

Worcester Polytechnic Institute

TVSR Trail Maps and Assessment

Supplemental Materials

Lorenzo DeSimone
Matthew Selva
Austin Franklin
Jackson Rowland

Advisors:

Professor Sarah Stanlick
Professor Bethel Eddy

Sponsor:

Treasure Valley Scout Reservation



This report represents the work of one or more WPI undergraduate students submitted to the faculty as evidence of completion of a degree requirement. WPI routinely publishes these reports on its site without editorial or peer review.

Table of Contents

Authorship	3
About the Sponsor	4
Locations Verified Through GPS Coordinate Logging	5
Requested Edits to the Existing Treasure Valley Camp Map	6
Guidelines	12
Design Parameters for Pedestrians	13
Design Parameters for Motorcycles	13
Design Parameters for Bicycles	14
ADA Accessibility Notes	15
Sustainable Trail Planning Aspects	16
Universal Design	17
References	20

Authorship

Task	Completed By
Title Page	Lorenzo, Matthew
Draft 1	Lorenzo, Austin, Matthew, Jackson
Editors	Lorenzo, Austin, Matthew, Jackson
Abstract/Preface	Matthew, Lorenzo
Methodology	Lorenzo, Austin, Matthew, Jackson
Outreach	Lorenzo, Matthew
Meeting/Interview Coordination	Lorenzo
Map Editing	Lorenzo
Web Pages	Lorenzo
Handicap Recommendations	Austin, Matthew
Google Earth Pro Documentation	Lorenzo
Team Meeting Organization	Lorenzo, Austin, Matthew
Geocaching Maintenance Request Form	Lorenzo
GPS Data Compilation	Lorenzo
Project Manager	Lorenzo
References and Citations	Lorenzo, Austin, Matthew
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About the Sponsor

Treasure Valley Scout Reservation (TVSR) is a Boy Scout campsite and reservation founded by the non-profit Boy Scouts of America (BSA) in 1925. Their main facilities are located in Rutland, Massachusetts while their business offices are located in Lancaster, Massachusetts. Their mission statement accurately reflects their purpose - to prepare the youth of Central Massachusetts for future leadership by delivering fun and effective experiences through the Scouting program. The reservation is home to the Mohegan Council of the BSA, as they give scouts the chance to develop their skills and lead their peers.

TVSR offers a variety of programs, all of which are catered toward Boy Scouts and Cub Scouts, offering opportunities to spend time in the wilderness. Throughout the summer, camping events are held for scouts, each one giving scouts the opportunity to spend several days in the wilderness with their peers. Over one thousand scouts partake in a variety of programs to earn merit badges ranging from boating and shooting to craft-making and conservationist activities. These scout groups require leaders, so leadership training is offered throughout the summer as well, giving experienced scouts a chance to lead their own group. TVSR also engages in several activities with the broader BSA. The reservation partakes in the annual Philmont Contingent, where experienced scouts travel to the Rocky Mountain range, where they spend roughly two weeks in nature. Similarly, the reservation partakes in annual Scout Jamborees, where scouts from across the country join together for an outdoor scouting experience.

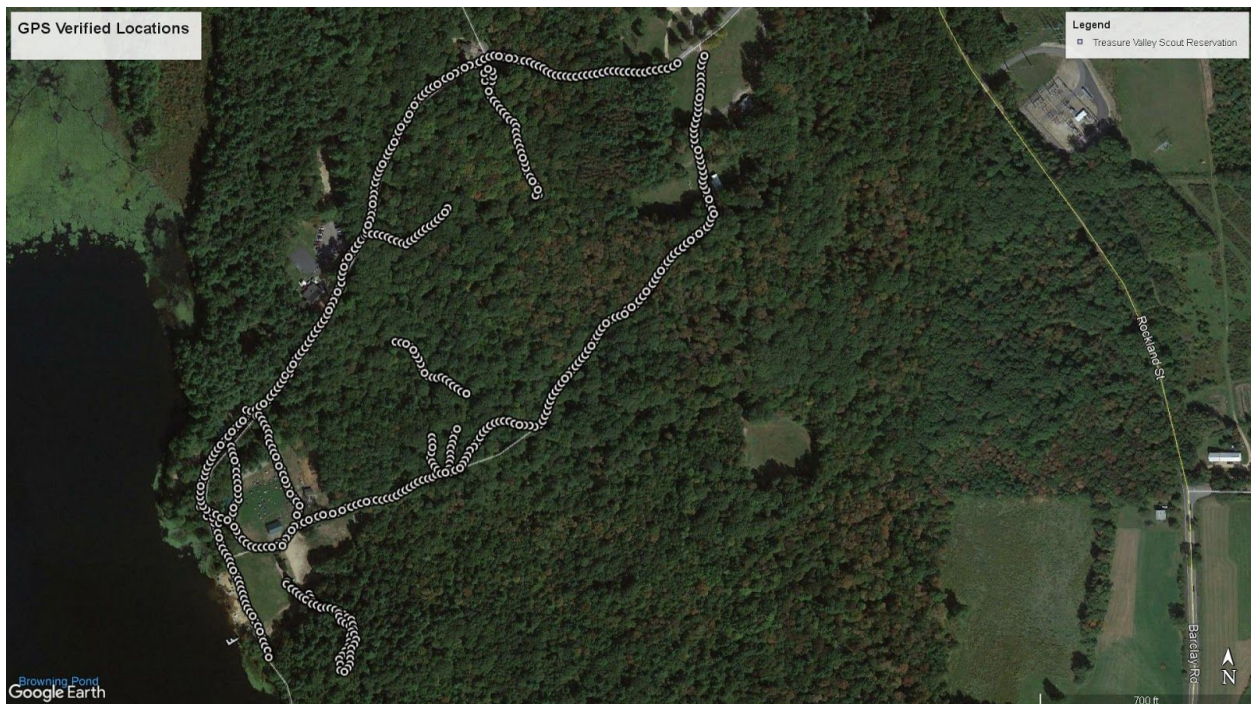
The organization is able to offer summer programs for all ranges of scouts, including scout troops, and extending to scouts training to become staff at Treasure Valley and Counselors in Training. The reservation also offers its services to cub scouts in the form of a day camp, and WEBELOS scouts looking to make their Arrow of Light award as they transition into a full boy scout. Treasure Valley's uniqueness comes from its ability to offer its wide variety of services to a large audience of scouts of all ages and ranks, making it a central hub and crucial resources for troops across Massachusetts and beyond. Other camps and campsites of smaller size are not able to offer such services due to size, location and available amenities, giving Treasure Valley an edge over other campsites.

Locations Verified Through GPS Coordinate Logging

The following locations and trails were hiked by Fred Looft and logged using an iPhone, Apple Watch and GPS coordinate logger. The coordinates from this were used to verify suggested edits to the existing camp maps at Treasure Valley. This was conducted by importing coordinate data into Google Earth Pro which was then compared to the existing map data to ensure validity.

The following locations were tracked for verification on Google Earth Pro:

1. Main Road
2. Ridge Road
3. Main Road to probus to the dirt road that goes to Chippewa campsite
4. Chippewa campsite dirt path to main road
5. Hickory campsite cut off trail leading to Main Road (via Sleepy Hollow path)
6. Sleepy Hollow path to Ridge Road above the campsite
7. Sleepy Hollow path from Ridge Road into the campsite
8. Cut off path north of Boonesville Plains
9. The waterfront dirt road west of Boonesville Plains
10. The dirt path to and around Siple campsite



Requested Edits to the Existing Treasure Valley Camp Map

The following edits were requested by Treasure Valley Facilities & Maintenance Committee Chair Michael McQuaid and applied to the existing camp maps to improve clarity and accuracy for Treasure Valley patrons:

East Side of Treasure Valley:

TVSR Campsite Maps – East Camp Edits

Suggested by Mike McQuaid, 02-12-2021

These are edits to the Campsite Map, v3.1.0, dated 06/18/2019, as noted in the lower right hand corner of the map. Please be sure you are not working with any earlier version. I am sending a 600 dpi color scan of this map with edits as part of this email.

These edits pertain only to East Camp. Let's see how that goes. I am less familiar with some of the things on the West Camp side and would want to field check those, but that is currently difficult with the amount of snow on the ground.

My edits are in red ink, so you can notice them easier, but I recommend sticking with the color scheme as it exists on the map and in the Legend shown at the bottom of the map.

With one exception (Pine Acres, noted below), campsites are placed correctly. GPS (or perhaps mapping already available on the Internet – Oliver?) would likely adjust them somewhat (perhaps along with everything else on the map).

A wide gray line (wide red line in my edits) shows a "Paved Road," of which we have only one (along with a loop at the King Cottage).

A narrow gray line (narrow red line in my edits) shows a "Dirt Road," which on the map and in my edits refers to a road accessible by a passenger vehicle.

A single dashed black line (single dashed red line in my edits) shows a "Path." These are foot trails AND dirt roads that should be accessed only by camp service vehicles.

1. King Office should be renamed King Cottage, the actual name of the building. Font size can be made consistent with other buildings.
2. There is a Paved Road loop by the King Cottage, shown in my edits as a wide red line (again, please use gray as in the current color scheme).

3. There is a Dirt Road from the Main Road to the Director's Cottage, shown in my edits as a narrow red line (again, please use gray as in the current color scheme).
4. From Jamboree Field to the Main Road, there is a Dirt Road, shown in my edits as a narrow red line.
5. Note that "Roger's Road" on the left hand side of the page should be accessed only by camp service vehicles, so I have left it as a Path shown by a dashed black line.
6. The Benedict Lodge can be renamed Benedict Lodge/ Health Lodge, and a Red Cross can be moved from the Magee Lodge to the Benedict Lodge.
7. There is a Dirt Road from Ridge Road to the Benedict Lodge/Health Lodge, shown in my edits as a narrow red line.
8. The Dirt Road from the Rifle Range to the Shotgun Range should be changed to a Path (as indicated by a dashed red line in my edits), as we do not want the average person driving down there. Again, please use a dashed black line as in the current color scheme.
9. There is a short Dirt Road from Ridge Road into the Baden-Powell campsite, as shown by a narrow red line in my edits. That road changes to a Path (briefly) moving westward, so the dashed black line can be left as is.
10. There is a longer Dirt Road from the Main Road into the Chippewa campsite, as shown by a narrow red line in my edits.
11. There is a short Dirt Road from Ridge Road into Tall Maples campsite, as shown by a narrow red line in my edits.
12. The campsite icon for Hickory (currently blue with the letter "F" for flush latrine) should be changed to a green icon with the letter "P" for pit latrine.
13. The Central Restroom along the Main Road should be on the other side of the Path that leads to the Probus Lodge, as I have indicated with a little arrow.
14. The Magee Program/ Health Lodge should be renamed to the Magee Lodge/ Camp Office, with the Red Cross moved to the Benedict Lodge/ Health Lodge.
15. There is a short Dirt Road from Snake River Road into Arrow campsite, as shown by a narrow red line in my edits.
16. A Path from Evergreen campsite, going across Snake River Road, and into Madore campsite does not exist and is crossed out with red Xs.

17. On Snake River Road, across from High Mesa campsite there is a small parking area (not shown but you can put it in if possible). From the parking area there is a Path that leads into Madore campsite, shown by a dashed red line in my edits.
18. There is a Dirt Road from Snake River Road into Madore campsite, as shown by a narrow red line in my edits.
19. Pine Acres campsite is not on the Path as shown, but is in the middle of the Dirt Road just below it. I have indicated a move with a red arrow.
20. There is a Dirt Road from Snake River Road that goes through Pine Acres campsite, around Evergreen Campsite, and back out to the Main Road. I have indicated this with a narrow red line.
21. There is a short Path from High Mesa campsite to the Path near the TVAA Kiosk, as shown by a short dashed red line in my edits.
22. There is a short Path from the Path behind Pine Acres that leads in the Scoutcraft area, as shown by a short dashed red line in my edits.
23. There is a short Dirt Road from Ridge Road into Sleepy Hollow campsite, as shown by a narrow red line in my edits.
24. There are edits to the Paths around Sleepy Hollow campsite, which are hard to describe in words; see the dashed red lines in my edits.
25. There is a Dirt Road from the Main Road to the East Council Ring, as shown by a narrow red line in my edits.x
26. Note that “Duffy Road” should be accessed only by camp service vehicles, so I am leaving most of that as a Path (dashed black lines). The name Duffy Road has some historical value so I’m leaving that as named also.
27. Note that the Dirt Road that runs from Boonesville Plains south to Hemlocks campsite is now called Lakeshore Road, and that name can be added in (I forget to put it on the scan).
28. There is a short Dirt Road from Lakeshore Road into Hemlocks campsite, as shown by a narrow red line in my edits.
29. After Hemlocks, moving south, Lakeshore Road should be shown as a Path, because we don’t need people driving down there. I have shown this by a dashed red line in my edits.
30. All other dashed black lines in East Camp are footpaths or camp service roads and can be left as is.

31. Oops. Back at the top of the hill, “Maintenance Center” can be changed to “Council Office/ Maintenance Center.)

32. As best I can tell, all “amenities” in East Camp are shown correctly.

West Side of Treasure Valley:

A. In the upper right hand corner of the map, can you please replace the “Bear Logo” (never officially approved) with the TV Classic Logo (JPG file sent with this email).

B. Not to be picky, but could you please slightly increase the font size for: Council Office/ Maintenance Center, Benedict Lodge/ Health, Magee Lodge/ Camp Office, and Lakeshore Road to be more in line with existing item font sizes? Thanks!!

C. At the bottom right hand corner, feel free to update to v4.0.0 and the date you make final changes.

As before, I’m following these conventions:

* My edits are in red ink, so you can notice them easier, but I recommend sticking with the color scheme as it exists on the map and in the Legend shown at the bottom of the map.

* A narrow gray line (narrow red line in my edits) shows a “Dirt Road,” which on the map and in my edits refers to a road accessible by a passenger vehicle. (There are no Paved Roads in West Camp).

* A single dashed black line (single dashed red line in my edits) shows a “Path.” These are foot trails AND dirt roads that should be accessed only by camp service vehicles.

So here are my few West edits, item by item:

1. The Dirt Road that loops around the West Council Ring should be changed to a Path. We definitely don’t want mom and dad driving that particular way.

2. The Dirt Road that leads into Columbus Field should be changed to a Path. It’s pretty questionable for a passenger vehicle.

3. At the southern end of Columbus Field, there is a short Path (shown by two red dashes on my edits) that leads to other Paths.

4. There is a short Path, crossed out by two red Xs, which I don't believe exists and should be deleted. There is an opening in the woods in that location, probably visible by aerial photography, but it's a very steep way where underground power and septic lines are buried.

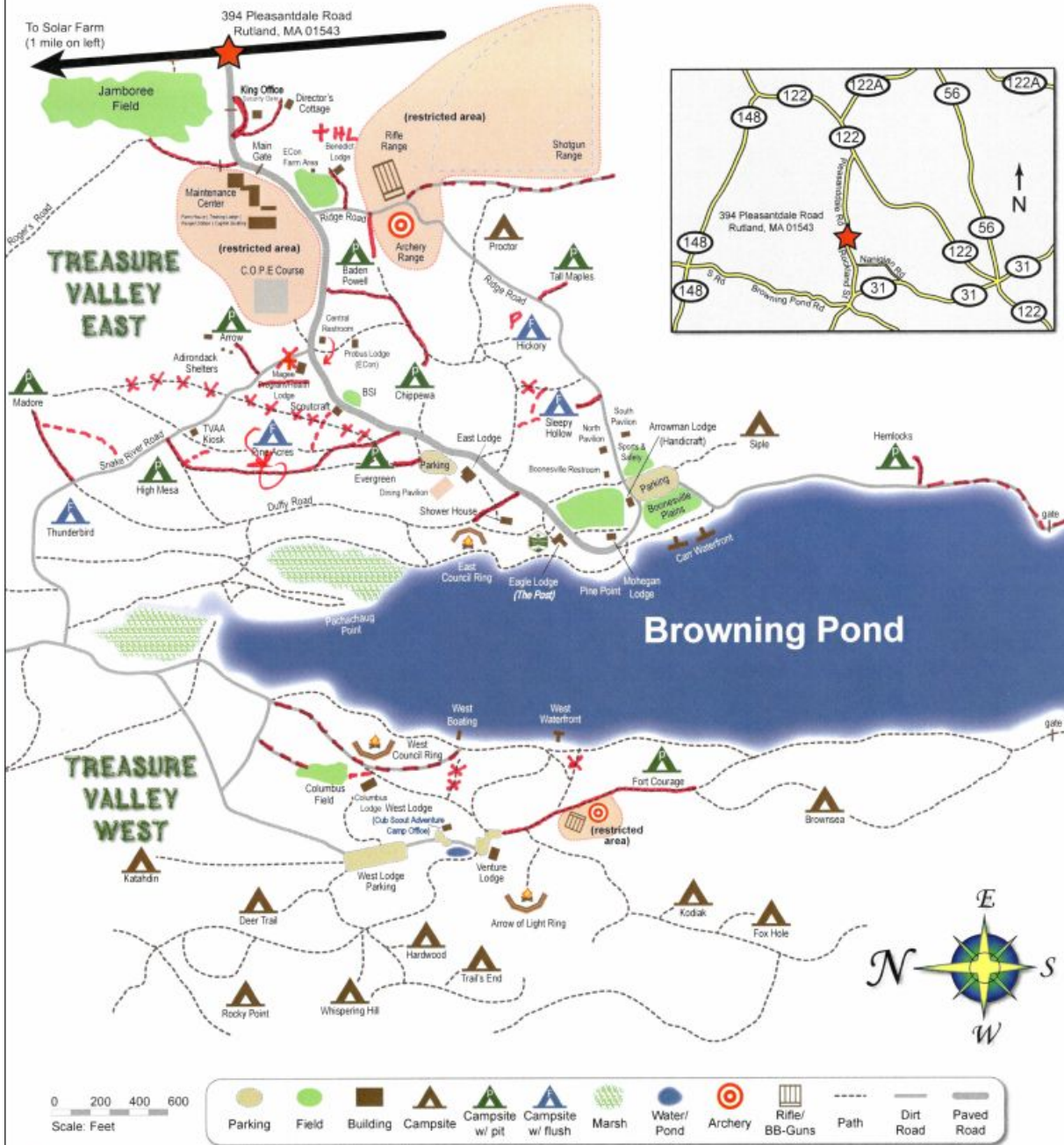
5. The Path from Venture Lodge to Fort Courage can be upgraded to a Dirt Road, as this way is navigable by a passenger vehicle.

6. There is another short Path, near the West Waterfront, that I don't believe exists. Just the one little segment, marked with a single red X, can be deleted. The other Paths in that area, not marked with red X, can stay as they are.



BOY SCOUTS OF AMERICA
HEART OF NEW ENGLAND COUNCIL

TREASURE VALLEY SCOUT RESERVATION



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For info and reservations visit the camp website.
To contact TVSR camp personnel call 508-886-2213
www.TVSRBSA.org

v3.1.0 - 06/18/2019

A Visual Representation of the requested edits to the camp map by Michael McQuaid

Guidelines

Assessing Trail Condition

Trail segments are assessed for their “Condition” as either ‘Good,’ ‘Fair’ or ‘Poor’ Condition assessments need to be based on the intended / designed use and intended trail class.

Good:

- Trail segment that generally meets the design parameters as described in Figures 3-6 along with the five below for the managed uses and trail class and thus functions well for its intended or managed uses.
- Trail segment that requires no (or only limited) immediate maintenance, with structures in generally good repair.
- Trail segment with a stable tread, showing no major signs of soil loss, muddy areas or obstructions; and that allows water to drain.
- A trail segment with one or intermittent damage points, but still generally meeting the above conditions would still be good.

Fair:

- Trail segment that meets many but not all of the design parameters as described in Figures 3-6 along with the five below for the managed uses and trail class and thus functions moderately well for its intended or managed uses.
- Trails segment that requires some maintenance to function fully such as tread work, drainage work, vegetation clearing and / or minor repair to structures.
- Trail segment that shows some signs of tread degradation, that does not fully drain water and / or that includes some moderate damage areas or consistent minor damages (such as erosion areas, channelized tread, muddy areas or obstructions) that might affect the trail experience.

Poor:

- Trail segment that does not meet the design parameters as described in Figures 3-6 along with the five below managed uses and trail class and thus functions poorly for its intended or managed uses.
- Trail segment that requires immediate maintenance to function fully including addressing obstructions, muddy areas, erosion, and / or channelization.
- Trail segment showing on-going degradation, that does not fully drain water, and / or that includes numerous and severe damages (such as erosion areas, channelized tread, muddy areas or obstructions) that affect the trail experience.

Designed Use HIKER-PEDESTRIAN		Trail Class 1	Trail Class 2	Trail Class 3*	Trail Class 4*	Trail Class 5*
Design Tread Width	Wilderness	0' – 12'	6' – 18'	12' – 24' Exceptions: May be 36-48' at switchbacks, turnpikes, fords and steep side slopes.	24' Exceptions: May be 36-48' at switchbacks, turnpikes, fords and steep side slopes.	Not applicable
	Non-Wilderness	0' – 12'	6' – 18'	18' – 48'	32' – 96'	36' – 120'
Design Surface	Type	Native, un-graded. Intermittent, rough.	Native with limited grading. Continuous, rough.	Native with some on-site borrow or imported materials.	Imported materials or hardening is common.	Uniform, firm, and stable.
	Obstacles	Roots, rocks, logs, steps to 24".	Roots, rocks and log protrusions to 6"; steps to 14".	Generally clear. Protrusions to 3"; steps to 10".	Smooth, few obstacles. Protrusions 2-3"; steps to 8".	Smooth, no obstacles. Protrusions <2".
Design Grade**	Target Range (>90% of Trail)	< 25%	< 18%	< 12%	< 10%	< 5%
	Short Pitch Max (Up to 200' lengths)	40%	35%	25%	15%	10%
	Max Pitch Density***	< 10% of trail	< 5% of trail	< 5% of trail	< 3% of trail	< 3% of trail
Design Cross-Slope	Target Range	Not applicable	5 – 20%	5 – 10%	3 – 7%	2 – 3% (or crowned)
	Maximum	Up to natural side-slope.	Up to natural side-slope	15%	10%	3%
Design Clearing	Width	Sufficient to define trail corridor.	24' – 36", with some encroachment into clearing area.	12' – 18" outside of tread edge.	12' – 18" outside of tread edge	12' – 24" outside of tread edge.
	Height	6'	6' – 7'	8'	8'	> 8'
Design Turns	Radius	No minimum.	2' – 3'	3' – 6'	4' – 8'	6' – 12'

Design Parameters for Pedestrians

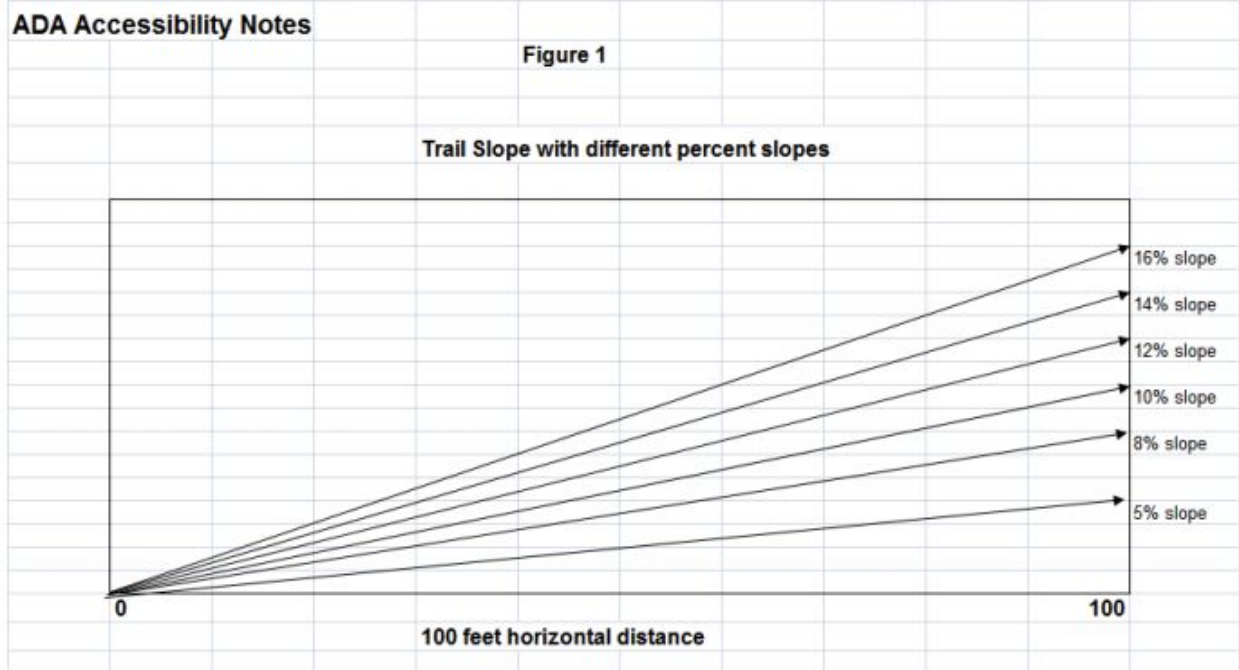
Designed Use MOTORCYCLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width <small>[Note: If side-slope >50%, increase widths by 6" – 18"]</small>	One Lane	Not Applicable: Not designed for equestrians as primary user, though equestrians may be present.	8' – 24" At switchbacks, 36 – 48"	18' – 36" At switchbacks, > 48".	30' – 48" At switchbacks, > 48".	Not Applicable: Not designed for equestrians as primary user, though equestrians may be present.
	Two Lane		Typically not designed for two-lane travel. Passing areas (uncommon) up to 60".	48' – 60" Occasional passing lanes to 72".	60' – 72"	
Design Surface	Type		Native, with limited or no grading. Commonly unstable and soft.	Native with some on-site borrow, pavers, or imported materials. Some loose or soft areas.	Gravel, pavers or other imported materials possible. Relatively firm, stable surface.	
	Obstacles		Soft sand and embedded rock, steps and protrusions up to 12".	Generally smooth with few protrusions exceeding 6".	Smooth, few obstacles. Few 2' – 4" protrusions.	
Design Grade*	Target Range (>90% of Trail)		< 25%	< 15%	< 10%	
	Short Pitch Max (Up to 200' lengths)		40% Rarely to 50% on downhill-only travel.	25%	15%	
	Max Pitch Density***		< 10% of trail	< 10% of trail	< 5% of trail	
Design Cross-Slope	Target Range	5% – 10%	5%	3% – 5%		
	Maximum	15%	10%	10%		
Design Clearing <small>[Note: On steep side-hills, increase clearing on uphill side by 6-12"]</small>	Width	36" – 48" Some vegetation may encroach into clearing area.	12" – 18" outside of tread edge.	> 18" outside of tread edge.		
	Height	7' – 8'	8'	8' - 9'		
Design Turns	Radius	4' – 5'	5' – 6'	6' – 8'		

Design Parameters for Motorcycles

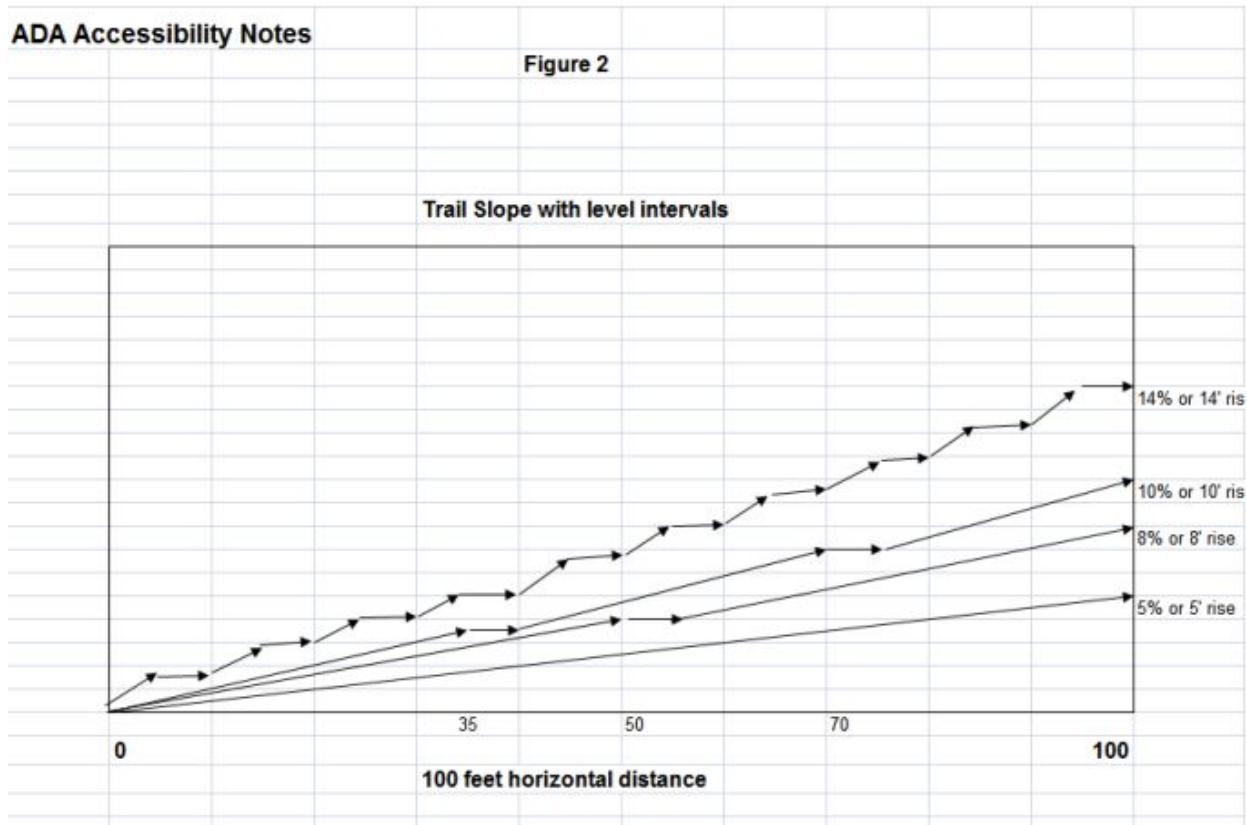
Designed Use BICYCLE		Trail Class 1	Trail Class 2	Trail Class 3	Trail Class 4	Trail Class 5
Design Tread Width	One Lane	6" – 12"	12" – 24"	18" – 30"	24" – 48"	36" – 60"
	Two Lane	Not applicable.	Not applicable.	48" – 60" Accommodate two-lane travel with passing lanes.	60" – 84"	72" – 120"
Design Surface	Type	Native. Rough, unstable or soft tread.	Native, with limited grading. Unstable or soft sections likely.	Native with some on-site borrow or imported materials. Some soft areas.	Likely imported or stabilized tread. Few, if any, loose or soft surfaces.	Firm, hardened surface.
	Obstacles	Rocks, logs and roots up to 6–12" common. Forced portages likely.	Embedded rock, protrusions to 6". Some portages may be needed.	Generally smooth with few protrusions exceeding 3".	Smooth, few obstacles. 1 – 2" protrusions.	No obstacles to wheeled transport.
Design Grade*	Target Range (>90% of Trail)	15% – 18%	< 12%	< 10%	< 8%	< 5%
	Short Pitch Max (Up to 200' lengths)	30% 50% on downhill-only travel.	25% 35% on downhill-only travel.	15%	10%	8%
	Max Pitch Density***	< 10% of trail	< 5% of trail	< 5% of trail	< 3% of trail	< 3% of trail
Design Cross-Slope	Target Range	5% – 10%	5% – 10%	5%	3% – 5%	3% – 5%
	Maximum					
Design Clearing	Width	24" – 36" Some vegetation may encroach into clearing area.	36" – 48" Some light vegetation may encroach into clearing area.	12" – 18" outside of tread edge.	12" – 18" outside of tread edge.	18" – 24" outside of tread edge.
	Height	6' – 7"	7' – 8"	8'	8' - 9'	8' - 9'
Design Turns	Radius	3' - 4'	4' – 6'	6' – 8'	8' – 10'	8' - 12'

Design Parameters for Bicycles

ADA Accessibility Notes



Understanding slope percentages within a 100 foot distance



Understanding slope levels within a 100 foot distance

Sustainable Trail Planning Aspects

Building Sustainable Trails

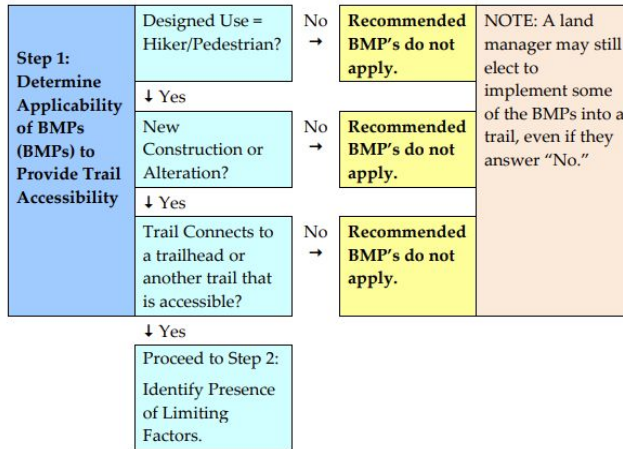
- Connect positive, and avoid negative, control points
- Keep water off the trail
- Follow natural contours
- Keep users on the trail
- Meet desired user experiences
- Designing Sustainable Contour Trails

Sustainability in many forms

- Environmental
- Physical
- Economic

Universal Design

Begin Key Steps and Sequence



Step 2: Identify Presence of Limiting Factors¹⁵³ <i>General Exception 1</i> <i>General Exception 2</i> Note: The sequence for identifying limiting factors may vary and does not need to follow the order shown here.	Trail Grade Does more than 30% of the trail's total length exceed 1:12 grade?	No →		BMPs may still apply. Proceed to limiting factor for surface.		
		Yes → Document length and percentage of trail that exceeds 1:12 and data source.	Does condition for departure(s) exist?	No →		BMPs may still apply, between terminus and the condition for departure. Proceed to limiting factor for surface.
		Yes →	Document condition for departure and linear distance.			
	Trail Surface Is the trail tread surface Firm and Stable?	Yes →		BMPs may still apply. Proceed to limiting factor for Minimum Trail Width.		
		No → Document surface and data source.	Does condition for departure(s) exist?	No →		BMPs may still apply. Proceed to limiting factor for Minimum Trail Width.
			Yes →	Document condition for departure and the linear distance.		BMPs may still apply, between terminus and the condition for departure. Proceed to limiting factor for Trail Width.
	Minimum Trail Tread Width Is the minimum trail tread width less than 36"?	No →		BMPs may still apply. Proceed to limiting factor for Trail Obstacle.		
		Yes → Document minimum trail width and data source.	Does condition for departure(s) exist?	No →		BMPs may still apply, between terminus and the condition for departure. Proceed to limiting factor for Trail Obstacle.
			Yes →	Document condition for departure and the linear distance.		
	Trail Obstacle	No →		BMPs may still apply. Proceed to Step 3: Apply Technical Provisions.		
Yes →		Does condition	No →			

	Trail obstacle 2" (other than board, concrete or asphalt) or 1/2" (board, concrete or asphalt) higher across width of trail?	Document obstacle type, dimensions and data source.	for departure(s) exist?	Yes →	Document condition for departure and the linear distance.	BMPs may still apply, between terminus and the condition for departure. Proceed to Step 3: Apply Technical Provisions.

Step 3: Apply Technical Provisions Technical Provisions (Design Parameters)	Trail Grade Does trail grade comply with slopes in BMPs.	Yes →				Comply with trail grade technical provision in BMPs	
		No →	Does condition for departure exist?	Yes →	Deviation permitted. Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
			No →	Deviation not permitted.	→	Comply with trail grade technical provision in BMPs	
	Trail Cross Slope Trail cross slope complies with BMPs?	Yes →				Comply with trail cross slope technical provision in BMPs	
		No →	Does condition for departure exist?	Yes →	Deviation permitted. ² Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
			No →	Deviation not permitted.	→	Comply with trail cross slope technical provision in BMPs	
	Resting Interval Resting intervals comply with BMPs?	Yes →				Comply with resting interval technical provision in BMPs	
		No →	Does condition for departure exist?	Yes →	Deviation permitted. ² Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
			No →	Deviation not permitted.	→	Comply with resting interval technical provision in BMPs	
	Surface Surface complies with BMPs?	Yes →				Comply with surface technical provision in BMPs	
		No →	Does condition for departure exist?	Yes →	Deviation permitted. ² Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.
			No →	Deviation not permitted.	→	Comply with surface technical provision in BMPs	
	Clear Tread Width	Yes →				Comply with clear tread width technical provision in BMPs	
		No →	Does condition for departure	Yes →	Deviation permitted ² Measure and record length of deviation.	→	Proceed to Step 4: calculate cumulative deviation percentage.

	Clear tread width complies with BMPs?		exist?	No →	Deviation not permitted.	→	Comply with clear tread width technical provision in BMPs		
Passing Space	Yes →							Comply with passing space technical provision BMPs	
	Passing spaces comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. ² Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.	
No →				Deviation not permitted.	→	Comply with passing space technical provision BMPs			
Tread Obstacles	Yes →							Comply with tread obstacle technical provision BMPs	
	Tread obstacles comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. ² Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.	
No →				Deviation not permitted.	→	Comply with tread obstacle technical provision BMPs			
Protruding Objects	Yes →							Comply with protruding objects technical provision BMPs	
	Protruding objects comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. ² Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.	
No →				Deviation not permitted.	→	Comply with protruding objects technical provision BMPs			
Openings	Yes →							Comply with trail grade technical provision BMPs	
	Openings comply with BMPs	No →	Does condition for departure exist?	Yes →	Deviation permitted. ² Measure and record length of deviation.		→	Proceed to Step 4: calculate cumulative deviation percentage.	
No →				Deviation not permitted.	→	Comply with openings technical provision BMPs			

Step 4: Calculate Cumulative Deviation Percentage	No deviations occur. →							Apply the recommended BMPs' technical provisions to entire trail.
	General Exception 1	Yes →	What is the total linear distance, and associated percentage of the trail, that deviations from the guidelines occur?				Total linear distance = Associated percentage of the trail =	Apply the recommended BMPs' technical provisions to segment(s) of trail where deviation(s) do not occur, document and provide source of data, maintain file.
		General Exception 2	Yes →					Determination that it would be impracticable for the entire trail to comply with the recommended BMPs.

Steps for considering universal design

References

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