

Transportation

Transportation systems in national parks have a major influence on both the quality of visitors' experiences and resource preservation. As Yellowstone's 1973 Master Plan acknowledged, "The park's road system is now overburdened due to the phenomenal growth of automobile travel, for which it was never designed," and "if future demands to visit Yellowstone are to be met, an alternative to the private automobile must be provided." At the time, an optional transit system was proposed that would offer visitors a scenic interpretive overview while traveling from the park boundary to developed areas within, along with complementary secondary roads to popular destinations. In the 1970s and 1980s, mass transportation systems were proposed and even implemented in some heavily traveled portions of national parks such as Everglades, Grand Canyon, and Yosemite.

But while Yellowstone's transportation systems have remained essentially unchanged since 1973, its visitation has increased from 2.2 to 3.1 million per year, and the number of vehicles from 600,000 to 1 million a year. As at many other national parks, both park managers and visitors at Yellowstone have expressed concerns about traffic congestion, accelerated road deterioration due to increased traffic, and the resulting quality of travelers' experiences. Although cyclists may use designated roads that are otherwise closed to vehicular traffic before the spring season opens, bike paths are generally not available adjacent to park roads.

EXPLORING ALTERNATIVES

In 1991, former Wyoming Senator Malcolm Wallop made headlines by suggesting that Yellowstone should consider above-ground tramways such as Disneyland uses to effectively move masses of visitors through its amusement parks. Congress subsequently requested Yellowstone, Yosemite, and Denali national parks to study alternative transportation systems that could: reduce private vehicle travel and emissions while allowing visitors to continue current use patterns and experience a full range of scenic and wildlife-oriented activities; reduce energy consumption; maintain visual quality and sensitive resources; and provide safe and universally accessible travel for users.

Ideas proposed for Yellowstone, as presented in the *Alternative Transportation Modes Feasibility Study, Volume III* (1994), included mandatory or voluntary parkwide transportation systems; a shuttle system connecting park entrance stations to activity centers; a shuttle system around the Grand Loop; and circulation systems within popular areas of activity such as the Upper Geyser Basin/Old Faithful complex. More recent studies have evaluated options for limiting road width and vehicle size on the Dunraven Pass road and the possibilities of "intelligent transportation systems," such as computerized road signs or kiosks that would give park visitors current information on topics such as road conditions and campsite availability. The Idaho National Energy and Environmental Laboratory (INEEL) is working with the park

and has begun to analyze its transportation and energy needs to better anticipate the types of vehicles and fuels that will be needed and available in the future. As contracts with concessioners are renewed (see “Accommodating Visitors,” page 6–18), Yellowstone hopes to obtain improved transportation systems in the park and possibly to gateway communities.

PARK EMPLOYEES ON THE MOVE

Sharing the roads with park visitors—and adding to the crush and noise of traffic—are park employees. While 40 percent of the park fleet consists of light vehicles (cars and pickup trucks), park staff use a variety of other equipment on the job. Maintenance crews use heavy equipment for road building and other construction, and light equipment such as lawn mowers, snow blowers, and electronic carts to accomplish more local tasks. The “rolling stock” includes about 773 vehicles or other motorized equipment owned by the park; this is augmented on a seasonal basis by another 40-some vehicles leased from the General Services Administration (GSA) or local car dealers. Park staff log an average of 2 million miles in these vehicles each year.

Rangers, resource specialists, and trail crews use motorized and non-motorized boats, mules, horses, and, in recent years, llamas on backcountry assignments. In winter the primary mode of transportation for all employees in the interior of Yellowstone shifts to oversnow vehicles. Helicopter support for fire, rescue, and other operations is provided seasonally (see “Wildland Fire,” page 2–29).



An aging fleet. Routine maintenance of the park’s motorized equipment by the 15 mechanics on staff and replacement of aging vehicles is a challenge. More than 60 percent of the motor vehicles have logged more than 50,000 miles on their odometers, and 22 percent have passed the 100,000-mile mark; 57 percent of the fleet is more than 10 years old. At least 338 pieces of equipment need to be replaced as of 1999, at an estimated cost of more than \$20 million.

Insufficient garage space has meant that some of the fleet sits outside year-round exposed to ultra-violet light, snow buildup, and sub-zero temperatures on exteriors and engines. But the park has made some progress in recent years in building or replacing garages in which vehicles are repaired and stored. Added shelter for emergency vehicles, now available at the West Entrance, Old Faithful, and Mammoth, saves wear and tear and increases their service life.

ON LAKE PATROL

In 1996, the park launched its first new patrol boat for rangers on Yellowstone Lake in almost 20 years. The 32-foot rescue boat, the longest vehicle in the fleet, was purchased using fees collected from park anglers over the course of two years.

Like backcountry and road rangers, Yellowstone's boat rangers, patrol to protect park resources and visitors. They retrieve trash from shorelines, campsites, and the waters of the lake, and take biologists to remote study sites. They contact visitors in tour boats, small crafts, and on shore to answer questions, check fishing and camping permits, and provide warnings about pending storms and other hazards. Alerted by calls on the marine radio band, they rush to respond to reports of visitors in danger on many a windy summer afternoon.



On the water. The water fleet consists of 17 motorized boats that range from 18 to 32 feet in length. The park also has several dozen canoes, kayaks, and dinghies that are used for ranger patrols, fisheries management, and occasional transport of other staff and equipment across Yellowstone or Lewis Lakes for tasks such as maintaining docks, removing trash, and rebuilding trails. In recent years, fishing fees and private donations have enabled the park to purchase five new boats: new patrol boats for Yellowstone and Lewis lakes, two 23-foot work skiffs, and a 19-foot resource operations boat designed to be more environmentally sensitive than traditional watercraft. But half of the watercraft are at least 12 years old and have logged more than 5,000 hours, warranting their replacement.

All of the boats must be removed from the water each fall, but the park lacks adequate storage facilities to protect them from winter weather. Maintenance of boats is irregular and undertaken by vehicle mechanics as time and skills permit, but the watercraft must often be trailered 100 or more miles to be serviced by trained boat mechanics. In 1997-98, the fee demonstration program allocated \$90,000 for replacement of 18 unsafe and unsightly docks used by visitors on Yellowstone Lake, but more needs to be done (see "Marine Facilities" page 7-22).



Over the snow. The park owns 108 snowmobiles, many of which are driven an average of more than 100 miles per day by employees and volunteers. Although industry standards suggest a limit of 4,000 miles (and those are more likely lighter-duty “recreational” miles accrued over long years of use), many of the park’s snowmobiles are logging well over 5,000 miles before being replaced. To improve maintenance of the fleet, the park now replaces one-third of its snowmachines each year, at a cost that

rose from \$113,500 in 1992 to \$154,000 in 1998. Of the seven snow groomers owned by the park, one must be replaced each year; this expense has increased from \$119,000 to more than \$153,000 during the same period. Proceeds from the park’s annual public auction of surplus equipment provides about \$50,000 to help pay for new snowmobiles.



On the hoof. Each year Yellowstone vaccinates, worms, shoes, and trains an average of 100 head of stock to support park ranger, resource management, and maintenance operations. Two horse wranglers assisted by a seasonal employee are responsible for obtaining horses and mules and distributing them throughout the park for work done primarily in summer and fall.

The corral operations are headquartered near Gardiner, Montana, where the corrals and a tool shed need improvement. Many of the park’s subdistricts have smaller horse corrals, barns, and sheds to support

stock operations. To feed the stock, the park purchases about 225 tons of certified weed-free hay, five tons of hay cubes, eight tons of grain, and one ton of salt, which cost about \$370 per animal each year. To contract for the range needed for these animals outside the park during the winter, Yellowstone pays about \$15 per head per month. The stock are transported around the park and to and from pastures in four horse trailers and four trucks.

By long tradition, park rangers have used horses to patrol the backcountry; less frequently they ride in developed areas,



meeting with visitors and giving horse-lovers photo opportunities. In the last decade, staff have been trained in new techniques for handling horses, making it easier on both horses and riders. The park's best mounted rangers participate in local parades and special ceremonies, such as the dedication of the Museum of the National Park Ranger at the historic Norris Soldier Station in 1991 and the park's 125th anniversary celebrations in August 1997.

DASHING THROUGH THE SNOW

When most of the park's horses have long since been taken to winter pasture at lower elevations, a few intrepid horses and mules stay behind to carry rangers and wranglers on high-priority resource operations.

In the winters of 1995 and 1996, Yellowstone's newly arrived wolves were taken to their acclimation pens on sleds pulled by two mule teams. Then twice a week during the next 10 weeks until the wolves were released, the mule sleds brought their food ration—enough meat to provide 15 pounds per wolf per day. The use of mules rather than snowmachines or people to bear this load meant less stress on the wolves, the staff, and visitors' opportunity to enjoy the quiet of Yellowstone in winter.

In the winters of 1996, 1997, and 1998, horses were needed by the rangers responsible for patrolling the northern boundary, herding bison back into the park as part of the bison management program. A good horse matched with an experienced rider made a difficult operation easier on many a long winter day.



To the job. Yellowstone's emphasis on improving on-the-job safety, energy-efficiency, and cost effectiveness has resulted in exploring alternatives such as employee use of biodiesel-fueled vehicles (see "Greening," page 5-23). In the spring of 1998, employees who commute to work in the park from as far north as Livingston, Montana, initiated a ride-share program using a surplus bus from INEEL. Riders pay a fee which covers the costs of gas and bus maintenance, and participating employees sign up as volunteer drivers. Three newer coaches, also no longer needed by INEEL staff, will be used to replace the original ride-share bus and augment the employee transportation system.

Program Needs

- **CYCLIC MAINTENANCE OF VEHICLE FLEET.** More trained mechanics and base funding for equipment replacement will put this program on solid footing.

VEHICLE TYPE	REPLACEMENT CRITERIA	VEHICLES	
		NEEDING	REPLACEMENT
4 x 4 pickups	5 years/50,000 miles		39
4 x 2 pickups	7 years/70,000 miles		85
Law enforcement vehicles	3 years/100,000 miles		30
Snowmobiles	2 years/5,000 miles		49
Dump trucks, packers	12 years/150,000 miles		58
Loaders, graders, bulldozers	12 years/7,000 hours		60

- **UPGRADE AND MAINTAIN BOAT FLEET.** The park needs several new fully outfitted patrol boats immediately, and the existing fleet needs to be replaced on a scheduled basis and regularly maintained. The high priority of lake trout control efforts will require an additional specialized boat, equipped for commercial-strength gillnetting (see “Fish and Other Aquatic Resources,” page 3–28). There is also a need for an additional boat mechanic to service the fleet on Yellowstone and Lewis lakes.

- **WINTER STOCK FACILITIES.** The recent increases in the winter use of stock for programs such as wolf and bison management have resulted in a year-round horse operation that requires winterized barns with stalls and a training facility at park headquarters.

- **VISITOR AND EMPLOYEE TRANSPORTATION.** Some information is available on visitor trends, expectations, and willingness to participate in alternative transportation systems such as shuttles and one-way routing over major roads, but the cost in both dollars and the difficulty of changing traditional use patterns is intimidating, and the park lacks reliable data about the numbers and trends in the use of bicycles and other alternative transportation such as tour busses. As more parks implement such programs, Yellowstone may need to experiment with resource-sensitive ways to provide mass visitor access and reduce congestion while retaining high-quality experiences.

- **INCREASE USE OF ALTERNATIVE VEHICLES.** Recent trials with the biodiesel-fueled truck and the “green” boat show promise. Yellowstone needs to make use of these and other new technologies such as electric powered snowmobiles, and park staff require training in the operation and maintenance of such vehicles.



TRANSPORTATION

STEWARDSHIP GOALS



Safe, reliable, convenient, and environmentally sensitive transportation systems provide visitors and staff alternatives to using private vehicles for travel within the park.



Park employees have safe, reliable, and environmentally efficient means of transportation in order to do their jobs.



The park has adequate facilities and trained personnel to maintain all modes of employee transportation, including oversnow vehicles, boats, and stock.

CURRENT STATE OF RESOURCES/PROGRAM



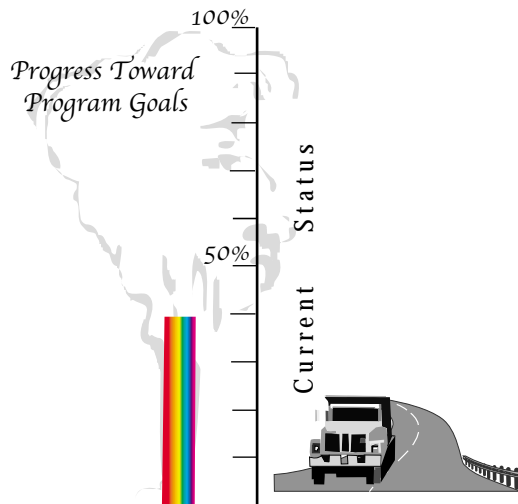
Alternative transportation systems are nearly non-existent; several studies have proposed solutions but logistical and funding challenges remain.



57% of the park's 773 vehicles are > 10 years old and in need of replacement within five years; on-the-job accident rates are excessive. New boats are helping park staff traverse the major lakes, but half of the watercraft need to be replaced.



Horse and snowmobile operations are well-maintained despite rising costs; but garage facilities, repair equipment, and vehicle mechanics are insufficient to keep up with maintenance and repairs on aging vehicles and boats.



1998 FUNDING AND STAFF

Recurring Funds	
Yellowstone N.P. Base Budget	\$ 1,884,900
Cost Recovery/Special Use Fees	\$ 60,000
Non-Recurring Funds	
One-Time Projects	489,000
Staff	17.17 FTE

The human resources and funding necessary to professionally and effectively manage the park to stewardship levels will be identified in the park business plan.