Whatcom County Parks and Recreation
Trail Classifications and Design Parameters

The intent of this document is to provide consistent guidelines and standards for trail development and maintenance for all Whatcom County Parks and Recreation trails. An appropriate Trail Class will be identified for each trail or trail segment based on the management intent in the applicable land management plan, trail-specific decisions, and other related direction. The Trail Class that most closely matches the management intent for the trail or trail segment is identified, though that Trail Class may or may not reflect the current condition of the trail.

All new trails will be designed, built, and maintained to these standards. Existing system trails will be inventoried and evaluated using these standards; any future work will be completed in accordance with adopted design parameters. Existing user-built trails will also be evaluated using these standards. Depending on consistency with applicable land management plans, user-built trails and nonconforming department-maintained trails may be upgraded to these standards as time and resources permit. These standards are not intended to include technical mountain bike trail features (TTFs). TTF's will be addressed on a case-by-case basis where appropriate.

Trail Classes are general categories reflecting trail development scale, arranged along a continuum. The Trail Class identified for a trail prescribes its development scale, representing its intended design and management standards. Deviations from any Trail Class descriptor may be approved by the Director based on trail-specific conditions, topography, or other factors, provided that the deviations do not undermine the general intent of the applicable Trail Class.

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of trails, based on their Designed Use and Trail Class and consistent with their management intent. Deviations from Design Parameters may be approved by the Director based on trail-specific conditions, topography and other factors, provided that deviations are consistent with the general intent of the applicable trail class.

This information is adapted for use by Whatcom County Parks and Recreation from existing USDA Forest Service and International Mountain Bicycling Association (IMBA) guidelines and meets applicable American Association of State Highway and Transportation Officials (AASTO) standards. Whatcom County Parks and Recreation will use existing Forest Service (http://www.fs.fed.us/recreation/programs/trail-management/trailplans/index.shtml) design specifications for trail and feature construction and maintenance where appropriate. Additional design specifications may be adopted as needed.

Trail Classifications

Trail Attributes	Trail Class A Fully Developed	Trail Class B Highly Developed	Trail Class C Developed	Trail Class D Moderately Developed
Tread & Traffic Flow	• Tread wide, firm, stable, and generally uniform • Single lane, with frequent turnouts where traffic volumes are low to moderate • Double lane where traffic volumes are moderate to high • Commonly hardened with asphalt, concrete, crushed rock or other imported material	• Tread wide and relatively smooth with few irregularities • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Double lane where traffic volumes are high and passing is frequent • Native or imported materials • May be hardened	• Tread continuous and obvious • Single lane, with allowances constructed for passing where required by traffic volumes in areas with no reasonable passing opportunities available • Native or imported materials	• Tread continuous and discernible, but narrow and rough • Single lane with minor allowances constructed for passing • Typically native materials
Obstacles	• Obstacles not present • Grades typically < 8%	• Obstacles infrequent and insubstantial • Vegetation cleared outside of trail	• Obstacles may be common, but not substantial or intended to provide challenge • Vegetation cleared outside of trail	• Obstacles may be common, substantial, and intended to provide increased challenge • Blockages cleared to define route and protect resources • Vegetation may encroach into trail
Constructed Features & Trail Elements *All structures will be constructed consistent with the prevailing trail width **Structures do not include mountain bike Technical Trail Features (TTF's)	• Structures frequent or continuous; typically constructed of imported materials • May include bridges, boardwalks, curbs, handrails, trailside amenities, and similar features	• Structures frequent and substantial; typically constructed of imported materials • Bridges as needed for resource protection and user convenience • Trailside amenities may be present	• Structures may be common and substantial; constructed of imported or native materials • Natural or constructed fords • Bridges as needed for resource protection and appropriate access	• Structures of limited size, scale, and quantity; typically constructed of native materials • Structures adequate to protect trail infrastructure and resources • Natural fords • Bridges as needed for resource protection and appropriate access

Trail Classifications- continued

Signs	• Trail descriptions displayed at trailhead • Route identification signing at junctions and for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing common • Destination signing common • Information and interpretive signs common	• Trail descriptions displayed at trailhead • Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing common • Destination signing common • Information and interpretive signs may be common	• Trail descriptions displayed at trailhead • Route identification signing at junctions and as needed for user reassurance • Route markers as needed for user reassurance • Regulatory and resource protection signing may be common • Destination signing likely • Information and interpretive signs may be present	• Trail descriptions displayed at trailhead • Route identification signing limited to junctions • Regulatory and resource protection signing infrequent • Destination signing typically infrequent • Information and interpretive signing not common
Typical Recreation Landscape and User Experience	• May be highly modified landscape • Commonly associated with visitor centers or high-use recreation sites • Typically Roaded Natural to Urban experience • Generally not present in Lake Whatcom Watershed	• May be modified landscape • Typically Semi-Primitive to Rural experience	• Natural, primarily unmodified landscape • Typically Semi-Primitive to Rural experience	• Natural, essentially unmodified landscape • Typically Primitive to Semi-Primitive experience
Examples Include	• Hovander Park trails • Lighthouse Marine Park • Stimpson Accessible Trail	• Hertz Trail • Interurban Trail • Hovander River Walk • Samish Park to dock	• Stimpson Trails • Samish Park beyond dock • Teddy Bear Cove trail	• Raptor Ridge hiker only • Pine and Cedar Lake Viewpoint and Loops

Design Parameters- Hiker/Pedestrian

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of trails, based on their Designed Use and Trail Class and consistent with their management intent. Deviations from Design Parameters are based on trail-specific conditions, topography and other factors, provided that deviations are consistent with the general intent of the applicable trail class.

Designed Use: Hiker/Pedestrian		**Trail Class A**	**Trail Class B**	**Trail Class C**	**Trail Class D**
Designed Tread Width	**Single Lane**	36”-72”	24”-60”	18”-36”	12”-18”
	Double Lane	72”-144”	48”-120”	36”-60”	36”
	Structures (min. width)	36”	36”	18”	18”
Design Surface	**Type**	Likely imported material, routine grading	Native with improved sections of borrow or imported material, routine grading	Native with some onsite borrow or imported material where needed for stabilization, occasional grading	Native, limited grading
	Protrusions	Uniform, firm, and stable	Minor roughness	Intermittently rough	May be continuously rough
	Obstacle Max. Height	No protrusions	≤ 3”	≤ 3”	≤ 6”
Design Grade	**Target Grade**	2%-5%	2%-10%	3%-12%	5%-18%
	Short Pitch Max.	2%-8%	2%-10%	3%-12%	5%-18%
	Max. Pitch Density	0%-5% of trail	5%-20% of trail	10%-20% of trail	20%-30% of trail

Design Parameters- Hiker/Pedestrian continued

Design Cross Slope	**Target Cross Slope**	2%-3% or crowned	3%-7%	5%-10%	5%-20%
	Max. Cross Slope	3%	10%	15%	25%
Design Clearing	**Height**	8’-10’	8’-10’	7’-8’	6’-7’
	Width	60”-72”	48”-72”	36”-60”	24”-48”
	Shoulder Clearance	12”-18”	12”-18”	6”-12”	3”-6”
Design Turn	**Radius**	6’-8’	4’-8’	3’-6’	2’-3’

Design Parameters- Pack and Saddle

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of trails, based on their Designed Use and Trail Class and consistent with their management intent. Deviations from Design Parameters are based on trail-specific conditions, topography and other factors, provided that deviations are consistent with the general intent of the applicable trail class.

Designed Use: Pack and Saddle		**Trail Class A**	**Trail Class B**	**Trail Class C**	**Trail Class D**
Designed Tread Width	**Single Lane**	Not typically designed for equestrian use	24”-96”	18”-48” Up to 60” along steep side slopes	12”-24” Up to 48” along steep side slopes
	Double Lane		84”-144”	60”-84”	60”
	Structures (min. width)		Other than bridges: 36” Bridges without handrails: 60” Bridge with handrails: 84” clear width	Other than bridges: 36” Bridges without handrails: 60” Bridge with handrails: 84” clear width	Other than bridges: 36” Bridges without handrails: 60” Bridge with handrails: 84” clear width
Design Surface	**Type**		Native with improved sections of borrow or imported material, routine grading Minor roughness	Native with some onsite borrow or imported material where needed for stabilization, occasional grading Intermittently rough	Native, limited grading May be continuously rough
	Protrusions		≤ 3” Uncommon, not continuous	≤ 3” May be common, not continuous	≤ 6” May be common and continuous
	Obstacle Max. Height		3"	6"	12"

Design Parameters- Pack and Saddle continued

Design Grade	**Target Grade**		2%-10%	3%-12%	5%-20%
	Short Pitch Max.		15%	20%	30%
	Max. Pitch Density		5%-10% of trail	5%-15% of trail	15%-20% of trail
Design Cross Slope	**Target Cross Slope**		0%-5%	3%-5%	5%-10%
	Max. Cross Slope		5%	8%	10%
Design Clearing	**Height**		10’-12’	10’	8’-10’
	Width		96”	72”-96”	72”
	Shoulder Clearance		12”-18" Pack Clearance: 36” x 36”	12”-18" Pack Clearance: 36” x 36”	6”-12" Pack Clearance: 36” x 36”
Design Turn	**Radius**		6’-10’	5’-8’	4’-5’

Design Parameters- Bicycle

Design Parameters are technical guidelines for the survey, design, construction, maintenance, and assessment of trails, based on their Designed Use and Trail Class and consistent with their management intent. Deviations from Design Parameters are based on trail-specific conditions, topography and other factors, provided that deviations are consistent with the general intent of the applicable trail class.

Bicycle design parameters incorporate the International Mountain Bike Association (IMBA) trail difficulty rating system.

Designed Use: Bicycle		**Trail Class A** **IMBA: Easiest** ○	**Trail Class B** **IMBA: Easy** ●	**Trail Class C** **IMBA: More Difficult** ■	**Trail Class D** **IMBA: Very Difficult** ◆
Designed Tread Width	**Single Lane**	36”-60”	24”-48”	18”-36”	12”-24”
	Double Lane	72”-144”	48”-84"	36”-48”	36”-48”
	Structures (min. width)	60”	48"	36”	18”
Design Surface	**Type**	Likely imported material, routine grading Uniform, firm, and stable	Native with improved sections of borrow or imported material, routine grading Stable with minor roughness	Native with some onsite borrow or imported material where needed for stabilization, occasional grading Intermittently rough	Native, limited grading May be continuously rough
	Protrusions	No protrusions	≤ 3” Uncommon, not continuous	≤ 3” May be common, not continuous	≤ 6” May be common and continuous

	Obstacle Max. Height	No obstacles	2”	8”	15”
Design Grade	**Target Grade**	2%-5%	2%-8%	3%-10%	5%-12%
	Short Pitch Max.	8%	10%	15%	25% 35% on descending-only segments
	Max. Pitch Density	0%-5% of trail	5%-10% of trail	10%-20% of trail	10%-30% of trail
Design Cross Slope	**Target Cross Slope**	2%-3%	3%-5%	3%-8%	5%-8%
	Max. Cross Slope	5%	5%	8%	10%
Design Clearing	**Height**	8’-9’	8’-9’	8’	6’-8’
	Width	72”-96”	72”-96”	60”-72”	36”-48”
	Shoulder Clearance	12”-18”	6”-18”	6”-12”	6”-12”
Design Turn	**Radius**	8’-12'	8’-10'	4’-8’	3’-6’

Whatcom County Trail Classifications: Summary

	Class A IMBA: Easiest ○	Class B IMBA: Easy ●	Class C IMBA: More Difficult ■	Class D IMBA: Very Difficult ◆
Trail Width	36”-144”	24”-120”	18”-48”	12”-24”
Tread Surface	Hardened or surfaced, uniform and stable	Firm and stable, native or imported tread	Mostly stable with some variability, native tread	Widely variable, native tread
Average Trail Grade	Less than 5%	10% or less	12% or less	18% or less
Maximum Trail Grade	8%	15%	25%	35%
Trail Obstacles	No Obstacles Smooth tread Meets ADA standards	≤ 3” tall unavoidable obstacles uncommon ≤ 8” maximum obstacles Avoidable obstacles may be present Minor tread roughness	≤ 3” tall unavoidable obstacles common ≤ 10” maximum obstacles Avoidable obstacles may be present Intermittently rough tread	≤ 6” tall unavoidable obstacles continuous ≤ 14” maximum obstacles Avoidable obstacles may be present Continuously rough tread