

SECTION VI:

RWT Operational Aspects

Once a rail-with-trail is constructed, trail maintenance and operations should minimize impacts on railroad companies and offer a safe and pleasant use experience. Operational aspects covered in this section include rail operations, maintenance, education, outreach, and enforcement.

Overview of Recommendations

- Representatives from railroad operation, track, and signal departments should be invited for technical discussions and advice in the feasibility analysis phase of an RWT.
- RWT proponents should consider the maintenance and access needs of the railroad operator in the alignment and design of the RWT. They should provide adequate room for railroad access and operations outside the RWT and fenced area wherever possible. In areas with narrower than 7.6 m (25 ft) setback, the trail likely will be used as a shared maintenance road. In all cases, the railroad should be provided adequate room and means for access to and maintenance of its tracks and other facilities. The feasibility study and easement/license agreement also should identify the designs and costs of any improvements that would become the responsibility of the RWT agency.
- Trail managers should develop a phasing and management plan and program for the RWT. Trail managers should consult with railroad engineering and operating departments to determine the appropriate steps, approvals, permits, designs, and other requirements.
- An education and outreach plan should be part of the trail plan. Trail managers should provide supplemental information through maps, bicycle rental and support services, trail user groups, and other avenues.
- Trail managers should develop, in coordination with local law enforcement and the railroad, a security and enforcement plan.
- Trail managers should develop and post RWT user regulations.

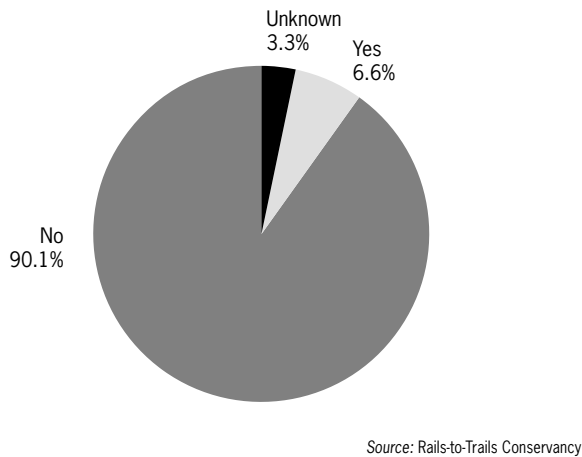


FIGURE 6.1 “Does railway help trail agency maintain corridor?” by percentage of trails

- Trail managers should follow recommended design practices, such as signing to warn trail users to stay on the trail and off the tracks.

Rail Operations Involvement

Train crews and track and signal maintenance personnel should be included in any discussion that may impact rail operations and safety. The day-to-day experiences of these professionals can be instrumental in helping to avoid or minimize potential problems. For example, a Union Pacific Railroad engineer in Roseville, California, pointed out that he frequently stops his train on an at-grade public crossing for hours at a time. He sees frustrated people climb between rail cars to cross, putting themselves in extreme danger as they reach the parallel tracks on the other side, where high speed trains could be coming. A number of possible solutions exist to these problems, including

improving engineer sight lines, relocating public crossings, relocating or configuring sidings, enhancing train signals and communications, and reorienting train operations.

Other issues identified by train operators include:

- Areas with difficult sight lines, which often are on curves or impacted by natural features;
- Weather-related concerns, such as fog in the San Francisco Bay Area;
- Train movement patterns;
- Harassment of train crews; and
- Petty vandalism and trespassing trouble areas.

Finally, stress reduction is a significant concern for train engineers, who bear the onerous emotional burden of striking a trespasser, pedestrian, bicyclist, or motorist on the tracks. RWT planners must be sensitive to this overwhelming personal and professional problem.

Maintenance Needs

Government agencies maintain 94 percent of existing RWTs, with local trail user groups maintaining the rest. For about 6 percent of trails, the railroad does offer some maintenance assistance (see **Figure 6.1**). The average RWT maintenance cost is about \$17,000 per year (\$4,200 per mi or \$2,600 per km). However, maintenance costs range considerably, from a few hundred dollars annually when relying on volunteer labor, to a reported \$50,000 annually on the Mission City Trail, California. Maintenance activities include sweeping, cutting debris, patching holes in fences, fixing trail problems, replacing signs, and replacing deteriorating surfaces.

Railroads must have access to their tracks for routine and emergency maintenance and other activities. While all railroads can service their tracks’ drainage systems, bridges, and other structures from the tracks if needed, most need landside access. Routine railroad activities include tie and track replacement; drainage culvert cleaning; bridge, tun-



nel, and trestle inspection and repairs; switching and communication equipment access and maintenance; and crossing equipment servicing and repairs. Most of these activities are accomplished by having trucks drive alongside the tracks on maintenance roads or, in some cases, on the side of the ballast near the rails themselves. Tie replacement machines, which are track-mounted, throw old ties out on one side while installing new ties on the other side.

Most railroad companies prefer a minimum of 7.6 m (25 ft) from nearest track centerline for maintenance activities. This allows room for truck access, turning, and tie replacement. The feasibility study should address maintenance access in the RWT design, including how any barrier or fence would be removed and reinstalled as part of maintenance activities. Also, the feasibility study should have a detailed operations and management plan that addresses the procedures and responsibilities when the railroad has either a routine or emergency maintenance access need. Typically, the RWT manager is responsible for closing the trail when the railroad requires access that may impact the public's safety.

An RWT located closer than 7.6 m (25 ft) from the track centerline must assume that the RWT itself will become the maintenance road for the railroad, and that the railroad will need the trail manager to close the trail for routine and emergency maintenance activities. Any fence or barrier between the tracks and RWT would need to be removed quickly, and the fence, barrier, pathway surface, landscaping, and other trail amenities may be damaged or destroyed by activities of the railroad, while maintaining or re-opening their tracks.

Several possible methods are available to address shared RWT-railroad maintenance roads. For example, the RWT can be constructed to accommodate heavy railroad trucks and equipment. Fencing can be designed for easy removal and re-installation, or constructed with sliding gates (see **Figure 5.21**, page 69). Entrance signs should include, "Trail May Be Closed at Any Time Without Notice." The RWT should have a gate or other barrier to quickly close the facility to public access.

Another important issue is responsibility for retaining walls, cut-and-fill areas, drainage culverts, barriers and signs, and bridges and trestles. For example, a new RWT may require extension of an existing cut area or construction of a retaining wall. This area may already have erosion or landslide problems that are handled by the railroad. RWT managers may need to assume full responsibility for any structure, culvert, or natural condition within its easement, regardless of whether it is a pre-existing condition or not. The feasibility study team must understand the existing geological, hydrological, structural, and other conditions, and estimate the capital and maintenance costs.



Steel Bridge Riverwalk warning sign. *Portland, OR*



Construction Management Strategies

The feasibility study should address how an RWT would be staged and constructed so as not to interfere with the operations of the railroad. In some cases, construction might involve temporary use of railroad property or temporary permission to cross sidings or other tracks. Most railroads have a very detailed process for activities on their property, including approval by district supervisors and engineering departments, along with the use of flaggers. Construction activity that will impact rail operations, such as a new undercrossing or changes to bridges or trestles, will require extensive review and approval by the engineering and operations departments. Also, an agreement to allow railroad personnel access to the RWT to perform needed work must be in force.

Trail Safety Education and Outreach

Most trail managers report having some type of safety education, whether passive or active. This varies from signage and trail brochures to more formal programs. The local snowmobile club and sheriff for the Railroad Trail, Michigan, conduct a mandatory safety operation class for youth 12 to 18 years of age, who must carry a class completion card when on the trail. Companies renting bikes or conducting rides on the Lehigh River Gorge Trail, Pennsylvania, give a safety speech to users, including a strong warning to stay off the tracks. Along the Schuylkill River Trail, Pennsylvania, signs display an advisory warning to stay on the path.

The Five Star Trail Extension, Pennsylvania, intends to make safety brochures available at trailheads, while the Blackstone River Bikeway, Rhode Island, will use signage and brochures. The Springwater Corridor, Oregon, will use a “Teens on the Trail” program for high school students. The teens will spend a term learning about the corridor, giving summer tours, and doing manual support work. The Coastal Trail, California, will use the Operation Lifesaver (see below) program. It also expects other agencies to conduct bicycle safety programs.

Trail managers should recognize that on-going safety education is an important means of reducing liability exposure and encouraging safe behavior. Trail managers need to ensure that warning signs, which explain the importance of staying on authorized trails only, and off private railroad property, are prominently displayed and regularly maintained.

Railroad Safety Education and Outreach

Many railroad companies participate in some kind of active outreach, including posting signs at trailheads and crossings, attending community events, regular monitoring of tracks, and penalties for trespassers. Most also support and participate in Operation Lifesaver. Trail managers are encouraged to contact their State’s Operation Lifesaver Coordinator to arrange for presentations about pedestrian safety and railroad trespass prevention for trail clubs and other trail users.

Operation Lifesaver, Inc.

Operation Lifesaver is a nationally recognized nonprofit organization dedicated to educating the public about the dangers associated with highway-rail grade crossings and railroad rights-of-way. The program works to end collisions, deaths, and injuries at highway-



rail grade intersections and on railroad property. It is sponsored cooperatively by a wide variety of partners, including Federal, State, and local government agencies, highway safety and transportation organizations, and the nation's railroads.

The Operation Lifesaver program seeks to improve driver, bicyclist, and pedestrian behavior at highway-rail grade crossings by encouraging compliance with crossing signs and signals. Operation Lifesaver also recognizes the importance of strong enforcement and engineering improvements, including consolidation and closure of redundant highway-rail crossings. In recent years, Operation Lifesaver has increased its efforts to educate the public that trespassing on railroad rights-of-way, tunnels, trestles, and other railroad property is both illegal and deadly.

In a survey of the Operation Lifesaver State coordinators, presenters, FRA Regional Managers, locomotive engineers, law enforcement officials, and railroad representatives, it is apparent that Operation Lifesaver and its safety participants usually are not contacted during the planning phase of the RWTs. Often, they are not aware of the trail's existence.

Operation Lifesaver can be an extremely valuable resource for both RWT managers and all public and private railroad companies. Its award-winning safety materials include videos and brochures about the dangers of rail trespassing, as well as information for pedestrian and bicycle safety at crossings (see **Figure 6.2**). As part of a new or existing RWT, railroad companies should encourage their State's Operation Lifesaver coordinator to discuss the possibility of arranging safety presentations and other education events for trail users; identify where safety information materials might be made available on a regular basis (e.g., at a trailhead information kiosk); consider whether local bicycle sales or rental shops would be willing to distribute safety information; and consider other means for encouraging safe use of approved trails.

Security and Enforcement

While studies indicate that trails have the same or fewer security and safety issues than surrounding communities, the trail managing authority is responsible for security and public safety. With RWTs, the trail manager has the added responsibility of ensuring that trail users stay away from railroad operations and safely cross tracks. Most railroads rely on local police departments to enforce trespassing and vandalism laws. However, most police departments respond "as needed," rather than having regular patrols. The Lehigh River Gorge Trail, Pennsylvania, utilizes State Park Rangers, who patrol usually once a day by car or bike.

Other railroad companies have their own monitoring, such as the Burlington Northern Santa Fe's daily inspections along Seattle's Elliott Bay/Waterfront Trail, Washington. Such inspectors typically do not review trail issues unless they impact the rail property.

Police on the Railroad Trail, Michigan, receive a State grant to patrol daily in the winter by snowmobile. In the 1998-99 winter season, for example, they taught 97 students about snowmobile safety, issued 57 citations and another 47 warnings. Most warnings and citations were for not having a snowmobile permit or helmet, although 16 were for operating (trespassing) on the railroad tracks and another 16 were for operating a vehicle under



TIPS FOR BICYCLISTS

Hey, bike riders! Operation Lifesaver, Inc. (OLI) and its safety partners, the Federal Railroad Administration, the Federal Highway Administration and the National Highway Traffic Safety Administration want you to be alert when bicycling near and/or crossing railroad tracks.

Remember – highway-rail grade crossings are the only places where it's legal for bicyclists, pedestrians and/or vehicles to cross railroad tracks!

TO STAY SAFE, KEEP THESE LIFESAVING TIPS IN MIND:

- Look out! If you see a railroad crossing, Always Expect a Train – on any track, in any direction!
- Watch for warning signs and pavement markings as you approach the crossing. At the crossing, look for crossbuck signs, stop signs, flashing lights and/or gate arms.
- Think before you cross! LOOK in both directions. LISTEN for a train. PROCEED across the tracks only after making sure that no trains are coming and that no warning devices are activated.
- Don't let your bike wheels get caught in the rails. Always try to cross at a 90-degree angle to the tracks. Never bicycle across tracks at less than a 45-degree angle – instead, dismount and walk your bike across.
- Did you know that an optical illusion makes trains seem farther away and slower moving than they actually are? Don't take chances by trying to "beat" a train across the tracks!
- If you see or hear a train coming, or if warning lights start flashing and/or gates are lowering, SLOW DOWN AND STOP a safe distance (at least 15 feet) from the railroad tracks.
- Stay alert at crossings with more than one track! Even after a train passes, before crossing look and listen for other trains on other tracks coming from either direction.
- Wet train tracks can be slippery. Be extra careful when crossing railroad tracks if it's rainy, snowy, foggy or just plain wet. Dismount and walk your bike across the tracks if the crossing looks hazardous. Step over the rails, not on them.
- Gravel service roads and green space beside railroad tracks are usually railroad property. It's illegal - and dangerous - to ride your bike on these areas.
- Trains are wider than the tracks! Locomotives and railroad cars can extend as much as three feet beyond the rails on both sides. When a train is passing, stay at least 15 feet from the tracks, behind any gates or "stop lines" marked on the pavement.
- Some railroad crossings can be rough. Slow down and be careful – a bumpy crossing may cause you to lose control of your bike and loosen accessories or cargo.

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FIGURE 6.2 Operation Lifesaver "Tips for Bicyclists" brochure



alcoholic influence. (Note: The Railroad Trail sees 4,000 to 6,000 daily snowmobilers in winter and is not separated by a fence. The distance between the tracks and trail varies from 0.9 to 12 m (3 to 39 ft). Because of the snowpack, the tracks can be hard to see.)

The Mission City Trail, California, has bike patrols for special events. Police patrol by bike on Lehigh, Pennsylvania, Burlington Waterfront, Vermont, and Mission City, California RWTs. Police respond by car for the ATSF Trail, California.

Most police departments contacted for this study were not involved in the planning process for the respective RWT. Police offer important perspectives on avoiding serious security problems through proper trail design that emphasizes sight distance, access, encouraging proper use, and providing width for patrol cars.

Most police officers note no specific benefits of RWTs to the police. The officer assigned to the Lehigh River Gorge Trail, Pennsylvania, noted reduced illegal dumping, and for the ATSF Trail, California, reduced trespassing. Although none complained specifically about increased costs, the police officer assigned to the Springwater Corridor, Oregon, explained that patrolling new areas is not free; proper enforcement should be a budget item in the operations and maintenance costs of a trail.

Each RWT project should develop a public safety plan similar to that developed by the Portland, Oregon, Police for the Eastbank Esplanade, part of which is an RWT. This includes:

- Applying “Crime Prevention through Environmental Design” and “Trespass Prevention through Environmental Design” concepts, which recognize that the proper design and effective use of space can lead to a reduction in conflicts and improve overall safety (Canadian Pacific Railway, 2000).
- Employing strong, secure, and damage-resistant construction materials, landscaping, and a parks maintenance plan.
- Providing secured access areas (parking lots, storage areas), barrier systems (gates, fences, access control), video monitoring, and “call for assistance” systems.
- Providing coordinated and responsive patrol service.
- Designating and enforcing rules and regulations (park rules and hours, exclusion provisions, expansion of “drug free” zones, and emergency closure provision).
- Employing crime prevention and problem solving strategies, such as park user education, informational signage, a problem reporting system, incident management and follow-up, and broad-based problem solving groups.
- Holding programmed uses and events, such as regularly scheduled activities, permitted events, and vendors.
- Encouraging positive presence, including staff, vendors, volunteers, docks, and public buildings.

Additional security recommendations include:

- Make sure all segments of the trail are accessible to emergency vehicles.
- Provide fire and police departments with map of system, along with access points and keys/combinations to gates/bollards.



Trail regulations sign. Santa Clarita, CA

- Locate posts frequently (every 1.6 km or 1 mi at a minimum); identify markers on maps.
- Provide and maintain emergency telephones or call box systems linked to 911 or other emergency networks in isolated sections of trail.
- Consider lighting any unusually dark sections of the trail.
- Trim all vegetation at least 3 m (10 ft) from the trail where possible to maximize visibility, and try to minimize thick undergrowth.
- Provide bicycle racks and lockers at key destinations that allow for both frame and wheels to be locked.
- Enforce speed limits and other rules of the road.

Developing Trail Use Regulations

The purpose of trail regulations is to promote user safety and enhance the enjoyment of all users. Before the trail is opened, the trail manager should develop and post trail use regulations, maps, and informational materials at trailheads and key access points. Establishing that the trail facility is a regulated traffic environment is critical for compliance and often results in a facility requiring minimal enforcement. An agency may want to post penalties for violators. The trail management agency should review proposed trail regulations with the city attorney for consistency with existing ordinances and enforceability. In some locales, it may be necessary to pass additional ordinances to implement trail regulations. Items typically covered in trail regulations include:

- Hours of use;
- Stay on trail, trespassing on railroad property is illegal;
- Keep to the right except when passing;
- Yield to oncoming traffic when passing;
- Bicycles always yield to pedestrians;
- Give an audible warning when passing;
- Pets always must be on short leashes;
- Travel no more than two abreast;
- Alcoholic beverages are not permitted on the trail;
- Do not wander off of trail onto adjacent properties;
- Do not stand in middle of trail when stopped; and
- Speed limit.