U.S. Department
of Transportation

Federal Highway Administration

Federal Railroad Administration

National Highway Traffic Safety Administration

Federal Transit Administration

Rails-with-Trails: Lessons Learned

Literature Review, Current Practices, Conclusions

Final Report dated August 1, 2002

FHWA-EP-02-xxxx (to be assigned)

Executive Summary

This report offers conclusions about the lessons learned in the development, construction, and operation of 'rails-with-trails' so that railroad companies, trail developers, and others can benefit from the history of trails in existence today. 'Rail-with-trail' (RWT) describes any shared use path or trail located on or directly adjacent to an active railroad corridor. About 65 RWTs encompass 385 km (239 mi) in 30 U.S. States today. These trails are located adjacent to active rail lines ranging from a few slow-moving short-haul freight trains weekly, to high-frequency Amtrak trains traveling as fast as 225 km/h (140 mi/h.) Dozens of RWTs are proposed or planned. While most are located on public lands leased to private railroads, many are on privately-owned railroad property. Hundreds of kilometers of RWTs traverse Western Australia, Canada, and Europe.

Advocates of RWTs and railroad companies offer contrasting viewpoints. Trail planners view railroad property, often located in scenic areas with favorable topography, as a better alternative than bike lanes on roadways. They note that legal protections exist in all States, and that a litany of successful RWTs should provide comfort. Railroad company representatives respond that the court system has not yet tested the lease and/or use agreements for existing RWTs. Railroads have borne the burden of litigation for many incidents on their property, even for crashes with at-fault trespassers or automobile drivers who ignored obvious warning systems.

Baltimore York RWT, *MD*

In the meantime, public pressure is increasing for railroads to free up space adjacent to rail lines for trail usage, pitting the railroad industry's safety, capacity, and liability concerns against trail proponents' desires to create shared use paths and other trails. This situation gave rise to the need to study the issue of RWTs to determine where they are appropriate, recommend design treatments and management strategies, and find ways to reduce liability impacts on the railroad industry.

Data Collection and Analysis

The data collection and analysis for this study included:

- An analysis of existing literature, focused on RWT studies and projects, legal documents, and railroad safety experience.
- Focused case studies of 21 geographically diverse RWT projects representing a variety of railroad and trail characteristics. For each trail, researchers conducted interviews with railroad officials, trail managers, and law enforcement officials. They also gathered data about before and after conditions related to safety, trespassing, vandalism, and conflicts.
- Other research topics included:
  - Relevant laws and statutes, their effectiveness, and transferability;
  - Relevant legal case studies and precedents;
  - Ownership/use arrangements;
  - Railroad company policies toward RWTs, through a telephone survey of officials;
  - Analysis of current design practices;
  - Operations and maintenance issues, through interviews with train engineers and operations personnel; and
  - Educational efforts underway, through a survey and on-going discussions with railroad officials, trail managers, and Operation Lifesaver officials.

Process

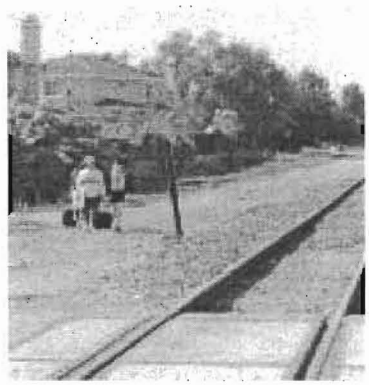
This report underwent extensive public review from 1999 to 2002. The input process included:

- On-going communication with over 200 interested parties through an e-mail newsletter;
- Release and public review of three drafts (February 2001, December 2001, and April 2002);
- Incorporation of hundreds of comments from interested parties, including railroad officials, trail planners and managers, legal experts, and others;
- A legal symposium in Washington, D.C. (April 2001) for railroad representatives, followed by review and input on the proceedings from that meeting; and
- Presentations at numerous conferences, including the Transportation Research Board (2000 and 2001), Pro Bike/Walk (2000), Rails-to-Trails (2001), five regional Operation Lifesaver conferences (1999-2001), AASHTO (2000), RailVolution (2000 and 2001), and several State bicycle, trail, and pedestrian-focused conferences.

RWT Development Process

The current RWT development process varies from location to location, although common elements exist. Trail advocacy groups and public agencies often identify a desired RWT as part of a bikeway master plan. They then work to secure funding prior to initiating contact with the affected railroad.

The railroad agency or company typically lacks an established, accessible review and approval process. While some RWTs move forward quickly (typically those where the trail development agency owns the land), many more are outright rejected or involve a lengthy, contentious process. RWT processes typically take three to ten years from concept to construction.



The proposed Union Pacific RWT is feasible in parts...

and must be rerouted in others. *Cupertino, CA*

Feasibility Review

Trail managers should undertake a comprehensive feasibility analysis of proposed RWTs. A RWT feasibility study should describe the setting, relationship to local planning documents, land ownership patterns, railroad activity, and other information necessary to determine feasibility. The study should identify and evaluate multiple alternative alignments, including at least one that is not on the railroad right-of-way, and identify a preferred alignment.

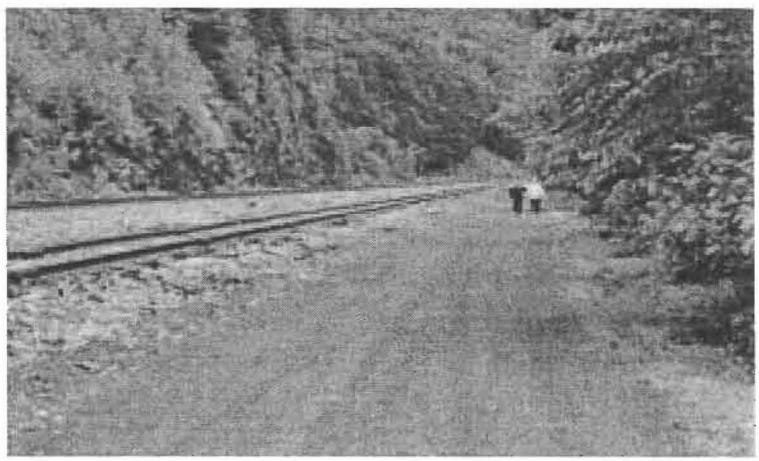
Assessing Potential Benefits

Identifying potential benefits to railroad companies is crucial to developing a successful RWT. Such benefits include:

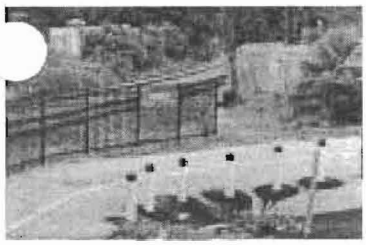
- Reduced liability costs
- Financial compensation
- Reduced petty crime, trespassing, dumping, and vandalism
- Reduced illegal track crossings through channelization of users to grade-separated or well-designed at-grade crossings
- Increased public awareness of railroad company service
- Increased tourism revenue
- Increased adjacent property values
- Improved access to transit and for law enforcement and maintenance vehicles

Involving the Stakeholders

Involving the railroad and affected agencies early in the process is a common theme heard from surveys and interviews on existing RWTs around the country.



The Reading and Northern Railroad Company found a reduction in illegal dumping after the trail went in. Lehigh River Gorge Trail, *Jim Thorpe, PA*



Trail designers worked with Conrail designers to ensure that their interests were addressed, concurrent to negotiation of the RWT agreement. Schuylkill River Trail. *Norristown, PA*

Stakeholders may include:

- Railroad companies, including representatives of real estate, operations, maintenance, and legal departments;
- Utility companies, such as telephone, cable, water, sewer, electric, gas;
- Law enforcement officials;
- Other adjacent landowners;
- Trail user groups; and
- Transportation, public transit, parks and recreation, and health departments.

Stakeholders should be involved through a technical advisory committee or frequent communication via meetings, newsletters, phone calls, and e-mails.

Liability

In the context of RWT, liability refers to the obligation of a trail manager or railroad to compensate a person who is harmed through some fault of the trail manager or railroad. Railroads have a number of liability concerns about the intentional location of a trail near or on an active railroad corridor:

- Trail users may not be considered trespassers if a railroad permits trail use within a portion of their right-of-way, and thus the railroad would owe a higher duty of care to trail users.
- Incidents of trespassing and injuries to trespassers will occur with greater frequency.
- Trail users may be injured by railroad activities, such as falling or protruding objects, hazardous materials, or a derailment.
- Injured trail users might sue railroad companies even if the injury is unrelated to railroad operations, incurring expensive legal costs.

The level of railroad company concern is dependent in part on the class of railroad and the type of operations they perform. Privately-owned Class I railroads *(see Appendix A: Definitions)* tend to be reluctant to grant non-rail usage of their rights-of-way because loss of right-of-way width at any given location could reduce the ability of the railroad to add main track and sidings necessary to provide increased capacity and serve customer needs. In addition, their perceived deep financial pockets make them a frequent target of lawsuits. Transit and tourist train operators may support RWT projects because they often are quasi-governmental entities, with a mission of attracting people to their service. Finally, locally-based short-line operators have less reason to be concerned about future track expansion, and may be inclined toward the potential financial rewards of permitting a RWT project along their rights-of-way.

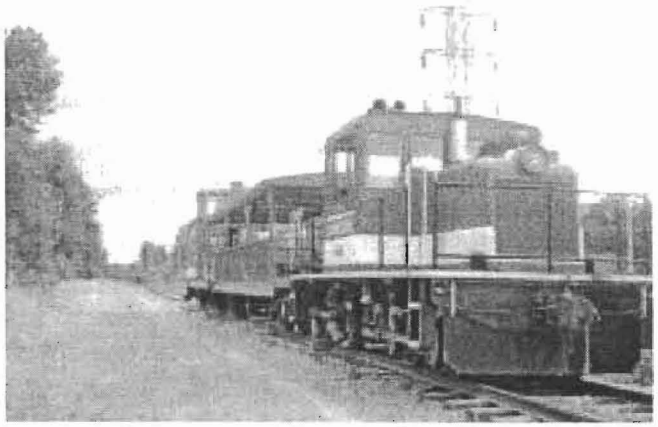
Available Legal Protections

There are a range of options that can reduce railroad liability exposure. These include:

- State-enacted Recreational Use Statutes (RUS) and Rails-to-Trails Statutes. All 50 States have Recreational Use Statutes, which provide protection to landowners who allow the public to use their land for recreational purposes. An injured person must

prove the landowner deliberately intended to harm him or her. Additionally, about 20 States have enacted specific laws to clarify, and in some cases, limit, adjacent landowner liability. This can range from protecting adjacent landowners from liability to making the Recreational Use Statute for the State specifically applicable to a Rails-to-Trails program.

- Property acquisition. Governments under civil law are treated differently from those of private landowners due to their unique status as sovereign entities. Many States have recently enacted statutes that limit the amounts or kinds of damages recoverable against governments. (Isham, 1995.) Public agencies considering RWTs should be prepared to identify financial incentives for a railroad to consider. This may be in the form of land transfers, tax breaks from donated land, cash payments, zoning bonuses on other railroad non-operating property, taking over maintenance of the right-of-way and structures, and measurably reducing the liability a railroad experiences.



Portland's regional government, Metro, acquired the railroad property in the 1990s to allow for RWT development. Future Springwater Corridor Trail Extension, *Portland, OR*

- Easement and license agreements that indemnify the railroad owner against certain or all potential claims. In most cases, the railroad will retain property control, thus the form of legal agreement will be an easement or license agreement that, to the extent permissible under State law, reduces the railroad's liability exposure. Because of the many jurisdictions that have some involvement in a RWT—including the owner of the right-of-way, the operator of the railroad, and the trail manager(s)—the license or easement agreement should identify liability issues and responsible persons through indemnification and assumption of liability provisions.
- Insurance. Railroads may be concerned that trail users might sue them regardless of whether the injuries were related to railroad operations or the proximity of the trail. In most instances, the trail management entity should provide or purchase comprehensive liability insurance in an amount sufficient to cover foreseeable railroad liability and legal defense costs.

The research team for this report was unable to find a history of crashes or claims on the existing RWTs. There is only one known case of a specific RWT claim (in Anchorage, Alaska.) The railroad was held harmless from any liability for the accident through the terms of its indemnification agreement. Research on other relevant cases has found that the State RUSs and other Statutes do hold up in court.

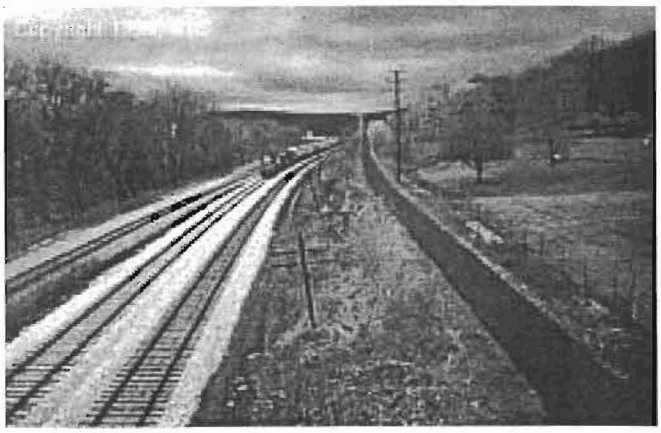
Design

No national standards or guidelines dictate RWT facility design. Guidance must be pieced together from standards related to shared use paths, pedestrian facilities, railroad facilities, and/or roadway crossings of railroad rights-of-way. Useful documents include the *Manual on Uniform Traffic Control Devices,* the *AASHTO Guide for the Development of Bicycle Facilities* (1999), Americans with Disabilities Act (ADA) publications for trails and pedestrian facilities, and numerous Federal Railroad Administration (FRA) documents.

Trail designers should work closely with railroad operations and maintenance staff to achieve a suitable RWT design. The research in this report has shown that well-designed RWTs meet the operational needs of railroads, often providing benefits in the form of reduced trespassing and dumping. A poorly designed RWT will compromise safety and function for both trail users and the railroad.

Setback distance

The term 'setback' refers to the distance between the paved edge of a RWT and the centerline of the closest active railroad track. Although RWTs are currently operating along train corridors of varying types, speeds, and frequencies, there is simply no consensus on an appropriate setback recommendation. Thus, trail planners should incorporate into the feasibility study an analysis of technical factors relating to setback distance. These factors should include:

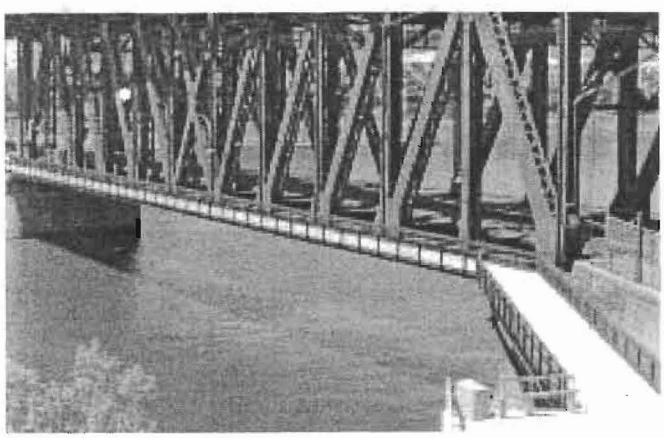


Setback of 7.6 m (25 ft) or greater is often needed for higher speed train corridors. Stavich Trail, *OH and PA*

- Type, speed, and frequency of trains in the corridor,
- Separation technique,
- Topography,
- Sight distance,
- Maintenance requirements, and
- Historical problems.

Another determining factor may be corridor ownership. Trails proposed for privately-owned property, particularly on Class I railroad property, will have to comply with the railroad's own standards.

Trail planners need to be aware that the risk of injury should a train derail will be high, even for slow-moving trains. Discussions about liability assignment need to factor this into consideration. For example, a RWT in a constrained area along a low frequency and speed train could be located as close as 3 m (10 ft) from the track centerline assuming that (a) the agency indemnifies the railroad for all RWT-related incidents, (b) separation (e.g., fencing or solid barrier) is provided, (c) the railroad has no plans for additional tracks or sidings that would be impacted by the RWT, and (d) the RWT is available to the railroad for routine and emergency access. In contrast, along a high-speed line located on private property, the railroad may require 15.2 m (50 ft) or more setback or not allow the trail at all.



Narrower setback distances may be acceptable, as on this Union Pacific railroad bridge with slow-moving trains. Steel Bridge Riverwalk, *Portland, OR*

Because every case is different, the setback distance should be determined on a case-by-case basis after engineering analysis and liability assumption discussions. The minimum setback distance ranges from 3 m (10 ft) to 7.6 m (25 ft), depending on the circumstances. In many cases, additional setback distance may be recommended. The lower setback distances may be acceptable to the railroad company or agency, RWT agency, and design team in such cases as constrained areas, along relatively low speed and

frequency lines, and in areas with a history of trespassing where a trail might help alleviate a current problem. The presence of vertical separation or techniques such as fencing or walls may also allow for narrower setback.

Separation

This refers to the treatment of the space between a RWT and the closest active railroad tracks, including fences, vegetation, ditches, and other items. Over 70 percent of existing RWTs utilize fencing and other barriers (vegetation, vertical grade, walls, and/or drainage ditches) for separation from adjacent active railroads and other properties. Fencing style varies considerably, from chain link to wire, wrought iron, vinyl, steel picket, and wooden rail.

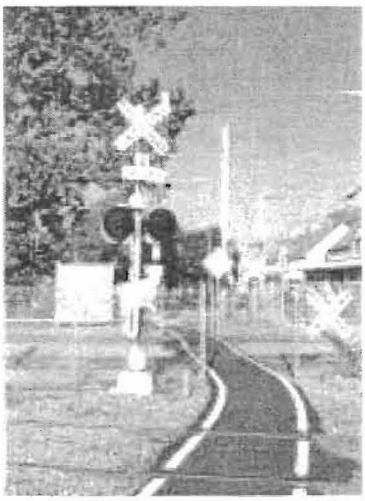
From the trail manager perspective, fencing is considered a mixed blessing. Installing and maintaining fencing is expensive. Improperly maintained fencing is a higher liability risk than no fencing at all. In all but the most heavily-constructed fencing, vandals find ways to cut, climb, or otherwise overcome fences to reach their destinations. Fencing may detract from the aesthetic quality of a trail.

To the extent possible, RWT planners should adhere to railroad company's request or requirements for fencing. Except where a railroad company has requested something different, RWTs should be separated by a fence or other separation technique when less than 7.6 m (25 ft) exists between the trail and a track with moderate or high train speed and frequency.

Crossings

The point at which trails cross active tracks is the area of greatest concern to railroads, trail planners, and trail users. When it is necessary to intersect a trail with an active railway, there are three options: an at-grade crossing, a below-grade (underpass) crossing, or an above-grade (overpass) crossing.

Wrought iron fencing offers an aesthetically-pleasing option. Mission City Rail Trail, *San Fernando, CA*



Dual track grade crossing. *Burlington, VT*

At-Grade Crossings

With many railroads actively working to close existing at-grade roadway-track crossings, consistent with U.S. Department of Transportation policy, new at-grade crossings will be difficult to obtain. Each trail-rail intersection is unique; most locations will require engineering analysis and consultation with existing design standards and guidelines. Issues that should be considered include:

- Train frequency and speed
- Location of the crossing
- Specific geometrics of the site (angle of the crossing, approach grades, sight distance)
- Crossing surface
- Nighttime illumination
- Types of warning devices (passive and/or active)

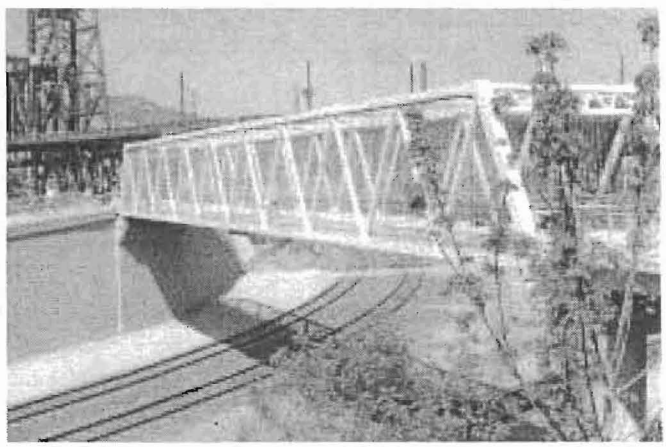
Grade-Separated Crossings

Overpasses and underpasses are expensive and typically are installed in limited circumstances, such as locations where an at-grade crossing would be extremely dangerous due to frequent and/or high speed trains, limited sight distances, or other conditions. However, grade-separated crossings eliminate conflicts at trail-rail crossings by completely separating the trail user from the active rail line.

Issues to consider include:

- Existing and future railroad operations: Bridges and underpasses must be designed to meet the operational needs of the railroad both in present and future conditions. Trail bridges should be constructed to meet required minimum train clearances and the structural requirements of the rail corridor.
- Safety and security of the facility: Dark, isolated underpasses that are hidden from public view can attract illegal activity. Underpasses should be designed to be as short as possible to increase the amount of light in the underpass.

Undercrossing of Alaska Railroad Corporation tracks, Tony Knowles Coastal Trail. *Anchorage, AK*



Overcrossing of Union Pacific tracks. *Portland, OR*

- Maintenance: The decision to install a bridge or underpass should be made in full consideration of the additional maintenance these facilities require.

Other Design Issues

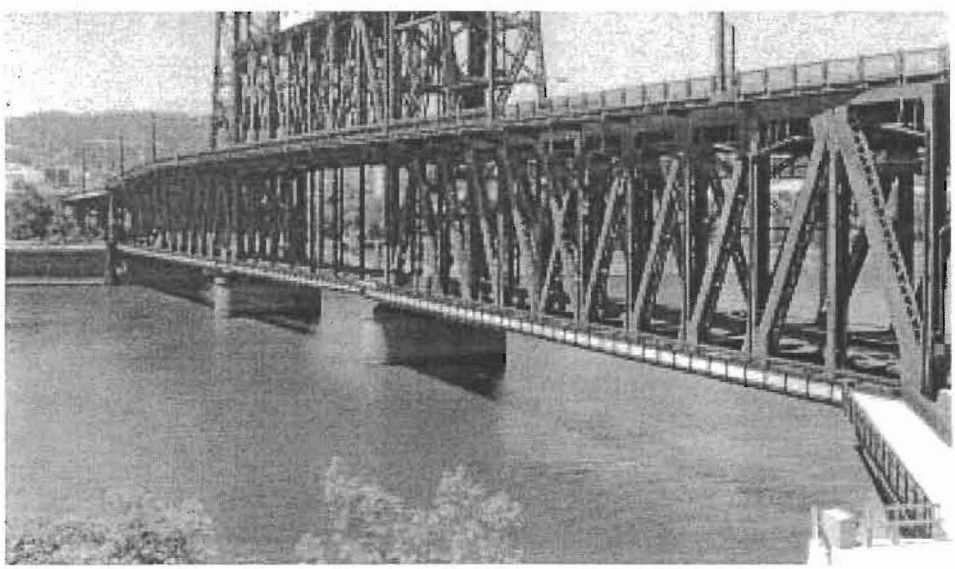
A whole host of other design issues that must be considered in RWT design include:

- RWT-roadway crossings
- Utilities
- Future tracks and sidings
- Trestles and bridges
- Tunnels
- Environmental constraints
- Trailheads and parking areas
- Landscaping
- Drainage
- Lighting
- Signs and marking

Operations/Maintenance

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. Rail operation divisions, engineers, and signalmen should be invited for technical discussions and advice in the feasibility analysis phase of a RWT.

RWT proponents should consider the maintenance and access needs of the railroad operator in the alignment and design of the RWT. 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



Steel Bridge Riverwalk. *Portland, OR*

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. They should ensure that the proposed RWT does not increase railroad employee stress or decrease their safety.

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 also develop, in coordination with local law enforcement and the railroad, a security and enforcement plan and develop and post RWT user regulations.

Conclusion

Based on the lessons learned in this study, it is clear that well-designed RWTs can bring numerous benefits to communities and railroads alike. RWTs are not appropriate in every situation, and should be carefully studied through a feasibility analysis. Working closely with railroad companies and other stakeholders is crucial to a successful RWT. Trail proponents need to understand railroad concerns, expansion plans, and operating practices. They also need to assume the liability burden for projects proposed on private railroad property. Limiting new and/or eliminating at-grade trail-rail crossings, setting trails back as far as possible from tracks, and providing physical separation through fencing, vertical distance, vegetation, and/or drainage ditches can help create a well-designed trail. Trail planners need to work closely with railroad agencies and companies to develop strong maintenance and operations plans, and educate the public about the dangers of trespassing on tracks.

Railroads companies, for their part, need to understand the community desire to create safe walking and bicycling spaces. They can derive many benefits from RWT projects in terms of reduced trespassing, dumping, and vandalism, as well as financial compensation. Together, trail proponents and railroad companies can help strengthen available legal protections, trespassing laws and enforcement, seek new sources of funding to improve railroad safety, and keep the railroad industry thriving and expanding in its freight and passenger service to this country.