

Building Partnerships Designing Trail Experiences

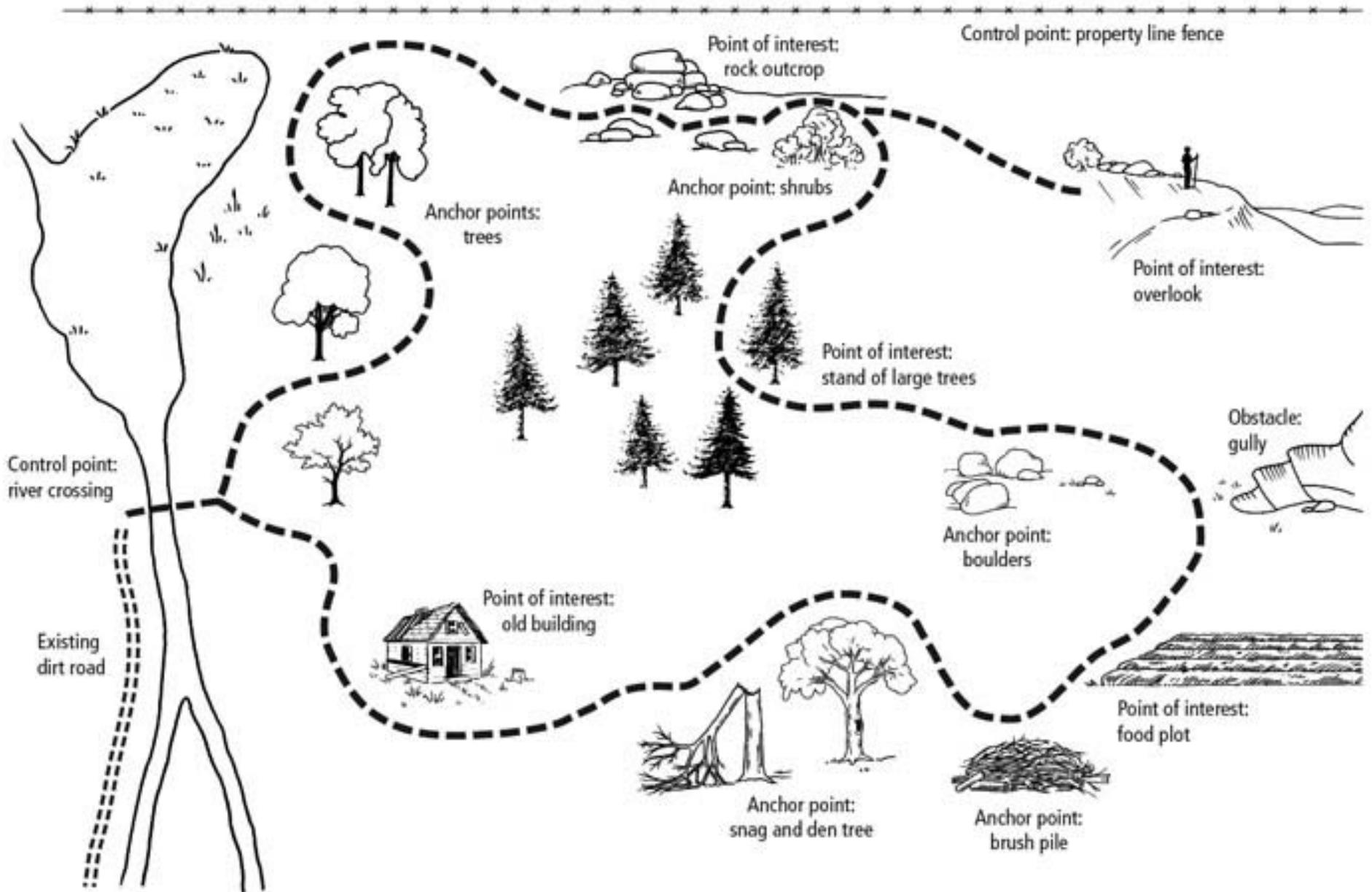


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Trails don't just happen, they require careful planning, design and layout



Trails don't take care of themselves, they require on-going management and maintenance



What is a Sustainable Trail?

Sustainable trails:

- ✓ Protect the Environment
- ✓ Meet the User's Expectations
- ✓ Minimize Future Maintenance

We can accomplish these goals through 5 design principles

Principles of Sustainable Trail Design

- ✓ Connects Positive,
Avoid Negative,
Control points

In other words:

- ✓ Connects features
and destinations, and
avoids sensitive
areas, or areas
difficult to build in.



Principles of Sustainable Trail Design

✓ Keep Water Off the Trail

Erosion is the most destructive force for trails, and in New England, water is the primary erosive force.

Wet trails lead to poor experiences, environmental damage and trail widening.



Principles of Sustainable Trail Design

✓ Follow Natural Contours

Trails lie on the land in three ways:

- Along flat ground: ridge lines or valleys
- Fall line: the most direct route down
- Contour: roughly following the contour



Principles of Sustainable Trail Design

- ✓ Keep Users on the Trail

When users leave a trail they create braided trails, environmental damage and a worse experience



Principles of Sustainable Trail Design

✓ Meet Users' Expectations

Trails that don't meet a users need will not function and users may create their own trails.

Designers may need to develop trail opportunities for multiple uses.



What is a Sustainable Trail?

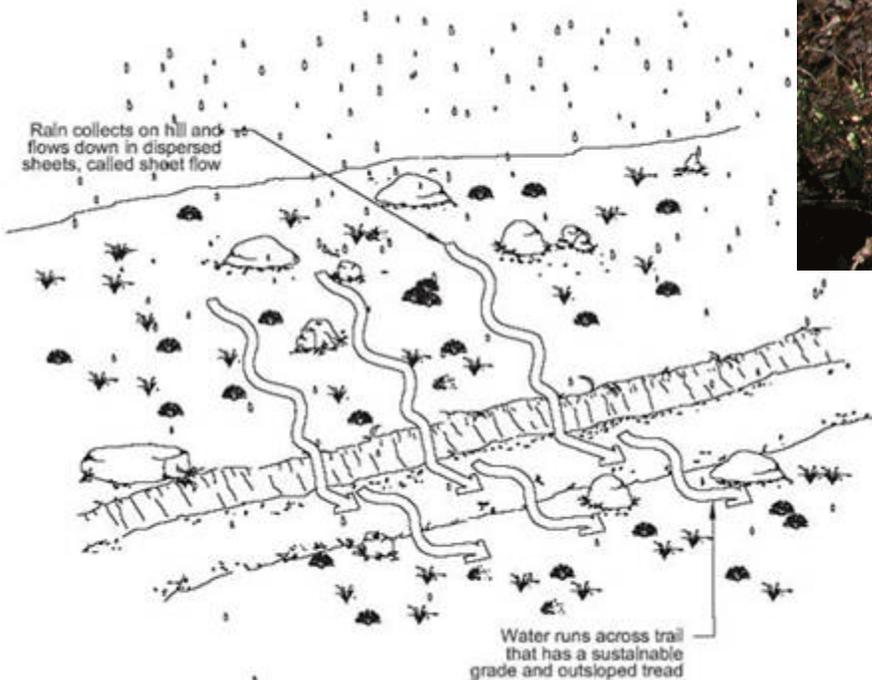
*Ultimately, a sustainable trail will most often connect desired features and avoiding sensitive areas, by roughly **contouring** along the sides of slopes.*

Successful contour trails follow five rules:

Designing Contour Trails

✓ Outslope

Successful contour trails will slope outward to allow water to cross and run off.

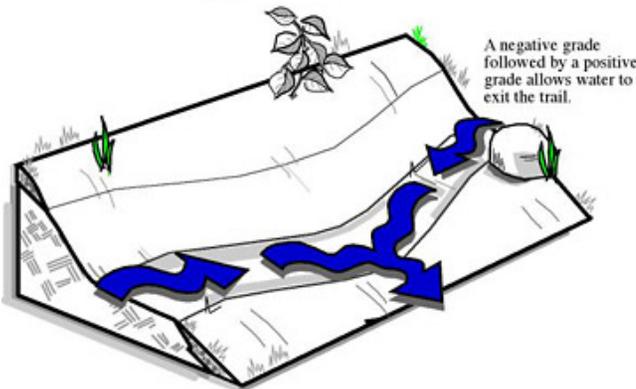
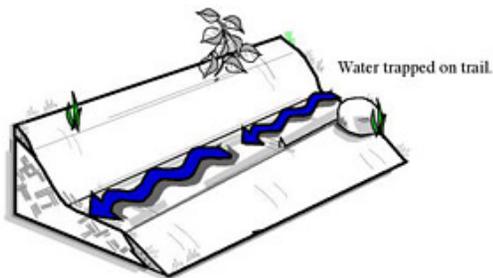


Designing Contour Trails

✓ Grade Reversals

Grade reversals create small watersheds and keep the water from building up on the trail.

Grade Reversal

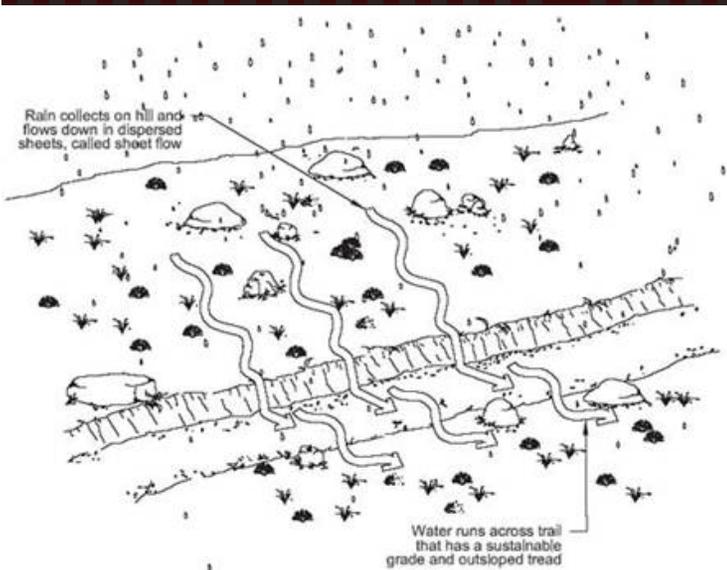


Think of "surfing the hillside"

Designing Contour Trails

✓ Half Rule:

Trail's grade should be no more than $\frac{1}{2}$ the slope of the hillside. This is especially important along moderate slopes.



Designing Contour Trails

✓ 10% Average Grade

The average trail grade should be 10% or less.



Designing Contour Trails

- ✓ Max Sustainable Grade

Sections of grade can exceed 10%, but designers need to know their maximum sustainable grade depending on soils, site conditions, and trail tread.



Designing Sustainable Trails

Sustainable Trails

- ✓ Connect Positive, Avoid Negative Control Points
- ✓ Keep Water off the Trail
- ✓ Design Contour Trails
- ✓ Keep Users on the Trail
- ✓ Meet User Expectations

Contour Trails

- ✓ Out Slope Trail
- ✓ Grade Reversals
- ✓ Half Rule
- ✓ 10% Average Grade
- ✓ Max Sustainable Grade

Designing an Experience into Your Trail

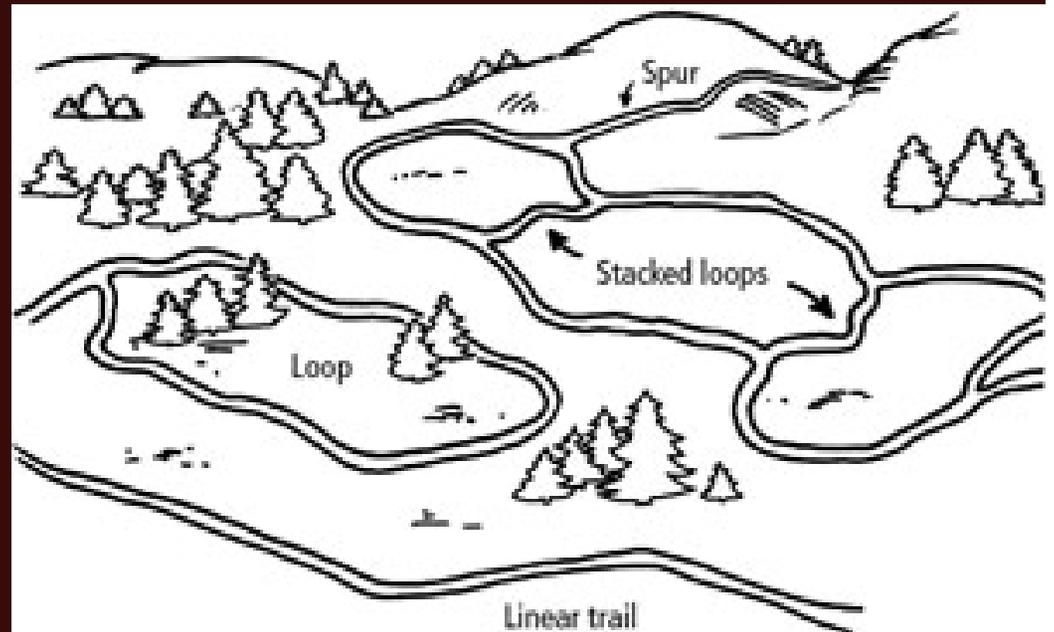
Trails are more than a connection from place to place. They are a sequence of physical, visual and emotional events.

Design your trail to enhance this sequence and take advantage of local features to tell a story.

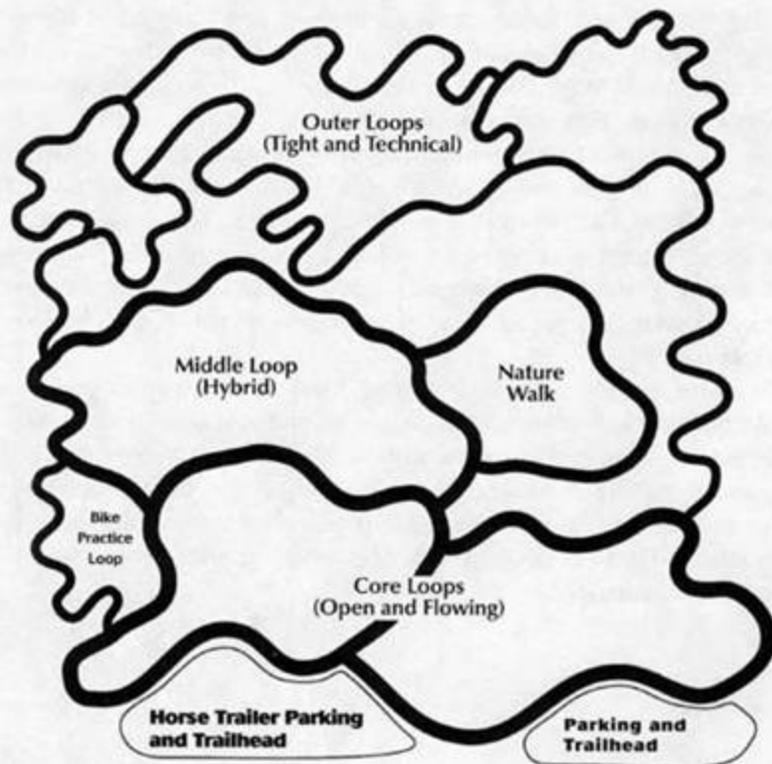


Designing an Experience into Your Trail

Trail Shapes



STACKED LOOP TRAIL SYSTEM



First it is important to consider and understand what shape your trail will be and how shape affects a user's emotional response to the trail.

Designing an Experience into Your Trail

Taking Advantage of Landscape Features

- ✓ Destinations and Termini



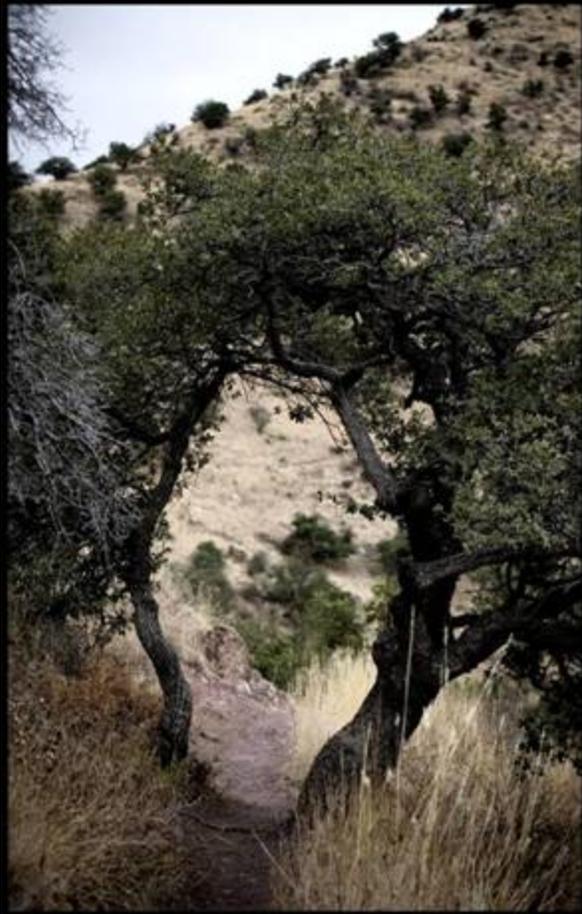
Destinations and termini create a sense of initiation, accomplishment and completion.



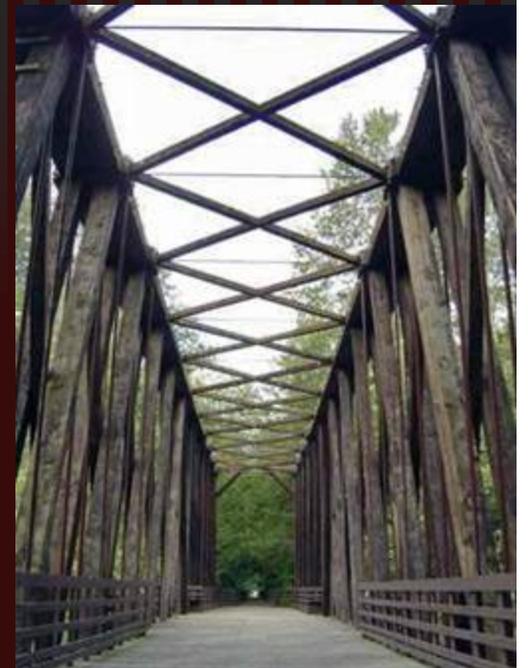
Designing an Experience into Your Trail

Taking Advantage of Landscape Features

✓ Gateways



Gateways are any physical feature that constrains the trail and creates a sense of entrance.



Designing an Experience into Your Trail

Taking Advantage of Landscape Features

✓ Anchors



Anchors are vertical structures that tie the landscape together and can create a sense of mystery as the trail wraps around them.

Designing an Experience into Your Trail

Taking Advantage of Landscape Features

✓ Edges



Edges between boundaries (land and water, field and forest, the trail edge itself) provide opportunities for habitat, diversity and discovery.

Designing an Experience into Your Trail

Taking Advantage of Landscape Features

✓ Views

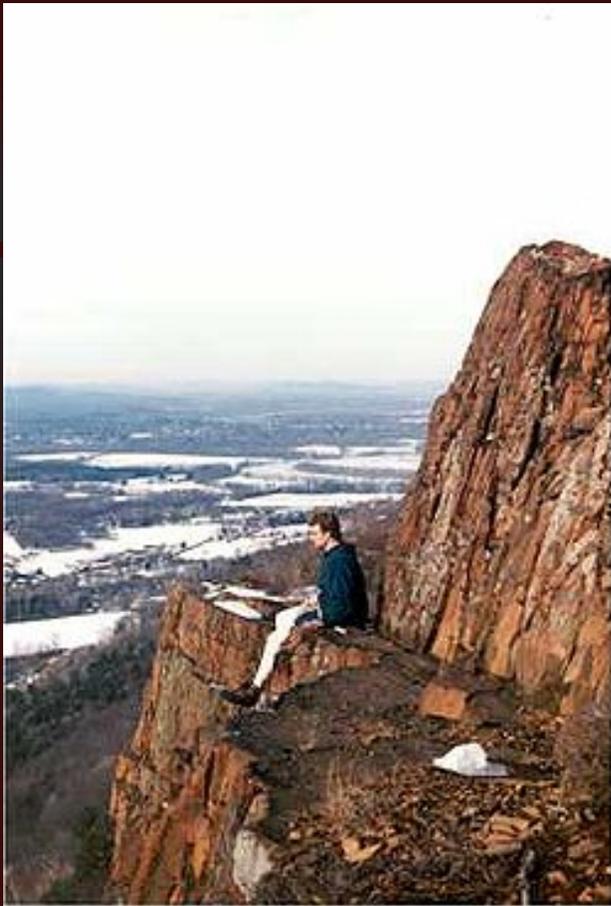
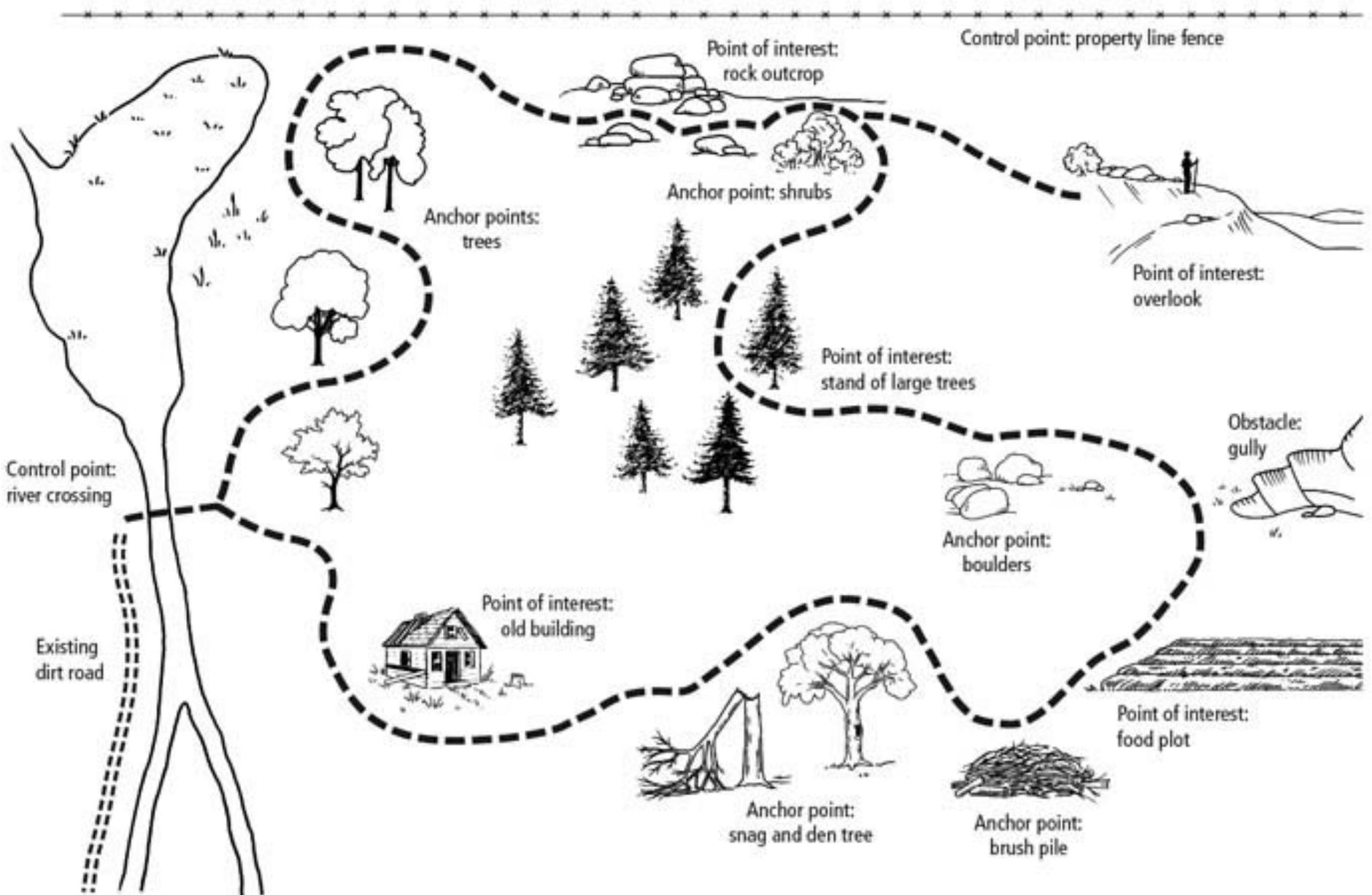


Photo Courtesy of Joel Gordon

Creating and enhancing beautiful views and downplaying ugly ones will greatly enhance a trail experience.

Putting it all together: the art of trail design



- ✓ www.mass.gov/dcr/stewardship/greenway/index.htm
- ✓ Paul.jahnige@state.ma.us