

MEMORANDUM

Date: September 18, 2007

To: River Plan Committee

From: Shannon Buono, City Planner

cc: Sallie Edmunds, River Plan Manager

Introduction

At the River Plan Committee meeting in May you asked for information regarding how rails-with-trails have been designed to address various safety and security concerns. This memo includes information about the safety, security and liability concerns that typically come up when planning a rail-with-trail and how those issues have been dealt with across the country. In addition, I have included information regarding the design and function of several existing rails-with-trails. The information in this memo comes primarily from the following two documents: *Rails-with-Trails: Lessons Learned*, United States Department of Transportation, August 2002; and *Rails-with-Trails, Design Management, and Operating Characteristics of 61 Trails Along Active Rails Lines*, Rails-to-Trails Conservancy, November 2000.

Both of the documents reviewed for this memo conclude that, based on lessons learned from existing rails-with-trails, a well designed rail-with-trail can bring numerous benefits to communities and railroads. Rails-with-trails are operating successfully within the rail right-of-way under a wide variety of conditions. Some are very close to the tracks and others are further away. Some operate next to high-speed tracks, and some operate through rail yards and industrial sites. Surveys revealed that the vast majority of rails-with-trails are covered by existing state, county or city recreational use statutes and insurance coverage similar to other trails (the City carries a \$10 million private insurance policy for the trail adjacent to the Steele Bridge). The key to a successful rail-with-trail, according to these documents, is to work closely with railroad companies and stakeholders, and to understand railroad concerns, expansion plans and operating practices.

According to the Rails-to-Trails Conservancy, there are currently 128 rails-with-trails in the United States (941 miles in 35 states). This total is up from 65 trails in 2002 and 61 in 2000.

The rail-with-trail planning process generally follows these steps:

- Trail advocates and/or public agencies identify a desired rail-with-trail route as part of a bicycle master plan or other trail planning process;
- Advocates and/or agencies work to secure funding for trail planning and development;
- After funding is secured, advocates or agencies initiate contact with the railroad;

- Trail feasibility study and design work begins.

The rail-with-trail planning and development process typically takes between three and ten years and can be contentious. Railroad companies reject many rail-with-trail proposals outright, and typically emphasize consideration of future expansion, safety impacts, trespassing, and liability as reasons for opposing rails-with-trails. However, at least two Class I railroads (including Burlington Northern Santa Fe) have said that they would be willing to consider rails-with-trails that meet certain design requirements. Rails-with-trails can provide benefits to the railroad in the form of reduced trespassing and reduced dumping.

Rails-with-trail planners need to consider the operational needs of the railroad and the safety of trail users when designing the trail. The United States Department of Transportation makes the following recommendations regarding rail-with-trail design:

- Maximize setbacks between the trail and the active railroad track. The distance between the centerline of the track and the closest edge of the trail should correlate to the type, speed, and frequency of train operations;
- Fencing and/or other separation techniques should be a part of all rail-with-trail projects;
- Minimize the number of at-grade crossings and examine all reasonable alternatives to new at-grade crossings;
- Review and incorporate all relevant utility requirements in the railroad corridor; and
- Where a rail-with-trail is proposed to bypass a railroad yard, adequate security fencing must be provided along with regular patrols by the rail-with-trail manager. High security areas may need additional protection.

Rail-with-Trail Design Considerations

Setback

Setback refers to the distance between the centerline of the railroad track and the closest edge of the trail. According to the *Rails-with-Trails: Lesson's Learned* report, there is no consensus among trail planning authorities on an appropriate setback recommendation. Rather, it is recommended that setbacks be determined on a case-by-case basis taking into consideration factors such as train speed and frequency, maintenance needs, separation technique (fencing, vegetation, etc.), historical problems (trespassing), topography and engineering judgment. Narrower setback distance may be acceptable in constrained areas, or along relatively low speed and frequency lines.

Setback distances along existing rails-with-trails range from 7 feet to 100 feet. Over half of existing rails-with-trails have a setback of less than 25 feet.

Researchers have attempted to determine if narrower setback distances have any correlation to safety problems. However, due to the relatively few records of claims, crashes, and other problems on any rail-with-trail, they were unable to determine a correlation between setback distance and trail user safety.

Some rail-with-trail planners have relied on the American Association of State Highway and Transportation Officials (AASHTO) bike lane setback standard believing it to be analogous to a rail-

with-trail situation. AASHTO recommend that bike lanes be set back 5 to 7 feet from the centerline of the outside travel lane, even on the busiest roadway. Some railroad companies have set their own setback policies and standards. For example, BNSF recommends that a rail-with-trail be setback at least 30 feet from the centerline of the tracks, although they have accepted narrower setbacks under certain conditions. And, the Maine Department of Transportation allows trails to be 12.5 feet to 18 feet from the track, depending on circumstances. Some railroads use the minimum setback to vertical obstructions as a guide to placement of a fence adjacent to a trail.

In Portland, the Springwater Corridor trail is setback 8.5 feet from the centerline of the track. In 2002, Oregon Pacific Railroad ran excursion trains 5 times a day in the summer and 3 times a week in the winter. Maximum train speed is 20 miles per hour.

With regard to the staff proposed rail-with-trail adjacent to the Portland and Western track along Hwy. 30, the distance between the outside edge of the track and the edge of the Hwy. 30 roadway appears to be approximately 30 feet or more in most places. Staff has not conducted any on-the-ground measurements, but has viewed the corridor from Hwy. 30 and measured using aerial photographs and digital data showing track location. A more detailed feasibility study will be required to determine actual distances.

With regard to the staff proposed rail-with-trail through Albina Yard, staff has proposed that the City work with Union Pacific Railroad to explore the feasibility of acquiring enough space for a public right-of-way (including a pedestrian/bicycle connection) at the edge of the yard. In this case, the separation between the trail and the track will depend on the width of the right-of-way, the design of the elements within the right-of-way (roadway and trail), and the potential for relocating adjacent track.

Separation

Seventy percent of rails-with-trails have some form of separation between the track and the trail (e.g., fence, wall, vegetation, grade separation). Fences and walls appear to be the most common type of separation, although vegetation has been used along some trails to deter trespassers. Fence heights along existing trails vary from 3 feet to 6 feet, but most average 3-4 feet. In some areas maintaining visual access to the trail corridor may be a priority so that the trail does not become isolated from public view. Tall fences can block views from adjacent land uses.

As noted above, where a rail-with-trail will be developed adjacent to a railroad yard, security fencing and regular patrols are recommended.

Crossings

According to all documents reviewed for this memo, track crossings present the greatest concern for everyone working on a rail-with-trail project. The two most important things to consider are the total number of trail/track crossings and whether or not a crossing is new or can be combined with an existing roadway/track crossing. Both the US Department of Transportation and the Rails-to-Trails Conservancy recommend that rail-with-trail design minimize the number of new at-grade crossings. Some government agencies and railroads have adopted policies of no new at-grade crossings. Modifying an existing roadway/track crossing is the best option.

River Plan staff conducted a cursory review of the location of the proposed rail-with-trail along Hwy. 30 in relation to potential track crossings and found that, depending on the trail alignment, there could be the need for either 5 or 6 crossings. In either case, the majority of the crossings could be accommodated within an existing roadway/track crossing. At least 1 new crossing of a siding may be required.

In 2002, more than half of all rails-with-trails had some sort of track crossing, and most of the crossings were at-grade. Overpasses and underpasses are expensive and have been used only in limited circumstances. The average number of crossing was 2.9, however at least one rail-with-trail had 17 crossings.

The US Department of Transportation recommends that rail-with-trail planners consider the following characteristics when designing a track crossing:

- train frequency and speed;
- location of the crossing;
- angle of crossing;
- approach grade;
- sight distance;
- crossing surface;
- nighttime lights;
- warning devices.

Crossings are not recommended where trains regularly stop on the tracks.

In 2000, The Rails-to-Trails Conservancy identified two crashes involving rails-with-trails. The first crash took place in an at-grade road/track crossing. In this case, a bicyclist ignored warning bells and flashing lights before going around a lowered crossing gate and colliding with the train. The second incident involved a pedestrian crawling under a damaged fence between the trail and the track and attempting to hop onto the moving train. Researchers for the 2002 *Rails-with-Trails: Lessons Learned* report could find no documentation of any crashes where a trail crosses an active rail track at grade. That said, it is important for trail planners and others to recognize the potential dangers of human interactions with moving trains.

Utilities

Utilities may impact the design, location or even feasibility of a rail-with-trail. Utilities may run parallel to the track, or may run across, under or over the track. It is not uncommon for a trail to be constructed on top of a subsurface utility. And, it is not uncommon for trails to be closed temporarily to allow utility work. The Cottonbelt Trail in Texas has removable pavement where the trail crosses an underground pipeline.

Accommodating future track and sidings

The feasibility study for a rail-with-trail project should take into account the need for track or siding expansion. Should a railroad operator choose to reserve the land for future rail service, the trail project is not likely to be feasible. The issues surrounding existing sidings and future sidings should be clearly understood by trail planners. For example, the corridor may contain existing

unused sidings that could be reactivated if land uses change, or there may be a need to add sidings if a vacant site develops and there is a need for rail service.

Trestles and Bridges

Virtually all railroad corridors will have at least some small bridges or trestles (over culverts or streams). There could also be longer trestles or bridges over roadways, highways or rivers. In some cases, trails have been incorporated into an existing structure (e.g. Steele Bridge). In some cases new structures must be constructed.

A detailed feasibility study is required to determine whether the staff proposed rail-with-trail adjacent to the BNSF railroad bridge could be incorporated into the existing structure or whether a new structure would be needed to accommodate the trail. It is also foreseeable that the proposed trail around Waud Bluff below the University of Portland campus will need to be on a structure constructed on the slope or projecting out over the water.

Operations/Maintenance

The feasibility study for a rail-with-trail project should address future access for railroad maintenance. If the setback is narrower than 25 feet, it is likely that the trail may occasionally be used for maintenance access if a dedicated maintenance road is not available. Trail managers should keep in mind that the trail may need to be closed from time to time to accommodate the railroads needs to access the track.

Security and Enforcement

Rail-with-trail managers should develop a public safety plan that includes crime prevention and problem solving strategies such as signs, educational opportunities, application of crime prevention through design techniques, and the development of rules and regulations that are then posted and added to maps. There are a few cases where local police departments patrol the rail-with-trail at least once a day. In other cases, railroad companies or trail managers have security inspectors that patrol the trail.

Security and enforcement will be a key aspect of trail planning and design, and ultimately trail management of any rail-with-trail in the North Reach.

Insurance and Liability

In past experience, liability is often cited by railroad companies as a concern regarding rails-with-trails. The level of concern varies based in part on the class of railroad and the type of operation. There is a range of options that can reduce railroad liability exposure including:

- All 50 states have Recreational Use Statues which provide protection to landowners who allow the public to use their land for recreational purposes. The staff proposed trail in the North Reach would be a multi-purpose trail used for recreation and transportation purposes;
- Public agencies should consider public acquisition as a way to reduce railroad liability. Many states have enacted statues that limit the amounts or kinds of damages recoverable against governments;
- Easements and license agreements can be written to indemnify the railroad owner against certain kinds of claims. The license agreement between Union Pacific Railroad (UPRR)

- and the City of Portland regarding the trail on the Steele Bridge specifies that the UPRR is to incur no additional liability risk as a result of the trail;
- The trail management entity should provide comprehensive liability insurance in an amount sufficient to cover foreseeable railroad liability and legal defense costs. The City of Portland is required to carry a \$10 million private insurance policy for the trail on the Steele Bridge.

The Rails-to-Trails Conservancy surveyed 61 rails-with-trails in 2000 and found that the vast majority of trails are insured by existing state, county or city insurance. Even so, railroad companies have been skeptical of assurances of legal protection from liability and many note that court systems have yet to rule on lease and or use agreements for existing rails-with-trails.

As a way to address the potential for liability claims, trail planners should strive to determine which types of trespassers are likely on the railroad property and what types of actions and techniques the trail design can employ to enhance the safety of the rail-with-trail. For example, fencing to separate the trail from the track can serve to funnel potential trespassers to an appropriate crossing location. Researchers for the *Rails-with-Trails: Lessons Learned* report observed only a few trespassers next to existing rails-with-trails. Those that were observed tended to be crossing the tracks or walking along tracks where there was no fencing separating the trail from the track.

Characteristics of Several Existing Rails-with-Trails

Burke-Gillman Trail Extension (Seattle, WA):

The Burke-Gilman Trail Extension is owned and managed by the City of Seattle. The Ballard Terminal Railroad runs 2-3 round-trip freight trains on the tracks per week. The trains travel at speeds no greater than 10 miles per hour. The tracks run through a small industrial and ship-related business area. The trail averages 10-12 feet wide and is setback 10-25 feet from the centerline of the track. A 3-3.5 foot tall fence separates that track from the trail. The trail manager reports that illegal trespassing and dumping decreased significantly after the first section of the extension was opened. The public planning process was long and adversarial and involved more than a dozen parties.

Elliott Bay Trail/Seattle Waterfront Trail/Myrtle Edwards Park (Seattle, WA):

This trail runs from downtown Seattle along the waterfront through Myrtle Edwards Park and then through an active rail yard. The City of Seattle owns the corridor which it bought from BNSF. BNSF operates up to 60 trains per day along the corridor with train speeds up to 40 miles per hour. At least one portion of the corridor is adjacent to mainline track. There are three distinct sections to the trail. Section 1 is downtown and is heavily dominated by bikes and pedestrians. The trail in section 1 is directly adjacent to tracks within the road right-of-way. Section 2 is along the waterfront and is setback and separated from the track by 100 feet and landscaping. Section 3 is within the rail yard. A chain link fence and tracks closely border the trail in section 3 and the trail narrows considerably in a couple of places. Signs along the trail in section 3 note that the trail can be closed at a moments notice by the railroad for security purposes.

Burlington Waterfront Bikeway (VT):

The State of Vermont (VTrans) owns this rail corridor and the Vermont Railway Company has an easement to use the track as a switching yard. There is continuous train operation throughout the

day with train speeds no greater than 10 miles per hour. There is a fence separating the trail and track. There was frequent trespassing onto the track from abutting residential properties before the trail was developed. After the trail was built the trespassing reduced dramatically because pedestrians are channeled to a few specific crossings. The City of Burlington is in charge of trail and fence maintenance.

Cedar Lake Regional Trail (MN):

The Cedar Lake Regional Trail sits within an urban corridor owned by BNSF. The narrowest setback is 15 feet from the centerline of the track and the widest is over 100 feet. A 6 foot chain-link fence separates the trail from the track where the setback is 15 to 25 feet. A 42 inch agricultural fence is used where the setback is between 25 and 50 feet. There is no fencing in segments where the setback exceeds 50 feet. The tracks carry 10-12 trains per day averaging between 25 and 50 miles per hour. The local parks board provides trail maintenance. The railroad company believes that the trail has improved their ability to maintain the track because the access road was upgraded during trail development.

Five Star Trail (PA):

Westmoreland County Industrial Development Corporation owns and operates this railroad corridor. The Regional Trail Corporation leases and manages the rail-with-trail. Two freight trains per weekday run along the track and four freight or excursion trains per weekend day. The trains travel at speeds up to 25 miles per hour. Twelve feet separates the trail from the track centerline. A good working relationship between the trail manager and the railroad company led to the success of this trail. Illegal dumping along the corridor has ceased since the trail was opened.

Lehigh River Gorge Trail (PA):

Reading and Northern Railroad Company operates between 2 and 6 freight trains per day on this track at speed up to 40 miles per hour. The trail is 10 feet wide and is setback from the track centerline by 12-18 feet, although in the setback is as little as 7.5 feet in some places.

Northeast Corridor Trail (DE):

The Northeast Corridor Trail is not yet built—it is still in the planning stages. The trail is proposed to be adjacent to Amtrak's Northeast Corridor mainline. The trail will traverse through urban, parkland, and industrial areas. Up to 100 passenger and freight trains with speeds in excess of 100 mi/h currently travel along the corridor. The trail will be separated by a fence and will be setback 30 feet from the centerline of the track. The trail has gone through an extensive public process to build support.

Norwottuck Rail Trail (MA):

This trail is adjacent to New England Railroad track and Amtrak runs two trains daily. The trail is setback 32 feet from the centerline of the track. There are two at-grade road crossings: one with warning lights and bells; one with passive warnings, but the trains sound a warning horn.

Schuylkill River Train (PA):

The trail is located in Norristown PA located along Norfolk Southern Railroad property and adjacent to a SEPTA commuter rail corridor. Approximately 20 freight and commuter trains travel the corridor per day, some at speeds up to 40 miles per hour. The trail is 10-12 feet wide. The width of the separation varies, but is as narrow as 10 feet from centerline in some places. A split-rail

fence separates the trail and track where the distance is 10 feet. Officials believe the presence of trail users deters incidence of trespassing. The process for approving the trail was long and difficult. The railroad was involved at the trail feasibility and design stages of planning and an easement agreement gave the railroad final approval of the design.