PRACTICAL CONSIDERATIONS IN PLANNING AND BUILDING AN "ACCESSIBLE" TRAIL

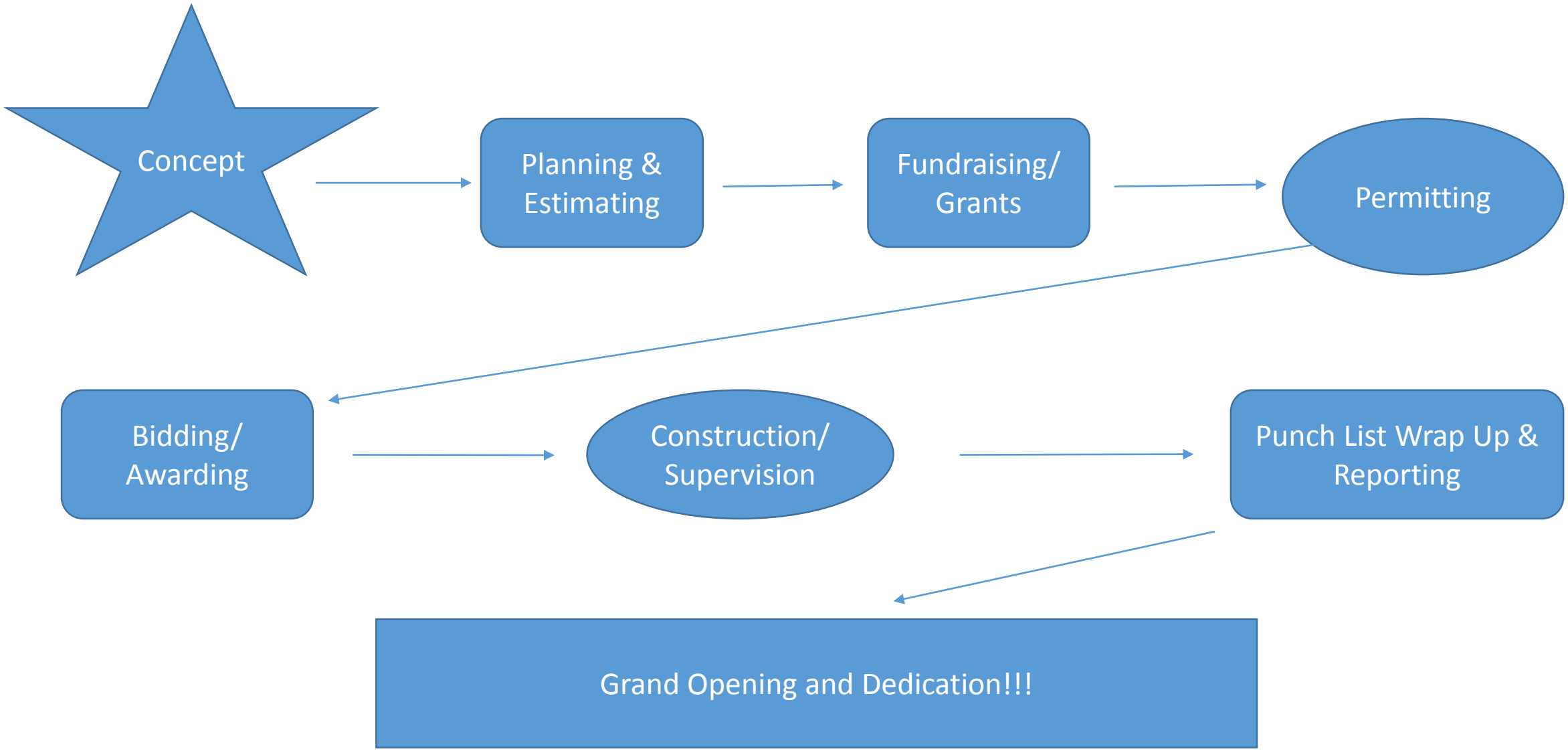
2015 MASSACHUSETTS TRAILS CONFERENCE

DOUBLE TREE HOTEL, LEOMINSTER, MA 01453

SATURDAY, NOVEMBER 14, 2015S

PRESENTER: DICK O'BRIEN, CONSERVATION WORKS LLC

Trail Building Process:



CONCEPT!

Why build “accessible” trails?

- **Need or Demand**: Building an accessible trail opens up more opportunities for more people! Millions of Americans currently have some form of mobility impairment that precludes or hinders their full enjoyment of the recreational opportunities offered on most of our current trails. By 2025, it is estimated that over 90 million Americans will have animpairment that could restrict their access to our trails.
- **Sustainability:** Sustainably designed and built trails cost less to maintain and have less impact on the environment!
- Accessible trails are more sustainable because of the gentler slopes and the firm and stable tread.
- **It’s the law!** American with Disabilities Act of 1990 (25 years old!)

PLANNING
&
ESTIMATING

WHAT IS AN "ACCESSIBLE" TRAIL?

An **"accessible trail"** is one that is "easy to get to", "user-friendly", "welcoming", "approachable", and "available".

In 2013, the US Access Board passed final guidelines for Outdoor Developed Areas that included design **specifications for accessible trails on federal lands**.

While Title II and Title III entities are covered under the ADA act which does not presently have approved guidelines, the current wisdom is that they will be developed soon and the guidelines are "Best Practices" so you should be using them anyways.

But Title II (Cities and Towns) and Title III (private, and non-profit) entities that receive federal funding for trail projects from grant programs that stipulate compliance with these guidelines are obligated to do so. ***DCR's Recreational Trails Grant Program is a federally funded program that stipulates that compliance***.

This applies to new or altered trails designed for pedestrian use! Does NOT apply to existing trails unless you are altering that trail. Routine maintenance does not trigger conformance. It does NOT apply to shared use paths, or access routes.

WHAT ARE THE "ACCESSIBLE" TRAIL SPECIFICATIONS?

Running Slope (grade):

less than 5%	unlimited distance
5% to 8.33%	up to 200' before rest area
8.33% to 10%	up to 30' before rest area
10% to 12%	up to 10' before rest area

Rest area: 60"x60" with cross slope of no more than 2% in any direction.

Passing Spaces: required at every 1000' when the trail is Less than 60" wide, 60"x60" w 5% cross slope.

Tread Obstacles: 2" to the highest point, ½" on paved trails

Protruding Objects: Less than 4" between 27" to 80" above the trail tread

Openings: No more than ½"; ¾" for an exception

Cross Slope: 5% maximum

Trail Width: Minumum of 36", 32" for exceptions

Tread Surface: Firm & Stable

Trailhead Signs: 30"x48" space with 5% cross slope

Trailhead Sign Content:

- Length of trail
- Surface type
- Tread width (minimum)
- Running slope (Average & Maximum)
- Cross Slope (Average & Maximum)
- Date of Construction
- Conditions Statement

Gate/Openings: clear width of 36"

Gate Hardware: operable controls

-Invite the community to get involved early in the planning process

- eliminates any surprises later on and reveals your bases of support and opposition.

- Invite to informational meeting:
  - key abutters,
  - members of your access board,
  - members of the senior citizens center
  - the Parks and Rec Department,
  - the Conservation Commission,
  - Planning Board, School Committee or Dept.,
  - mayor/board of selectmen,
  - city council,
  - youth groups
- Present “proposed” trail plan and gather input/suggestions for changes, improvements, etc.
  - Follow up on input and those willing to help!
- Refine plan and develop estimates
  - Don’t forget to include project management costs, grand opening ceremony, brochures(if applicable), grant administration if that is part of the funding mechanism.
  - Given the high cost of these trails, you will want a stamped plan from an LA or Engineering firm so include those costs in the project budget ($15K to $30K for a full set of construction drawings)

FUNDRAISING!

POTENTIAL FUNDING SOURCES:

DCR'S RECREATIONAL TRAIL GRANT PROGRAM,
Local or Regional COMMUNITY FOUNDATIONS,
Local CPA funds,
LAND & WATER CONSERVTION FUND,
P.A.R.C. GRANT FROM EOEEA (for accessible trails on municipal park lands),
Private Foundations (e.g. Fields Pond Foundation),
Private philanthropy,
Community capital campaign,
Memorial gifts program, naming rights for significant constructed features
Volunteer effort that can be counted as a $ match
The Alternative Transportation Program, if the trail is also a transportation alternative
(need to get project on the TIP through the Regional Planning Commission)
Corporate donors, especially if their employees will benefit from the trail
Municipal appropriation if the trail is on municipal property (could be the cap to finish a multi-tiered approach to funding the project)

Comparison of Accessible Trail Costs

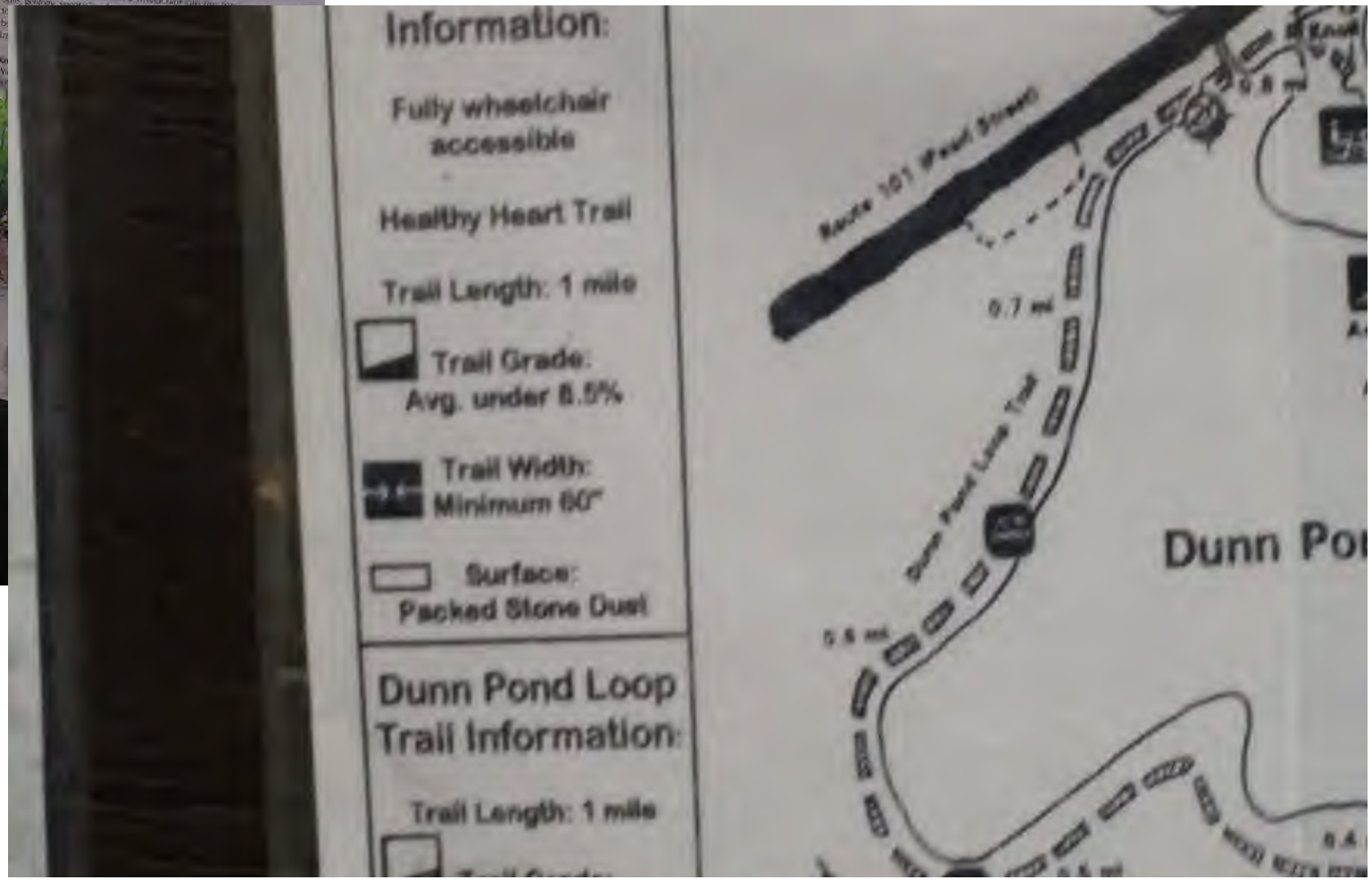
Trail Name	Length (feet)	Width (feet)	Terrain Type	Total Cost	Average Cost/ ft
Doyle AT, private, non-profit land trust, Built: 2013	3,910	6	Rolling hills, woods, fields, estate	$65K, (I), ($50K to complete)	$16.62 ($29.41)
Crotched Mt AT, private medical rehab. Center, Built: 2008-2013	6,756	6	Mountainous, and around pond	$506K, (Complete)	$74.89
Barrett Park AT, city, 2015	3,960	8	Level Ground around a pond	$113K, (I), $100K to complete)	$28.53 ($53.78)
Dunn State Park AT, DCR, state agency, 2010	?	10	Rolling Hills, forest	?	?

Trailhead Sign at Crotched Mt., Greenville, NH

Viewing Deck at Dunn State Park, Gardner, MA


VAN
ACCESSIBLE


HIKING DUTTON BROOK TRAIL
Have a Safe Trip
CROTCHED MOUNTAIN
Accessible Trails
LEGEND
Dutton Brook Trail
BUILDING TRAILS
The Dutton Brook


Information:
Fully wheelchair accessible
Healthy Heart Trail
Trail Length: 1 mile
Trail Grade:
Avg. under 8.5%
Trail Width:
Minimum 60"
Surface:
Packed Stone Dust
Dunn Pond Loop
Trail Information:
Trail Length: 1 mile
Route 101 (Post Street)
0.7 mi
Dunn Pond Loop Trail
0.5 mi
Dunn Po

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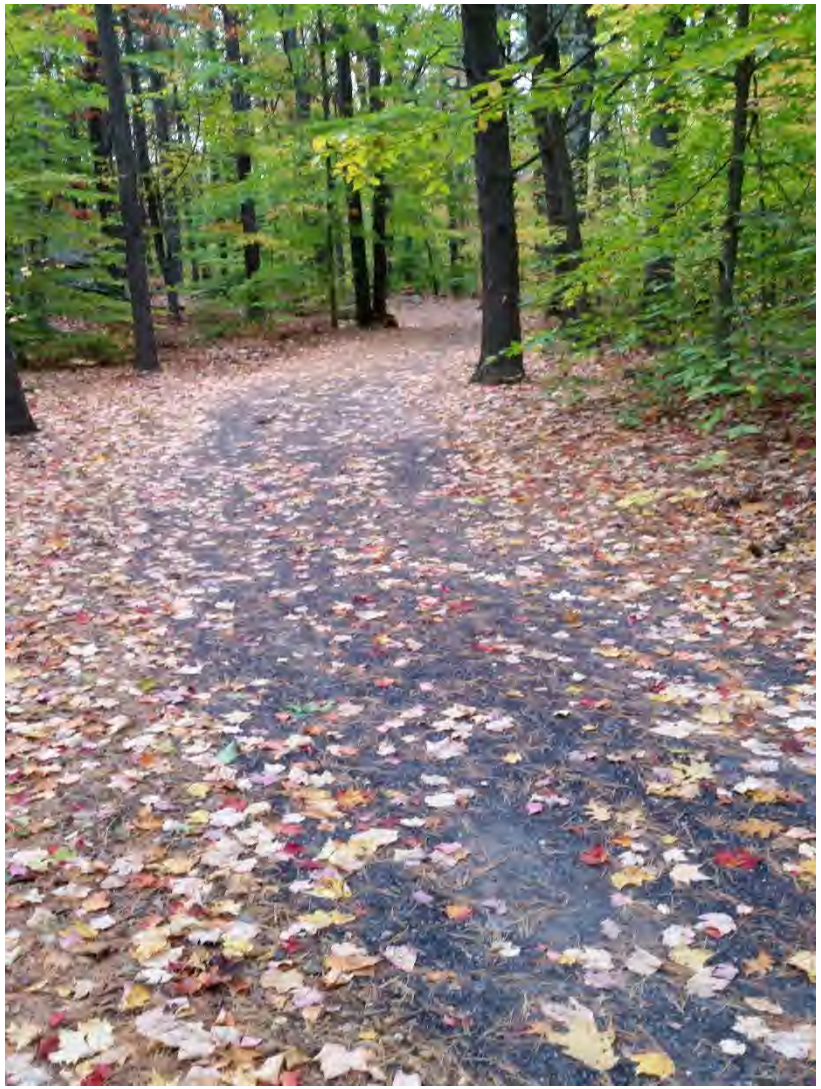
Accessible trails are good for all pedestrian uses including dog walking. In fact, in many locations, dog walking on these trails has become the #1 user group enjoying the trails. This trail was specifically designed for pedestrian use and it sees walkers, dog walkers, bikers, snow-shoers, cross-country skiers, and a number of parents with strollers and an equal number of senior citizens who enjoy the ease of walking this trail!

Both photos taken at Dunn State Park showing the use of pavement versus a crusher fine mix. Note the cracks from expanding tree roots in the left photo and the absence of them in the right photo eventhough both trails are in thickly wooded areas.



Consider location of trail, type of tread surfacing and amount of cutting you want to do to deal with tread integrity issues. Porous pavement holds u better than regular pavement – more give to it.

Dunn State Park, Gardner Mass.

Quality picnic site with wheelchair accessible table conveniently located just off the accessible trail. Area around the table is wheel-chair accessible as well, the grill is at a convenient height and accessible by wheel-chair users. There were several of these sites available.

Mass. DFW Field Headquarters, Westboro, MA

Quality visitor amenties: High quality, handicap accessible picnic table made of native lumber. Weight makes it less likely to be stolen, construction makes it durable and long-lasting, native materials support local economies. All surfaces were sanded and edges rounded for smooth, sliver-free use!

DCR
Dunn State Park,
Gardner, MA

<u>Way-finding Appoaches</u>: **Trail Blazing.** Here a combination of trail “dots” and “arrows” are used to assist hikers with finding their way around the trail. Both are common, effective methods of providing guidance to users. Typically, brighter colors are used and the area that is blazed is routinely scraped to produce a smoother surface so the blaze stands out more on the trunk of the tree. For Accessible trails, blazing should be applied at about 60” high.

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Issue: Elevation change at transition from trail to viewing platform. A tripping hazard and possible impediment for wheelchair users and others with mobility issues. **Solution**:Add 3/8” crusher fine mix and add transition board that provides a ramped surface from trail to platform so that loss of surfacing material does not create a hazard or impediment.

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Problem: The gap between the fence and the edge of granite block on the bridge. It creates a potential fall situation for wheelchair users and small children. **Solution:** Add a third rail to the bottom of the fence blocking the space to eliminate the chance of a fall from either user or move the fence in to eliminate the gap.

DCR, Wrentham State Forest, Wrentham, MA

Problem: Giving directions to trail users.
Solution: Wayfinding signage: Good, creative example of trail signage. Provides name of current location/trail, provides direction to a named and desired feature/location. Could add “mileage” to complete the usual desired information trail users want.

Signs are hand-routed and painted and simply attached to an upright 4x4 post anchored firmly in the ground. Done in-house by the Forest Supervisor.

Problem: Stream Crossing
Solution: Bridge made of PT 4x6 decking and other PT structural materials. Fairly well-executed project. Good, simple design, good abutments and rip-rap on banks of stream. A couple of finish details to work on: Remove the PT tags from the ends of the decking boards. Raise the edge boards 2” off the deck to allow debris to be cleared from the deck by wind or other means.

DCR, MT TOM RESERVATION, EASTHAMPTON, MA
The Accessible Trail

Problem: Granite curbstone at entrance to accessible trail

Solution: Cut the curb and transition the trail surface to meet the pavement at the same height.

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Details, details, details: Note the mitered corner on this viewing platform, use of 8” Headlok screws to fasten the 4”x4” PT edging, edging raised off the deck to facilitate cleaning, chamfered edges of edging to reduce splintering, rough-cut, full 2”x6” Hemlock decking to provide better traction, use of clear, low VOC wood preservative to prolong the life of the deck, ½” spacing between deck boards, decking attached with 3-1/2” deck screws. Built on a 2”x10” PT frame anchored to the ground using DP-75 Diamond Piers. Built to last and stay where it was built.

Best Practices: The use of Treadlok screws to secure the edge boards in the top photo is not the best practice. Headlock screws used in the lower photo have a broader head and do not create a well in the wood to hold water.

The multiple cuts on the end of the edge board do not convey a sense of “quality’ and retain more moisture to rot the board quicker.

Considerations in the Planning Stage:

1. **Preliminary Trail Location**:
    - Endangered species/priority habitat
    - Archaeological/historic resources in an area
    - Wetland areas, resource area or buffer zones

May require re-location of proposed trail and/or mitigation measures
May add significant cost to your trail project.
Inventory area for presence of rare/uncommon species and wetlands, (Updated Biomaps from NHES, local Cons Comm.)
Research for archaeological resources in the area (Mass Historical Commission, Town Historic Commission)
Make the final determination of trail location after you have all the information

2. **Plan for storage/work areas during the construction of the trail.**

Project will use a lot of material and may require disposing of a fair amount of material as well. Where is it dumped/stored before it is used on the trail? How will the area be restored afterwards. Make sure the project buget includes this cost because it can be significant. Can the debris be “lost” on site?

Details, details, details:

The Boy Scout tradition of lining trails with logs is not a good practice. The logs collect debris on the side of the trail and form a dam that keeps water on the trail and in this instance it flows down the trail causing erosion and keeping the tread soft. It is better for the trail not to have this edging effect in the long run as it allows for rain water to sheet flow over and off the trail.

DCR, Mt. TOM RESERVATION, EASTHAMTON, MA

BEST PRACTICE: This accessible trail is 6’ wide and blends nicely into the surrounding woodlands. The edges are very slightly above the surrounding ground level so water flows off the trail. The trail was very carefully crowned so that the center of the path is higher than the edges. This is the ideal configuration for a sustainable tread. Periodically, the owner could re-compact the trail using a vibratory roller and after a light rain event. (Every 5-10 years as needed) If using volunteers to do this work, careful supervision is needed to ensure that the proper crowning of the trail is performed and that the level of the tread at the trail edge is not too low or too high. This section of trail was done by the trail contractor and Trustees staff.

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DCR, MT. TOM RESERVATION,
EASTHAMPTON, MA

Questionable Practice: The use of edging to retain the tread material has pros and cons to it. In this instance, the edging holds water on the trail creating puddles that keep the trail soft and less appealing to hike on. It also holds debris on the trail that will accumulate over time to hide the trail surface. Note the side board coming loose that could cause tripping or falls

Best Practice: Use of control points (key features or characteristics along the trail) was a key factor in locating the trail along this pleasant stone wall. It provides a built in seating area for users and provides pleasant views down the road and of the main estate home. Additionally, the attention to the elevation of the trail and the surrounding ground was

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Best Practice: the left photo shows a typical rolling contour layout for a natural surface hiking trail with grade dips to help manage run-off. The right photo shows the classic full bench cut on a side hill trail. Note the back slope on the hill. The presence of the large rock to keep hikers on the trail, the slight cross-slope to promote sheet flow of storm water off the trail.
Both of these are standard trail practices and essential for creating sustainable trails!

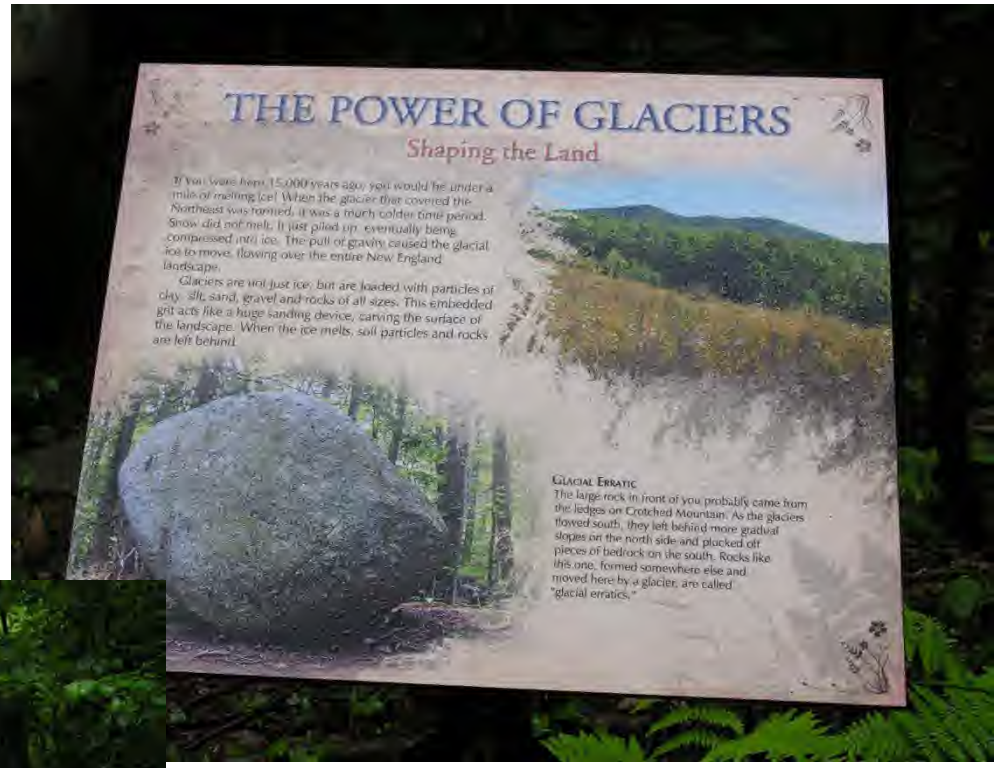
LEOMINSTER RECREATION DEPT., BARRETT PARK, LEOMINSTER, MA

DCR, MT TOM RESERVATION,
EASTHAMPTON, MA

Questionable Practice: This was an easier, quicker and cheaper approach to creating a viewing area along this trail, but it is obvious that it will fail in the near future.

A more permanent approach would have been to “plant” some large boulders into the ground to form a retention wall for the soil/trail mix. This form of “cribbing” is used frequently on the downhill side of partial bench cutting on side hill trails. While much more labor intensive, if there were native stone on site, it may not have been much more expensive. The viewing platform created in this manner would survive for generations!

CROTCHED MT.
ACCESSIBLE TRAIL,
GREENVILLE, NH



Best Practice: These examples of interpretive signs are extremely informative, colorful, creative, durable, easy to read and well placed.

CROTCHED MT. ACCESSIBLE TRAIL, GREENVILLE, NH

Best Practice: Trail Layout takes advantage of features like this glacial erratic and runs the trail around it. Note the cribbing stones further along the trail as the trail switches back as it descends the mountain.

CROTCHED MT. ACCESSIBLE TRAIL, GREENVILLE, NH

Best Practice: Cribbing stones on the downhill side of this trail are chosen so that users do not feel inclined to step on them. They are dug into the ground so they are stable and will not fall out of place if someone does step on them. They are large enough so it is difficult for any one user to move them. The stone at the intersection of the two trails helps keep users from “cutting the corner”

Best Practice: This 8” plastic corrugated culvert is sized and located properly to handle the amount of run-off during normal storms. It has also been covered with sufficient fill so that the culvert will not be crushed by traffic on the trail. Finally, both ends are encased with large stone to hide the openings and enhance the aesthetics of the trail

CROTCHED MT ACCESSIBLE TRAIL, GREENVILLE, NH

Best Practice: An example of work that depicts High-quality craftsmanship and pride in the product you are giving the client. Here, the crew scribed the decking boards up to the stone wall as though they grew together over time. The designer is going beyond just getting the trail built, but adding to the experienced by given the user something to admire and respect.

CROTCHED MT ACCESSIBLE TRAIL,
GREENVILLE, NH

Best Practice: The stone used in the bridge abutment on the near side of the photo looks like it has been there forever. It has, in fact, been dug in there by the trail crew and acts as a retaining element for the tread surface to the bridge. It has been placed there deliberately so that its sharp points keep folks from stepping on it and unknowingly guides them and keeps them on the trail.

CROTCHED MT ACCESSIBLE TRAIL, GREENVILLE, NH