

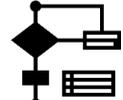
# LAKE TAHOE BASIN

# Forest Management Capacity Package

Managers are working collaboratively in the Lake Tahoe Basin to build capacity for hazardous fuel reduction and forest restoration. We must build our collective capacity throughout each stage of the forest management cycle in order to effectively utilize future funding from a variety of sources.

This capacity building package builds upon a legacy of strong federal, state, local, and private partnerships in the Lake Tahoe Basin. Whether funded in whole or in part, it will increase our efficiency and capability to restore forests and protect communities across all jurisdictions. It includes \$11,500,000 in one-time purchases and \$2,600,000 in annual costs.



	<b>Crews</b>		
	<b>Survey Crew</b>	3	<b>\$300,000 annually</b>
	Increases coverage of natural resource surveys to expedite project readiness.		
	<b>Resource Crews</b>	4 5	<b>\$500,000 annually</b>
	Increases interagency capacity to conduct prep, layout, tree marking, and thinning.		
	<b>Prescribed Fire Crew</b>	4 5	<b>\$600,000 annually</b>
Provides dedicated resources to conduct prescribed fire prep and implementation.			
	<b>Cable Yarding Crew</b>	5	<b>\$300,000 annually</b>
Enables use of cable yarding equipment to treat more area and extract more materials.			
	<b>Equipment</b>		
	<b>Cable Yarding Equipment</b>	5	<b>\$1,250,000</b>
	Removes materials in areas not suitable for tractor logging.		
	<b>Processing Equipment</b>	5	<b>\$500,000</b>
Increases interagency capacity to dispose of hazardous fuels.			
	<b>Technology</b>		
	<b>Ground Based LiDAR</b>	6 1 2	<b>\$300,000</b>
	Increases prep and layout capability, and supports science and monitoring.		
	<b>Digital Layout and Marking</b>	4 5	<b>\$200,000</b>
Improves layout and implementation efficiency, and reduces individual tree marking.			
	<b>Helicopter Logging</b>	5	<b>\$1,500,000</b>
Enables treatment of hundreds of acres in steep and inaccessible areas.			
	<b>Systems and Support</b>	1 2 3 4 5 6	
	<b>Management Team</b>		<b>\$250,000 annually</b>
	Manages multi-jurisdictional operational resources via delegated authority.		
	<b>Tahoe-Central Sierra Coordinator</b>		<b>\$150,000 annually</b>
	Pursues large-scale objectives identified by the Tahoe-Central Sierra Initiative.		
	<b>CCC Restoration Forestry Program</b>		<b>\$500,000 annually</b>
	Creates a joint forestry program at the California Conservation Corps Tahoe Center.		
<b>Landscape Restoration Planning</b>		<b>\$1,500,000</b>	
Expands the Lake Tahoe West Restoration Partnership to all of Lake Tahoe.			
<b>Forestry Workcenter</b>		<b>\$2,000,000</b>	
Provides facilities, logistical and fleet support for forestry planning and operations.			
	<b>Demonstration Forest</b>	1 2 3 4 5 6	<b>\$4,000,000</b>
	Establishes a demonstration forest to showcase and test innovative treatment approaches utilizing the crews, equipment, technology and systems listed above.		

## Additional Details and Cost Assumptions

### Crews

#### Survey Crew

Hire a 10-person natural resource survey crew (\$300,000 annually for 5 year period, may see slightly reduced costs toward 4th and 5th years). This crew would conduct surveys for wildlife, aquatic, botany (rare plant and noxious weeds), archaeology, and other natural resources in a focused footprint within the Lake Tahoe Basin, taking advantage of prior survey investments, to expedite project planning and reduce time between having a signed decision and investing in project prep/starting implementation.

#### Resource Crews

Hire two, 10-person Resource Crews (\$275,000/year for one crew; \$530,000/year for two crews; \$2.65M for two crews for 5-year period). These crews would work for approximately 6 months each but with staggered start dates: a Spring Crew starting January 1st and a Fall Crew starting June 1st. The crews would overlap during summer. Start dates could vary by snowpack or other factors. The crews would accomplish a variety of tasks including, but not limited to, the following: prescribed burning (including addressing burn pile backlog), pile building, chipping, brushing, project layout (corners, boundaries, SEZs, etc.), marking to prescription, trail work, and hazard tree removal. This work could be done at the TCSI landscape scale (e.g. moving across the landscape with burn windows) or at smaller scales.

### Prescribed Fire Crew

Prescribed burning assistance-by-hire (cost varies as below). Crew work would include ignition, holding and patrol resource. An agency burn boss and limited overhead would be required for permitting, oversight, suppression readiness, etc.

- See Resource Crew above
- CHIPS Crew (\$1M, from September 1st through May 31st): 20-person hand crew – ability to work in 5-person modules
- CCC Crew (\$600,000, from September 1st through May 31st): 15-person crew – acts as a single module
- Private contractor (\$1M, hire when needed): highest cost/day but advantage of limiting costs in a poor burn year (few burn windows)
- Local government crews (North Tahoe and Tahoe Douglas): Per TFFT, government crews are currently at capacity. Increasing capacity would require hiring additional permanent and other positions at an unknown cost.
- Travel cost for crews (up to \$400,000) - not figured into above costs. Travel costs would vary by the type of crew and how much travel would be incurred.

### Cable Yarding Crew

Fund a cable yarding crew (\$225,000-\$325,000). This could be a contract, CCC's, or agency hired crew with varying degrees of oversight and/or additional expertise required (e.g. sale administration, harvest inspection, or qualified fallers).

### Equipment

#### Cable Yarding Equipment

Purchase cable-yarding equipment (\$500,000 to \$1.3M). This equipment would increase the land base within the Lake Tahoe Basin that agencies could treat, effectively improving forest health and reducing fuels across a larger portion of the Wildland Urban Interface (WUI). A reasonably modern and productive set-up would consist of a cable yarder and front end loader/skidder. Maintenance costs are not included. A 7-8 person crew would be required (one to operate the yarder, one for the loader/skidder, 2-3 fellers, and 2-3 chokers).

#### Processing Equipment

Purchase a chipper (\$100,000-\$300,000). An additional chipper may increase interagency capacity to dispose of fuels, particularly if done in conjunction with additional crew capacity (e.g. resource crew or cable-yarding crew). Purchase or rent an air curtain burner (\$100,000). An air curtain burner may increase interagency ability to dispose of fuels by adding a new option within the Lake Tahoe Basin for fuel reduction work conducted near roads or landings. Purchase or rent other equipment as necessary to facilitate processing, such as chip vans, loaders, etc (\$50,000-\$150,000).

## Technology

### Ground Based LiDAR

Fund ground or drone-based Lidar acquisition (\$150,000 to purchase equipment and \$150,000 for data acquisition, processing, and output products). This technology may increase the amount of prep possible in a given season, perhaps as a demonstration project, by facilitating designation by description (DxD) or designation by prescription (DxP) silvicultural prescriptions, reducing time and funding investments in individual tree marking (ITM).

### Digital Layout and Marking

Fund digital layout technology (\$200,000). Purchase hardware and software in cooperation with a purchaser or industry willing to implement a project based on digital layout (may be done in concert with digital silvicultural prescriptions, Lidar-based or not).

### Helicopter Logging

Fund helicopter logging (likely \$7-10,000/acre). Utilize helicopter logging in select areas to reduce fuels in priority areas within the Lake Tahoe Basin.

## Systems and Support

### Management Team

Hire an interagency management team to manage multi-jurisdictional resources using the Incident Command System (costs vary depending upon complexity and number of resources assigned, \$100,000 to \$400,000/year for up to 5 years). Via a delegated authority from Basin land management agencies, the dedicated team would manage project planning, finance, logistics and operations.

### Tahoe-Central Sierra Coordinator

Hire a leader for the Tahoe Central Sierra Initiative (TCSI) Core Team (\$150,000/year for up to 5 years). This leadership/interagency coordinator position would take the lead role for TCSI and may pursue mission-critical objectives as identified by the TCSI Steering Committee. This position may be paid for through shared funding and may result in increased overall funding to the partners.

### Landscape Restoration Planning

Expands the science, collaboration and planning work initiated by the Lake Tahoe West Restoration Partnership to rapidly cover the rest of the Lake Tahoe Basin (\$1,500,000).

### CCC Restoration Forestry Program

Develop a joint forestry-focused program housed at the California Conservation Corps Tahoe Center (\$5000,000/year for 5 years). Would support workforce development and staffing needs.

### Forestry Workcenter

Fund a forestry workcenter (\$2M). The facility would provide office space, fleet management, logistical support for crews, and training coordination. An on-site Restoration Forestry Academy led in partnership with Lake Tahoe Community College would support workforce development needs.

### Demonstration Forest

Fund a demonstration forest (\$4M). Create a 1,000-acre demonstration forest, possibly within the Lake Tahoe West landscape to showcase treatment options such as large openings and operations on steep slopes. Managers could test LiDAR, digital prep or implementation, current science questions (e.g. spotted owl population trend or spotted owl usage of large trees/dense canopy), and use monitoring to support cutting-edge implementation efforts.