations with a 5th to be built this Summer. The 2 fire stations in Kellogg are owned by the City. Both the Kellogg and Doyle Road Stations have training rooms. Apparatuses We have six type on engines that meet or exceed NFPA Standards. One is equipped with an on board foam system and three have onboard generators with lights. 3 Equipped with 1500 GPM pumps with 1000 gallons of water. 1 Equipped with 1000 GPM pump with 750 gallons of water. 1 Equipped with 750 GPM pump with 750 gallons of water.

Table 70. Resources, Capabilities, and Needs, Shoshone County Fire District #2.

	1 Equipped with 1500 GPM pump with 1000 gallons of water. 1 50-foot aerial platform, 1000 GPM pump with 300 gallons of water. 1 2500 Gallon Water Tender. 1 Heavy Rescue Extrication Vehicle with the Hurst "Jaws of Life". 1 2500 Gallon Water Tender. 1-250 gallon Water Donkey, not potable. 1 Hazardous material Response Trailer. 9 Level A Hazardous Material suites. 6 level A Training suites. Decontamination Equipment. Portable Propane Hot Water Heater. 4 CBRNE Certified Self Contained Breathing Apparatus. 1 – 6000 PSI Hypress Compressor with 4 bottle Cascade System. 2 – 2 bottle Cascade Systems. 6 Ice Rescue Suites. 2 Fold-A-Tanks, 1-2500 gallon and 1-1500 galloon. 2 Thermal Imaging Cameras, one with remote video feed. 2 District owned command Vehicles.
List your currently available human resources for use in responding to emergencies in your service area (e.g. detail staff by position and number, plus volunteers)	8 Career Fire Fighters with 2 Chief Officers and 6 Fire Fighters with 2 on duty 24-7. 30 Volunteer Fire Fighters
List your organization's technological needs for responding to hazard emergencies, which are not currently in inventory, in your service area (e.g., fire trucks or water tenders, fire hydrant network, radio communications network, etc.)	We need to update our portables and pagers. We provide one each for all personnel and 1 for each of our apparatus. Total need is 47 of each. All our equipment is old and we maintain them to the best of our ability. We are updating when possible We need to add three water tenders and three type 6 brush trucks, one for each of our stations We need a 100-foot ladder for Kellogg, which would require a new station for it to fit in.
List your organization's human resource needs for responding to hazard emergencies, which are not currently utilized, in your service area (e.g., additional number of paid staff, more volunteers, training for volunteers and staff, etc.)	We need to add 9 fire fighters to bring us back to our 1982 staffing with duty personnel 24-7. To meet NFPA standards we need 18 personnel to be in complacence with NFPA 2-in-2-out rule on a first in engine.

Figure CXLV. Lovell Valley, a tributary of the Hangman Creek Watershed. Farming plowed lands “to the stream bank”, and narrow bridge crossings have increased stream incised meanders and limited floodplain functioning on many streams like this one on the Coeur d’Alene Reservation.

Chapter 7. Proposed Mitigation Measures

7.1. Summary of the Mitigation Measures Approach

This Tribal Hazards Mitigation Plan's implementation will reflect the unique challenges of the Coeur d'Alene Tribe, and each community within the Reservation. In response to these challenges, it is the desire of the Coeur d'Alene Tribe, associated agencies and organizations to continue the implementation of existing programs that have already provided a level of safety and preparedness in the protection of people, structures, infrastructure, the economy, and traditional way of life of the Coeur d'Alene Tribe and to improve those efforts in the long term.

A series of potential mitigation measures have been developed in this section of the Tribal Hazards Mitigation Plan. These activities are listed in Table 74 - Table 77. While each of these activities has been presented as a stand-alone project, in reality these projects must be implemented in a holistic approach to hazard mitigation in order to achieve increased protection.

In order to accomplish these programmatic goals, the Coeur d'Alene Tribe will continue to involve the neighboring jurisdictions mentioned in this plan. The implementation of this plan is applicable within the exterior boundaries of the Coeur d'Alene Reservation as defined by federal law.

Much of the funding for Coeur d'Alene Tribe's hazard mitigation projects identified in this effort will rely substantially on funding from outside sources. The Coeur d'Alene Tribe has limited resources to provide in-kind services of professional staff and administrative staff in the development and implementation of hazard mitigation projects. The acquisition of materials and equipment to implement many of the projects will rely on grant funding and cooperation with partners and neighboring jurisdictions.

7.2. Potential Funding Opportunities

General long-range fiscal planning is needed to carry out the activities recommended in this plan. Financial considerations include Tribal, federal, state, and private granting entities, directed local in-kind services, local funding, and local funding assistance from Tribal and State resources. Funding mechanisms can be combined to maximize project financing and project diversity.

7.2.1. Traditional Funding Agency Approach

Traditional funding agencies (e.g., Rural Development, Department of Commerce, and USACE) are focused on particular infrastructure issues that address regulatory compliance or public safety. Regulated systems typically funded are water and sewer because of the Clean Water Act, National Pollution Discharge Elimination System (NPDES), Safe Drinking Water Act (SDWA), and other federal laws. These two systems are common to all communities and are a focus of lawmakers and regulators. Finally, these systems are necessary for development, job creation, and other high priority uses for grant and loan money made available by the federal government.

7.2.2. Non-Traditional Funding Opportunities

Private funding from foundations and corporations is very competitive, and their processes are different from federal government funding. Because they are not accountable to voters, they fund according to their own specific set of priorities. The most common recipients of this type of funding are non-profit organizations. These non-profit organizations typically carry forward the goals of these non-traditional funding sources and can be an important implementation mechanism for rural communities such as are found on the Coeur d'Alene Reservation. This

funding source will typically contribute $5,000 to $100,000 towards a project. This source should be viewed as a supplement to the major funding agencies or as a funding source for smaller projects.

7.2.2.1. Federal, State, and Local Funding Options

Tribal, federal, state, and local funding sources are available to Indian Communities and utility districts located on the Coeur d'Alene Reservation. In general, funding options can be broken down into several categories, including grant and loan programs. The following list provides potential sources of funding and contains outlines for availability and eligibility requirements for the various funding options.

7.2.2.1.1. Grant Programs

- Community Development Block Grant Program (Idaho Department of Commerce)
- Economic Development Administration (U.S. Department of Commerce)
- Rural Development Program, US Department of Agriculture (formerly Farmers Home Administration)
- Surface Transportation Program (STP) Local Rural, Idaho Transportation Department
- Surface Transportation Program (STP) Local Urban, Idaho Transportation Department
- Surface Transportation Program Enhancement, Idaho Transportation Department
- Indian Community Development Block Grant (ICDBG) Program
- Indian Health Service
- U.S. Environmental Protection Agency
- Department of Health and Human Services (DHHS)
- Housing and Urban Development (HUD)

7.2.2.1.2. Loan Programs

- Drinking Water State Revolving Fund Loan
- Wastewater Revolving Fund Loan

7.2.2.1.3. Local Resources

- Pay-As-You-Go
- Reserve Fund Financing
- General Obligation Bonds
- Revenue Bonds
- Local Improvement District
- Business Improvement District
- Impact Fees

7.2.2.2. Leveraging Funds

There are several methods to make grant dollars stretch so that the Coeur d'Alene Tribe can get the "biggest bang for the buck." The concept of leveraging means that you use more than one source of money to supplement a project.

7.2.2.2.1. Percentage and/or In-Kind Match

The Percentage and/or In-Kind Match method requires a set percentage (such as 25%) in local cash or in-kind resources from an entity to support a project. Without this amount of local financial contribution the grant application may not receive sufficient scoring points used to calculate grant awards, or may not be qualified to receive the intended grant award. Often reduced or waived in-kind matches are provided for qualified tribes when requested. Each grant should be evaluated on a unique situation basis.

7.2.2.2.2. Direct In-Kind Match

A second method, Direct In-Kind Match, means that the agency or community will make a non-cash contribution toward the project. Non-cash contributions can be in the form of goods, services, facilities, space, personnel, materials, and equipment calculated at fair market value. Often reduced or waived in-kind matches are provided for qualified tribes when requested. Each grant should be evaluated on a unique situation basis.

7.2.2.2.3. Dollar-for-Dollar Leverage Match

A third method, Dollar-for-Dollar Match, means that an entity, like the Coeur d'Alene Tribe, can leverage grant funds from one funding source with grant funds from a second funding source. For instance, the Coeur d'Alene Tribe may be able to leverage state grant funds with federal dollars. Verification is necessary before implementation to confirm that a grantor agency will allow this arrangement. Some grantor agencies use a so-called leveraging ratio to measure money an entity has from other sources that could be matched to the project grant. Generally, the more money an entity can bring in from other sources the better the chance of being funded.

7.2.3. Project Funding Opportunities Identified by FEMA

FEMA Region X has provided valuable references for potential funding of projects identified in this planning effort. These are summarized in Table 71 and are available to the Coeur d'Alene Tribe and associated cooperators.

Table 71. Federal Financial Resources for Hazard Mitigation.

Subtype	Administrator	Purpose	Amount/Availability
Hazard Mitigation Grant Program (HMGP)	Federal Emergency Management Agency (FEMA)	Support pre- and post-disaster mitigation plans and projects.	Available to communities after a Presidentially declared disaster has occurred within the state. Grant award based on specific projects as they are identified.
Pre-Disaster Mitigation (PDM) grant program	FEMA	Support pre-disaster mitigation plans and projects.	Available on an annual basis, nationally competitive grant. Grant award based on specific projects as they are identified (no more than $3M federal share for projects).
Flood Mitigation Assistance (FMA) grant program	FEMA	Mitigate repetitively flooded structures and infrastructure.	Available on an annual basis, distributed to communities within state by the state emergency management grants specialists. Grant award based on specific projects as they are identified.

Table 71. Federal Financial Resources for Hazard Mitigation.

Subtype	Administrator	Purpose	Amount/Availability
Assistance to Firefighters Grant (AFG) Program	FEMA/USFA (U.S. Fire Administration)	Provide equipment, protective gear, emergency vehicles, training, and other resources needed to protect the public and emergency personnel from fire and related hazards.	Available to fire departments and nonaffiliated emergency medical services. Grant award based on specific projects as they are identified.
Homeland Security Preparedness Technical Assistance Program (HSPTAP)	FEMA/DHS	Build and sustain preparedness technical assistance activities in support of the four homeland security mission areas (prevention, protection, response, recovery) and homeland security program management.	Technical assistance services developed and delivered to state and local homeland security personnel. Grant award based on specific projects as they are identified.
Community Block Grant Program Entitlement Communities Grants	U.S. Department of Housing and Urban Development	Acquisition of real property, relocation and demolition, rehabilitation of residential and non-residential structures, construction of public facilities and improvements, such as water and sewer facilities, streets, neighborhood centers, and the conversion of school buildings for eligible purposes.	Available to entitled jurisdictions (including Tribes in some situations). Grant award based on specific projects as they are identified.
Community Action for a Renewed Environment (CARE)	U.S. Environmental Protection Agency (EPA)	Through financial and technical assistance, offers an innovative way for a community to organize and take action to reduce toxic pollution (i.e., storm water) in its local environment. Through CARE, a community creates a partnership that implements solutions to reduce releases of toxic pollutants and minimize people's exposure to them.	Competitive grant program. Grant award based on specific projects as they are identified.
Clean Water State Revolving Fund (CWSRF)	EPA	The CWSRF is a loan program that provides low-cost financing to eligible entities within state and tribal lands for water quality projects, including all types of non-point source, watershed protection or restoration, estuary management projects, and more traditional municipal wastewater treatment projects.	CWSRF programs provided more than $5 billion annually to fund water quality protection projects for wastewater treatment, non-point source pollution control, and watershed and estuary management.
Public Health Emergency Preparedness (PHEP) Cooperative Agreement.	Department of Health and Human Services' (HHS) Centers for Disease Control and Prevention	Funds are intended to upgrade Tribal, state and local public health jurisdictions' preparedness and response to bioterrorism, outbreaks of infectious diseases, and other public health threats and emergencies.	Competitive grant program. Grant award based on specific projects as they are identified.
FEMA Grant Programs	FEMA	Disaster mitigation and preparedness, post-disaster cleanup, and retro-fitting of at-risk structures, infrastructure, and Tribal preparedness planning and response.	Tribes must have a FEMA approved Tribal Hazard Mitigation Plan in place, and current, to apply for and receive most FEMA program funding for pre-disaster mitigation projects.

7.3. Tribal Mitigation Strategies

Mitigation strategies detailed within this Tribal Hazards Mitigation Plan have been developed through an integrated approach of (1) findings determined through this series of analyses, (2) recommendations from Planning Committee members, and (3) suggestions and ideas presented by the public during the Residential Survey, public meetings, and open discussions between the planning team members and the public.

Critical to the implementation of this Tribal Hazards Mitigation Plan will be the identification of, and implementation of, an integrated schedule of treatments within the Coeur d'Alene Reservation targeted at achieving an elimination of the lives lost and reduction in structures damaged or destroyed, infrastructure compromised, reduction to the economy of the Coeur d'Alene Reservation, and unique ecosystems damaged. Since there are many management agencies and hundreds of residents living on the Coeur d'Alene Reservation, it is reasonable to expect that differing schedules of adoption will be made and varying degrees of compliance will be observed across all properties.

The Coeur d'Alene Tribe, and the communities of the Coeur d'Alene Reservation, encourage the philosophy of instilling disaster resistance in normal day-to-day operations. By implementing plan activities through existing programs and resources, the cost of mitigation is often a small portion of the overall cost of a project's design or program.

The state and federal land management agencies operating in and near the Coeur d'Alene Reservation, specifically the Idaho Department of Lands, BIA, and BLM are participants in this planning process and have contributed to its development. Where available, their schedules of land treatments have been considered in light of the Coeur d'Alene Tribe management projections in this planning process, to better facilitate a correlation between their identified planning efforts and the efforts of government organizations.

The Coeur d'Alene Tribe's efforts to implement this integrated Hazard Mitigation Plan has included participants from Emergency Management from both Benewah and Kootenai Counties (updates to their plans both approved by FEMA and adopted by their County Commissioners in 2010). The Coeur d'Alene Tribe recognizes the risk assessments completed in those plans and their sets of potential mitigation measures. Some of those potential mitigation measures were scoped by the respective Counties to occur on the Coeur d'Alene Reservation. This Tribal Hazards Mitigation Plan has not restated these County and City mitigation measures in this document. The Coeur d'Alene Tribe recognizes the need of the Cities and Counties to work with the Coeur d'Alene Tribe in the management of potential mitigation measures.

All risk assessments were made based on the conditions existing during 2009 and 2010; thus, the recommendations in this section have been made in light of the understanding of those conditions. However, the components of risk and the preparedness of the Coeur d'Alene Tribe's resources are not static. It will be necessary to fine-tune this plan's recommendations annually to adjust for changes in the components of risk, population density changes, infrastructure modifications, and other factors.

7.3.1. Prioritization of Mitigation Activities

The Coeur d'Alene Tribe will complete the prioritization of the projects indicated in this plan. The Tribe will seek the assistance of and cooperation with other entities as appropriate.

The prioritization process includes a special emphasis on cost-benefit analysis review. The process will reflect that a key component in funding decisions is a determination that the project will provide an equivalent, or more, in benefits over the life of the project when compared with the costs. Projects will be administered by Coeur d'Alene Tribe to meet these goals.

If no federal funding is used in these situations, the prioritization process may be less formal. Often, the types of projects that the Coeur d'Alene Tribe can afford to do on its own are in relation to improved codes and standards, department planning and preparedness, and education. These types of projects may not meet the traditional project model, selection criteria, and benefit-cost model. The Coeur d'Alene Tribe will consider all pre-disaster mitigation proposals brought before the Tribal Council by department heads, and Tribal community representatives.

When federal or state funding is available for hazard mitigation, there are usually requirements that establish a rigorous benefit-cost analysis as a guiding criterion in establishing project priorities. The Coeur d'Alene Tribe will follow the basic federal grant program criteria that will drive the identification, selection, and funding of the most competitive and worthy mitigation projects. FEMA's three primary grant programs (the post-disaster Hazard Mitigation Grant Program, and the pre-disaster Flood Mitigation Assistance Program and Pre-Disaster Mitigation Grant Program) that offer federal mitigation funding to state, Tribal, and local governments, all include the benefit-cost and repetitive loss selection criteria.

The Coeur d'Alene Tribe is committed to compliance with all applicable Federal statutes and regulations in effect with respect to the periods for which it receives grant funding from Federal agencies, in compliance with 44 CFR 13.11(c). The Coeur d'Alene Tribe will amend this plan whenever necessary to reflect changes in Tribal or Federal laws and statutes as required in 44 CFR 13.11(d).

The prioritization of projects will be considered annually and be facilitated by the Coeur d'Alene Tribe Public Works Department. Prioritization will be based on the selection of projects that create a balanced approach to pre-disaster mitigation by recognizing the hierarchy of treating (highest first):

- People and Structures
- Infrastructure
- Local and Regional Economy
- Traditional Way of Life
- Ecosystems

The resources at risk within each populated place on the Coeur d'Alene Reservation and the Communities detailed in this document will serve to establish a consistent and uniform basis for the "benefit" portion of the cost-benefit ratio analysis for all projects.

7.3.2. STAPLEE Matrix for Initial Ranking of Mitigation Measures

The STAPLEE matrix has been proposed as an approach to use when creating unbiased evaluations of potential mitigation measures. These seven criteria are determined subjectively and independently from each other. For these purposes each project has been rated on a scale of zero (low benefit) to ten (high benefit). The cumulative scores can range from zero to seventy. The score of seventy would be considered a highly desirable project while a very low scoring project would be considered a very undesirable project (Table 72).

Table 72. Evaluation Criteria (STAPLEE) for Mitigation Actions.

Evaluation Category	Discussion **"It is important to consider…"**	Considerations
Social	The public support for the overall mitigation strategy and specific mitigation actions.	Community acceptance, or Adverse effect on the population

Table 72. Evaluation Criteria (STAPLEE) for Mitigation Actions.

Evaluation Category	Discussion **"It is important to consider…"**	Considerations
Technical	If the mitigation action is technically feasible and if it is the whole or partial solution.	Technical feasibility Long-term solutions Secondary impacts
Administrative	If the community has the personnel and administrative capabilities necessary to implement the action or whether outside help will be necessary.	Staffing Funding allocation Maintenance/operations
Political	What the community and its members feel about issues related to the environment, economic development, safety, and emergency management.	Political support Local champion Public support
Legal	Whether the community has the legal authority to implement the action, or whether the community must pass new regulations.	Tribal, and/or federal authority, Potential legal challenge
Economic	If the action can be funded with current or future internal and external sources, if the costs seem reasonable for the size of the project, and if enough information is available to complete a FEMA Benefit-Cost Analysis.	Benefit/cost of action Contributes to other economic goals Outside funding required FEMA Benefit-Cost Analysis
Environmental	The impact on the environment because of public desire for a sustainable and environmentally healthy community.	Effect on local flora and fauna Consistent with community environmental goals Consistent with Tribal and federal laws

All of these have been ranked on scale (subjective) from 0 to 10. The sum of the total will create the Mitigation Action's overall score, with the highest ranked scores achieving the highest ranked mitigation measures. If any one score of a project is equal to or below 3, the mitigation measure will be determined to be "unfeasible", removing it from further consideration.

7.3.3. Proposed Mitigation Measures

Potential mitigation measures are presented in Table 74 - Table 77. These measures include a Project Number. Project numbers contain a series of letters and numbers separated by dashes. For instance, Cd'AT-1006 is one example of a project identifier used in Table 73, representing a project to be administered by the Coeur d'Alene Tribe (Cd'AT), in the "1000" series (Policy Related Activities), and unique project number "006". The definition of these codes is listed in Table 73. All projects identified in this plan will be led by the governing body of the Coeur d'Alene Tribe or delegated to a neighboring jurisdiction such as Benewah County, Kootenai County, or one of the incorporated cities on the Coeur d'Alene Reservation. The location identifiers used here are to identify the major focus of specific projects, those identified only with "Cd'AT" (Coeur d'Alene Tribe) are projects having impact on multiple communities or the entire Coeur d'Alene Reservation and will be implemented by the Coeur d'Alene Tribe.

Table 73. Unique project codes for potential mitigation measures.

Jurisdiction Codes	Series Codes
Cd'AT: Coeur d'Alene Tribe	1000: Policy Related Activities
IDA: State of Idaho	2000: Activities to Reduce Loss Potential
BEN: Benewah County	3000: Resource and Capabilities Enhancements
KOT: Kootenai County	4000: Activities to Change the Characteristics of Risk
TEN: City of Tensed	
PLU: City of Plummer	
WOR: City of Worley	
StM: City of St. Maries	
BLM: Bureau of Land Management	

The Series Codes (1000-4000) include projects generally listed by their potential to accomplish certain hazard mitigation goals. The first, Policy Related Activities (1000), are projects that specifically target the plans, policies, and programs conducted through existing Tribal programs. These efforts can preclude future developments from placing resources at risk to hazards currently identified (e.g., through Planning and Zoning). In this way, the Coeur d'Alene Tribe can focus on correcting current problems without allowing the same risk exposure conditions to be repeated in the future. The Coeur d'Alene Tribe can also ensure that currently ongoing beneficial practices, such as participation in astute forest management practices, are continued into the foreseeable future. The update to existing policies, plans, and programs of the Coeur d'Alene Tribe, will be the focus of the aforementioned Policy Related Activities (1000 Series projects). Formally, this process requires existing planning documents to be updated with analyses contained in this planning document, and then each specific mechanism should be presented to Tribal Council, discussed, and potentially adopted through formal resolution of adoption that integrates the guidance of hazard preparedness. It is critical to recognize that although specific policy related recommendations are formally presented in this Coeur d'Alene Reservation Tribal Hazards Mitigation Plan, the formulation, specific wording, and implementation time horizon are at the discretion of the members of the Coeur d'Alene Tribal Council. The members of this governing body are committed to the health, safety, welfare, and prosperity of the residents and visitors to the Coeur d'Alene Reservation, and implementation measures would reflect this commitment.

The second category, Activities to Reduce Loss Potential (2000 Series projects), includes activities targeted at changing a structure's risk or infrastructure component's risk profile. This may include elevating homes currently located within a flood zone above the height of flood waters, or replacing roofing on homes showing vulnerability to wind damage. These activities are targeted to change the risks of structures placed in harm's way. The implementation of these activities can only be accomplished through the efforts of the Coeur d'Alene Tribe.

The third category, Resource and Capability Enhancements (3000 Series projects), contains efforts to expand the ability of the Coeur d'Alene Tribe's Departments to respond to emergencies from natural hazards. For instance, one of the repeated themes in this risk assessment has been the need for increased communications between departmental administration, police, fire protection, regional, state, and federal agencies. These types of improvements generally apply equally to all hazard types and can impact the effectiveness of disaster response. Improving radio communications, power supply to run these communications, and increased cellular phone coverage may be applicable projects for the Coeur d'Alene Reservation in this category. The implementation of these activities can only be implemented through the integrated efforts of the Coeur d'Alene Tribe.

Finally, the fourth category, "Activities to Change the Characteristics of Risk" (4000 Series projects), represents activities targeted at modifying the characteristics of the hazard. In the

case of flooding, a wetlands improvement project (re-establishing a floodplain's historical water storage capacity) is an example of a mitigation measure to change the risk component based on the vector of the hazard. Another example is improving storm water handling as it moves through a community to alleviate potential damages from flood-type impacts. Elevating a road access and improving culvert sizing or bridge overpass freeboard clearance and location are examples to change the characteristics of risk exposure.

Each table (Table 74 – Table 77) includes a project type, identification of the hazard most directly affected by the proposed activity. Some of the mitigation measures include multiple hazards, and others are applicable to "All Hazards". The listing order for these potential mitigation measures is random. The STAPLEE score is determined for each project in based on the discussion items listed in Table 72 and are presented in Table 78 – Table 81.

7.3.4. Implementation Time Frame

Each project listed here has been assigned an anticipated implementation time frame. It is the goal to complete these projects within a schedule that allows for modification that deals with the ever changing landscape of limited resources and changing priorities. The intention of this proposed implementation schedule is to implement 'immediate' projects within the next 2 to 3 years, short-term projects within a period of 2 to 5 years, intermediate projects between 4 to 8 years, and long-term projects between 7 and 10 years after adoption of this Tribal Hazards Mitigation Plan.

Table 74. Potential Mitigation Activities for Policy Related Activities (1000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-1001	**Coeur d'Alene Tribe** to consider entry into the National Flood Insurance Program. Include training and certification of a Coeur d'Alene Tribe Planning Department staff member as a Nationally Certified Floodplain Administrator (fill the role of **Coeur d'Alene Tribe Floodplain A**dministrator).	Flood	Coeur d'Alene Tribe	68	Immediate
Cd'AT-1002	**Coeur d'Alene Tribe** to work with neighboring agencies to provide training in the usage of P-25 compliant communications equipment.	All Hazards	Coeur d'Alene Tribe, BLM, BIA, Benewah County, Kootenai County, Idaho Dept. Lands	70	Immediate
Cd'AT-1003	Update the **Coeur d'Alene Reservation** Wildland-Urban Interface Wildfire Mitigation Plan and Forest Management Plan.	Wildfire, Landslides	Coeur d'Alene Tribe	69	Long-term
Cd'AT-1004	Obtain equipment and provide training to facilitate better communications between disaster response agencies on the Reservation.	All Hazards	Coeur d'Alene Tribe, BLM, BIA, Benewah County, Kootenai County, Idaho Dept. Lands	70	Intermediate
Cd'AT-1005	Implement an Enhanced 911 Program on the Coeur d'Alene Reservation and complete the saturation of 911 telephone service in the entire Reservation .	All Hazards	Coeur d'Alene Tribe	67	Long-term
Cd'AT-1006	**Coeur d'Alene Tribe Public Works Department to identify Coeur d'Alene** Tribe Tribal Floodplain Administrator who will complete requirements for training to certify through the Building Code Effectiveness Grading Schedule (BCEGS), which assesses the building codes in effect and how the communities enforce building codes, with special emphasis on mitigation of losses from natural hazards. The Tribal Floodplain Administrator will then work with the Tribal Council to implement these findings through current programs on the Coeur d'Alene Reservation.	All Hazards (especially Flood, Windstorm, and Earthquake damage)	Coeur d'Alene Tribe	70	Long-term
Cd'AT-1007	**Coeur d'Alene Tribe emergency Manager** will complete requirements for training to begin advancement of National Incident Management System (NIMS) training.	All Hazards	Coeur d'Alene Tribe	70	Long-term

Table 74. Potential Mitigation Activities for Policy Related Activities (1000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-1008	**Coeur d'Alene Tribe Floodplain Administrator** will complete requirements for training to complete training course E-273- Managing Floodplain Development, through the NFIP.	Flood	Coeur d'Alene Tribe	70	Immediate
Cd'AT-1009	Coeur d'Alene Tribe will begin implementing flood administration activities using the existing FEMA FIRM projections for floodplain location determination with the additional assessment of the Coeur d'Alene Tribe's projection (developed as part of this plan's development) of the floodplain where FEMA has not determined its location.	Flood	Coeur d'Alene Tribe	70	Immediate
Cd'AT-1010	Coeur d'Alene Tribe Floodplain Administrator will complete requirements for training to complete training and certification as a Federally Certified Floodplain Administrator by FEMA (contingent on Cd'AT-1001).	Flood	Coeur d'Alene Tribe	70	Long-term
Cd'AT-1011	Coeur d'Alene Tribe will take an active participant role in the identification and mapping of Flood Insurance Rate Maps developed by FEMA. This participation will be indicated by the development and sharing of pertinent locally collected information that influences the identification of the floodplain on Coeur d'Alene Reservation. This is dependent on the implementation of project Cd'AT-1001.	Flood	Coeur d'Alene Tribe	70	Ongoing
Cd'AT-1012	Create the development of a Coeur d'Alene Reservation comprehensive disaster database of all hazards in terms of the hazard event, location, beginning date, ending date, and impact of the event on people, structures, infrastructure, and the economy of the Reservation. Include the cost of rehabilitating the site to pre-disaster conditions, and any mitigation measures implemented to prevent future disaster losses, and location dependant information (for mapping).	All Hazards	Coeur d'Alene Tribe, BLM, BIA, Benewah County, Kootenai County, Idaho Dept. Lands	70	Short-term
Cd'AT-1013	Develop and deliver an information sharing public relations program for residents and businesses of the Coeur d'Alene Reservation to disseminate detailed information about hazards, and to highlight ongoing management of hazard mitigation programs, information on risks, and regional responses to implementing programs and policies to reduce losses from natural disasters.	All Hazards	Coeur d'Alene Tribe	70	Long-Term
Cd'AT-1014	Support the efforts of Reservation Communities to become registered in the StormReady Community Program.	Severe Weather	Coeur d'Alene Tribe	70	Short-term

Table 74. Potential Mitigation Activities for Policy Related Activities (1000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-1015	Form and staff a Tribal Emergency Operation Center (EOC) of the Coeur d'Alene Reservation.	All Hazards	Coeur d'Alene Tribe	70	Short-term
PLU-1016	Update existing City of Plummer Comprehensive Plan to incorporate hazard mitigation recommendations in this plan. Integrate specific hazard mitigation planning to include storm water, flooding and other hazards.	All Hazards	City of Plummer	66	Long-term
TEN-1017	Write a City of Tensed Comprehensive Plan to incorporate hazard mitigation recommendations in this plan. Integrate specific hazard mitigation planning to include flooding.	All Hazards	City of Tensed	67	Long-term
StM-1018	Update existing City of St. Maries Comprehensive Plan to incorporate hazard mitigation recommendations in this plan. Integrate specific hazard mitigation planning to include more concrete wording for dealing with flood prone areas in terms of development and impacts to the floodway.	All Hazards (especially Flood)	City of St. Maries	69	Long-term
WOR-1019	Update existing City of Worley Comprehensive Plan to incorporate hazard mitigation recommendations in this plan. Integrate specific hazard mitigation planning to include storm water, flooding, expansive soils, and other hazards.	All Hazards	City of Worley	68	Long-term
Cd'AT-1020	Develop Minor Home Repair Program and obtain grant funding support to award low-interest or deferred loans for emergency preparedness repairs to low income resident homeowners on the Coeur d'Alene Reservation.	All Hazards	Coeur d'Alene Tribe, area jurisdictions.	68	Mid-term
Cd'AT-1021	Develop a flood response plan to identify the activation of the EOC, emergency responses, human safety and health, and warning systems in advance of approaching flood hazards.	Flood	Coeur d'Alene Tribe	70	Immediate
Cd'AT-1022	Consider a Floodplain Ordinance for the Coeur d'Alene Reservation to restrict the building of structures and infrastructure within the Coeur d'Alene Reservation to include new construction and substantial value structure remodeling. This depends on Project No. 1001 being implemented.	Flood	Coeur d'Alene Tribe	70	Long Term
Cd'AT-1023	Initiate the service of incorporating high wind warnings to the operation of the EOC. Work with residents to identify and mitigate high wind hazard components of buildings and vegetation surrounding homes and power lines.	Severe Weather	Coeur d'Alene Tribe	70	Immediate

Table 74. Potential Mitigation Activities for Policy Related Activities (1000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-1024	Initiate training in the Incident Command System (ICS) for all employees that may be used during emergency situations.	All Hazards	Coeur d'Alene Tribe	70	Short-term
Cd'AT-1025	Coeur d'Alene Tribe to develop, adopt, and implement a Cultural Awareness Program related to the treatment and response to culturally sensitive sites and situations to be delivered to all Tribal department staff involved in potential response to hazard events and pre-disaster mitigation measures.	Flood	Coeur d'Alene Tribe	70	Immediate
Cd'AT-1026	Initiate the **update of the Coeur d'Alene Reservation Tribal Hazards** Mitigation Plan starting 3 years from the effective date of this plan to guarantee the resources for personnel, funding, and integration with other Coeur d'Alene Tribe objectives leading to an updated Tribal Hazards Mitigation Plan within 5 years.	All Hazards	Coeur d'Alene Tribe	70	Long-term
Cd'AT-1027	Integrate a geotechnical site review into the Planning and Zoning policies of the Coeur d'Alene Tribe for all new site subdivisions, new building sites within identified high risk areas, and remodeling activities of existing structures with a value equal to or greater than 50% of the total structure value before remodeling, to check for expansive soils and expansive clays and implement program to deal with the challenges faced.	Expansive Soils & Clays	Coeur d'Alene Tribe	70	Long-term
Cd'AT-1028	Enact updates to Planning and Zoning policies, curtail new structure developments that are not pre-mitigated for targeted hazards, but located in hazard prone areas as identified in this plan for each of the high risk areas. Use recommended structure protection strategies as appropriate.	All Hazards	Coeur d'Alene Tribe	70	Long-term
PLU-1029	Participate in and become officially registered in the StormReady Community Program.	Severe Weather	City of Plummer, NOAA	70	Short-term
StM-1030	Participate in and become officially registered in the StormReady Community Program.	Severe Weather	City of St. Maries, NOAA	70	Short-term
TEN-1031	Participate in and become officially registered in the StormReady Community Program.	Severe Weather	City of Tensed, NOAA	70	Short-term
WOR-1032	Continue participation and official registration in the StormReady Community Program.	Severe Weather	City of Worley, NOAA	70	Short-term

Table 74. Potential Mitigation Activities for Policy Related Activities (1000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
BEN-1033	Participate in, and become officially registered in the StormReady Community Program.	Severe Weather	Benewah County, NOAA	70	Short-term
KOT-1034	Continue participation and official registration in the StormReady Community Program.	Severe Weather	Kootenai County, NOAA	70	Short-term
Cd'AT-1035	Develop Coeur d'Alene Tribe Planning and Zoning Policy to encourage or require new developments in the Wildland-Urban Interface to make initial installation of home defensibility space around new structures, and then maintain them.	Wildfire	Coeur d'Alene Tribe	66	Short-term
Cd'AT-1036	Explore the logistical reality and funding opportunities to implement a new fire protection district in the community of Benewah Valley and seek resources to make this plan a reality, (coordinates with Item Cd'AT-3019).	All Hazards	Coeur d'Alene Tribe, Benewah County	70	Long-term
Cd'AT-1037	Continue participation in the Panhandle Storm water & Erosion Education Program (SEEP) sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals working on the **Coeur d'Alene Reservation**.	Flood, Landslides	Coeur d'Alene Tribe	70	Short-term
PLU-1038	Participate in the Panhandle SEEP sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Plummer.	Flood, Landslides	City of Plummer, Coeur d'Alene Tribe, Benewah County	70	Short-term
StM-1039	Participate in the Panhandle SEEP sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of St. Maries.	Flood, Landslides	City of St. Maries, Coeur d'Alene Tribe, Benewah County	70	Short-term
TEN-1040	Participate in the Panhandle SEEP sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Tensed.	Flood, Landslides	City of Tensed, Coeur d'Alene Tribe, Benewah County	70	Short-term
WOR-1041	Participate in the Panhandle SEEP sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the City of Worley.	Flood, Landslides	City of Worley, Coeur d'Alene Tribe, Kootenai County	70	Short-term

Table 74. Potential Mitigation Activities for Policy Related Activities (1000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
BEN-1042	Continue participation in the Panhandle SEEP sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the unincorporated areas of Benewah County.	Flood, Landslides	Benewah County	70	Short-term
KOT-1043	Continue participation in the Panhandle SEEP sponsored by the Panhandle Area Council to distribute information and increase awareness and skills of construction professionals in the unincorporated areas of Kootenai County.	Flood, Landslides	Kootenai County	70	Short-term
Cd'AT-1044	Create a Tribal Position of Emergency Manager to coordinate hazard mitigation projects for the Coeur d'Alene Tribe, to be involved with policy administration of planning and zoning activities, and to coordinate with other entities in matters concerning disaster mitigation on the Coeur d'Alene Reservation.	All Hazards	Coeur d'Alene Tribe	64	Long-term
Cd'AT-1045	Collect existing information and develop then deliver educational programs to educate homeowners on best management practices for building within floodplains and along levees.	Flood	Coeur d'Alene Tribe	70	Short-term
Cd'AT-1046	Coeur d'Alene Tribe to develop and share with other departments a Wildfire Decision Support System inclusive of responses within the Coeur d'Alene Reservation and along the Coeur d'Alene Trail.	Wildfire	Coeur d'Alene Tribe	70	Immediate
Cd'AT-1047	Coeur d'Alene Tribe to provide a mechanism for the inspection of buildings it constructs within the exterior boundaries of the Coeur d'Alene Reservation.	All Hazards	Coeur d'Alene Tribe	70	Immediate
Cd'AT-1048	Determine status of unknown site conditions upstream of DeSmet, along the Sanders Road, where buried materials appear at the surface as mounds potentially containing contaminants. Site may need cleanup to prevent future exposure from a disaster event.	All Hazards	Coeur d'Alene Tribe	65	Short-term
Cd'AT-1049	Determine status of unsupervised City Dump sites within the Coeur d'Alene Reservation, where buried materials appear that may potentially contain contaminants (human health risk). Site may need cleanup to prevent future exposure from a disaster event.	All Hazards	Coeur d'Alene Tribe	65	Short-term

Table 74. Potential Mitigation Activities for Policy Related Activities (1000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-1050	Develop public outreach and educational materials specific to the Coeur d'Alene Reservation to provide information to all ages, as appropriate, concerning natural disasters, using examples of local conditions, mitigation measures, and success stories including cultural sensitivity to historical places. Include written materials, multi-media presentations, self-guided tours through "standing displays" erected at locations such as Tribal Long Houses and schools, and other media as deemed appropriate.	All Hazards	Coeur d'Alene Tribe	68	Intermediate

Table 75. Potential Mitigation Activities to Reduce Loss Potential (2000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-2001	Develop evacuation sites and improve defensible space for evacuation along all Reservation roads.	All Hazards	Coeur d'Alene Tribe, Benewah County and Kootenai County Emergency Management Departments	67	Immediate
Cd'AT-2002	Seek project funding for needed roofing improvements, and implement the improvements, especially for low income families and Tribal housing, related to severe weather events such as high winds within the **Coeur d'Alene** Reservation.	Severe Weather	Coeur d'Alene Tribe	64	Mid-term
Cd'AT-2003	Structural Landslide Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization within the **Coeur d'Alene** Reservation.	Landslide	Coeur d'Alene Tribe	64	Short-term
Cd'AT-2004	Expansive Soil and Expansive Clay Damage Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access route stabilization within the **Coeur d'Alene Reservation**.	Expansive soils & Clays	Coeur d'Alene Tribe	64	Short-term

Table 75. Potential Mitigation Activities to Reduce Loss Potential (2000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-2005	Wildfire Mitigation Protection of private structures and public structures: identification of public assistance money, design and implementation of wildfire protection to homes and access within the **Coeur d'Alene** Reservation.	Wildfire	Coeur d'Alene Tribe	64	Short-term
Cd'AT-2006	Flood and Storm Water Protection of private structures and public structures: identification of public assistance money, design and implementation of structural enhancements and access stabilization against water damages within the **Coeur d'Alene Reservation**.	Flood and Storm Water	Coeur d'Alene Tribe	64	Short-term
Cd'AT-2007	Seek project funding, and identify exposed and unreinforced masonry or brick chimney structures, then design improvements and reinforce these structures to correct the risk to public safety within the **Coeur d'Alene** Reservation.	Earthquake	Coeur d'Alene Tribe	64	Short-term
Cd'AT-2008	Launch public education program and demonstrate techniques to protect homes from wildfire risks within the Coeur d'Alene Reservation. Demonstrate enhancement maintenance efforts for the long-term.	Wildfire	Coeur d'Alene Tribe	68	Long-term
Cd'AT-2009	Develop implementation plan to address **flooding to the Coeur d'Alene Trail** on the east side of Coeur d'Alene Lake between Round Lake Access Area and Shingle Bay. Relocate rest area facilities (toilets) and take appropriate hazard mitigation actions.	Flood	Coeur d'Alene Tribe	68	Short-term
BEN-2010	Develop and implement road/stream crossing failure corrections west of Sanders at Old Sanders Road crossing of Mineral Creek.	Flood	Benewah County, Coeur d'Alene Tribe	64	Immediate

Table 76. Potential Mitigation Activities to Enhance Resources and Capabilities (3000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-3001	Evaluate all stream/road crossings on the Coeur d'Alene Reservation and create database of location, crossing type, flow characteristics, and needed changes to improve storm water and flood water conveyance. Implement recommendations to improve stream crossings.	Flood	Coeur d'Alene Tribe	67	Short-term

Table 76. Potential Mitigation Activities to Enhance Resources and Capabilities (3000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-3002	Improve US95 stream crossing over Hangman Creek where bridges and culverts lead to excessive water damming during high water flows and change the characteristics of the floodplain.	Flood	Coeur d'Alene Tribe, State of Idaho Transportation Department	70	Immediate
Cd'AT-3003	Remove two bridge crossings in Hangman Creek drainage between DeSmet and Tekoa that cause excessive water damming during high water flows thereby negatively changing the characteristics of the floodplain.	Flood	Benewah County, Coeur d'Alene Tribe	62	Immediate
Cd'AT-3004	Purchase and install back-up generators for evacuation site needs during emergencies.	All Hazards	Coeur d'Alene Tribe	68	Short-term
Cd'AT-3005	Enter into the StormReady Program and facilitate the placement of a NOAA weather radio tower on the Reservation. Work with NOAA to implement program.	All Hazards	Coeur d'Alene Tribe, NOAA	69	Immediate
Cd'AT-3006	Purchase radios, repeaters and associated equipment to make all radio communication departments on the Reservation P-25 compliant.	All Hazards	Coeur d'Alene Tribe, Idaho Dept. Lands, BLM, BIA, Benewah County, Kootenai County	69	Immediate
Cd'AT-3007	Develop an all-jurisdiction / all-agency communication plan.	All Hazards	Coeur d'Alene Tribe, BLM, BIA, Benewah County, Kootenai County, Idaho Dept. Lands.	70	Short-term
Cd'AT-3008	Radio System Coverage Enhancement. Enhance radio communications throughout Coeur d'Alene Reservation by locating radio repeaters in strategic locations to allow coverage in several remote areas accessed by emergency responders. Include narrow band repeater capabilities and program specific radio frequency (Natural Resources Department)	All Hazards	Coeur d'Alene Tribe, working with the BLM, BIA, Benewah County, Kootenai County, Idaho Dept. Lands	69	Mid-term
Cd'AT-3009	Fire Department Training Opportunities: develop custom training programs for firefighting on the Coeur d'Alene Reservation and implement training for all fire department staff and volunteers on the Coeur d'Alene Reservation.	All Hazards	Coeur d'Alene Tribe and all Fire Districts	70	Short-term
Cd'AT-3010	Coeur d'Alene Tribe to sponsor and host training opportunities for all cooperators on the Reservation in coordination with American Red Cross to conduct volunteer and first-responder training.	All Hazards	Coeur d'Alene Tribe	70	Short-term

Table 76. Potential Mitigation Activities to Enhance Resources and Capabilities (3000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-3011	**Update the Coeur d'Alene Tribe Law Enforcement Office Command Center** for improved communications, internet connectivity, and facilitate emergency responder multi-jurisdictional coordination.	All Hazards	Coeur d'Alene Tribe	68	Short-term
Cd'AT-3012	Purchase and deploy miscellaneous equipment for police and fire to outfit personnel while responding to natural disaster events on the Coeur d'Alene Reservation.	All Hazards	Coeur d'Alene Tribe Police	68	Short-term
Cd'AT-3013	Training for all emergency response staff in the Incident Command System – all levels; 100, 200, 300, 400	All Hazards	Coeur d'Alene Tribe – All Emergency Response Depts.	70	Immediate
Cd'AT-3014	Develop and implement plans for the establishment of an Evacuation Center, large generators, portable showers, portable toilets.	All Hazards	Coeur d'Alene Tribe	65	Short-term
Cd'AT-3015	Identify high quality communication tower locations for cellular communications, negotiate land leases (when needed) and work with commercial Cellular phone providers to install and activate services.	All Hazards	Coeur d'Alene Tribe	70	Short-term
Cd'AT-3016	Acquire Radio Station equipment, license its use, and begin using as a public service station for residents and visitors to the Coeur d'Alene Reservation that can be activated during emergency situations.	All Hazards	Coeur d'Alene Tribe	65	Mid-term
Cd'AT-3017	Install gas pump on emergency generator in case of power outage in Plummer for use by emergency vehicles.	All Hazards	Coeur d'Alene Tribe	63	Immediate
Cd'AT-3018	Develop a scenario to provide fire protection to the communities in Benewah Valley. Include fire apparatus, facilities, communications equipment, training and other support to the protection area. Consider new fire protection district or expansion of existing districts into this area (coordinates with Item Cd'AT-1038).	Wildfire	Coeur d'Alene Tribe, Benewah County, City of Tensed, City of St. Maries, City of Plummer	66	Intermediate
BEN-3019	Purchase a water based hovercraft for use in emergency rescue along the St. Joe River and in the lakes of the area where traditional watercraft cannot navigate and during periods of ice.	Flood	Benewah County, Coeur d'Alene Tribe (benefit to St. Maries Fire District rescue staff)	68	Short-term
StM-3020	Deploy storm water pumping system on the shores of the St. Joe River and surface drainage in the City and within the Coeur d'Alene Reservation.	Flood	City of St. Maries, Coeur d'Alene Tribe	68	Short-term
TEN-3021	Install 10 fire hydrants within the city, connect to central water supply system.	Wildfire	City of Tensed	69	Mid-term

Table 76. Potential Mitigation Activities to Enhance Resources and Capabilities (3000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
TEN-3022	Update the City of Tensed's Emergency Services Providers for improved communications, internet connectivity, and facilitating emergency responder coordination.	All Hazards	City of Tensed	69	Mid-term
Cd'AT-3023	Acquire and deploy narrow track vehicle with water holding capacity, pump, and hose, that can also carry hand tools and a limited number (2) of staff to provide initial wildfire attack to wildfires along the **Trail of the Coeur d'Alenes**.	Wildfire	Coeur d'Alene Tribe	65	Immediate
Cd'AT-3024	Establish improved access along the Alder Creek Road from Alder Flats to St. Maries River Road. Include wildfire fuels reduction, road surfacing and widening, and grade moderation.	Wildfire	Coeur d'Alene Tribe, Benewah County	63	Short-term
Cd'AT-3025	Acquire "Fire Boat" for quick response uses by the Coeur d'Alene Tribe and Fire Departments on the Coeur d'Alene Reservation to respond to wildfire ignitions adjacent to Coeur d'Alene Lake, equipped with pumps, hose, and other response equipment.	Wildfire	Coeur d'Alene Tribe	63	Short-term
Cd'AT-3026	Acquire "Emergency EMT/Rescue Boat" for quick response uses by the Coeur d'Alene Tribe and Fire Departments on the Coeur d'Alene Reservation to respond to emergencies adjacent to Coeur d'Alene Lake, equipped needed response equipment.	Wildfire	Coeur d'Alene Tribe	62	Short-term
Cd'AT-3027	Identify preferred emergency response routes for use on the Coeur d'Alene Reservation that can be used by heavy emergency equipment to avoid weight limited bridges, grades, and narrow access points.	All Hazards	Coeur d'Alene Tribe	68	Short-term
Cd'AT-3028	Acquisition of transportation trailer and truck for dozer and excavator for the Natural Resources – Fisheries Department in support of disaster mitigation and emergency preparedness.	All	Coeur d'Alene Tribe	68	Short-term
Cd'AT-3029	Conduct staff training for emergency response management for operating equipment and radio communications.	All	Coeur d'Alene Tribe	70	Short-term
Cd'AT-3030	Acquisition of generators, equipment trailers, and snow plows for emergency response needs of the Tribal Housing Authority.	All	Coeur d'Alene Tribe	69	Short-term
Cd'AT-3031	Acquisition of shelters and meals for emergency response needs of the Tribal Housing Authority.	All	Coeur d'Alene Tribe	68	Short-term

Table 76. Potential Mitigation Activities to Enhance Resources and Capabilities (3000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-3032	Acquisition of road grader, and 1-ton service vehicle for the Tribal Public Works Department for emergency response needs.	All	Coeur d'Alene Tribe	67	Short-term
Cd'AT-3033	Acquisition of emergency communications devices for emergency response needs of the Tribal Housing Authority and Public Works Departments.	All	Coeur d'Alene Tribe	69	Short-term
Cd'AT-3034	Replacement spill kits for the Lake Management Department on a continuous basis.	All	Coeur d'Alene Tribe	70	Immediate
Cd'AT-3035	Acquisition of water tender and funding for equipment operators to provide protection against wildfire for the Natural Resources Department.	Wildfire	Coeur d'Alene Tribe	65	Immediate
Cd'AT-3036	Acquire emergency backup generators and install them at wells (x3), wastewater treatment plants (x1), Tribal Headquarters (continuity of government, x1).	All	Coeur d'Alene Tribe	69	Immediate

Table 77. Potential Mitigation Activities to Change Characteristics of Risk (4000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-4001	Restore the condition of Hangman Creek and Little Hangman Creek floodplain and wetlands to "natural" condition by addressing farming practices (plowing to the river's bank, drainage tiles within the wetlands), forestry (clearcutting to the river's bank), road crossings (Andrews Spring Creek, 3300 Road) that narrow the stream channel causing flood water storage pooling upstream and channel cutting downstream, and housing in the valley. Establish normal function to the floodplain.	Flood	Coeur d'Alene Tribe	61	Long-term
Cd'AT-4002	Build up the retaining pools around the DeSmet Waste Water Treatment pools along the King Valley drainage leading to Hangman Creek, to elevate the protection against floodwaters entering facility's waters. Levee system needs to create a barrier at least 3 feet higher than current protection.	Flood	Coeur d'Alene Tribe	67	Immediate

Table 77. Potential Mitigation Activities to Change Characteristics of Risk (4000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
TEN-4003	Build up the retaining pools around the Tensed Waste Water Treatment facility along the Hangman Creek, to elevate the protection against floodwaters entering facility's waters. Retainment system needs to create a barrier at least 6 feet higher than current protection. Make a short-term fix to the system pending the implementation of mitigation measure TEN-4022, once that mitigation measure is implemented continue with TEN-4023.	Flood	City of Tensed, Coeur d'Alene Tribe, Benewah County	69	Immediate
Cd'AT-4004	Create Storm Water drainage structures within City of Plummer to route rain-on-snow events from causing damage to structures along the several drainage pathways in and adjacent to this city.	Flood	Coeur d'Alene Tribe, City of Plummer	70	Short-term
StM-4005	Repair River Water Gauge at St. Maries on the St. Joe River.	Flood	City of St. Maries, Benewah County, Coeur d'Alene Tribe	70	Immediate
StM-4006	Repair existing City of St. Maries levee and Mutch Creek outlet to improve water distribution.	Flood	City of St. Maries, Benewah County, Coeur d'Alene Tribe	67	Immediate
PLU-4007	Storm water drainage system design and implementation within City of Plummer to link storm water drainage into Plummer Creek.	Flood	City of Plummer, Benewah County, Coeur d'Alene Tribe	67	Mid-term
TEN-4008	Storm water drainage system design and implementation within City of Tensed to link storm water drainage into Hangman Creek.	Flood	City of Tensed, Benewah County, Coeur d'Alene Tribe	67	Mid-term
WOR-4009	Storm water drainage system design and implementation within City of Worley to link storm water drainage into Rock Creek.	Flood	City of Worley, Kootenai County, Coeur d'Alene Tribe	67	Mid-term
Cd'AT-4010	Inspect Tribal Offices and other structures for snow-load capability and retrofit (using budgets and grant funding) where appropriate and continue effort to create a snow removal plan.	Severe Weather	Coeur d'Alene Tribe, Benewah County, Kootenai County	67	Long-term
Cd'AT -4011	Establish a site location for a NOAA Weather Radio Tower Repeater in collaboration between Benewah County, Kootenai County, and the National Weather Service for participation in the StormReady Program.	All Hazards	Coeur d'Alene Tribe, with the National Weather Service	68	Immediate
Cd'AT-4012	Construct a wildfire fuel break around the interoperable communications facilities located on Plummer Butte.	Wildfire	Coeur d'Alene Tribe	68	Short-term
Cd'AT-4013	Harden the propane tanks at the interoperable radio towers located at Plummer Butte.	Wildfire	Coeur d'Alene Tribe	68	Short-term

Table 77. Potential Mitigation Activities to Change Characteristics of Risk (4000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-4014	Improve road conditions to install fuel break corridors to provide safe evacuation routes and provide safety for responding emergency personal (site distance and fuel load).	Wildfire	Coeur d'Alene Tribe, Idaho Department of Lands, and Bureau of Land Management	68	Short-term
IDA-4015	Bridge debris flow and ice buildup handling enhancement at US95 crossings of all streams to facilitate better water flow at these points.	Flood	Coeur d'Alene Tribe, Idaho Transportation Department	63	Mid-term
Cd'AT-4016	Improve storm water runoff/drainage around the Coeur d'Alene Tribe's Wellness Center (north of and adjacent to, the City of Plummer), to address rain-on-snow water accumulations that flood the parking area and the building. Re-route the water flow to the natural drainage in the area.	Flood	Coeur d'Alene Tribe, Benewah County, City of Plummer	69	Immediate
TEN-4017	Identify a suitable route for the City of Tensed to access the sewer lagoons in Tensed, acquire legal access, and build an all season road to the sewer treatment site.	Flood	City of Tensed, Benewah County, Coeur d'Alene Tribe	69	Immediate
IDA-4018	Implement major revision of US95 from Worley to the southern exit to the Coeur d'Alene Reservation in order to improve stream crossings that are limiting for high water passage, ice jam flooding in winter, and access limitations. Elevate the free-board at all stream crossings to guarantee high water passage that does not constrict the drainages during high water events.	Flood	State of Idaho in consultation with the Coeur d'Alene Tribe, Kootenai County, and Benewah County	58	Long-term
TEN-4019	Relocate the Tensed Waste Water Treatment facility to a location outside the Hangman Creek floodplain, to elevate the potential of floodwaters entering facility's waters. Make the relocation a long-term fix to the system.	Flood	City of Tensed, Coeur d'Alene Tribe, Benewah County	60	Long-term
TEN-4020	Retire the Tensed Waste Water Treatment facility along Hangman Creek to remove the potential of contamination of the stream system while returning the site to an optimally functioning component of the floodplain.	Flood	City of Tensed, Coeur d'Alene Tribe, Benewah County	60	Immediate
Cd'AT-4021	Increase runoff retention through wetland restoration, removal of infrastructure from the floodplain. Apply this mitigation measure to numerous watersheds across the Coeur d'Alene Reservation.	Flood	Coeur d'Alene Tribe	61	Immediate
Cd'AT-4022	Restoration of stream channels and their riparian zones to slow flood water velocities, apply this mitigation measure to numerous watersheds across the Coeur d'Alene Reservation.	Flood	Coeur d'Alene Tribe	61	Immediate

Table 77. Potential Mitigation Activities to Change Characteristics of Risk (4000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-4023	Cooperate with City of Worley to assess status of Worley Waste Water Treatment Facility capacity and effectiveness.	Flood	Coeur d'Alene Tribe, City of Worley	60	Short-term
Cd'AT-4024	Develop a plan to restore the natural levee system along the St. Joe River that may include engineered log jams, debris catchment devices, and other features. Develop program and funding to reestablish the aquatic ecosystem, obtain Tribal Council Adoption of the measures, and then implement and maintain the project.	Flood	Coeur d'Alene Tribe	55	Long-term
ITD-4025	Re-engineer the stream crossing in the City of Plummer of Plummer Creek crossing US Highway 95 to facilitate high water flows common during rain-on-snow events in January and February of "normal years".	Flood	Idaho Transportation Department, Coeur d'Alene Tribe, City of Plummer,	60	Short-term
Cd'AT-4026	Develop floodplain encroachment plan at Camp Larson to lessen the impacts of floodwaters in this camp considering armoring and facility modifications.	Flood	Coeur d'Alene Tribe	70	Short-term
Cd'AT-4027	Develop and implement plan for debris catchment at Chatcolet Trestle to address water carried debris that accumulates at the trestle during and after high flood events.	Flood	Coeur d'Alene Tribe	70	Short-term
Cd'AT-4028	Evaluate and develop corrective actions for road/stream crossings (bridges and culverts) within the Little Hangman Creek watershed (Lovell Valley) to reestablish hydrologic functioning for fisheries and water quality. At least 5 locations identified.	Flood	Coeur d'Alene Tribe	65	Intermediate
Cd'AT-4029	Sheep Creek Restoration Project implementation for restoring aquatic functioning in respect to riparian vegetation, wildlife, and floodplain operation.	Flood	Coeur d'Alene Tribe	65	Long-term
Cd'AT-4030	Johnson Property Restoration Project within the Benewah Valley implementation of project for restoring aquatic functioning in respect to riparian vegetation, wildlife, and floodplain operation.	Flood	Coeur d'Alene Tribe	65	Long-term
Cd'AT-4031	Plummer Creek road crossing improvement (culvert replacement and sizing) downstream of Plummer and northwest of Turkey Trot Trail.	Flood	Coeur d'Alene Tribe	65	Intermediate
Cd'AT-4032	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes south of and within Lake Creek Drainage, located south of Camp Four Echoes.	Wildfire	Coeur d'Alene Tribe	63	Short-term
Cd'AT-4033	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes within Sixteen-to-One Bay and on slopes adjacent to Coeur d'Alene Lake.	Wildfire	Coeur d'Alene Tribe	63	Short-term

Table 77. Potential Mitigation Activities to Change Characteristics of Risk (4000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-4034	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes within Cottonwood Bay and on slopes adjacent to Coeur d'Alene Lake.	Wildfire	Coeur d'Alene Tribe	63	Short-term
Cd'AT-4035	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes within Conkling Park and on slopes adjacent to Coeur d'Alene Lake.	Wildfire	Coeur d'Alene Tribe	63	Short-term
Cd'AT-4036	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes within the northern slopes of Worley Mountain bounded by US95 on the east and the City of Worley to the north..	Wildfire	Coeur d'Alene Tribe	62	Short-term
Cd'AT-4037	Implement Wildland-Urban Interface wildfire fuel reduction activity on sites adjacent to the **Trail of the Coeur d'Alenes** between Plummer and Chatcolet Lake by reducing flashy fuels adjacent to the trail, eliminating noxious weeds adjacent to the trail, and other factors to reduce ignitibility.	Wildfire	Coeur d'Alene Tribe	66	Short-term
Cd'AT-4038	Continue to implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes surrounding the Tribal Headquarters at Agency, between Plummer and Mowry.	Wildfire	Coeur d'Alene Tribe	66	Short-term
Cd'AT-4039	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes located within Plummer Butte and extending northward to forested areas adjacent to Plummer.	Wildfire	Coeur d'Alene Tribe	66	Short-term
Cd'AT-4040	Implement Wildland-Urban Interface wildfire fuel reduction activity of prescribed fire on landscapes located along ridgeline separating Hangman Creek and Little Hangman Creek where forested vegetation is present.	Wildfire	Coeur d'Alene Tribe	65	Short-term
Cd'AT-4041	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes adjacent to Lolo Pass between Benewah Creek Road and the Benewah Valley.	Wildfire	Coeur d'Alene Tribe	64	Short-term
Cd'AT-4042	Implement Wildland-Urban Interface wildfire fuel reduction activity on landscapes adjacent to Windfall Pass between BIA Route 26/Windfall Pass Road and the Benewah Valley. Include activities to reduce wildfire fuels and make road improvements for emergency access.	Wildfire	Coeur d'Alene Tribe	64	Short-term
Cd'AT-4043	Implement Wildland-Urban Interface wildfire fuel reduction activity of prescribed fire and fuels mastication on landscapes located west of DeSmet, and west of BIA Route 37/King Valley, south of DeSmet Road on forested lands.	Wildfire	Coeur d'Alene Tribe	65	Short-term

Table 77. Potential Mitigation Activities to Change Characteristics of Risk (4000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
Cd'AT-4044	Implement Wildland-Urban Interface wildfire fuel reduction activity of prescribed fire on landscapes located north of DeSmet Road, within the area known as Ni'lukhwalqw Gap on forested lands.	Wildfire	Coeur d'Alene Tribe	64	Short-term
Cd'AT-4045	Implement Wildland-Urban Interface wildfire fuel reduction activity of prescribed fire on landscapes located south of DeSmet Road, and east of Farmington Road on forested lands.	Wildfire	Coeur d'Alene Tribe	65	Short-term
Cd'AT-4046	Implement Wildland-Urban Interface wildfire fuel reduction activity of fuels mastication on landscapes located within the Pedee Creek watershed on forested lands.	Wildfire	Coeur d'Alene Tribe	62	Short-term
Cd'AT-4047	Implement Wildland-Urban Interface wildfire fuel reduction activities on forested landscapes located south of State Route 5 between Rocky Point and Parkline **(Chetkwe'lkw'l Meadow).**	Wildfire	Coeur d'Alene Tribe	66	Short-term
Cd'AT-4048	Implement Wildland-Urban Interface wildfire fuel reduction activity leading to a fuel break on landscapes located within the Coon Creek Drainage near the Benewah Creek Road.	Wildfire	Coeur d'Alene Tribe	66	Short-term
Cd'AT-4049	Implement Wildland-Urban Interface wildfire fuel reduction activities including fuel reduction, prescribed burning, and fuels mastication on landscapes located within the Hells Gulch Road area extending westerly to Indian Mountain, easterly to Sharp Top (mountain), northerly to Grassy Mountain, and southerly to Deep Creek.	Wildfire	Coeur d'Alene Tribe	62	Short-term
Cd'AT-4050	Evaluate and repair stream/road crossing at BIA Route 11 / Agency Road, within the City of Plummer, crossing Plummer Creek, south of the Lumber Mill, to enhance crossing attributes for water conveyance.	Flood	Coeur d'Alene Tribe	67	Short-term
Cd'AT-4051	Evaluate and repair stream/road crossings near Fairfield Road, adjacent to the City of Plummer, crossing Fairfield Creek, to address the stream rerouting that caused 90º turns in the stream to avoid entering the City while endangering the structures located to the north of the City of Plummer.	Flood & storm water	Coeur d'Alene Tribe	66	Short-term
Cd'AT-4052	Rehabilitate waste water treatment plant being retired by the City of Plummer to restore the site to optimally functioning riparian zone within the Plummer Creek Watershed.	Flood	Coeur d'Alene Tribe, City of Plummer	64	Short-term

Table 77. Potential Mitigation Activities to Change Characteristics of Risk (4000 series).

Project Number	Project Description	Type of Project	Responsible Organization	STAPLEE Score	Implementation Time Frame
BLM-4053	Fuel's reduction along the BLM Windy Bay Recreation Site (described in Section 5.4.7.5)	Wildfire	Bureau of Land Management, Coeur d'Alene Tribe	67	Mid-term
BLM-4054	Windy Bay Rough Fescue Project (described in Section 5.4.7.5)	Wildfire	Bureau of Land Management, Coeur d'Alene Tribe	68	Mid-term

7.3.5. Proposed Mitigation Measures STAPLEE Scores

STAPLEE Scores have been subjectively determined for each project proposed in Table 74 – Table 77 and are presented numerically in Table 78 – Table 81.

Table 78. STAPLEE Scores for 1000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-1001	10	10	9	9	10	10	10	68
Cd'AT-1002	10	10	10	10	10	10	10	70
Cd'AT-1003	10	10	9	10	10	10	10	69
Cd'AT-1004	10	10	10	10	10	10	10	70
Cd'AT-1005	10	9	9	10	10	9	10	67
Cd'AT-1006	10	10	10	10	10	10	10	70
Cd'AT-1007	10	10	10	10	10	10	10	70
Cd'AT-1008	10	10	10	10	10	10	10	70
Cd'AT-1009	10	10	10	10	10	10	10	70
Cd'AT-1010	10	10	10	10	10	10	10	70
Cd'AT-1011	10	10	10	10	10	10	10	70
Cd'AT-1012	10	10	10	10	10	10	10	70
Cd'AT-1013	10	10	10	10	10	10	10	70
Cd'AT-1014	10	10	10	10	10	10	10	70
Cd'AT-1015	10	10	10	10	10	10	10	70
PLU-1016	9	9	9	9	10	10	10	66
TEN-1017	10	9	9	9	10	10	10	67
StM-1018	10	10	9	10	10	10	10	69
WOR-1019	10	10	9	10	10	9	10	68
Cd'AT-1020	10	10	9	10	9	10	10	68
Cd'AT-1021	10	10	10	10	10	10	10	70
Cd'AT-1022	10	10	10	10	10	10	10	70
Cd'AT-1023	10	10	10	10	10	10	10	70
Cd'AT-1024	10	10	10	10	10	10	10	70
Cd'AT-1025	10	10	10	10	10	10	10	70
Cd'AT-1026	10	10	10	10	10	10	10	70
Cd'AT-1027	10	10	10	10	10	10	10	70

Table 78. STAPLEE Scores for 1000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-1028	10	10	10	10	10	10	10	70
PLU-1029	10	10	10	10	10	10	10	70
StM-1030	10	10	10	10	10	10	10	70
TEN-1031	10	10	10	10	10	10	10	70
WOR-1032	10	10	10	10	10	10	10	70
BEN-1033	10	10	10	10	10	10	10	70
KOT-1034	10	10	10	10	10	10	10	70
Cd'AT-1035	9	10	9	9	9	10	10	66
Cd'AT-1036	10	10	10	10	10	10	10	70
Cd'AT-1037	10	10	10	10	10	10	10	70
PLU-1038	10	10	10	10	10	10	10	70
StM-1039	10	10	10	10	10	10	10	70
TEN-1040	10	10	10	10	10	10	10	70
WOR-1041	10	10	10	10	10	10	10	70
BEN-1042	10	10	10	10	10	10	10	70
KOT-1043	10	10	10	10	10	10	10	70
Cd'AT-1044	10	9	9	10	10	6	10	64
Cd'AT-1045	10	10	10	10	10	10	10	70
Cd'AT-1046	10	10	10	10	10	10	10	70
Cd'AT-1047	10	10	10	10	10	10	10	70
Cd'AT-1048	10	9	9	10	9	8	10	65
Cd'AT-1049	10	9	9	10	9	8	10	65
Cd'AT-1050	10	10	9	10	10	9	10	68

Table 79. STAPLEE Scores for 2000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-2001	10	9	9	10	9	10	10	67
Cd'AT-2002	10	9	9	9	10	8	9	64
Cd'AT-2003	10	9	9	9	10	8	9	64
Cd'AT-2004	10	9	9	9	10	8	9	64
Cd'AT-2005	10	9	9	9	10	8	9	64

Table 79. STAPLEE Scores for 2000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-2006	10	9	9	9	10	8	9	64
Cd'AT-2007	10	9	9	9	10	8	9	64
Cd'AT-2008	10	10	10	10	10	8	10	68
Cd'AT-2009	10	10	10	10	10	8	10	68
Cd'AT-2010	10	9	9	10	9	7	10	64

Table 80. STAPLEE Scores for 3000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-3001	10	9	9	10	10	9	10	67
Cd'AT-3002	10	10	10	10	10	10	10	70
Cd'AT-3003	7	10	8	10	10	7	10	62
Cd'AT-3004	10	10	9	10	10	9	10	68
Cd'AT-3005	10	10	10	10	10	9	10	69
Cd'AT-3006	10	10	10	10	10	9	10	69
Cd'AT-3007	10	10	10	10	10	10	10	70
Cd'AT-3008	10	10	10	10	10	9	10	69
Cd'AT-3009	10	10	10	10	10	10	10	70
Cd'AT-3010	10	10	10	10	10	10	10	70
Cd'AT-3011	10	9	10	10	10	9	10	68
Cd'AT-3012	10	10	9	10	10	9	10	68
Cd'AT-3013	10	10	10	10	10	10	10	70
Cd'AT-3014	10	10	8	10	10	7	10	65
Cd'AT-3015	10	10	10	10	10	10	10	70
Cd'AT-3016	10	9	9	10	9	8	10	65
Cd'AT-3017	10	8	8	9	10	8	10	63
Cd'AT-3018	8	10	8	10	10	10	10	66
BEN-3019	10	10	10	10	10	8	10	68
StM-3020	10	10	10	10	10	8	10	68
TEN-3021	10	10	10	10	10	9	10	69
TEN-3022	10	10	10	10	10	9	10	69
Cd'AT-3023	10	9	10	10	10	6	10	65
Cd'AT-3024	10	8	9	9	10	7	10	63

Table 80. STAPLEE Scores for 3000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-3025	10	8	9	10	10	6	10	63
Cd'AT-3026	10	8	9	10	10	5	10	62
Cd'AT-3027	10	8	10	10	10	10	10	68
Cd'AT-3028	10	10	10	10	10	8	10	68
Cd'AT-3029	10	10	10	10	10	10	10	70
Cd'AT-3030	10	10	10	10	10	9	10	69
Cd'AT-3031	10	10	10	10	10	8	10	68
Cd'AT-3032	10	10	10	10	10	7	10	67
Cd'AT-3033	10	10	10	10	10	9	10	69
Cd'AT-3034	10	10	10	10	10	10	10	70
Cd'AT-3035	10	9	9	10	10	7	10	65

Table 81. STAPLEE Scores for 4000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-4001	9	8	8	10	9	7	10	61
Cd'AT-4002	10	9	9	10	10	9	10	67
TEN-4003	10	10	10	10	10	9	10	69
Cd'AT-4004	10	10	10	10	10	10	10	70
StM-4005	10	10	10	10	10	10	10	70
StM-4006	10	9	9	10	10	9	10	67
PLU-4007	10	10	9	9	10	10	9	67
TEN-4008	10	10	10	9	10	9	9	67
WOR-4009	10	10	10	9	10	9	9	67
Cd'AT-4010	10	10	10	9	10	9	9	67
Cd'AT-4011	10	10	10	10	10	9	9	68
Cd'AT-4012	10	10	10	10	10	9	9	68
Cd'AT-4013	10	10	10	10	10	9	9	68
Cd'AT-4014	10	10	10	10	10	9	9	68
IDA-4015	10	7	8	8	10	10	10	63
Cd'AT-4016	10	10	10	10	10	9	10	69
TEN-4017	10	10	10	10	9	10	10	69

Table 81. STAPLEE Scores for 4000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
IDA-4018	8	8	8	8	8	8	10	58
TEN-4019	8	8	9	10	10	5	10	60
TEN-4020	8	7	9	10	10	6	10	60
Cd'AT-4021	10	8	7	10	9	7	10	61
Cd'AT-4022	10	8	7	10	9	7	10	61
Cd'AT-4023	10	8	7	10	9	6	10	60
Cd'AT-4024	9	6	7	10	8	6	9	55
Cd'AT-4025	10	8	7	10	9	6	10	60
Cd'AT-4026	10	10	10	10	10	10	10	70
Cd'AT-4027	10	10	10	10	10	10	10	70
Cd'AT-4028	10	8	9	10	10	8	10	65
Cd'AT-4029	10	9	10	10	10	6	10	65
Cd'AT-4030	10	9	10	10	10	6	10	65
Cd'AT-4031	10	9	10	10	10	6	10	65
Cd'AT-4032	10	8	8	10	10	7	10	63
Cd'AT-4033	10	8	8	10	10	7	10	63
Cd'AT-4034	10	8	8	10	10	7	10	63
Cd'AT-4035	10	8	8	10	10	7	10	63
Cd'AT-4036	10	8	8	10	10	6	10	62
Cd'AT-4037	10	10	10	10	10	6	10	66
Cd'AT-4038	10	10	10	10	10	6	10	66
Cd'AT-4039	10	10	10	10	10	6	10	66
Cd'AT-4040	10	9	10	10	10	6	10	65
Cd'AT-4041	10	9	9	10	10	6	10	64
Cd'AT-4042	10	9	9	10	10	6	10	64
Cd'AT-4043	10	10	9	10	10	6	10	65
Cd'AT-4044	10	9	9	10	10	6	10	64
Cd'AT-4045	10	10	9	10	10	6	10	65
Cd'AT-4046	10	8	8	10	10	6	10	62
Cd'AT-4047	10	10	10	10	10	6	10	66
Cd'AT-4048	10	10	10	10	10	6	10	66

Table 81. STAPLEE Scores for 4000 Series Potential Mitigation Measures.

Project	Social	Technical	Administrative	Political	Legal	Economic	Environmental	Total Score
Cd'AT-4049	10	8	8	10	10	6	10	62
Cd'AT-4050	10	9	10	10	10	8	10	67
Cd'AT-4051	10	9	9	10	10	8	10	66
Cd'AT-4052	10	8	9	10	10	7	10	64
BLM-4053	10	9	9	10	10	9	10	67
BLM-4054	10	10	9	10	10	9	10	68

7.3.6. Identification and Analysis of Mitigation Measures

A comprehensive analysis of risk exposure, proposed mitigation measures, human resources, and funding mechanisms (including direct resources, grants and cooperative agreements) can ensure the consideration of a range of actions for each hazard. Within projects identified from Table 74 through Table 77, a collection of 149 potential mitigation measures have been identified. While some of these potential mitigation measures can "stand alone" to accomplish the stated goals of this planning effort, other measures must be implemented in concert with multiple activities to witness measurable change.

An analysis of these potential mitigation measures has revealed that this planning effort ensures consideration of a range of actions for each hazard (Table 82).

Table 82. Identification and Analysis of Mitigation Measures format suggested by FEMA (March 2010), optional.

	Hazards Identified Per Requirement 201.7(c)(2)(i)		A. Comprehensive Range of Actions and Projects	
Hazard Type	Not a Hazard	Yes	N	S
Avalanche	X		X	
Coastal Erosion	X		X	
Coastal Storm	X		X	
Dam Failure	X		X	
Drought		X		X
Earthquake		X		X
Expansive Soils		X		X
Extreme Heat		X		X
Flood		X		X
Hailstorm		X		X
Hurricane	X		X	
Land Subsidence	X		X	
Landslide		X		X
Severe Winter Storm		X		X
Tornado		X		X
Tsunami	X		X	
Volcano	X		X	
Wildfire		X		X
Windstorm		X		X

Table 82. Identification and Analysis of Mitigation Measures format suggested by FEMA (March 2010), optional.

Hazard Type	Hazards Identified Per Requirement 201.7(c)(2)(i)		A. Comprehensive Range of Actions and Projects	
	Not a Hazard	Yes	N	S

Legend:
201.7(c)(3)(ii) Identification and Analysis of Mitigation Actions
A. Does the new or updated plan identify and analyze a comprehensive range of specific mitigation actions and projects for each hazard?

7.4. Monitoring and Maintenance Program

This Progress Report (below) is intended to be reviewed annually and completed by the Coeur d'Alene Tribe Public Works Department staff. Once completed, the progress report and the annual review questionnaire for each Tribal Department will be summarized in an annual report notebook. This notebook of status reports will form the basis for a summary presentation, open to the Coeur d'Alene Reservation public, discussing the status and pending action items related to hazard mitigation and preparedness on the Coeur d'Alene Reservation. If determined necessary by the Public Works Director, the annual progress report and update may be presented to the Tribal Council.

The Coeur d'Alene Tribe Emergency Manager will take the responsibility for meeting with each Tribal Department and cooperating Agency and organization at least annually to discuss ongoing projects, needs, and changes in status of hazard preparedness. These annual meetings will be summarized in written form, then presented and discussed along with the summary to the Tribal Council. These meetings will result in an action plan to deal with the status of preparedness and mitigation measures.

These annual summaries will form the basis for updating the plan, and presenting it to Tribal Council for approval, within a five year cycle. The Coeur d'Alene Tribe Emergency Manager, in cooperation with the Coeur d'Alene Tribe Public Works Department will be responsible for coordinating these efforts. Each project's manager will be responsible for completing these project evaluations as projects are implemented, with the assistance of the Coeur d'Alene Tribe Public Works Department and the Coeur d'Alene Tribe Emergency Manager.

The monitoring of the impacts of the Coeur d'Alene Reservation Tribal Hazards Mitigation Plan will be completed formally on an annual basis, but ongoing evaluations of project impacts will be a critical measure of success for improvements and amplifications of the positive benefits of the hazard mitigation ethic expressed in this plan. Monitoring of the positive impacts of the Coeur d'Alene Reservation Tribal Hazards Mitigation Plan should be completed at critical event junctures, no less than annually. These critical event junctures include 1) when projects are launched to implement mitigation measures, 2) after disaster events happen within the Coeur d'Alene Reservation or on adjacent lands to determine how specific mitigation measures did positively impact the negative influences of disaster events, or could have benefited the Coeur d'Alene Reservation if implemented, 3) when new developments are proposed for structures or infrastructure and pre-disaster mitigation planning can be implemented to reduce future development losses, and 4) as new scientific data becomes available to cast new understandings about natural disasters on the Coeur d'Alene Reservation leading to increased understanding of risk exposure.

This monitoring of the Coeur d'Alene Reservation Tribal Hazards Mitigation Plan will serve to manage disaster preparedness as an ongoing effort, not a static five-year blueprint that cannot be modified. It should be continually updated and improved so that when the five-year life of this document expires, and it is updated for another five-year cycle, the growth of the hazard mitigation plan can continue to benefit the residents and visitors to the Coeur d'Alene Reservation.

Tribal Hazards Mitigation Plan Progress Report (Annual & Periodic)			
Progress Report Period From (date):		**To (date):**	
Plan Title:	**Coeur d'Alene Reservation Tribal Hazards Mitigation Plan**		
Description of Plan:	**Hazard Preparedness & Disaster Mitigation**		
Implementing Agency:	**Coeur d'Alene Tribe**		
Contact Name:			
Contact E-mail and Number:			
Summary of Progress of Tribal Hazards Mitigation Plan for this Reporting Period			
1. Did any hazard / disaster events occur during this report period? If so, list events.			
2. Did anyone from the public comment on the plan during this reporting period? If so, list the comments.			
3. Were any mitigation projects identified in the Hazard Mitigation Plan implemented during this reporting period?			
4. What obstacles, problems, or delays did any current or ongoing mitigation projects encounter, if any? How were the problems resolved?			

PLAN MAINTENANCE

Annual Review Questionnaire				
Project Title	**Questions**	**Yes**	**No**	**Comments**
PLANNING PROCESS	Are there internal or external organizations and agencies that have been invaluable to the planning process or to mitigation action?			
	Are there procedures (e.g., meeting announcements, plan updates) that can be done differently or more efficiently?			
	Has the Planning Team undertaken any public outreach activities regarding the THMP or a mitigation project?			
HAZARD ANALYSIS	Has a natural and/or human-caused disaster occurred in this reporting period?			
	Are there natural and/or human-caused hazards that have not been addressed in this THMP and should be?			
	Are additional maps or new hazard studies available? If so, what are they and what have they revealed?			
VULNERABILITY ANALYSIS	Do any new critical facilities or infrastructure need to be added to the asset lists?			
	Have there been changes in development trends that could create additional risks?			
CAPABILITY ASSESSMENT	Are there different or additional resources (financial, technical, and human) now available for mitigation planning?			
MITIGATION STRATEGY	Should new mitigation actions be added to the Implementation Strategy/Plan?			
	Are the mitigation actions listed in a community's Implementation Strategy/Plan appropriate for available resources?			

Individual Mitigation Project Progress Report			
Progress Report Period From (date):		**To (date):**	
Project Title and Project ID:			
Description of Project:			
Implementing Agency or Department:			
Contact Name:			
Contact E-mail and Number:			
Grant/Finance Administrator:			
Total Project Cost:			
Anticipated Cost Overrun/Under run:			
Date of Project Approval:			
Project Start Date:			
Anticipated Completion Date:			
Summary of Project Progress for this Reporting Period			
1. What was accomplished during this reporting period?			
2. What obstacles, problems, or delays did the project encounter, if any? How were the problems resolved?			

7.5. Continued Public Involvement Program

The Coeur d'Alene Tribe is dedicated to involving the public directly in review and updates of this Tribal Hazards Mitigation Plan. The Coeur d'Alene Tribe Emergency Manager is responsible for the annual review and update of the plan as advised in the "Recommendations" section of this document.

The Coeur d'Alene Reservation public will have the opportunity to provide feedback about the Tribal Hazards Mitigation Plan annually, coinciding approximately with the anniversary of the adoption of this plan. Copies of the Plan will be catalogued and kept at the Coeur d'Alene Tribe Public Works Department. The existence and location of these copies will be publicized, including electronic copies. Instructions on how to obtain copies of the plan will be made available on the Coeur d'Alene Tribe Internet website and annually in a Council Fires public notice article.

In addition, copies of the plan and any proposed changes will be posted on the Coeur d'Alene Tribe website, or other venue deemed appropriate by the Coeur d'Alene Tribal Public Works Department. This information will also contain an e-mail address and phone number where people can direct their comments, ideas, and concerns.

A public meeting will be held as part of each annual evaluation or when deemed necessary by the Coeur d'Alene Tribe Emergency Manager. The meetings will provide the public a forum for expressing concerns, opinions, or ideas about the implementation of the Tribal Hazards Mitigation Plan. The Coeur d'Alene Tribe Emergency Manager will be responsible for using Tribal resources to publicize the annual public meetings and maintain public involvement through the webpage and Council Fires articles.

Figure CXLVI. Amalgam of geologic structures near Windy Bay, both within 1 mile of each other, separated by half a million years in formation.

Chapter 8. Information Citations

8.1. Acronyms and Abbreviations Used

Table 83. List of Acronyms and Abbreviations used in this report.

ACLU	American Civil Liberties Union
AFG	Assistance to Firefighters Grant
ALDS	Automated Lightning Detection System
BCEGS	Building Code Effectiveness Grading Schedule
BIA	Bureau of Indian Affairs (USDI)
BLM	Bureau of Land Management (USDI)
CARE	Community Action for a Renewed Environment
CBRA	Coastal Barrier Resources Act
CD	Consent Decree
CEDS	Comprehensive Economic Development Strategy
CERCLA	Comprehensive Environmental, Response, Compensation and Liability Act
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
COOP	Continuity of Operations Plan
CWSRF	Clean Water State Revolving Fund
DBH	Diameter Breast Height
DEM	Digital Elevation Model
EAP	Environmental Action Plan
EMT	Emergency Medical Technician
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EPO	Environmental Programs Office
ERP	Emergency Response Plan
FEMA	Federal Emergency Management Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FMA	Flood Mitigation Assistance
FMP	Forest Management Plan
FPEIS	Final Programmatic Environmental Impact Statement
FPL	Fire Prone Landscapes
FRCC	Fire Regime Condition Class
FRTEP	Federally Recognized Tribal Extension Program
FTP	File Transfer Protocol
GAO	General Allotment Act
GIS	Geographic Information Systems
GMPOG	General Management Principles and Operating Guidelines
HazMat	Hazardous Materials
HFR	Historic Fire Regime
IGS	Idaho geological Survey
HMGP	Hazard Mitigation Grant Program
HSPTAP	Homeland Security Preparedness Technical Assistance Program
HUD	Housing and Urban Development
IBC	International Building Code
IBHS	Idaho Bureau of Homeland Security
ICDBG	Indian Community Development Block Grant
ICS	Incident Command System

Table 83. List of Acronyms and Abbreviations used in this report.

IDEQ	Idaho Department of Environmental Quality
IDFG	Idaho Department of Fish and Game
IDL	Idaho Department of Lands
IDWR	Idaho Department of Water Resources
IRA	Indian Reorganization Act
IRMP	Integrated Resource Management Plan
IRR	Indian Reservation Road (System)
IT	Information Technology
LAFD	Los Angeles Fire Department
LANDFIRE	Landscape Fire and Resource Management Planning Tools Project
LEO	Law Enforcement Officer
LMP	Lake Management Plan
MAA	Mutual Aid Agreements
MFRI	Mean Fire Return Interval
MOU	Memorandums of Understanding
MRLC	Multi-Resolution Land Consortium
M&R	Maintenance and Repair
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NFMAS	National Fire Management Analysis System
NIMS	National Incident Management System
NLCD	National Land Cover Database
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NRCS	USDA Natural Resources Conservation Service
NWS	National Weather Service
O&M	Operations & Maintenance
PDF	Portable Document Format (Adobe Acrobat Reader file)
PDM	Pre-Disaster Mitigation Program
PHEP	Public Health Emergency Preparedness
P.L.	Public Law
PRISM	meter-elevation Regressions on Independent Slopes Model
RAMP	Response Action Maintenance Plan
RFLP	Repetitive Flood Loss Properties
ROW	Right-of-Way
RSF	Replacement Severity Fire
SDWA	Safe Drinking Water Act
SEEP	Storm water & Erosion Education Program (in Idaho Panhandle)
SFHA	Special Flood Hazard Area
SHMO	State Hazard Mitigation Officer
SOW	Statement of Work
Spokane EA	Spokane Regional Economic Area
Stafford Act	Robert T. Stafford Disaster Relief and Emergency Assistance Act
STA	Surface Transportation Program
STATSGO	NRCS State Soils Geographic Database
TDHE	Tribally Designated Housing Entity
THMP	Tribal Hazards Mitigation Plan
THPO	Tribal Historic Preservation Officer
UBC	Uniform Building Code
UPRR	Union Pacific Railroad
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture

Table 83. List of Acronyms and Abbreviations used in this report.

USDI	U.S. Department of Interior
USFS	USDA Forest Service
USGS	U.S. Geological Survey
WRCC	Western Regional Climate Center
WSSPC	Western States Seismic Policy Council
WUI	Wildland-Urban Interface

8.2. Glossary of Technical Terms Used

All definitions are cited from www.en.Wikipedia.org.

Cases

Atlatl: An atlatl or spear-thrower is a tool that uses leverage to achieve greater velocity in dart-throwing, and includes a bearing surface that allows the user to temporarily store energy during the throw. It consists of a shaft with a cup or a spur, which may be integrated into the weapon or made separately and attached, in which the butt of the projectile, properly called a dart, rests. It is held near the end farthest from the cup, and the dart is thrown by the action of the upper arm and wrist. An atlatl can readily achieve ranges of greater than 300 feet and speeds of over 60 MPH. 133

Botholith: A batholith (from Greek bathos, depth + lithos, rock) is a large emplacement of igneous intrusive (also called plutonic) rock that forms from cooled magma deep in the earth's crust. Batholiths are almost always made mostly of felsic or intermediate rock-types, such as granite, quartz monzonite, or diorite. It is the material that constitutes all continents. 219

Bridge Overpass Freeboard: the height from the top of high-water-flow to the bottom of the bridge or culvert the stream passes through. Generally, distances less than the depth of the water it conveys is considered limiting and may lead to incised stream charateristics. 388

Chalcedony: Chalcedony is a cryptocrystalline form of silica, composed of very fine intergrowths of the minerals quartz and moganite. These are both silica minerals, but they differ in that quartz has a trigonal crystal structure, whilst moganite is monoclinic.....133

Chert: Chert is a fine-grained silica-rich microcrystalline, cryptocrystalline or microfibrous sedimentary rock that may contain small fossils. It varies greatly in color (from white to black), but most often manifests as gray, brown, grayish brown and light green to rusty red; its color is an expression of trace elements present in the rock, and both red and green are most often related to traces of iron (in its oxidized and reduced forms respectively). 133

Columnar basalt: During the cooling of a thick lava flow, contractional joints or fractures form. If a flow cools relatively rapidly, significant contraction forces build up. While a flow can shrink in the vertical dimension without fracturing, it cannot easily accommodate shrinking in the horizontal direction unless cracks form; the extensive fracture network that develops results in the formation of columns. The topology of the lateral shapes of these columns can broadly be classed as a random cellular network. These structures are often erroneously described as being predominantly hexagonal. In reality, the mean number of sides of all the columns in such a structure is indeed six (by geometrical definition), but polygons with three to twelve or more sides can be observed. The size of the columns depends loosely on the rate of cooling; very rapid cooling may result in very small (<1 cm diameter) columns, while slow cooling is more likely to produce large columns. 279

Curies: The curie (symbol Ci) is a unit of radioactivity, defined as 1 Ci = 3.7×1010 decays per second. This is roughly the activity of 1 gram of the radium isotope a substance studied by the pioneers of radiology, Marie and Pierre Curie, for whom the unit was named;.....219

Jökulhlaup: jökulhlaup (or glacier burst) is a glacial outburst flood. It is an Icelandic term that has been adopted by the English language. It originally referred to the well-known subglacial outburst floods from Vatnajökull, Iceland which are triggered by geothermal heating and occasionally by a volcanic subglacial eruption, but it is now used to describe any large and abrupt release of water from a subglacial or proglacial lake/reservoir. 132

Loess Deposits: Loess is an aeolian sediment formed by the accumulation of wind-blown silt and lesser and variable amounts of sand and clay that are loosely cemented by calcium carbonate. It is usually homogeneous and highly porous and is traversed by vertical capillaries that permit the sediment to fracture and form vertical bluffs. 185

Megafauna: In terrestrial zoology, megafauna (Ancient Greek megas "large" + New Latin fauna "animal") are "giant", "very large" or "large" animals. Their original and most common definition is 100 lb, often rounded in the metric system to 40 or 45 kg. This thus includes many species not popularly thought of as overly large, such as white-tailed deer and red kangaroo, as well as humans. 132

Mesoscale: Mesoscale meteorology is the study of weather systems smaller than synoptic scale systems but larger than microscale and storm-scale cumulus systems. Horizontal dimensions generally range from around two miles to several hundred miles. Examples of mesoscale weather systems are sea breezes, squall lines, and mesoscale convective complexes. Vertical velocity often equals or exceeds horizontal velocities in mesoscale meteorological systems due to nonhydrostatic processes such as buoyant acceleration of a rising thermal or acceleration through a narrow mountain pass. 134

Mortars and Pestles: A mortar and pestle is a tool used to crush, grind, and mix solid substances (trituration). The pestle is a heavy bat-shaped object, the end of which is used for crushing and grinding. The mortar is a bowl, typically made of hard wood, marble, clay, or stone. The substance to be ground is placed in the mortar and ground, crushed or mixed with the pestle.....133

Stream Incised Meanders: If the slope of an established meandering stream is suddenly increased it will resume downward erosion – this happens when the base level of the stream is reduced, for example due to tectonic uplift of the region, a global fall in sea-level, collapse of a moraine-dammed lake downstream, damming by bridges and culverts, large-scale reduction of the water storage of a floodplain, or by capture of the stream by a steeper one. As the stream erodes downwards, its established meandering pattern will remain as a deep valley known as an incised meander or entrenched meander.....352, 380

Synoptic Scale: The synoptic scale in meteorology (also known as large scale or cyclonic scale) is a horizontal length scale of the order of 600 miles or more. This corresponds to a horizontal scale typical of mid-latitude depressions. Most high and low pressure areas seen on weather maps such as surface weather analyses are synoptic-scale systems, driven by the location of Rossby waves in their respective hemisphere. Low pressure areas and their related frontal zones occur on the leading edge of a trough within the Rossby wave pattern, while surface highs form on the back edge of the trough. Most precipitation areas occur near frontal zones. The word synoptic is derived from the Greek word sunoptikos meaning seen together. 134

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