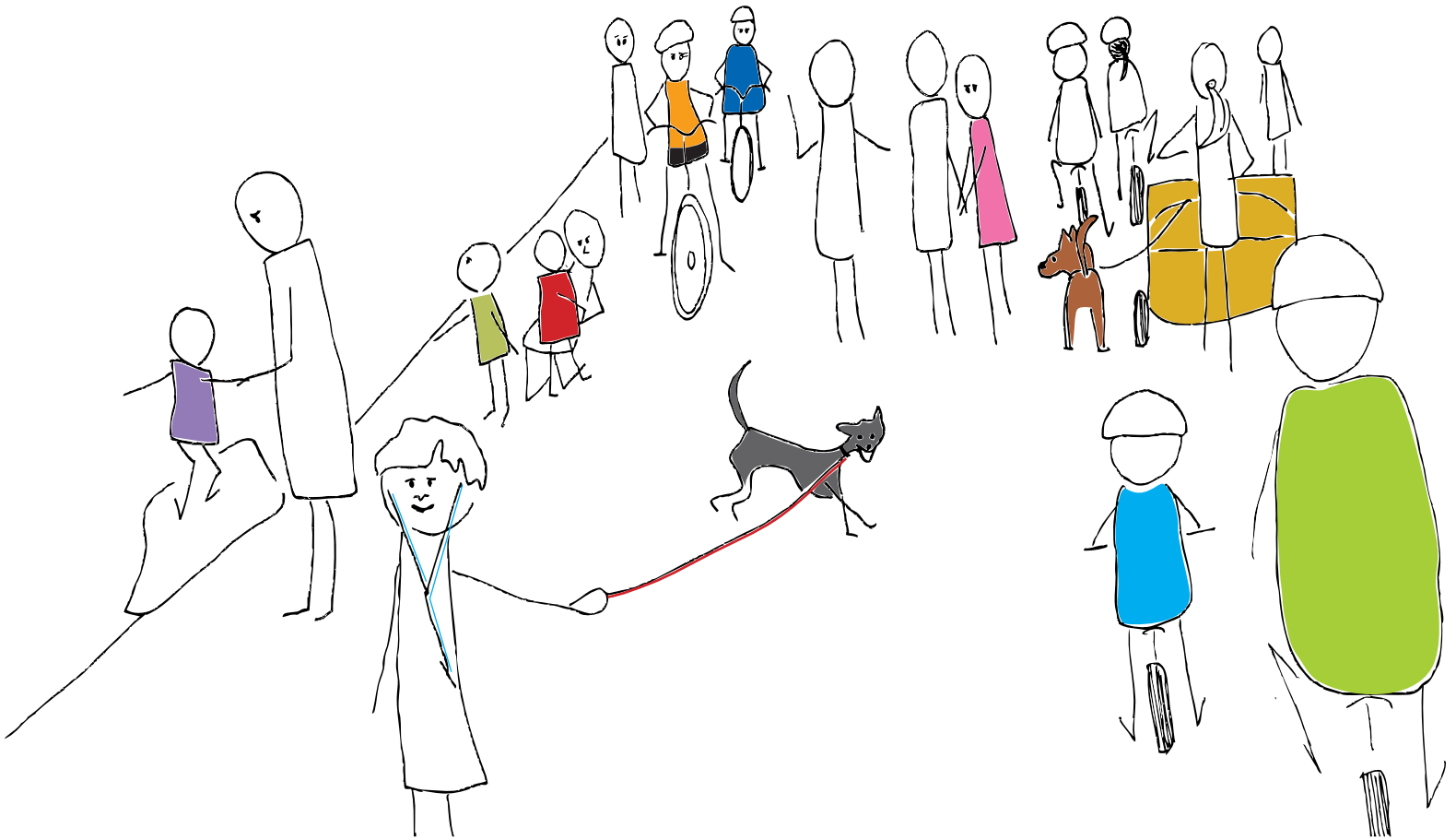


Best Practices for Busy Shared-Use Paths



prepared by Heidi Beierle
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Metro

Intro

People love using paths. Paths provide people with social opportunities, community gathering places, exercise opportunities, recreation, and safe places to travel. Communities rally around development of shared-use paths. After paths are constructed, people flock to them. Lots of people. These loved and wanted paths can become a success disaster. Large numbers of people use the path in different modes. Animals use the paths. Path users are there for different reasons – they have different ideas about what makes a good experience, and they want to enjoy the experience at different paces. While some of these differences may interact harmoniously, some of them conflict with one another and create dissonance. Dissonant interactions lead to degradation of the path experience. Despite less than ideal experiences, paths are a great amenity – path users would far prefer to have this space busy than to not have it at all.

When a path becomes busy to the point that the quality of the user experience degrades, it's definitely time to consider strategies that improve the experience. While safety improvements might be part of an appropriate approach, the emphasis should be on the user experience, on qualities, on what it's like being a person on the path, rather than on how "safe" crash data indicates the path is. Safety is simply one quality that contributes to the overall user experience on the path and is one element of good path design. In addition to a variety of design considerations, education and enforcement strategies should be used in conjunction with design for enhanced path experiences.

Travel on shared-use paths, by definition, includes a variety of travel modes. As individual path users enjoy the experience of their respective modes, they invariably overlap - at least momentarily - with other path users and their particular experiences. Maintaining quality shared-use path experiences becomes more difficult the busier paths become. One of the keys to improving and maintaining quality experiences on busy shared-use paths hinges on understanding the preferences and expectations of each user type. When the experience or expectation of one user type overlaps with another, conflict can occur, but there are ways to manage and mitigate these conflicts.

Strategies to improve the path user experience will vary depending on the facility, user types, setting, and relation to other active travel routes. Despite the unique factors of any given path, a path ought to be a place that people love and where they have great experiences. In order to achieve this improved path experience, understanding some of the negative experiences that may occur on paths will help path managers identify suitable strategies to address their specific path needs. Negative path experiences may include:

- Users being startled by others
- Disruption of one user type's experience by another user type
- Having one's experience dismissed by another
- Feeling intimidated or threatened by other user types on the path
- Injuries from collisions or interactions with other path users
- Environmental/habitat degradation

Path User Types

Any approach to improving the experience of busy shared-use paths must have people at its center. People who use paths have common experiences based on their culture. Within this mix of cultural

viewpoints come perceptions and expectations that can seemingly erase the understanding of shared human experience. As path managers understand better cultural perspectives, shared experiences and unique modal experiences, they will be better equipped to tailor strategies that improve the quality of the path experience for all users.

People use paths to meet needs for physical and social experiences. They desire settings close to nature and experiences away from cars/traffic. In social settings, people orient themselves side-by-side, to hear and see each other. For example, trios orient next to each other to avoid the awkwardness of a single person in front of or behind the other two. It’s also important to remember that all people potentially have disabilities that limit their ability to hear, see, speak, balance, and interact comfortably with others. Consequently, improvement strategies ought to account for the wide range of interactions possible on a path without relying on a list of rules biased to a single ability to guide path behaviors.



Path User Experiences Based on Travel Mode, Traveler, and Activity Interest

The following table details characteristics of different path user types. Each mode will also have a modifying demographic character. Additionally, the mode-demographic combination may also have an activity character. For example, a senior walker on a busy path may be out to watch birds or a path user with a hearing impairment may ride a bicycle searching for photo opportunities.

Table 1: Path User Experiences

	Who	Speed	Unique experience elements	Notes
Mode	Bicyclists	Typically fastest path user type	Prefer to maintain speed/momentum; appreciate smooth surface	
	Walkers	Typically slowest path user type	Prefer the most direct route	
	Runners	Move faster than other pedestrians	Prefer to maintain speed/momentum	
	Equestrians	Fairly slow on paths, typically between walking and running speed	Prefer unpaved surfaces	Horses can be skittish and shy
	Skaters	Typically move faster than pedestrians and slower than bikes	Prefer to maintain speed/momentum; smooth asphalt ideal	
	Skateboarders	Fast on path, slower than bikes	Prefer smooth surface	

	Who	Speed	Unique experience elements	Notes
Demographic character	People with disabilities	Slow to fast on path depending on disability and path use mode choice	Disability may affect response to other path users but will not minimize enjoyment of path experience unless path does not meet accessible standards	Disabilities may be visual, auditory, cognitive, or affect physical response or mobility
	Children	Fairly slow on paths, typically between walking and running speed	Developing skills, practicing, having fun	May demonstrate no awareness of other path users
	Seniors	Slow to medium speed on path, depending on mode choice		Seniors may have similar characteristics to people with disabilities
	Youth/Teens	Slow to medium speed on path, depending on mode choice	Having fun	May demonstrate minimal awareness of other path users
Activity character	Birders	Unmoving for long periods of time; may stop abruptly; may stop on path	Visual and auditory attention; binoculars, spotting scope; attention at sides of path or above	Appreciate quiet from other path users
	Photographers	Unmoving for periods of time and/or stop abruptly; may stop on path; may move quickly in short bursts	Set up shot/composition; may wait a long time for specific light; may have a lot of equipment; may move quickly and erratically	
Other	Dogs	Slow to fast on path	Having fun; socializing; working; spending time with their humans	Variable behavior depending on breed and training; short leashes signal control, long leashes may pose hazards for other path users
	Wildlife	Typically stopped on path or crossing it	Path is part of habitat	Tend to be stationary on path or crossing it

Strategies

An assessment of the elements that contribute to a path's busy-ness should guide development of a strategy to improve the user experience.

Elements that contribute to busy paths include:

- **Destinations** – what the lures are in the environment and where people are going, such as work, shopping and recreation areas

- **Events** – time-based and time-dependent destinations that create out-of-the-ordinary travel circumstances and dramatically increase path user volumes (such as concerts, festivals, and sporting events)
- **Urban areas** – the more people who live in the area surrounding a path, the more people will likely visit that path
- **Downtown** – city centers concentrate population, destinations, and events and are typically easy for people to access; consequently, paths in these areas will be busier than areas outside the downtown core
- **Physical proximity** – a path that connects places that people want to be and experiences people want to have in a relatively nearby area will be busier than paths that lack these multiple, close connections

Path types

Paths have different character and functionality based on the types of connections they offer and the setting in which they are located.

Paths have different connectivity character. Some are segments that may not connect with other paths or active travel routes. Some paths function as a spine route enabling key connections to other paths and active travel routes. Some paths may fill gaps in an active travel network, whereas others may be surrounded by network gaps. Good intersection design is key to reducing conflicts among different path users.

- Provide ample room and mixing areas closer to trailheads and major destinations
- Address intersections and nodes similarly to trailheads and major destinations; design for slower path speeds and provide path exit areas
- Provide wayfinding at intersections and to support network functionality
- When possible, connect paths to other networks or network approaches, such as Safe Routes to School



Source: Greg Olson

The 7-mile long Huntington Beach Trail in Orange County California sees use from a variety of path users, not just bicycles. The wide tread accommodates the quantity and variety of uses

that serve the parking and main destination areas of “Surf City.” Wide path areas such as this allow people to access commercial and destination areas, functioning as a spine connector.

Busy shared-use paths can be found in urban, suburban, and rural environments

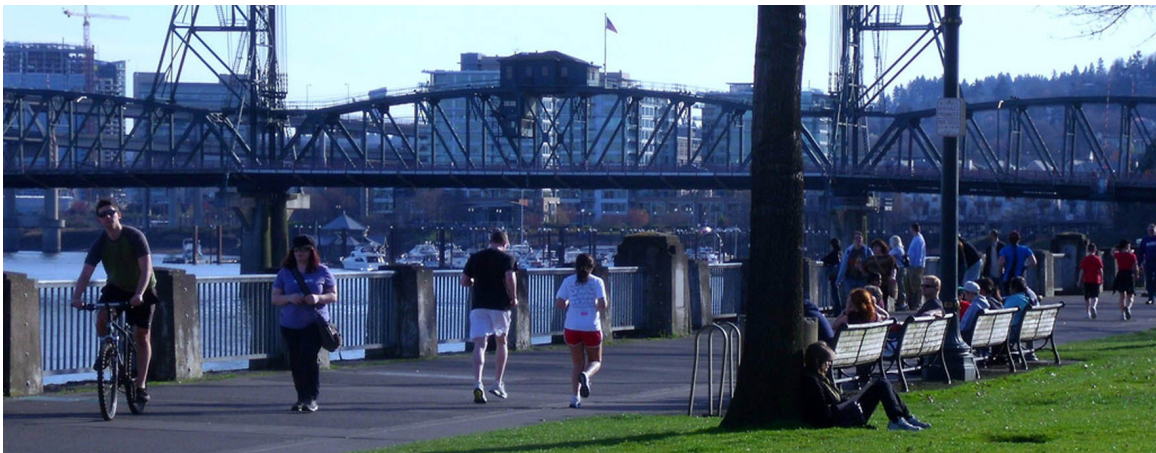
- Paths in rural environments should be narrower to maintain scenic qualities while still providing ample room for passing and for users to enjoy social experiences (10’ to 12’ wide)



Source: Greg Olson

The Springwater Corridor Trail in the Portland metro region travels through urban, suburban, and rural areas and maintains a consistent tread width of 10’ to 12’ along the 21 miles of its length.

- Wider paths feel appropriate in urban settings and in rural areas near trailheads (greater than 12’ wide)



Source: Greg Raisman Flickr

The Esplanade in downtown Portland’s Tom McCall Waterfront Park is 20’ to 25’ wide. The path serves transportation and recreational users.

Design approaches for busy shared-use paths that minimize user conflicts improve the quality of path experiences for all user types. A well-designed path can minimize the need for education and enforcement, but these strategies are useful in combination, especially when path use changes substantially from its original design goals.

Designing to control speed

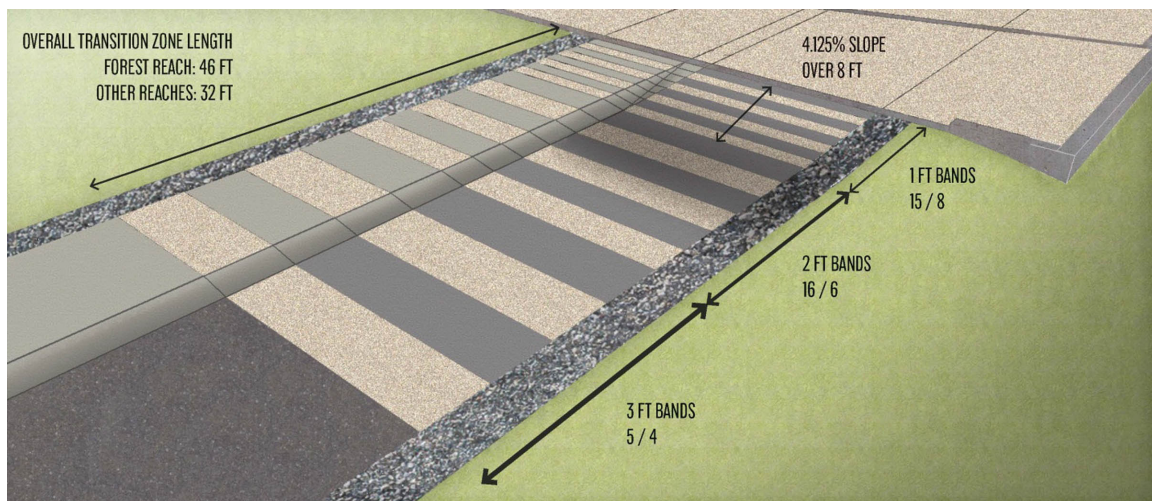
Managing speed and expectations is a fundamental strategy for improving user experiences on shared use paths. Speed is a major factor in how comfortable different user types feel on shared-use paths.

Problems related to speed

- Slower path users can often be startled by faster path users
- Faster path users may expect other path users to behave in certain ways

Solutions to slow path users

- Consider separate treads for faster and slower speeds
- Consider design changes, such as curves, path narrowing, or gateways, in advance of intersections or congested and caution areas
- Use tread surfacing, texture, and pattern to delineate separate and shared spaces
- Calm traffic and engage path user awareness by removing signage, striping, and regulatory information – use in conjunction with changes to tread and adjacent landscaping to signal something different ahead
- Where alternate routes exist, consider directing higher speed through traffic to these facilities, especially for congested path areas and/or dismount zones



Source: Alta Planning + Design

This path redesign in Seattle uses separate asphalt and concrete treads with a rolled curb between to create slow and fast “lanes.” The pattern change signals a busy intersection or mixing zone. The redesign minimizes the use of signs by focusing on people-centered design. Sign clutter can detract from the experience of a place, and people may ignore posted messages.

Design for dwell time

Some path users will spend little time on the facility, whereas others may have a lengthy experience.

- Provide path exit areas – such as benches, shelters, water, or restrooms – near trailheads and major destinations and at scenic or rest areas. For busy paths, having ample facilities primarily provides room for stationary path users to engage the path experience without impeding traffic flow. These facilities also increase path users’

comfort level on the path and provide opportunity to travel at a leisurely pace for short or long periods of time.

- Provide mile markers (every .25 mile for walkers, every 1 mile for bicyclists). These markers enable path users know how far they have gone and how far they plan to go. The markers are an additional tool to assist users in pacing themselves.



Source: Gene Bisbee Flickr

Different sized “nodes” or intersections on the Burke-Gilman Trail allow people to enjoy social experiences without impeding the flow of other path users.

In Vancouver, British Columbia, Stanley Park is a popular local and tourist destination. In 2012,



Source: Stanley Park Cycling Plan

the City of Vancouver adopted the Stanley Park Cycling Plan to address conflicts and environmental impacts related to path popularity. Some of the strategies identified include adding “short cut” paths that enable bicyclists to make shorter loops in the park and to minimize wrong-way travel on the one-way cycle path, removing furnishings that

create path pinch points, providing ample bike parking at major park destinations, improving wayfinding and improving path intersections.

Transportation-Recreation

Any path trip could be for transportation or recreation purposes. Transportation trips emphasize speed and directness. Recreation trips may be more leisurely, involve stops for views, destinations, or other attractions. Recreation trips may have more emphasis on scenic routes, and directness is less important.

- Busy times for recreation trips occur during weekends, holidays, and midday during the week

- Busy times for transportation trips occur during weekday morning and afternoon peaks
- Where possible, provide parallel routes for faster path users, such as adjacent streets



Source: Greg Olson

The popular 22-mile long Marvin Braude Bike Trail in the Pacific Palisades area of Los Angeles serves both transportation and recreation purposes. Recreational and transportation path users may opt to travel the path early in the morning before it becomes congested. In the town of Hermosa, a bicycle rental shop attracts large numbers of people, slowing users considerably.

Waterfront Park in downtown Portland, Oregon, serves as the venue for many events and festivals. A bike lane on Natio Parkway, which runs parallel to the Waterfront Park shared-use path serves as a bypass route. Consideration is being given to convert one motor-vehicle travel lane into a shared bicycle and pedestrian space as a way to minimize conflicts on the Waterfront path and in the Natio Parkway bike lane.



Source: J. Maus/BikePortland

Safety

Road intersections and terrain features may likely warrant treatments or maintenance that improve path users' experiences.

- Cyclists are safer when they are allowed to function as roadway vehicle operators rather than as pedestrians
- Two-way bike lanes create dangerous conditions for bicyclists and may encourage illegal riding against traffic

- Provide lighting at intersections
- Consider flashers or stop lights at road crossings
- Maintain vegetation to allow sight lines at sharp curves and intersections (path and roadway)



Source: Greg Olson

Minimal and appropriately placed signage alerts path users to the steepness of this downhill section of the Jedediah Smith Memorial Trail in the Sacramento area.



Source: BikePortland.org

A newly installed flashing beacon on the Springwater Corridor Trail in Portland, Oregon, alerts drivers that path users are waiting to cross the roadway.

Education

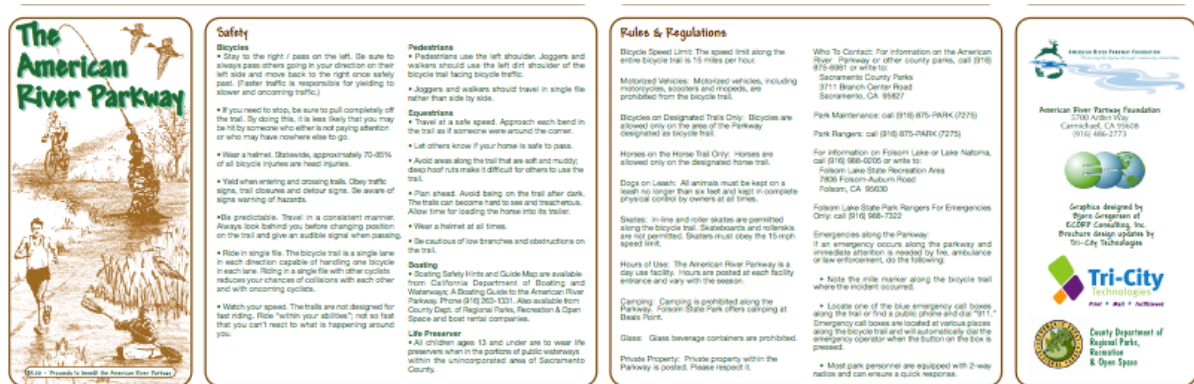
Delivering information about shared path courtesy will help users learn what to expect on busy paths and how to be courteous to other users. With any education program, it's important to remember that not all people on the path have the same exposure to local education, particularly if they are out-of-town visitors.

Problem to be addressed with education

- Users will not respect other users who are perceived to be where they do not belong

Opportunities to educate path users

- Material on courteous path behaviors can be posted at trailheads, included on maps, brochures, and websites, part of Safe Routes to School and bicycle education programs, and shared by trail volunteers or ambassadors



Source: American River Parkway Foundation

A portion of the American River Parkway map. In addition to depicting the path and facilities along it, the map provides interpretive material and this important information about safety, rules, and regulations.

Path rules

The following list details rule and guidelines that are considered for shared use paths. They are typically disseminated using information pages on websites, blogs, printed brochures, inclusion on print and online maps, posted signs at path access points, and posted information at trailhead kiosks.

For path managers

Encourage good path behaviors and avoid creating rules that path users will disregard.

- If setting speed limits on paths, use a guideline speed of about 15 mph (10 mph is too slow for most bicyclists, and not all bicyclists know how fast they are traveling)
- Establish dog leash lengths – shorter than 6', no retractable leashes – and dog owners keep animals in complete physical control at all times.
- Encourage helmet use where not required by law.
- Unless path has uncharacteristic design features, encourage users to stay to the right, leave plenty of room to allow others to pass, and be considerate of all path users.
- Faster path users yield to slower path users.
- For busy paths, expect that three people traveling abreast is common in high use areas.

For path users

- Respect the rights of others. Do not judge your own or other path users' responses as right or wrong, but do respond to encounters on the path in the safest and most courteous way possible and acknowledge that everyone is out to enjoy the path in their own way.
- If you need to stop, move completely off the path.
- Yield when entering and crossing paths.
- Be predictable. Travel in a consistent manner. Always look ahead and behind you before changing position on the path.
- Give audible warning when passing others. Try to avoid startling the people you are passing. Expect that some people may react unpredictably, and overtake cautiously.
- Stay to the right side of the path.
- When traveling side-by-side, stay on the right half of the path and allow ample room for faster users to pass.

Expectations

Informing path users about conditions they can expect before they arrive can foster positive path experiences. The same education channels referred to above can be used.

- For extremely busy areas, consider real time information or web cams. Fun or entertaining presentation of this information will make path users more likely to check path congestion reports, which will also make it more likely to be linked to on other websites, through social media, and shared via word-of-mouth.
- Consider using the Access Recreation, www.accessrecreation.org, guidelines for providing trail information to people with disabilities. Providing information about that path will help all users make informed decisions about how the path experience might or might not match their abilities. Guidelines: http://accessrecreation.org/Trail_Guidelines/Title_page.html
- In entry-regulated places with busy paths, such as National Parks, providing information at the entry gates with fee collection can help path users appropriately set their expectations for path use.

Example: The Sandy River Delta is a busy U.S. Forest Service managed park on the east end of the Portland metro region where a variety of users share the same space. The Friends of the Sandy River Delta works closely with the Forest Service to help manage the area for its wide variety of users, and to promote responsible use by all users. The Friends have information on their website, www.fsrd.org, describing conditions. The following excerpt describes unique conditions for equestrians, and a similar style could be adapted for any type of path user:

Weekends at the Delta can be tremendously busy even in less than ideal weather. Although designated trailer parking exists we have an ongoing problem with passenger vehicles using these spaces. It's best to arrive early on weekends to get a spot, but if arriving and finding the spots filled, we encourage calling police non-emergency to request enforcement.

Enforcement

Enforcement of path rules sends strong messages to users and can reinforce courtesy both negatively and positively. Enforcement should be used in support of good path design and education.

- Unenforced path rules can lead users to ignore regulatory information

- Fines and ticketing degrade the user experience (and can also be appropriate given the infraction)
- Soft enforcement provided by ambassadors supports friendly and safe path experiences and should be used on busy paths or at particularly congested areas

Example: Traverse Area Recreation and Transportation (TART) Trails has a Trail Ambassador Program (<http://traversetrails.org/trail-ambassador/>) designed to promote safe, responsible, and enjoyable use of the trail program system with emphasis on:

- Representing TART Trails, Inc.
- Informing, assisting, and educating
- Practicing and exemplifying trail etiquette
- Minor trail maintenance and hazard reporting
- Minor mechanical assistance
- Surveying trail users
- Having fun on the trails



Source: TART Trails

Trail Ambassadors can provide information, minor service repairs, emergency response, and welcome along trails and paths. Their presence can encourage path users to be courteous of others.

Case Studies

Burke-Gilman Trail, Seattle, WA

The Burke-Gilman Trail Improvement Project focuses on a 1.75-mile long shared use path corridor through the University of Washington campus in Seattle. The path already experiences heavy use, and that use is expected to increase by 230% by 2030. Planning for the improvement project occurred in 2012-2013, test sections were installed, and construction began in February 2015. For up to date information about the project, visit www.washington.edu/facilities/transportation/tiger/index.



Source: University of Washington

Separate treads were created for cyclists and pedestrians. The area has exceptionally high volumes of both modes, and the frequency of pedestrians being passed by cyclists is very high and would have made the pedestrians uncomfortable to mix modes on the same tread. Different material types were used for the bicycle pathway (asphalt) and the pedestrian pathway (concrete). At intersections, a third type of paving material signals the 'mixing zones' with "transition banded" paving leading up to it. Mixing zones open up the views at intersections and allow cyclists to adjust their course of travel to avoid pedestrians. These plaza-like zones reinforce the rhythm of the path through campus and reduce the number of times cyclists are expected to stop at path intersections.

The path will double in width in some places to 24 feet with pedestrians and bicycles separated, except at major intersections. ADA accessibility upgrades will improve connections to transit on NE Pacific Street, and path and ramp upgrades will improve access to the new light rail station at Husky Stadium. Many intersections throughout the project area will be consolidated to reduce conflict points. Path connections and crossings will be reduced from 79 connections to 40 connections, and each of these connections takes place at a major or minor mixing zone.

Redmond Central Connector, Redmond, WA

The Redmond Central Connector is a nearly 4-mile long urban path that provides connections between Redmond's old town and Redmond Town Center to create one downtown. The 12-foot wide path winds through an old 100-foot wide rail corridor. For more information about the project, visit <http://www.ci.redmond.wa.us/cms/one.aspx?objectId=83186>.

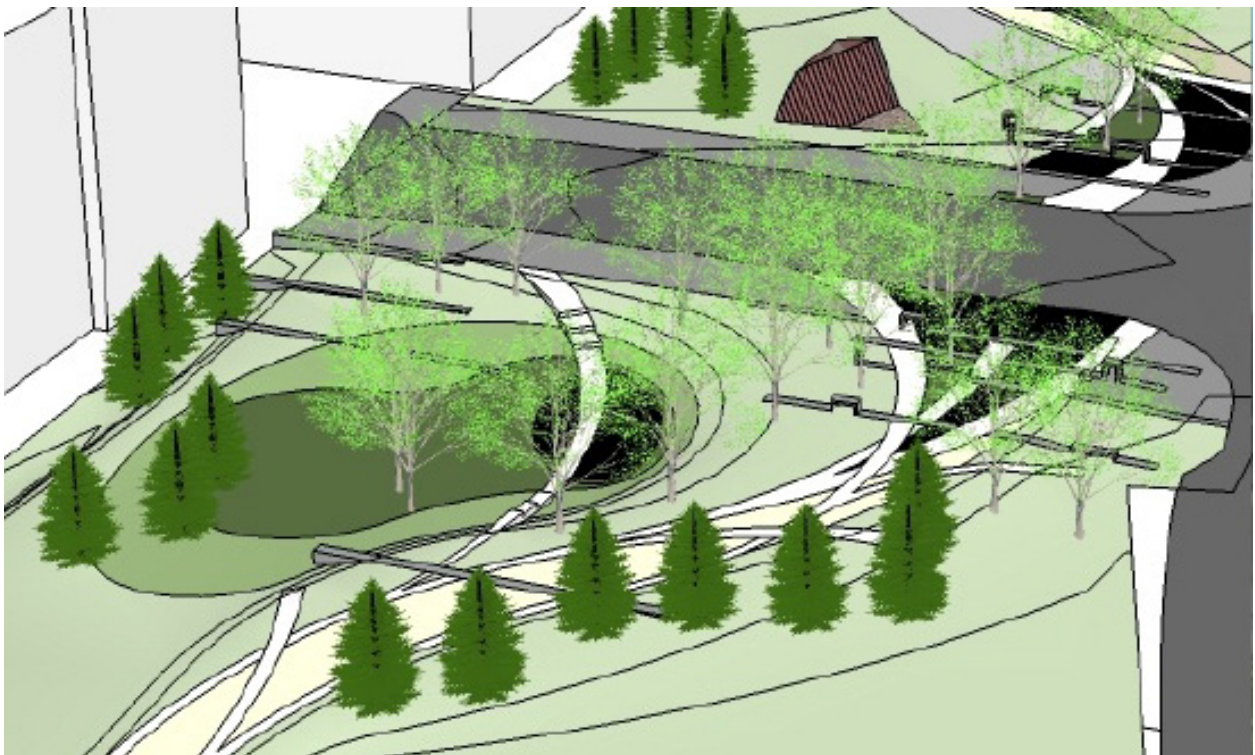
Currently, one mile is complete in downtown Redmond from the [Bear Creek Trail](#) to the [Sammamish River Trail](#). For its full length, the trail parallels the East Link light rail. The full 3.89-mile length of the Connector is scheduled to be complete by 2025.

The 12-foot-wide path has a two-foot shoulder and includes a variety of artistic gathering places. Gathering places are a key element of the path functionality with small and large opportunities for people to linger and explore. Repurposed materials from the old rail line were used to construct three of the art installations at these 'landings,' 'eddies,' and 'islands.' One large artwork, Signals, reuses the old rail signal lights and creates a lively plaza space for concerts, events, and other entertainment.



Source: Berger Partnership

The path design includes other ties to the rail corridor. A number of concrete 'ties' intersect the path perpendicularly, creating cross-path interconnectivity and offering path users opportunities to explore beyond the linear path footprint. Some of the ties add vertical texture to the path experience and provide benches, elevated stepping stones, and gateway elements near intersections to slow path travelers and create additional gathering spaces.



Source: City of Redmond

Huntington Beach Trail, Orange County CA

The 8-mile long Huntington Beach Trail in Orange County California starts at Sunset Beach and ends at the junction of the [Santa Ana River](#) and [Newport / Balboa](#) paths, traversing the oceanfront the entire way. The path sees use from pedestrians, bicyclists, runners, skateboarders, skaters, dog walkers, families, and a plethora of other human-powered modes. The wide tread accommodates a large quantity and variety of uses. The path passes such landmarks as the Huntington Beach pier where there are often free open-air concerts, and [Bolsa Chica wildlife preserve](#). The beach is a popular destination for surfers and other visitors.

This path experiences extreme crowding, especially on summer weekends. Some path users recognize the need to exercise patience and enjoy the popularity of the place. Others recommend accessing the trail early in the morning to avoid crowds. Most websites that describe the trail note the summer weekend crowding along with the difficulty and cost to park vehicles.

Along narrower sections, the path is striped. However, along its busiest and widest sections, the path does not have striping.



Source: openplac.es



Source: windcreative.com

Design Features

The following list provides considerations for how to improve busy path experiences.

- Increase connectivity, provide network links, fill network gaps
- Provide right-of-way for through traffic (instead of many intersection or stop sign interruptions)
- Minimize conflict points (intersections); minimize or eliminate street crossings
- Sidewalk width greater than 6'
- Provide shortcut paths for pedestrians (A good example of these paths can be found as part of the Redmond Connector project, which the path designers refer to as "ties.")
- Accessibility
 - Ensure adequate passing areas and passing width
 - Widen paths in areas with steeper grades to allow more space on the path for passing and users traveling at different speeds
 - Textured surface and/or slight grade change at intersections
- Surfacing

- Gravel or natural surface adjacent to paving for walkers, runners, equestrians
- Continuous accessible grade without driveway dips (driveway dips bottleneck path segments)
- If unpaved, path surface should be packed hard enough to be used by wheelchairs and children on bicycles
- Safety
 - Countdown timers at major auto-route intersections
 - Flashers or stoplights at busy auto-route intersections
 - Reflective material on bollards, bridge crossing edges, pinch points
 - White fog lines in unlighted areas (easier to identify path edge)
 - Landscaping maintained for sight distance at intersections and sharp curves
 - Use centerline striping sparingly (recommended to use centerline striping in caution areas only)
- Signage
 - Directional/wayfinding (name of path, cross streets, mile markers (every .25 mile for walkers, 1 mile for bicyclists))
 - Information for nearby amenities
 - Distance to nearby destinations – parks, intersecting trails, towns, etc.
 - Change of grade over 5%
- Lighting
- Amenities
 - Water
 - Restrooms
 - Landscaping/planting strips
 - Benches/street furniture
 - Aesthetic enhancements (art), shade, comfort

References and Resources

Oregon Bicycle and Pedestrian Plan, 2nd Ed., Oregon Department of Transportation, 1995. Available at http://www.oregon.gov/ODOT/HWY/BIKEPED/docs/or_bicycle_ped_plan.pdf Downloaded February 2015.

Mixing zones and cycle tracks

<http://nacto.org/cities-for-cycling/design-guide/intersection-treatments/combined-bike-laneturn-lane/>

Shared use experiences and guidelines

American Trails, webpage, urban trail shared use approach

<http://www.americantrails.org/photoGalleries/cool/41-share-urban-trail-sign.html>

Florida Bicycle Association, webpage, shared use trail approach

<http://floridabicycle.org/for-path-trail/>

Dave Moulton's Blog, shared path etiquette and experience story

<http://davesbikeblog.squarespace.com/blog/2012/6/13/shared-path-etiquette.html>

City of Virginia Beach Bikeways and Trails, Map and Resources (digital and print)
<http://www.vbgov.com/government/departments/parks-recreation/parks-trails/Documents/bikeways-trails-map.pdf>

City of Madison, shared path etiquette (digital and print)
<http://www.cityofmadison.com/trafficEngineering/documents/PathEtiquette2.pdf>

Weightloss.com.au, blog, exercise path safety and etiquette
<http://www.weightloss.com.au/exercise/exercise-articles/exercise-path-safety.html>

Urban Places and Spaces, blog, shared use path courtesy
<http://urbanplacesandspaces.blogspot.com/2011/05/trail-shared-use-path-courtesy-tips.html>

Miami Valley Trails, webpage, trail safety and etiquette
<http://www.miamivalleytrails.org/safety-trail-etiquette>

Rivard Report, San Antonio, blog, pedestrian perspective of cyclists on path
<http://www.therivardreport.com/slow-share-path-cyclists/>

City of Redmond, Share the trail brochure and infographic (digital and print)
<http://www.redmond.gov/common/pages/UserFile.aspx?fileId=22474>

American River Parkway map (digital and print) with shared path guidelines
http://arpf.org/pdf_files/ARPmap.pdf

Friends of the Sandy River Delta, webpage, rules and expectations for sharing the park
http://fsrd.org/?page_id=2081

Friends of the Sandy River Delta, webpage, activities allowed in the
http://fsrd.org/?page_id=2219