

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Appendix D. Mitigation Strategy Supporting Materials

Priority Ranking Scores for Mitigation Actions

Action #	Action Name	Life Safety Impact	Administrative Tech Assistance	Project Cost	Other	Total Score	Priority
1	Drought Planning and Community Education	10	3	3	5	21	High
2	Landscaping for Wildfire Mitigation and Drought Resistance	10	5	3	5	23	High
3	Utilized flood model of Trujillo Creek to facilitate conversation with the County to resize the culverts on Pala Mission Road and Pala Creek.	10	3	5	5	23	High
4	Hazard Mitigation Plan	10	3	3	5	21	High
5	Develop a ten year infrastructure improvement plan that includes paving roads, improving drainage, and sustainable power.	10	3	3	5	21	High

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Life Safety Impact	Administrative Tech Assistance	Project Cost	Other	Total Score	Priority
6	Collaborate with San Diego County on flood control issues.	10	5	5	5	25	High
7	Wildfire Education and Outreach	10	3	5	5	23	High
8	Develop an outreach and training program toward the development and expansion of an Inland Valley CERT.	10	5	5	5	25	High
9	Build a storage facility for disaster supplies and develop a plan for acquiring, maintaining, and distributing the supplies when necessary.	10	5	5	5	25	High
10	Develop a flood mitigation and response plan.	10	3	3	5	21	High
11	Use latest California Building Code Standards when building on the Reservation.	10	1	5	5	21	High

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Life Safety Impact	Administrative Tech Assistance	Project Cost	Other	Total Score	Priority
12	Expand sustainable energy on the Reservation.	10	1	1	5	17	Medium
13	Expand the topographical survey model of flood inundation areas with overland sheet flow flood areas and culvert and creek details.	10	1	1	3	15	Medium
14	Identify engineering and planning solutions for areas that flood as a result of insufficient stormwater management. This is part of the Pala Flood Control Plan.	10	1	1	5	17	Medium
15	Develop a stormwater management project to alleviate flooding through the Oaks neighborhood, the shooting range, and on Pala Temecula Road.	10	3	1	5	19	Medium
16	Conduct streambank restoration projects to increase flood	10	3	1	5	19	Medium

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Life Safety Impact	Administrative Tech Assistance	Project Cost	Other	Total Score	Priority
	retention along Pala's creeks/rivers.						
17	Study the flooding and debris problem on Sycamore to identify a solution.	10	1	3	5	19	Medium
18	Develop and expand the early warning systems on the Reservation for multiple hazards.	10	3	3	3	19	Medium
19	Alleviate Bubble-Up Creek Flooding through stormwater management and flood control.	10	3	1	5	19	Medium
20	The Pala Environmental Department (PED) develops a checklist for other departments to know when their work may need PED consultation.	6	5	5	3	19	Medium
21	Improve road signage and address system on the Reservation.	6	5	5	3	19	Medium
22	Collect and organize disaster data by	6	5	5	3	19	Medium

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Life Safety Impact	Administrative Tech Assistance	Project Cost	Other	Total Score	Priority
	expanding the Tribe's GIS system.						
23	Utilize the Pala Website and the Pala Radio Station to promote hazard mitigation and disaster preparedness. Develop a Ham Radio operator's group to expand notification and communication on the Reservation.	6	5	5	3	19	Medium
24	Connect purple pipeline to Administration Building or Casino to utilize recycled water.	6	3	1	5	15	Medium
25	Bring new wells online	6	3	3	5	17	Medium
26	Install backup power for the Administration Building and for each public drinking water well, and the Vineyard water system.	10	1	1	5	17	Medium
27	Develop a solution for the water in the	6	1	1	3	11	Low

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Life Safety Impact	Administrative Tech Assistance	Project Cost	Other	Total Score	Priority
	dock area of the Casino the pumps are running continuously which stresses the wastewater treatment plant.						
28	Public education regarding all hazards with an emphasis on hazards not usually considered such as extreme freeze, landslide, hazardous materials, and agricultural pests.	6	5	5	3	19	Low
29	Develop a solution to overland flooding on Lilac Road (south) and Pala Temecula Road(north).	6	1	3	3	13	Low
30	Explore the feasibility of using porous surfaces whenever building on the Reservation to reduce flooding and increase drainage to the water table.	2	1	1	3	7	Low

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Mitigation Actions Sorted by Mitigation Category

Local Plans and Regulations

Action #	Action Name	Hazards Addressed
1	Drought Planning and Community Education	Drought; Extreme Heat
4	Hazard Mitigation Plan	All
10	Develop a flood mitigation and response plan.	Erosion; Flood
11	Use latest California Building Code Standards when building on the Reservation.	Earthquake and Liquefaction; Flood; High Wind; Wildfire and Structure Fire
13	Expand the topographical survey model of flood inundation areas with overland sheet flow flood areas and culvert and creek details.	Erosion; Flood
14	Identify engineering and planning solutions for areas that flood as a result of insufficient stormwater management. This is part of the Pala Flood Control Plan.	Erosion; Flood
17	Study the flooding and debris problem on Sycamore to identify a solution.	Erosion; Flood
20	The Pala Environmental Department (PED) develops a checklist for other departments to know when their work may need PED consultation.	All
21	Improve road signage and address system on the Reservation.	All
22	Collect and organize disaster data by expanding the Tribe's GIS system.	All

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Structure and Infrastructure Projects

Action #	Action Name	Hazards Addressed
2	Landscaping for Wildfire Mitigation and Drought Resistance	Drought; Extreme Heat; Wildfire and Structure Fire
3	Utilized flood model of Trujillo Creek to facilitate conversation with the County to resize the culverts on Pala Mission Road and Pala Creek.	Erosion; Flood
5	Develop a ten year infrastructure improvement plan that includes paving roads, improving drainage, and sustainable power.	Drought; Flood; High Wind
6	Collaborate with San Diego County on flood control issues.	Flood
9	Build a storage facility for disaster supplies and develop a plan for acquiring, maintaining, and distributing the supplies when necessary.	All
12	Expand sustainable energy on the Reservation.	Earthquake and Liquefaction; High Wind; Tornado; Wildfire and Structure Fire; Lifeline Incident
15	Develop a stormwater management project to alleviate flooding through the Oaks neighborhood, the shooting range, and on Pala Temecula Road.	Erosion; Flood
18	Develop and expand the early warning systems on the Reservation for multiple hazards.	All
19	Alleviate Bubble-Up Creek Flooding through stormwater management and flood control.	Erosion; Flood
24	Connect purple pipeline to Administration Building or Casino to utilize recycled water.	Drought

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Hazards Addressed
25	Bring new wells online	Drought
26	Install backup power for the Administration Building and for each public drinking water well, and the Vineyard water system.	Lifeline Incident
27	Develop a solution for the water in the dock area of the Casino the pumps are running continuously which stresses the wastewater treatment plant.	Flood
29	Develop a solution to overland flooding on Lilac Road (south) and Pala Temecula Road(north).	Erosion; Flood
30	Explore the feasibility of using porous surfaces whenever building on the Reservation to reduce flooding and increase drainage to the water table.	Drought; Flood

Natural Systems Protection

Action #	Action Name	Hazards Addressed
16	Conduct streambank restoration projects to increase flood retention along Pala's creeks/rivers.	Erosion; Flood

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Education and Awareness Programs

Action #	Action Name	Hazards Addressed
7	Wildfire Education and Outreach	Drought; Extreme Heat; High Wind; Lightning; Wildfire and Structure Fire
8	Develop an outreach and training program toward the development and expansion of an Inland Valley CERT.	All
23	Utilize the Pala Website and the Pala Radio Station to promote hazard mitigation and disaster preparedness. Develop a Ham Radio operators group to expand notification and communication on the Reservation.	All
28	Public education regarding all hazards with an emphasis on hazards not usually considered such as extreme freeze, landslide, hazardous materials, and agricultural pests.	All

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Mitigation Actions Sorted by Goal Statement

1. Mitigate risk to people and property from natural hazards and climate change.

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
4	Hazard Mitigation Plan	All	Maintain Hazard Mitigation Plan annually and update it for FEMA review every five years.	Yes
10	Develop a flood mitigation and response plan.	Erosion; Flood	A comprehensive flood mitigation and response plan should be developed, including a review of the 100-year flood model for the Pala Valley, previous flooding issues/sites recorded around the reservation over the last decade, mitigation actions to reduce flooding impacts to homes/businesses/lives, and a response plan with responsible parties clearly defined.	Yes
18	Develop and expand the early warning systems on the Reservation for multiple hazards.	All	This includes adding stream gages at the easternmost edge of the reservation, in order to provide additional warning time to those downriver, specifically, Pala Casino and for the purposes of collecting hazard data. This may also include a public warning system for bad air quality days or other emergencies.	No
26	Install backup power for the Administration Building and for each public drinking water well, and the Vineyard water system.	Lifeline Incident	Additional generators and/or alternative power storage sources should be installed at both drinking water wells and critical agricultural groves, as well as at critical infrastructure (e.g. Pala Administration Building) to protect lives and vital economic revenues during hazards.	Yes

Hazard Mitigation Plan Update, Pala Band of Mission Indians

2. Reduce the possibility of damage and losses to existing assets, particularly people, critical facilities/infrastructure, and Tribal facilities due to extreme heat, wildfires, flooding, drought and climate change.

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
2	Landscaping for Wildfire Mitigation and Drought Resistance	Drought; Extreme Heat; Wildfire and Structure Fire	The Tribe will clear brush and debris from around homes and utilities to decrease fire vulnerability. They will also install drought resistant landscaping on new home sites to conserve water.	Yes
9	Build a storage facility for disaster supplies and develop a plan for acquiring, maintaining, and distributing the supplies when necessary.	All	Building on the work done and lessons learned from Covid-19, the Tribe needs to be proactive toward meeting the needs of future disasters. A site should be found, storage building installed, and supply plan should be formalized with timeline built-in to update supplies and contacts.	No
12	Expand sustainable energy on the Reservation.	Earthquake and Liquefaction; High Wind; Tornado; Wildfire and Structure Fire; Lifeline Incident	Develop a microgrid for the Administration Building and Casino. Install battery storage for residential and commercial buildings with solar panels. Currently completing a solar feasibility study with Department of Energy funding. Participate in Battery Backup Project to provide battery storage to WWTP, Administration Building, Casino, Mini-Mart, and drinking water sources.	No
13	Expand the topographical survey model of flood inundation areas with overland sheet	Erosion; Flood	The flood model should be expanded to include surface inundation into neighborhoods, highlighting localized flooding during high intensity precipitation events.	Yes

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
	flow flood areas and culvert and creek details.			
14	Identify engineering and planning solutions for areas that flood as a result of insufficient stormwater management. This is part of the Pala Flood Control Plan.	Erosion; Flood	Obtain engineering report and/or stormwater management guidelines to provide appropriate areas to slow/sink sheet flow so that it does not flood neighborhoods.	Yes
15	Develop a stormwater management project to alleviate flooding through the Oaks neighborhood, the shooting range, and on Pala Temecula Road.	Erosion; Flood	Develop and implement plan to increase berm on western slope of Trujillo Creek (breach site), develop stormwater catch basins, and other stormwater/LID techniques to prevent Trujillo Creek from jumping its banks and decreasing surface flow velocity and track through Oaks neighborhood.	Yes
16	Conduct streambank restoration projects to increase flood retention along	Erosion; Flood	Obtain permits well ahead of conducting work on storm water channels and culverts.	Yes

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
	Pala's creeks/rivers.			
17	Study the flooding and debris problem on Sycamore to identify a solution.	Erosion; Flood	Determine if the flooding on Sycamore is related to culvert maintenance or if the area requires a larger bridge. This builds on the Flood Study conducted by the Tribe.	Yes
19	Alleviate Bubble-Up Creek Flooding through stormwater management and flood control.	Erosion; Flood	Obtain engineering report and/or stormwater management guidelines to redirect overland flow from Bubble-Up Creek, through Valenzuela neighborhood. Coordinate with the County to develop a more permanent solution to allow Bubble-Up Creek to cross Lilac Road (e.g. culverts, low bridge) without destroying the road every year.	Yes
22	Collect and organize disaster data by expanding the Tribe's GIS system.	All	Develop and expand the flood maps/survey levels for roads on the Reservation. The Tribe collects fire footprints and some details regarding flooding areas this needs to be expanded to include number of days of closures or impacts. Have collected data from CalFire that includes fire footprints and soil erosion. Obtain additional data from CalFire; Obtain soil information and/or erosion information from past incidents.	Yes
24	Connect purple pipeline to Administration Building or Casino to utilize recycled water.	Drought	The purple pipeline exists from the WWTP to the end of Henderson/Pala Mission Roads but is not connected to building sites. Additional engineering and project implementation must be done.	Yes

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
27	Develop a solution for the water in the dock area of the Casino the pumps are running continuously which stresses the wastewater treatment plant.	Flood	During high precipitation days, low-lying areas in the Casino footprint flood; this water is pumped to the Pala WWTP, stressing the system. Instead stormwater should be re-diverted, treated, and safely released as overland flow.	Yes
29	Develop a solution to overland flooding on Lilac Road (south) and Pala Temecula Road(north).	Erosion; Flood	Obtain engineering report and/or stormwater management guidelines to provide appropriate areas to slow/sink sheet flow so that it does not flood neighborhoods. Coordinate with County to build appropriate culverts or stormwater channels to safely guide water off of roads and out of homes/yards.	Yes
30	Explore the feasibility of using porous surfaces whenever building on the Reservation to reduce flooding and increase drainage to the water table.	Drought; Flood	Any new construction and/or pavement installation project on the reservation should be reviewed for its suitability of utilizing porous pavement to reduce stormwater runoff and increase infiltration.	No

Hazard Mitigation Plan Update, Pala Band of Mission Indians

3. Proactively plan to mitigate the risks of natural hazards and climate change by integrating mitigation policies and practices into tribal planning for all departments.

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
1	Drought Planning and Community Education	Drought; Extreme Heat	Conduct community outreach on water conservation, including information regarding installation of smart water meters. Promote community member responsibility to practice water conservation.	No
5	Develop a ten-year infrastructure improvement plan that includes paving roads, improving drainage, and sustainable power.	Drought; Flood; High Wind	The ten-year plan will include a lead authority and a roadmap outlining future work.	Yes
11	Use latest California Building Code Standards when building on the Reservation.	Earthquake and Liquefaction; Flood; High Wind; Wildfire and Structure Fire	Continue using building codes set forth by the California Building Standards that meet the level of risk associated with all high and moderate hazards for all Tribal construction projects.	Yes
20	The Pala Environmental Department (PED) develops a checklist for other departments to know when their	All	Once new tribal codes are approved by General Council, a series of checklist documents should be developed by PED for both other tribal departments and community members for various environmental projects that PED should be notified about.	No

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
	work may need PED consultation.			
21	Improve road signage and address system on the Reservation.	All	A standardized address system and clear road signage facilitates location by first responders. Collaborate with GIS office and hold community workshops on the subject.	No
25	Bring new wells online	Drought	There are three newly drilled wells that need to be connected to the Tribe's drinking water system(s). They are located at the Fire Station Well, Trujillo Creek Well and on the Valenzuela Well.	Yes

4. Build capacity for hazard mitigation and climate adaptation through regional collaboration.

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
3	Utilized flood model of Trujillo Creek to facilitate conversation with the County to resize the culverts on Pala Mission Road and Pala Creek.	Erosion; Flood	Coordinate with the County to develop solutions for flooding on Pala Mission Road caused by Trujillo Creek and undersized culverts.	Yes

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
6	Collaborate with San Diego County on flood control issues.	Flood	Many of Pala's water resources cross over county-controlled roads/culverts that are undersized. These areas include Pala Mission Road at Trujillo Creek and at Pala Creek. They also include Bubble-Up Creek where it crosses Lilac Road.	Yes

5. Increase tribal member and tribal employee awareness of natural hazards and climate adaptation by implementing tribal-based education programs.

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
7	Wildfire Education and Outreach	Drought; Extreme Heat; High Wind; Lightning; Wildfire and Structure Fire	Promote family emergency planning and wildfire mitigation techniques to community members.	No
8	Develop an outreach and training program toward the development and expansion of an Inland Valley CERT.	All	Collaborate with Long Term Recovery efforts in the region and other tribes. Increase Pala Tribal participation/certification under the Inland Valley CERT Program.	Yes
23	Utilize the Pala Website and the Pala Radio	All	PED should look into feasibility of setting up a Pala Tribal App and/or a text alert system that could	No

Hazard Mitigation Plan Update, Pala Band of Mission Indians

Action #	Action Name	Hazards Addressed	Description	Critical Facility Protection
	<p>Station to promote hazard mitigation and disaster preparedness. Develop a Ham Radio operator's group to expand notification and communication on the Reservation.</p>		<p>provide information/notification to the community during natural disasters/hazards.</p>	
28	<p>Public education regarding all hazards with an emphasis on hazards not usually considered such as extreme freeze, landslide, hazardous materials, and agricultural pests.</p>	All	<p>Include information regarding all hazards when educating the public. Pala residents and employees are well aware of high-risk hazards such as drought, flood and wildfire but may not be aware of how to mitigate risks to hazardous material incidents, lightning, landslide, and extreme freeze.</p>	No