

APPENDIX B

DEFINITIONS PERTAINING TO TRAIL DESIGN OPTIONS, EXISTING ROADWAYS, FACILITIES AND CONDITIONS

The following appendix was included in the original 1997 edition of the Waterfront Trail Guidelines and provides relevant definitions and information regarding trail design, and characteristics of urban and rural roads. Additional definitions have been provided in the 2007 update.



Waterfront
Trail

2007



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AADT:

Annual Average Daily Traffic. The number of vehicles traveling on a roadway on an average day.

Asphalt shoulder:

On a road without curbs, all or a portion of the roadway shoulder paved with asphalt for the accepted use by cyclists. Normally fully paved shoulders are to be kept clear for use by police, emergency service or disabled vehicles.

Bicycle:

Under the Highway Traffic Act a bicycle is a “vehicle”, and includes a tricycle and unicycle, but does not include a motor assisted bicycle. In these guidelines, the words “cycle” and “bike” are often interchanged with bicycle.

Boulevard:

A portion of the roadway right-of-way located outside the travel lanes and shoulders generally at a higher elevation than the travel surface.

Clearing height:

The vertical dimension which must be cleared of all tree branches, signs and other obstructions that would otherwise obstruct movement along the trail.

Clearing limits:

Point at which the disturbance to the natural environment is limited. This defines the trail right-of-way.

Clearing width:

The dimension measured across the trail from which all obstructions are removed so as not to obstruct movement along trail.

Contra-flow cycling lane:

A cycling lane going in the opposite direction to the flow of traffic on a one way road.

Cycling facility:

Any road, path or way which in some manner is specifically designated as being open to cyclists, regardless of whether such facilities are designed for the exclusive use of cyclists or are to be shared with other transportation modes.

Cycling path:

An off-road cycling facility designed and developed for the exclusive use of cyclists. Paved with compacted stoned fines, asphalt or other hard surfaces. The user is represented by a wide range of age groups and skill levels. Both mountain bikes and conventional narrow tire bicycles have been considered. Mountain bikes may be physically able to access all trail types including hiking paths. Some restrictions by governing agencies may apply.

Design Speed:

Used to determine trail width, minimum curve radius, and banking to ensure trail users have adequate space and time to safely approach and navigate sharper curves along the trail. The design speed for recreational cyclists is expected to be adequate for all anticipated on and off-road trail users. On descents with steeper grades, the design speed should be increased and additional trail width provided.

Drainage:

Provision of methods to manage excessive water runoff (ditch, dip, culvert, catch basin, french drain, etc.)



Grade:

Refers to the slope of the travel surface which is important to consider because trail users are often self-propelled and are more sensitive to the effects of gravity than are motor vehicles. Acceptable grades for trail users depend on variable conditions such as the characteristics of the user, the effort to ascend/climb, the total weight of the transportation device, the travel surface, wind speed, length of grade, and conditions required for safe descent. Overall, trail grades should not exceed 5% with the ideal situation providing for grades no greater than 2 to 3% in order to accommodate a wide range of trail users.

Gravel/asphalt shoulder:

On a roadway without curbs, pedestrians may walk within the shoulder area whether it is paved with gravel or asphalt.

Highway, roadway:

This includes a common and public highway, street, avenue, parkway, driveway, square, place, bridge, viaduct or trestle, any part of which is intended for or used by the general public for the passage of vehicles.

Hiking path:

A natural terrain surfaced path usually providing for day users on extended hikes and minimum to moderate use (i.e. up to 5,000 users per year). The user is generally walking to experience a natural setting and does not expect to find a high level of services or facilities on the trail. The user expects to be physically challenged at some points along the trail by steep slopes or informal water crossings and is most often out for longer than one or two hours. Minimum trail guidelines for a hiking path provided for a low to moderate level of use is a cleared right-of-way with minimum grubbing and no special tread surface, generally a natural pedestrianway.

Horizontal alignment:

Also referred to as horizontal curve, horizontal alignment describes the critical point "at which users will instinctively decelerate to maintain a comfortable degree of lateral acceleration while traversing a curve." ¹ The horizontal alignment for recreational cyclists is expected to be adequate for all anticipated on and off-road trail users.

Median, centre refuge:

A portion of the roadway right-of-way located between travel lanes of opposing traffic direction so constructed to separate traffic by a physical barrier or a raised or depressed paved or unpaved separation area. Not intended for vehicular travel, but can be used as a waiting refuge for pedestrians or cyclists.

Multi-use trail / multi-use boulevard trail:

Typically a bi-directional trail shared by pedestrians and cyclists located in parks or outside of the roadway right-of-way. Occasionally a trail may be located within the roadway right-of-way. This latter type of facility, referred to as a multi-use boulevard trail, is separated from the travel portion of the roadway by an open space or physical barrier.

Offset:

The gutter pan not intended as part of the outside lane.

Operating space / manoeuvring allowance:

Operating space refers to the essential area occupied by the trail user. Manoeuvring allowance refers to additional space on each side of the trail user which allows for travel movement, balance and control (i.e. natural meandering of trail user and avoidance of surface hazards). The amount of manoeuvring space varies depending on the type of trail user,

¹ United States Department of Transportation (USDOT). 2004. *Characteristics of Emerging Users and Their Safety*. McLean, Virginia: Federal Highway Administration at p. 86.

the type of vehicle the trail user may be operating and skill in doing so, the traveling speed, and condition of the travel surface.

Outside, right-hand or curb lane:

The travel lane furthest to the right edge of the roadway. If curbs are present, the travel lane closest to the curb. The Highway Traffic Act (HTA) 126 indicates that any vehicle moving slower than the normal traffic speed shall drive in the right-hand lane “as close as practicable to the right” edge of the roadway, except when preparing to turn left or when passing another vehicle.

Parking lane:

A portion of the roadway intended for the parking of motor vehicles.

Park road:

A local road on public property that provides access to features within a park. The roadway conditions, design standards and signage may be less formalized than on other public roadways.

Paved boulevard strips, kill strips:

A narrow strip of pavement on the boulevard immediately adjacent to the back of curb. Installed to provide a set back for ground covers (i.e. sod) to protect it from salt spray, sand and snow deposition, and tire tracks.

Pavement edge lines:

A solid white line that demarcates the outside limit of the intended travel surface.

Pedestrianway:

Any sidewalk, path, road or way which is specifically designated as being open to pedestrian or wheelchair travel regardless of whether such facilities are designed for the

exclusive use of pedestrians and wheelchair users or are shared with other transportation modes.

Pedestrian crosswalk:

Any portion of a roadway, designated through a by-law of a municipality, at an intersection or elsewhere, distinctly indicated for pedestrian crossing by signs on the roadway and lines or other markings on the surface of the roadway as prescribed by the regulations.

Pedestrian precinct:

Sidewalks and other paved or appropriately surfaced areas intended for the exclusive use of pedestrians. Cyclists must dismount and walk their bicycles unless advised otherwise.

Provincial highway, King’s highway:

Includes the secondary highways and tertiary roads designated under the Public Transportation and Highway Improvement Act.

Roadway edge:

On a low volume, low speed roadway (i.e. less than 60 km/h, less than 1,000 AADT) pedestrians may walk on the outside travel surface where there are no shoulders or sidewalks.

Roadway right-of-way:

A publicly owned transportation corridor generally permitted for use by the public for motorized vehicular, cycling and pedestrian travel.

Road cycling lane:

A portion of the roadway which is designated by striping, signing and/or pavement marking for the preferential or exclusive use of cyclists. Cycling lanes are typically one way facilities located on both sides of a bi-directional roadway.



Rural roads:

Roads in areas of sparse development or beyond municipal boundaries where development is less than 50% of typical property frontages or where there are no curbs, gutters or storm/combination sewers.

Semi-public road:

A local road on private property that provides access to a residential development, industrial operation, utility facility or other isolated property. Generally these roadways are intended for those with direct dealings with the road's owner not for unrelated public use. Permission to use these roads as sections of the Waterfront trail would be required.

Shared road lanes:

Shared road lanes are bicycle routes designated by bicycle route signage along a shared laneway where a separate right-of-way (e.g. bike lane or paved shoulder) cannot be provided or is not necessary. Shared road lanes signed as cycling routes may be accommodated on low volume roadways with limited truck traffic, good sight lines and physically constrained right-of-way's, where existing or outside lanes are shared by motorists and cyclists. Referred to as signed-only cycling routes, these facilities are typically installed on quiet, residential, local/collector streets. Apart from "bicycle route" signs, there are generally no changes made to the roadway.

Shoulder:

Gravel or asphalt pavement outside the travel lanes used for emergency stopping, vehicular parking and where there are no sidewalks, for pedestrian travel. Gravel shoulders alert drivers to the fact that they are off the travel surface. They also provide for surface drainage and lateral support of the asphalt travel surface.

Paved asphalt shoulders are often used for the acceleration and deceleration of high speed vehicles beyond the outside travel lane.

Shy distance:

The space between a travel lane and a traffic barrier.

Sidewalk:

A portion of the roadway right-of-way intended for the exclusive use of pedestrians. They are considered to be bi-directional and may be on either side of the roadway. Sidewalks are often elevated from the road surface and protected from drainage and errant motorists by a raised curb.

Stopping sight distance

Refers to the distance required for a trail user to come to a full controlled stop upon spotting an obstacle. Stopping sight distances for off-road trails are typically governed by the distance required for cyclists since pedestrians and other trail users can typically stop more immediately than cyclists, regardless of the trail configuration. It is an important aspect to consider in trail design because it takes into account that trail users will encounter other users or trail elements and must be able to see ahead at a sufficient distance to effectively manoeuvre around other trail users or elements, or stop if necessary.

Through lane, travel lane:

Any continuous traffic lane within the travel surface of the roadway. Not a turning lane or full time parking lane.

Traffic calming:

A variety of measures used to slow down motorized vehicles or to restrict their access on certain roadways. These include stop signs, low speed limits, posted hours of restricted

access, traffic filters, speed control bumps, right in/right out diverters, etc.

Trail barriers:

A variety of measures including bollards, gates and protective barriers often used to control access to areas in and around a trail facility. Trail barriers are typically installed to protect the trail, the user and/or the natural environment, however, they should not be used as en route speed control devices.

Travel portion, travel surface, roadway:

The portion of the roadway right-of-way improved, designed or ordinarily used for vehicular travel, but does not include the shoulder.

Travel surface:

The hard-surfaced portion of the trail right-of-way typically sloped or crowned to shed water. Surface options include asphalt, compacted stone fines, concrete, unit pavers, gravel and natural terrain depending on the trail's intended use and setting.

Travel width:

The horizontal dimension across the trail travel surface which provides adequate space for comfortable and safe movement.

Turning lane, Turning Refuge:

A portion of the roadway intended for refuge accommodating turning.

Universal design:

A concept that takes into consideration the abilities, needs, and interests of the widest range of possible users. In regards to trail design, it means planning and developing a range of facilities that can be experienced by a variety of users of all abilities. Principles of universal trail design support equitable

use; flexibility in use; conveyance of simple, intuitive and perceptible information; provision of trails and information systems so as to minimize exposure to hazards and indicate any potential risks or challenges; provision for challenge so as not to exceed the abilities of the intended users; and provision of trails and amenities that enable easy access, comfort and ease in usage.

Vehicle, vehicular:

Includes motorized vehicles (cars, trucks, buses, motorcycles, mopeds, etc.) and human powered vehicles (bicycles, tricycles, etc.)

Walking path:

An off-road pedestrianway designed and developed for the exclusive use of pedestrians, paved with compacted stone fines, asphalt, concrete, or other hard surfaces. A circulation trail used for casual walking in close proximity to developed areas, providing a connection between activity areas and facilities.



CHARACTERISTICS OF RURAL ROADS:

	RURAL LOCALS	RURAL COLLECTORS	RURAL ARTERIALS
SERVICE FUNCTION	traffic movement secondary consideration	traffic movement and land access of equal importance	traffic movement primary consideration
LAND SERVICE	land access primary consideration	traffic movement and land access of equal importance	land access secondary consideration
TYPICAL TRAFFIC VOLUME, VEHICLES PER DAY	< 1,000	< 5,000	< 12,000
FLOW CHARACTERISTICS	interrupted flow	interrupted flow	uninterrupted flow except at signals
DESIGN SPEED (KM/H)	50 - 100	60 - 100	80 - 130
AVERAGE RUNNING SPEED, KM/H (FREE FLOW CONDITIONS)	50 - 90	50 - 90	60 - 100
VEHICLE TYPE	predominantly passenger cars, light to medium trucks and occasional heavy trucks	all types, up to 30% trucks in the 3t to 5t range	all types, up to 20% trucks
NORMAL CONNECTIONS	locals, collectors	locals, collectors, arterials	collectors, arterials, freeways

CHARACTERISTICS OF URBAN ROADS:

	URBAN LOCALS	URBAN COLLECTORS	URBAN ARTERIALS
SERVICE FUNCTION	traffic movement secondary consideration	traffic movement and land access of equal importance	traffic movement primary consideration
LAND SERVICE	land access primary consideration	traffic movement and land access of equal importance	land access secondary consideration
TYPICAL TRAFFIC VOLUME, VEHICLES PER DAY	< 3,000	1,000 - 12,000	5,000 - 30,000
FLOW CHARACTERISTICS	interrupted flow	interrupted flow	uninterrupted flow except at signals and crosswalks
DESIGN SPEED (KM/H)	30 - 50	50 - 80	50 - 100
AVERAGE RUNNING SPEED, KM/H (FREE FLOW CONDITIONS)	20 - 40	30 - 70	40 - 90
VEHICLE TYPE	passenger and service vehicles	all types	all types, up to 20% trucks
NORMAL CONNECTIONS	locals, collectors	locals, collectors, arterials	collectors, arterials, freeways

Note: Urban Roads = roads in built up areas or within municipal boundaries where development is greater than 50% of typical property frontages; the majority of frontages in subdivisions are less than 30 metres; or there are curbs, gutters and storm/combination sewers on at least one side of the roadway.



