



# Old Trails, New Systems

## Re-Imagining Existing Trail Networks

New York-New Jersey Trail Conference  
&  
New Jersey Division of Parks & Forestry



# Introduction





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## Who We Are

Since 1920, the New York-New Jersey Trail Conference has partnered with land managers to create, protect, and promote a network of 2,150 miles of public trails in greater metropolitan New York.

The Trail Conference recruits and organizes volunteers to keep these trails open, safe, and enjoyable for the public. We also publish maps and books that guide public use of these trails.





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# Who We Are

On America's first official "Earth Day" — April 22, 1970, the New Jersey Department of Environmental Protection was born.

New Jersey became the third state in the country to consolidate its past programs into a unified major agency to administer aggressive environmental protection and conservation efforts.





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# This Presentation

Over the next hour, we'll cover...

- The rationale and inspiration behind changing existing trail networks
- Our first concerted effort to improve a troublesome trail network
- The lessons learned from that project
- How these lessons were applied to our latest project
- How to overcome obstacles to changing established trails
- Q&A



# Why Change a Trail Network?





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# What is a “Trail Network”?

Composed of...

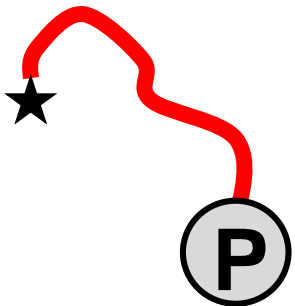


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# What is a “Trail Network”?

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- Linear (“out-and-back”) Trails





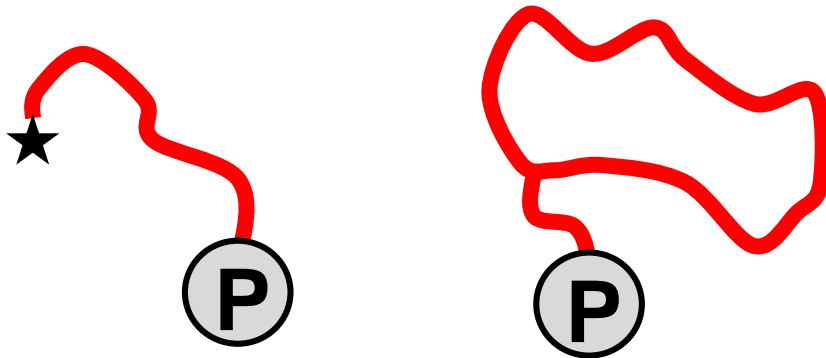


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# What is a “Trail Network”?

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- Linear (“out-and-back”) Trails
- Loop Trails (“balloon” or “lollipop,” with stem)

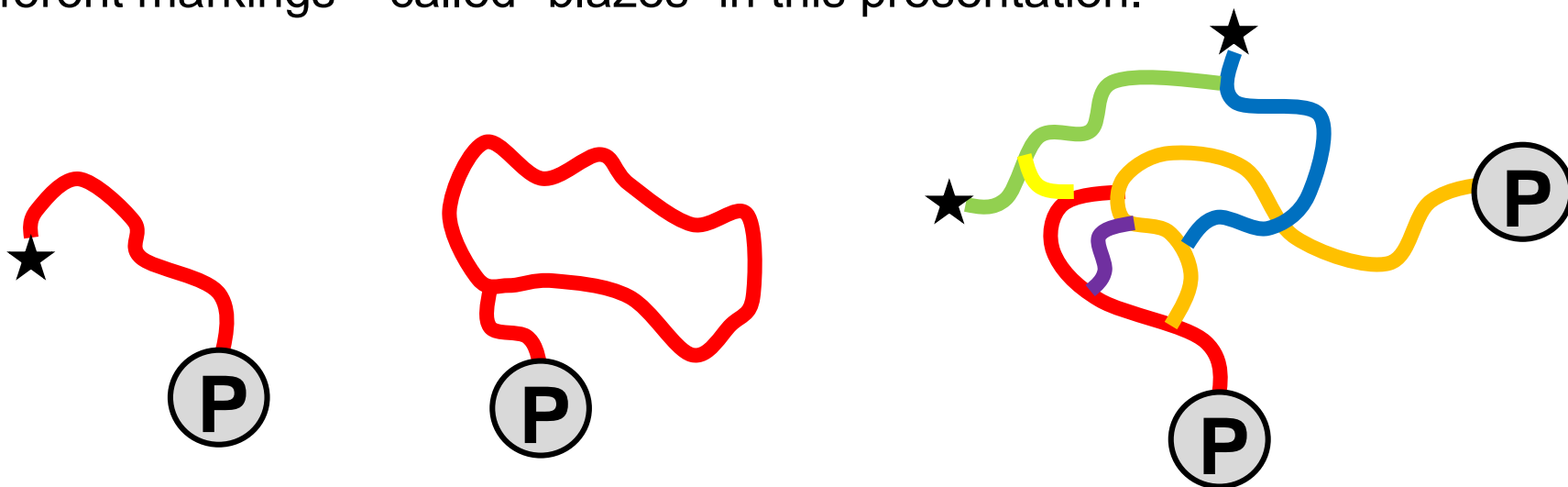


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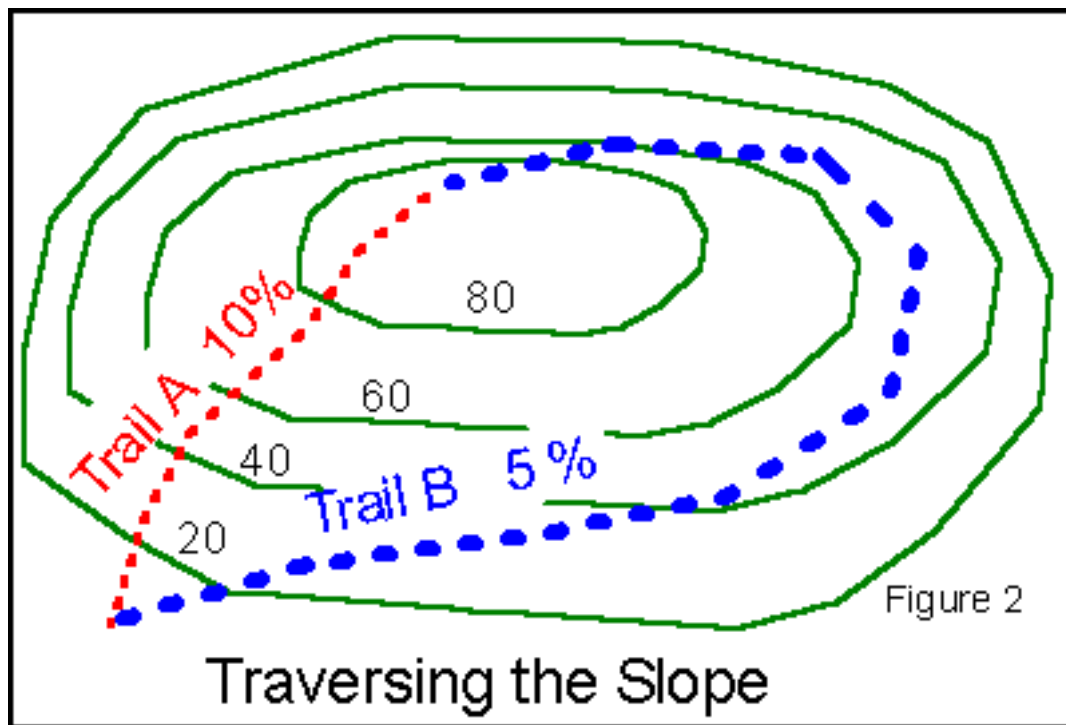
- Linear (“out-and-back”) Trails
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The **trail network** is any combination of linear and/or loop trails with different markings – called “blazes” in this presentation.



# Why Change a Trail Network?

- Many trails we use today were designed in an era of “peak-bagging” or “long distance” hiking. They covered lots of mileage, in a linear end-to-end fashion, and often took the most direct route up and down slopes.
- Trail builders have learned a great deal about sustainably re-routing trails to rectify old design problems.
- We propose that convoluted trail networks are also design problems in need of new solutions.



# Why Change a Trail Network?

- Over time in a trail network, new trails are built towards access points, destinations, vistas, etc.
- This organic growth can be fine in a small, contained trail network where it's hard to get lost.
- But what about large, open spaces with significant mileage...?



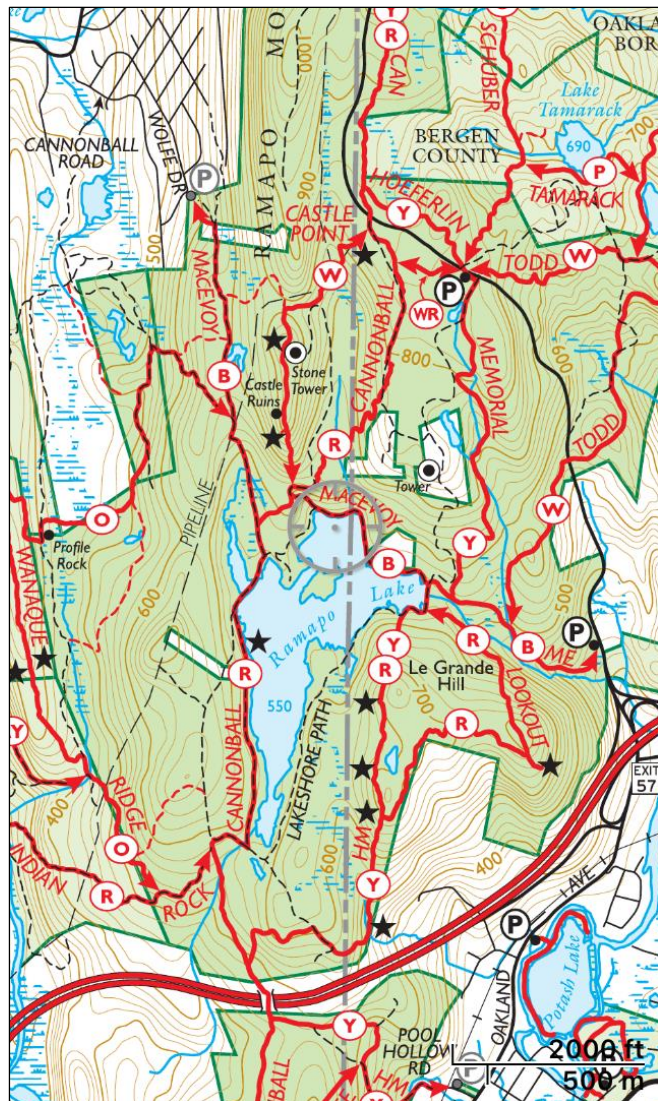


A typical northern New Jersey trail network.

- Dense “spaghetti bowl”
- Many intersecting woods roads or unmaintained trails
- Lots of short, linear connector trails
- Many different blaze colors
- Confusing to navigate without a map



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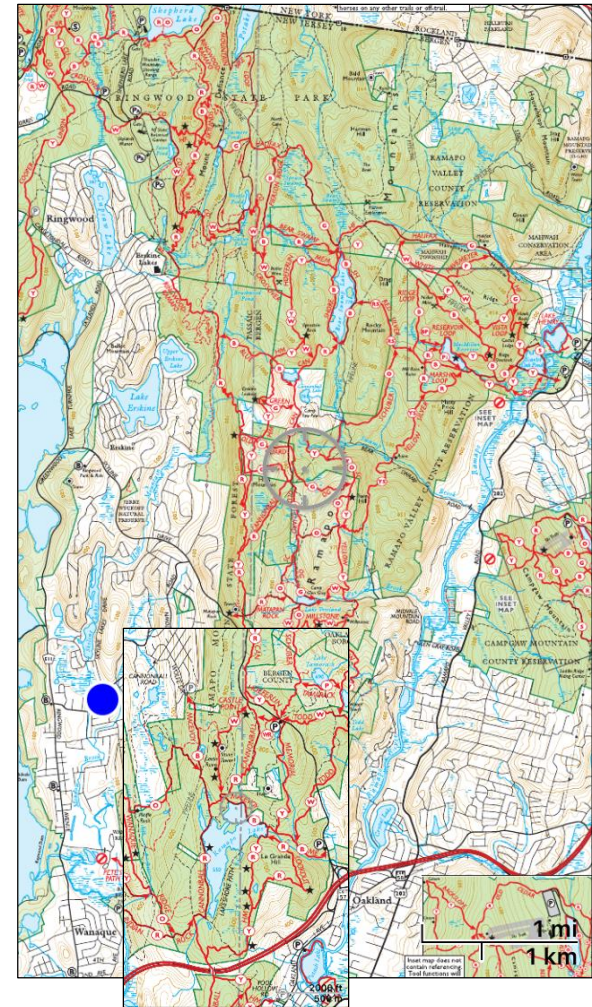
Let's shrink this map and zoom out...







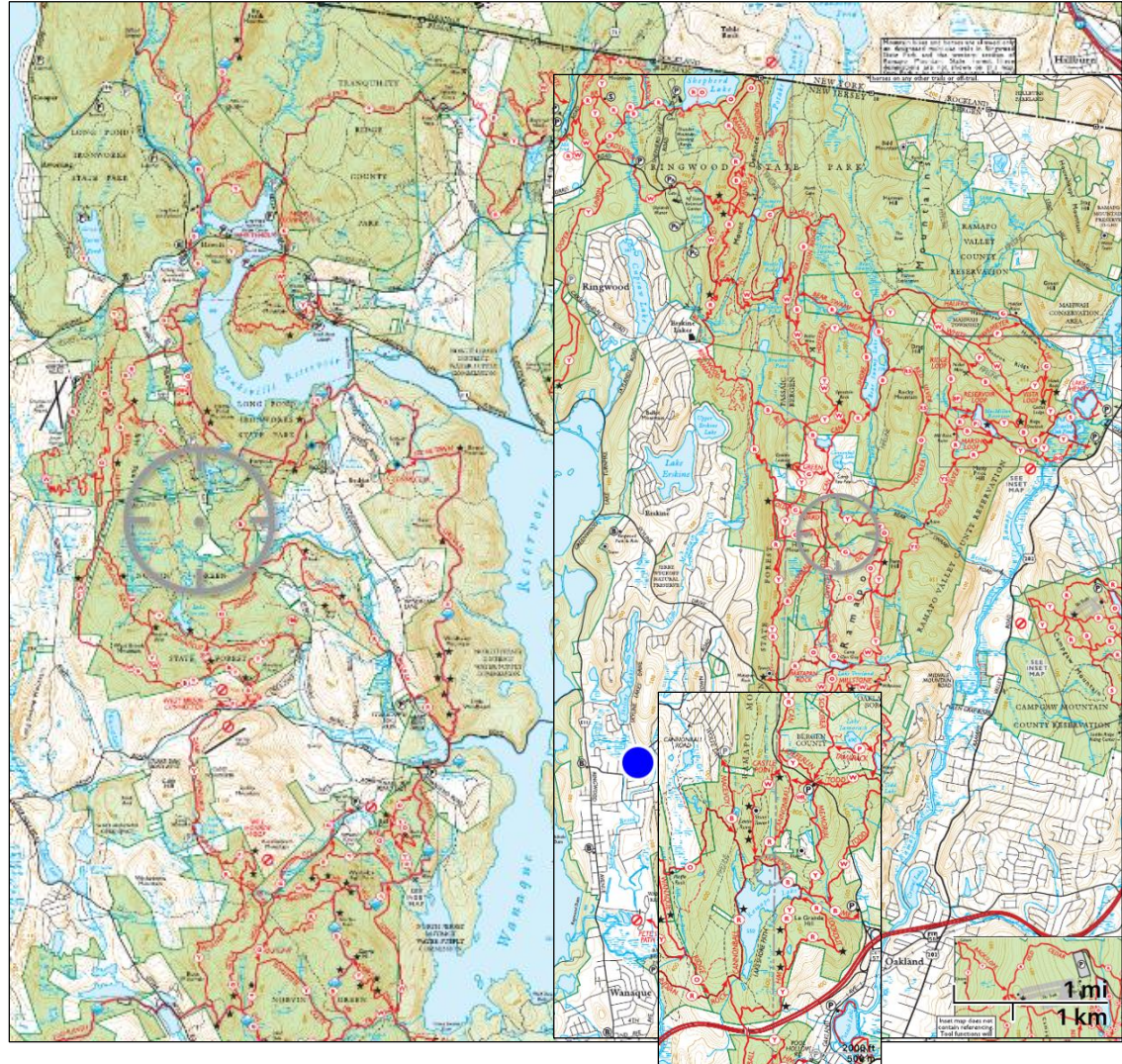
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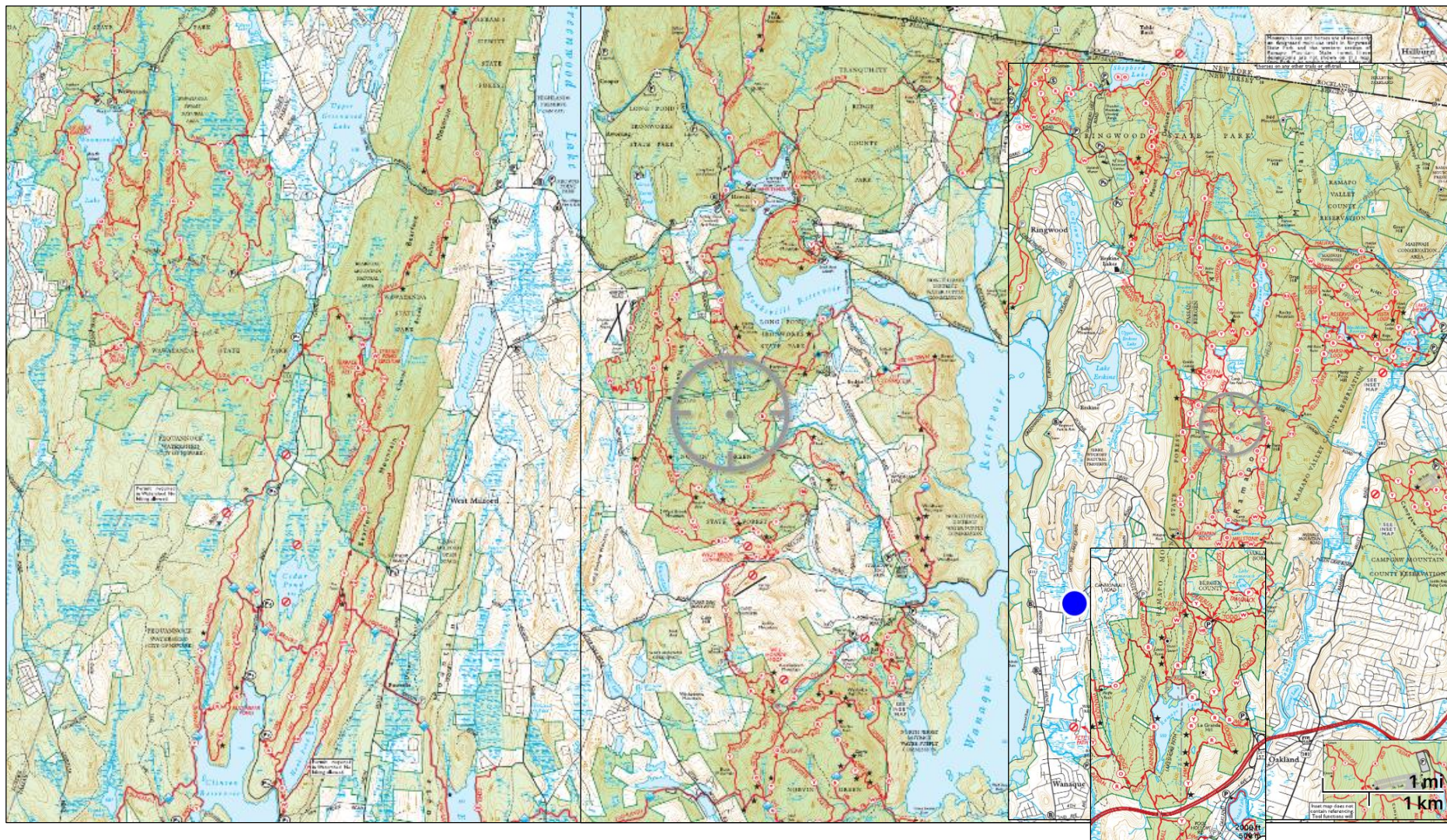


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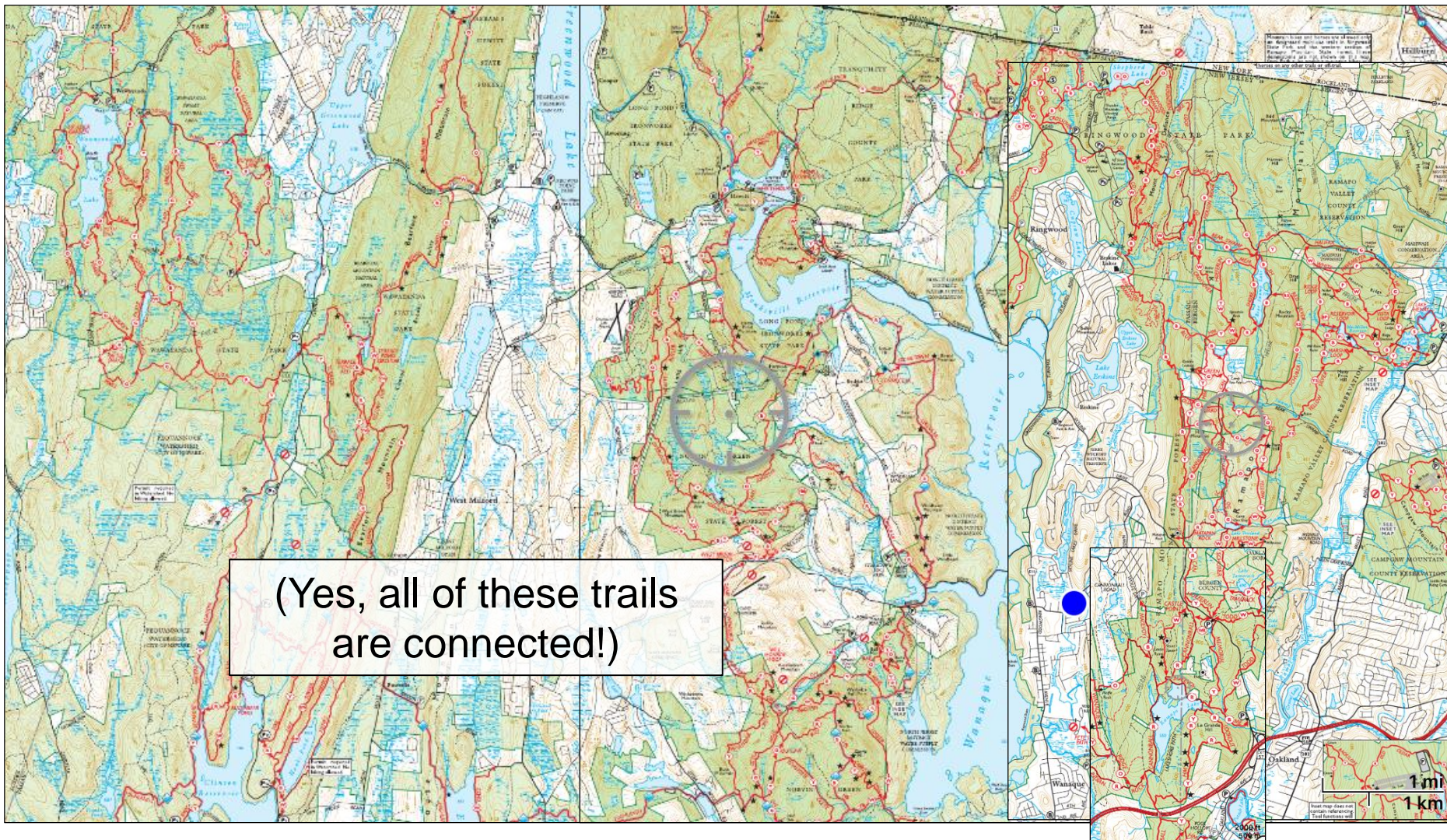


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(Yes, all of these trails are connected!)

# Changing Hiker Demographics

- These large networks of trails can be confusing for experienced hikers, let alone new hikers.
- As hiking grows in popularity, we see more inexperienced hikers exploring the outdoors – often without adequate equipment.
- New hikers frequently assume that trails are loops. “I followed the Yellow Trail, but it never came back to the parking lot” is a common statement from lost hikers.



# What About Maps?

Improving maps only works if...

- People **FIND** the maps.
- People **BRING** the maps.
- People **READ** the maps.
- People **UNDERSTAND** the maps.

That's a lot of assumptions!



# What About Signs?

Improving signage only works if...

- You can AFFORD the signs.
- Nobody VANDALIZES the signs.
- People SEE the signs.
- People READ the signs.

That's also a lot of assumptions!



# Why Focus on Blazes?

Changing blaze colors...

- Is cheap.
- Is easy.
- Produces an intuitive result, helping even amateur hikers navigate.

Of course, good maps and signs are to be encouraged – but once hikers begin walking, they rely on blazes.



# Why Change a Trail Network?

**In Summary:** Our ultimate goal in changing a trail network is to minimize lost hikers, a goal which improves the hiking experience and can save lives.







# The Inspiration: Blue Mountain Loop

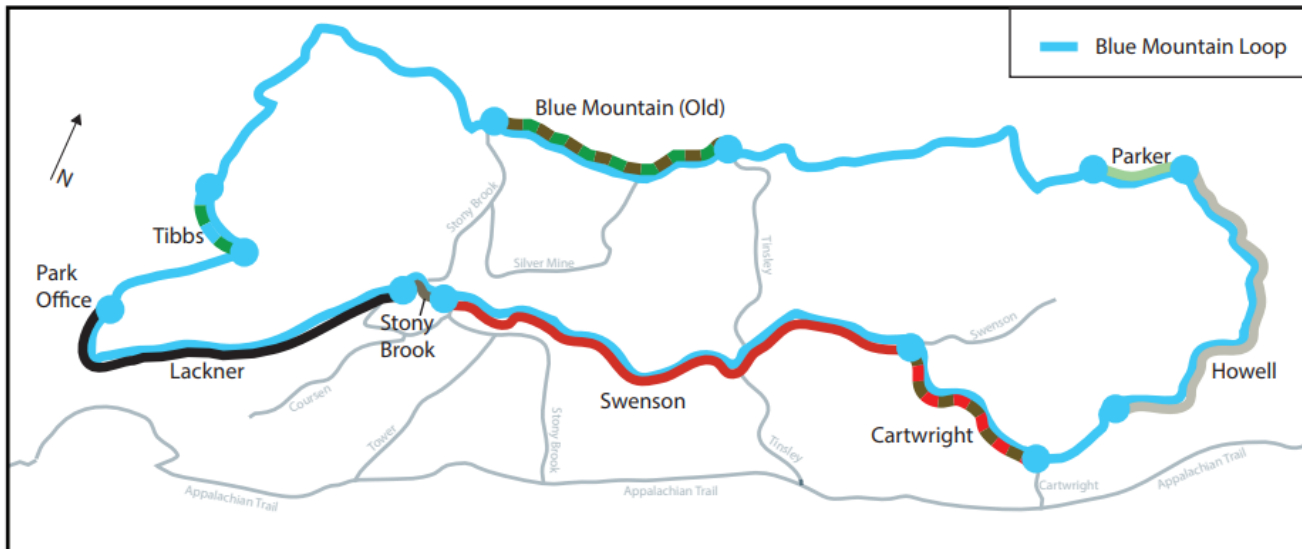




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# NEW TRAIL: Blue Mountain Loop



Please be advised that Stokes has a new trail called the Blue Mountain Loop. This 15-mile loop trail was made by taking existing trails and combining them with new sections. In order to ease with the transition, for the period of one year, both the old and new blazes will mark the trail. After this time period the old blazes will be removed and only the new blue color blazes will remain. Please use this map in conjunction with a trail map for more detail.

If you have any questions please contact the forest office at 973-948-3820. For emergencies call 1-877-927-6337





# The Test: Vista Loop



# Soliciting Input

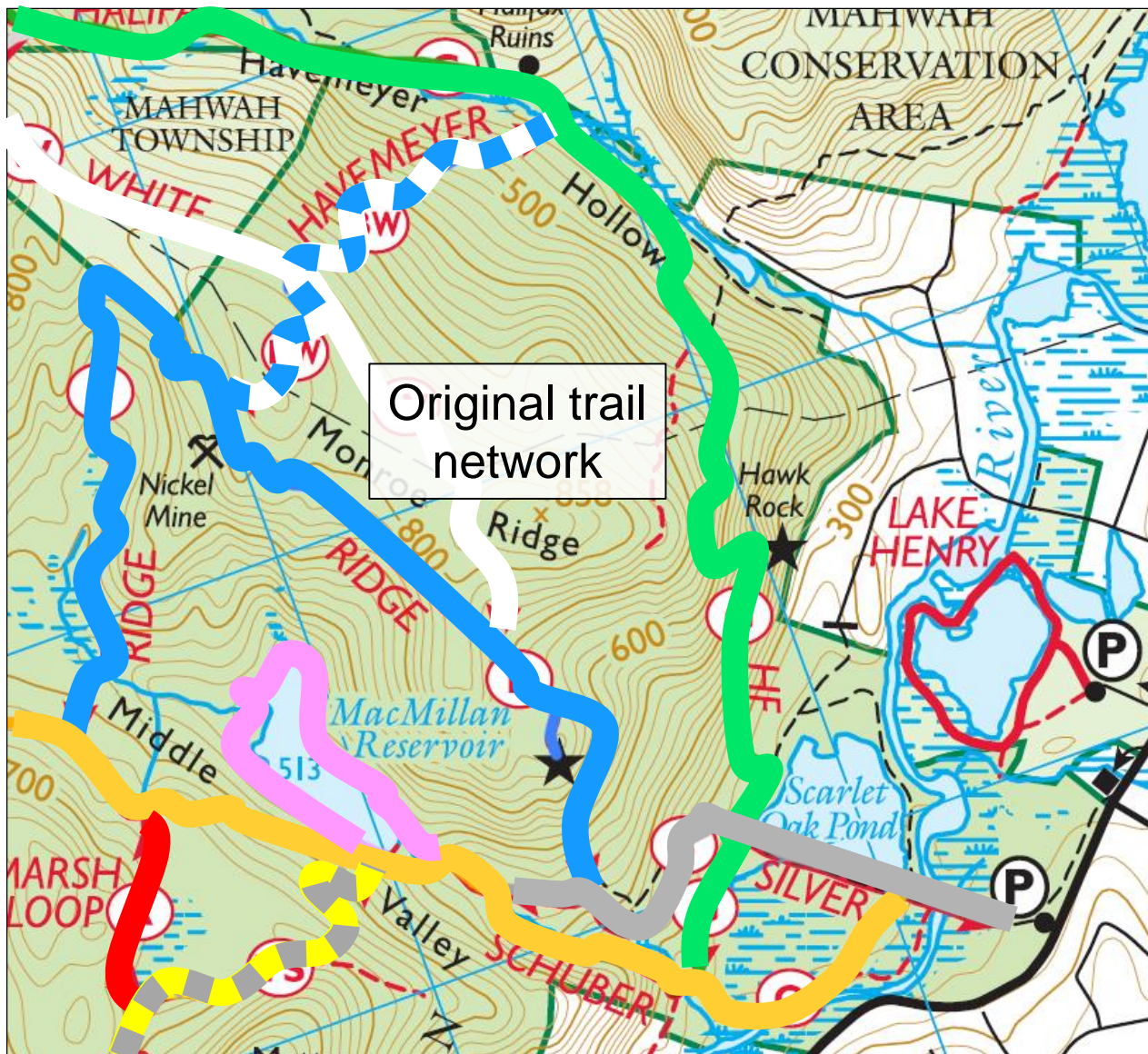
A few groups that you should talk to before considering any changes:

- Land Manager
- Local Friends Groups / Conservancies
- Volunteers
- Local Search & Rescue
- Hikers



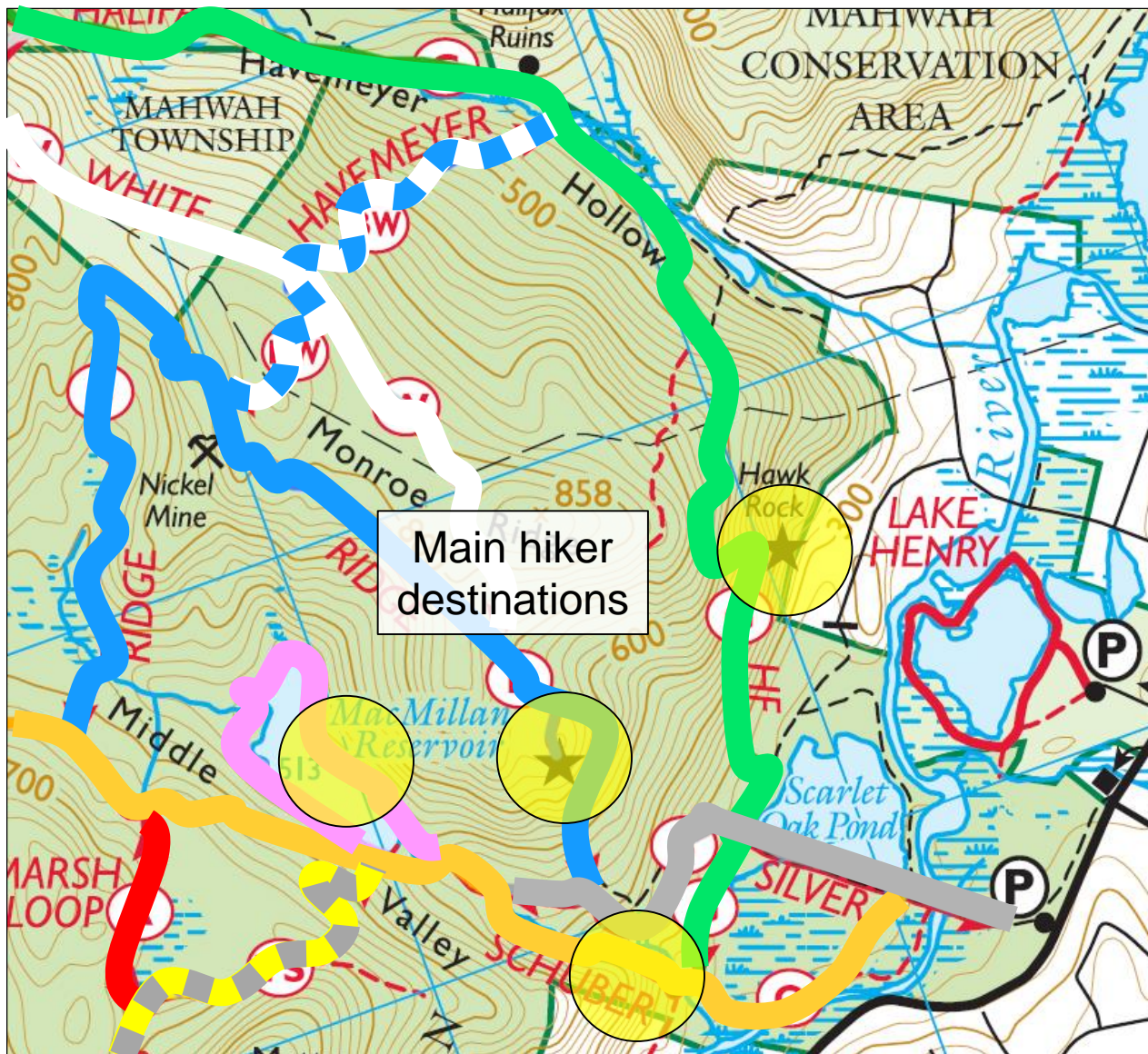


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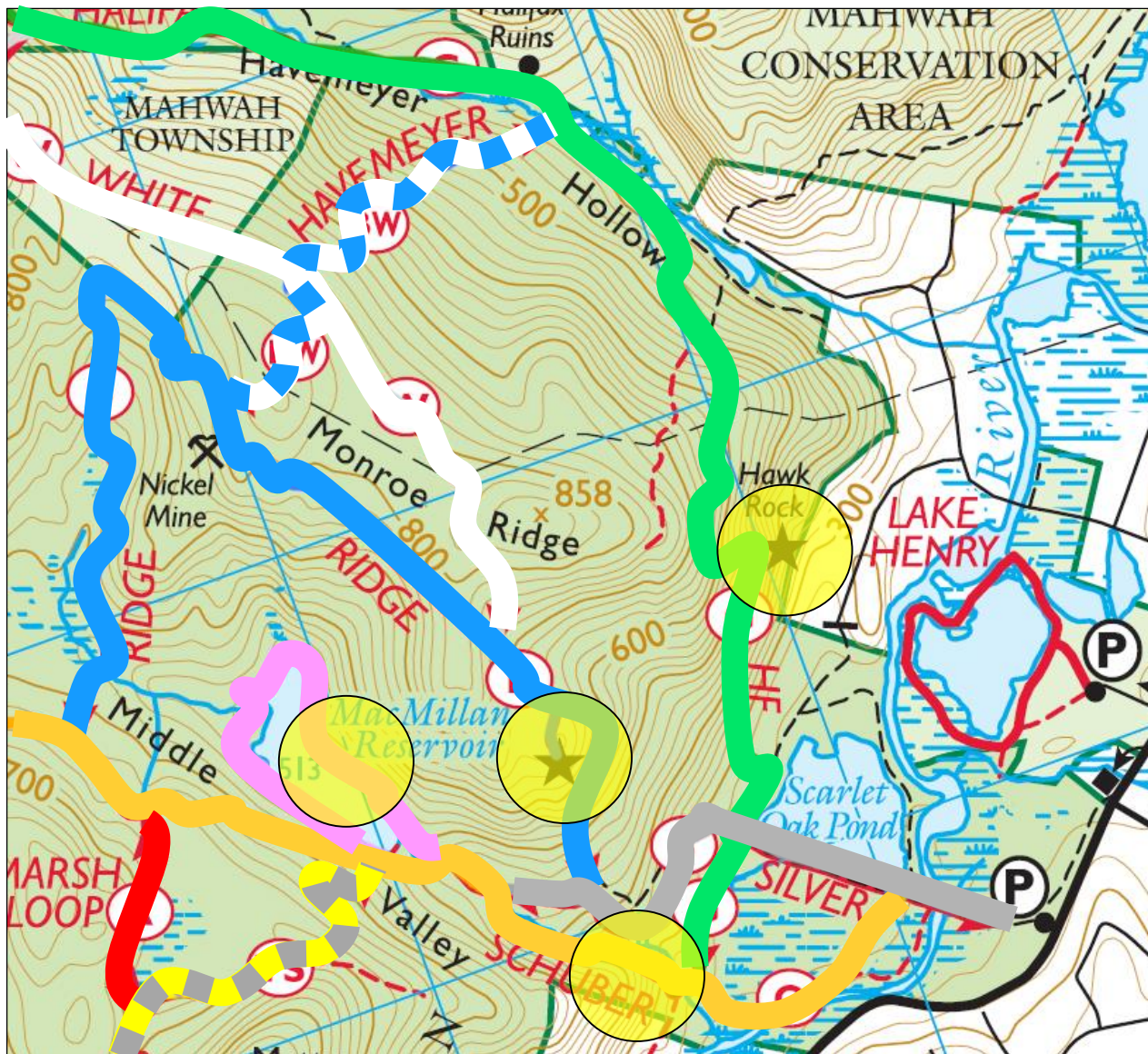


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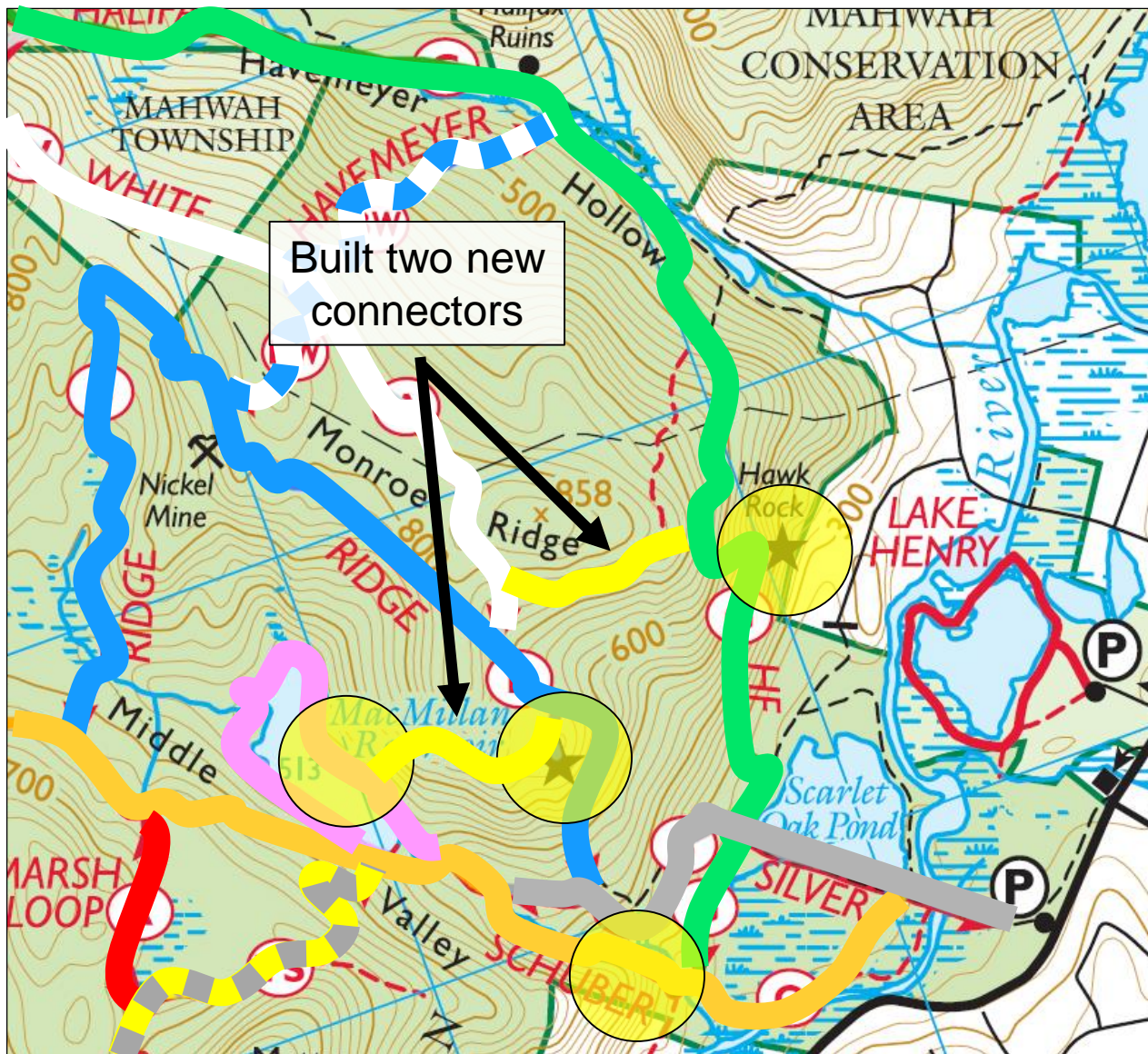


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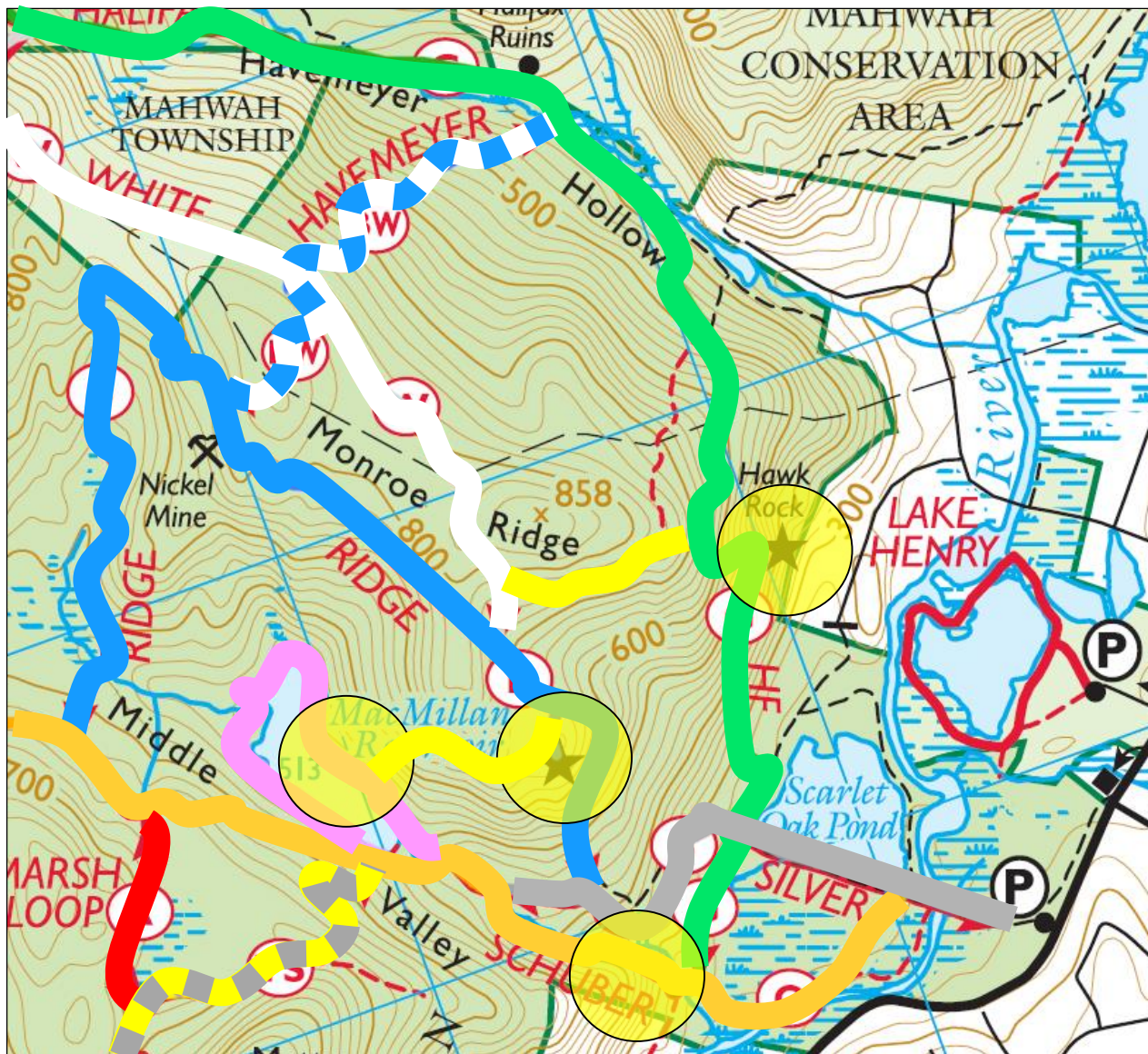
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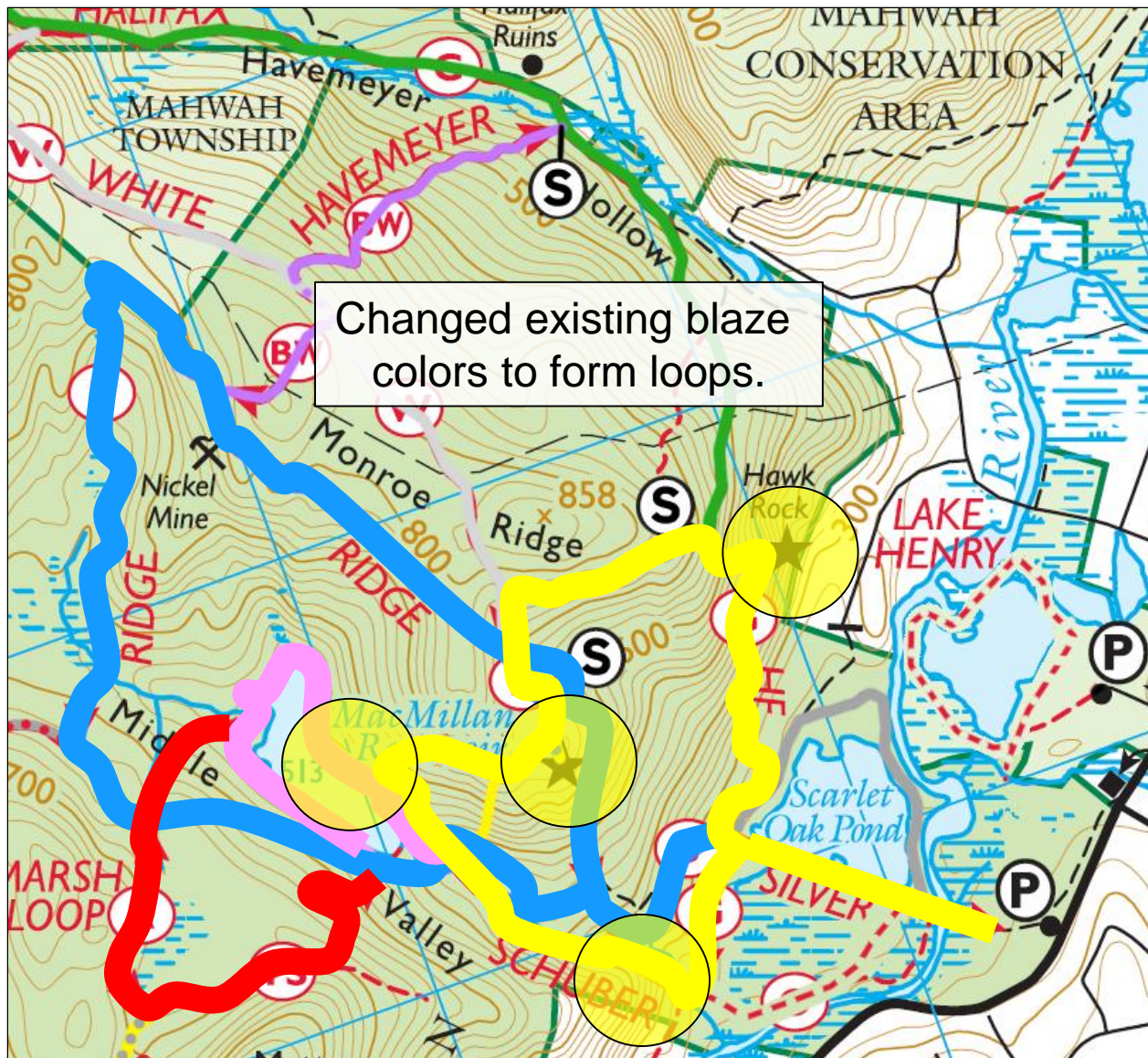


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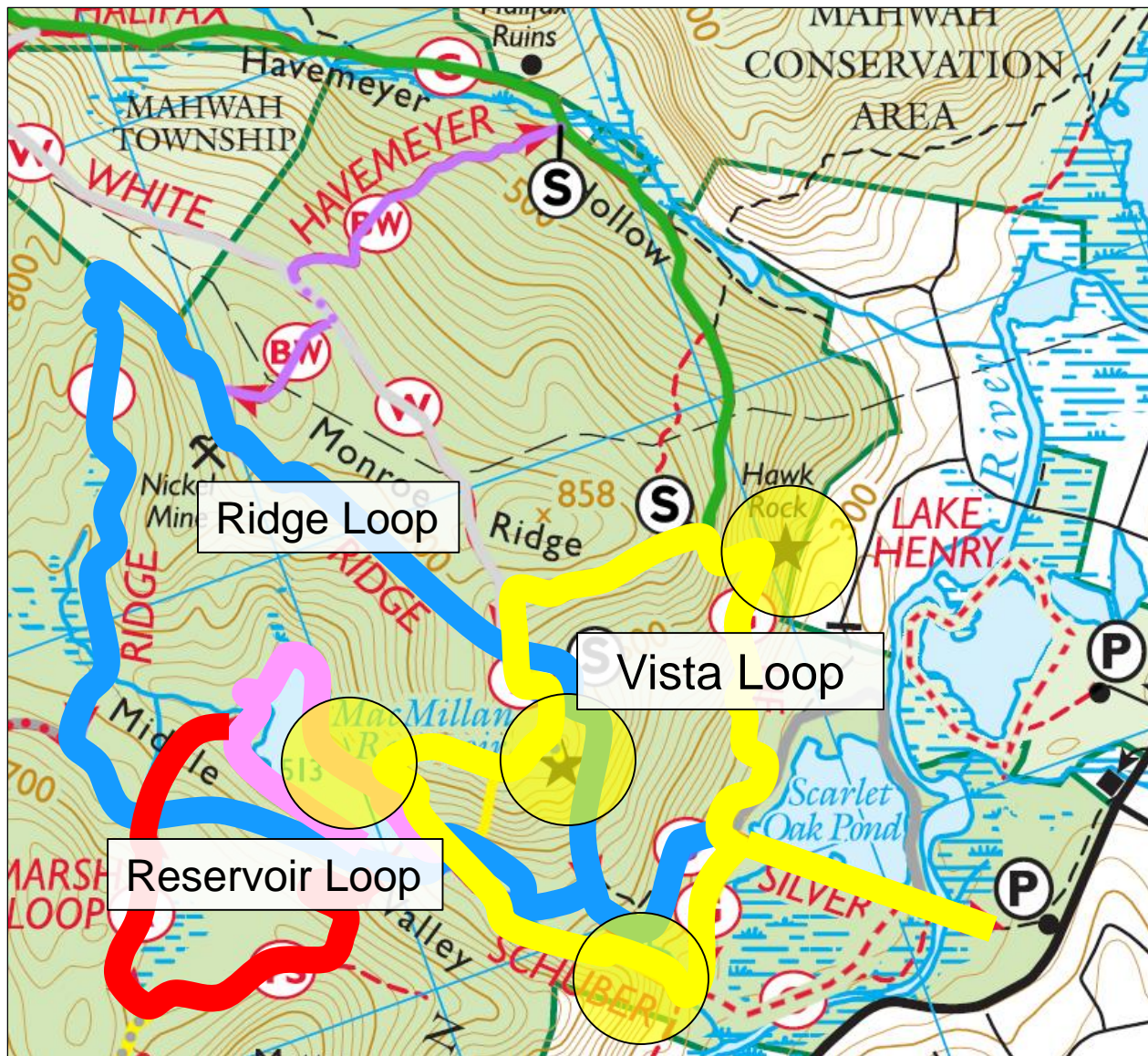
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Changed existing blaze colors to form loops.

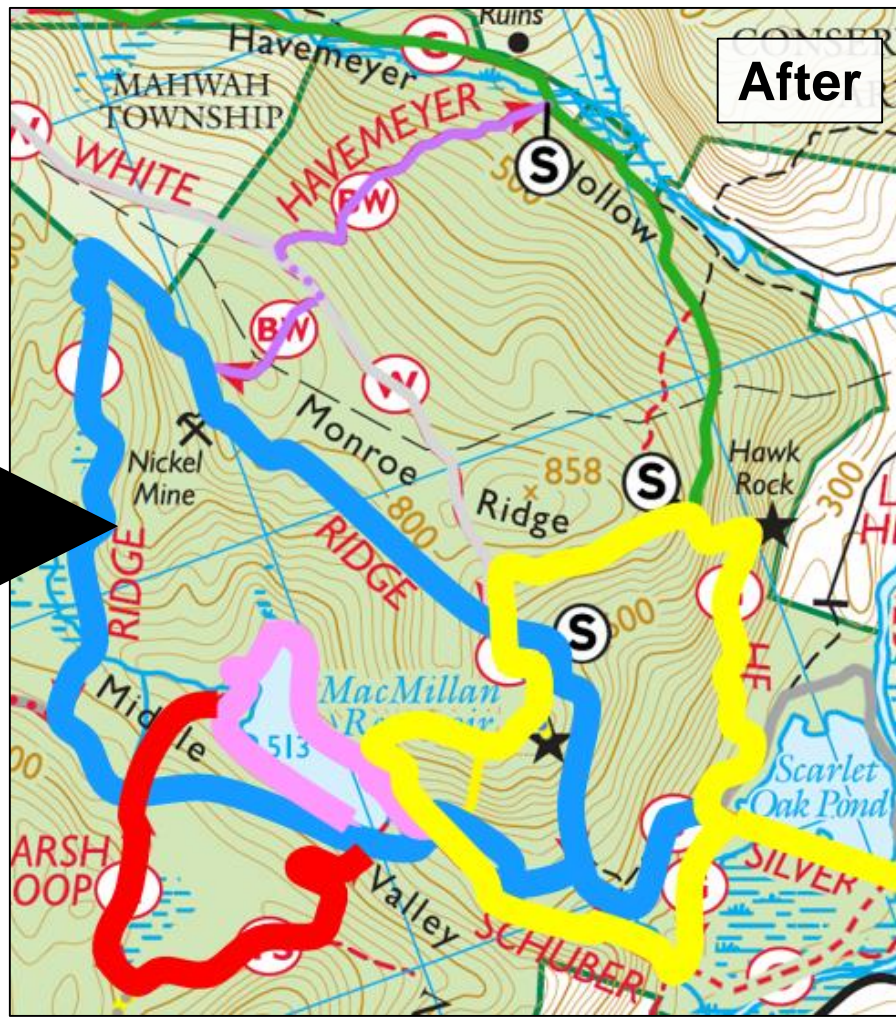
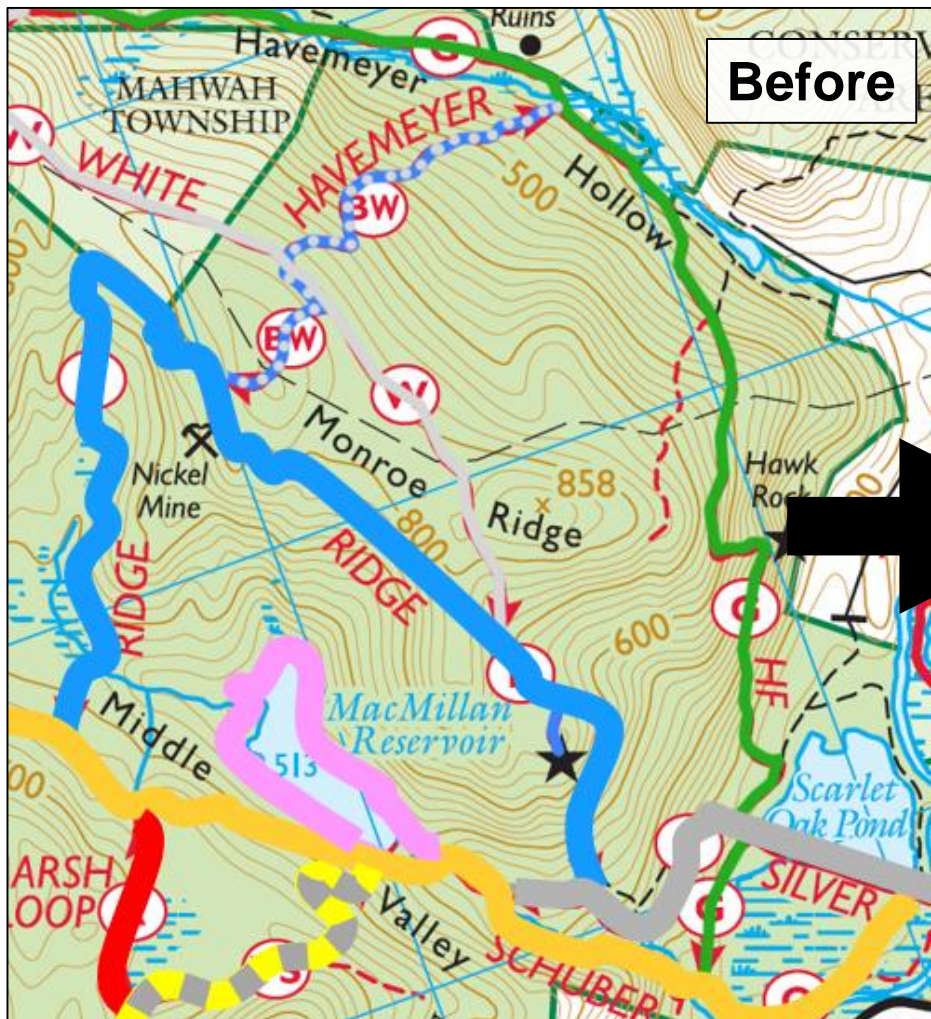


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# Result

Follow-up meetings with Bergen County Park staff indicated a **dramatic reduction** in lost hikers.





# Best Practices for Trail Networks





# Best Practices for Trail Networks

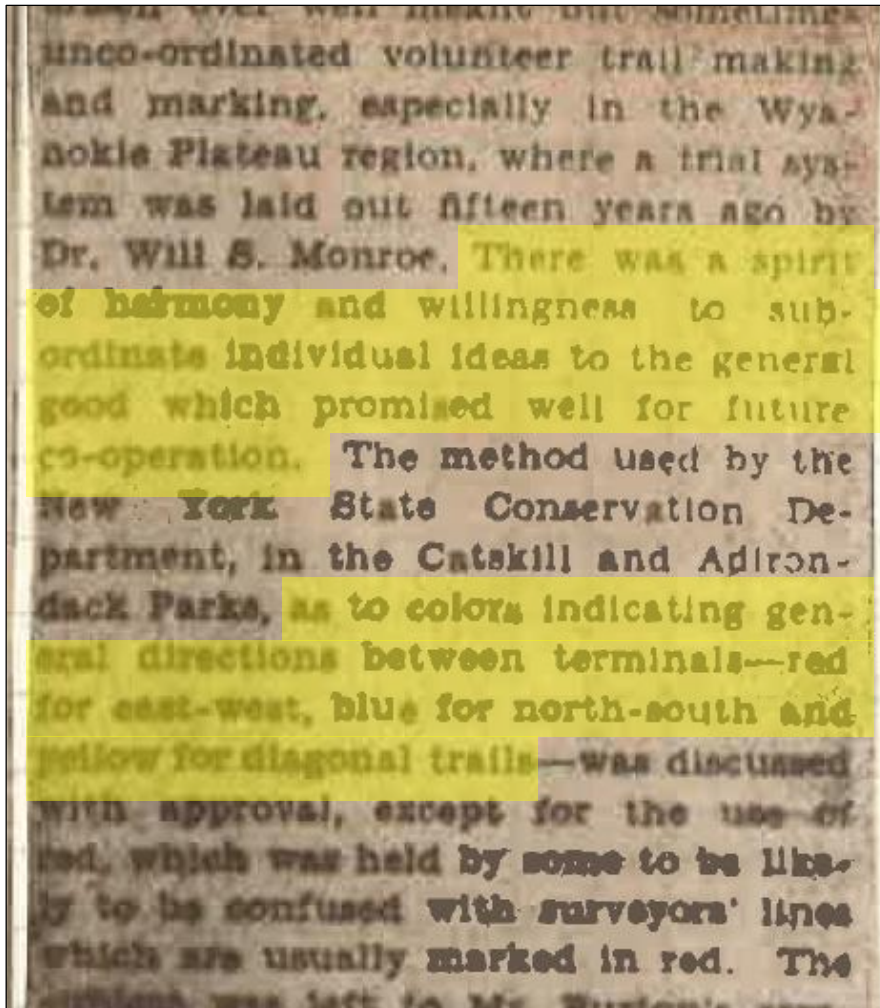
unco-ordinated volunteer trail making and marking, especially in the Wyanokle Plateau region, where a trail system was laid out fifteen years ago by Dr. Will S. Monroe. There was a spirit of **harmony** and willingness to subordinate **individual ideas** to the general good which promised well for future co-operation. The method used by the **New York State Conservation Department**, in the Catskill and Adirondack Parks, as to **colors** indicating general directions **between terminals**--red for east-west, **blue** for north-south and **yellow** for diagonal trails--was discussed with approval, except for the use of red, which was held by some to be likely to be confused with **surveyors' lines** which are usually marked in red. The

After our work on the Vista Loop, we attempted to document the lessons we learned for future projects.

This was far from the first effort to determine standardized best practices to the organic nature of trail networks.

See this article from 1931, describing a meeting about trail blazing standards...

# Best Practices for Trail Networks



*“There was a spirit of harmony and willingness to subordinate individual ideas to the general good which promised well for future co-operation*

[...]

*as to colors indicating general directions between terminals - red for east-west, blue for north-south and yellow for diagonal trails”*

-Raymond H. Torrey





# Best Practices for Trail Networks

What follows are not “mandates” – simply the guidelines that we use to shape recommendations, which other groups may find helpful.

*There are countless reasons why these best practices may not be implemented in certain situations, so **know your trails and users before blindly following them!***

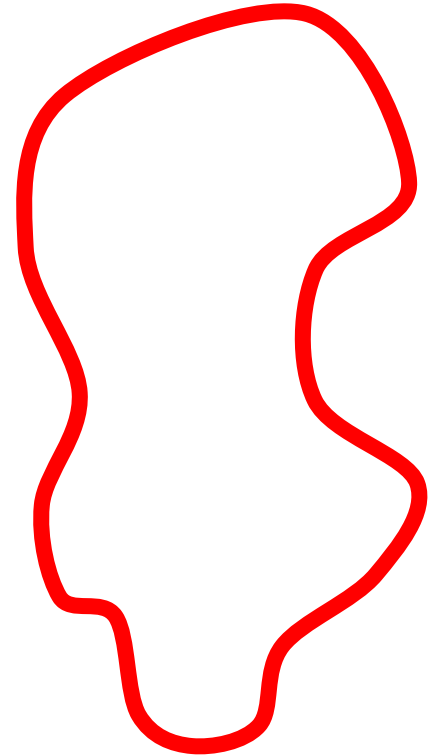


# Loops

Loops are the preferred trail type, as most hikers prefer loops to out-and-back hikes.

Remember that end-to-end hikes often require at least two vehicles to run a shuttle, which is impossible for hikers in many situations.

*An exception would be urban trails with users that already rely on public transportation, who have no need of car shuttles and can make better use of linear trails.*



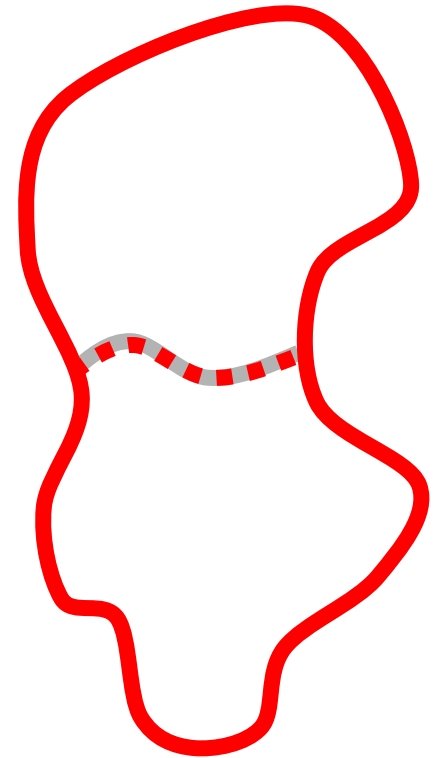


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# Loop Bisects

Where loops are over 5 miles in total length, a loop bisect trail should allow a shorter hike option.

The blaze for the loop bisect should be half the color of the larger loop and half a neutral color (silver, for example).



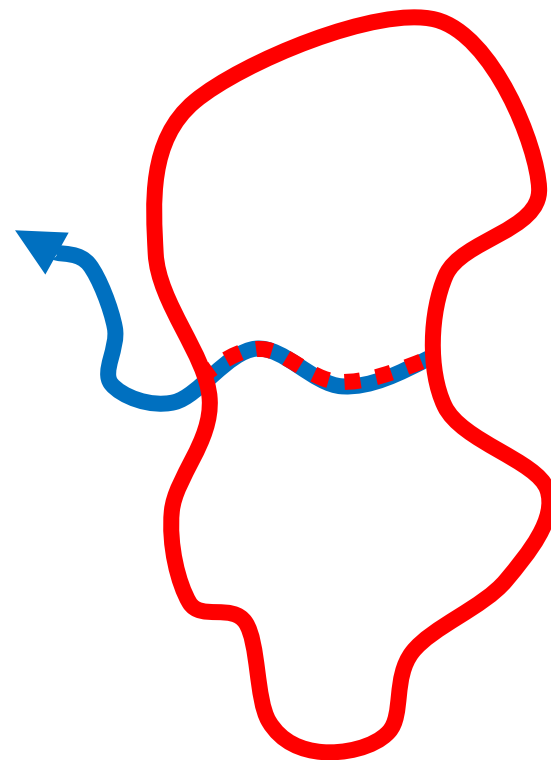


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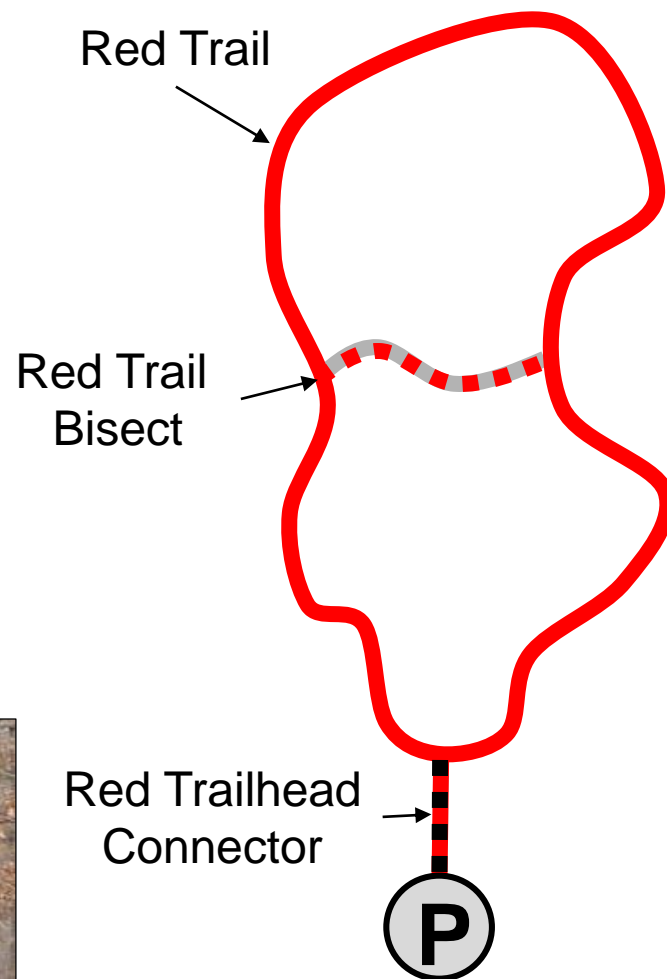
*An exception would be if the bisect is part of a longer trail, in which case it might make sense to have the bisect blazed half the loop color and half the other trail color.*



# Trailhead Connectors

Trailhead connectors or spurs should be blazed the same as the trail they connect to, but with a black dot in the middle.

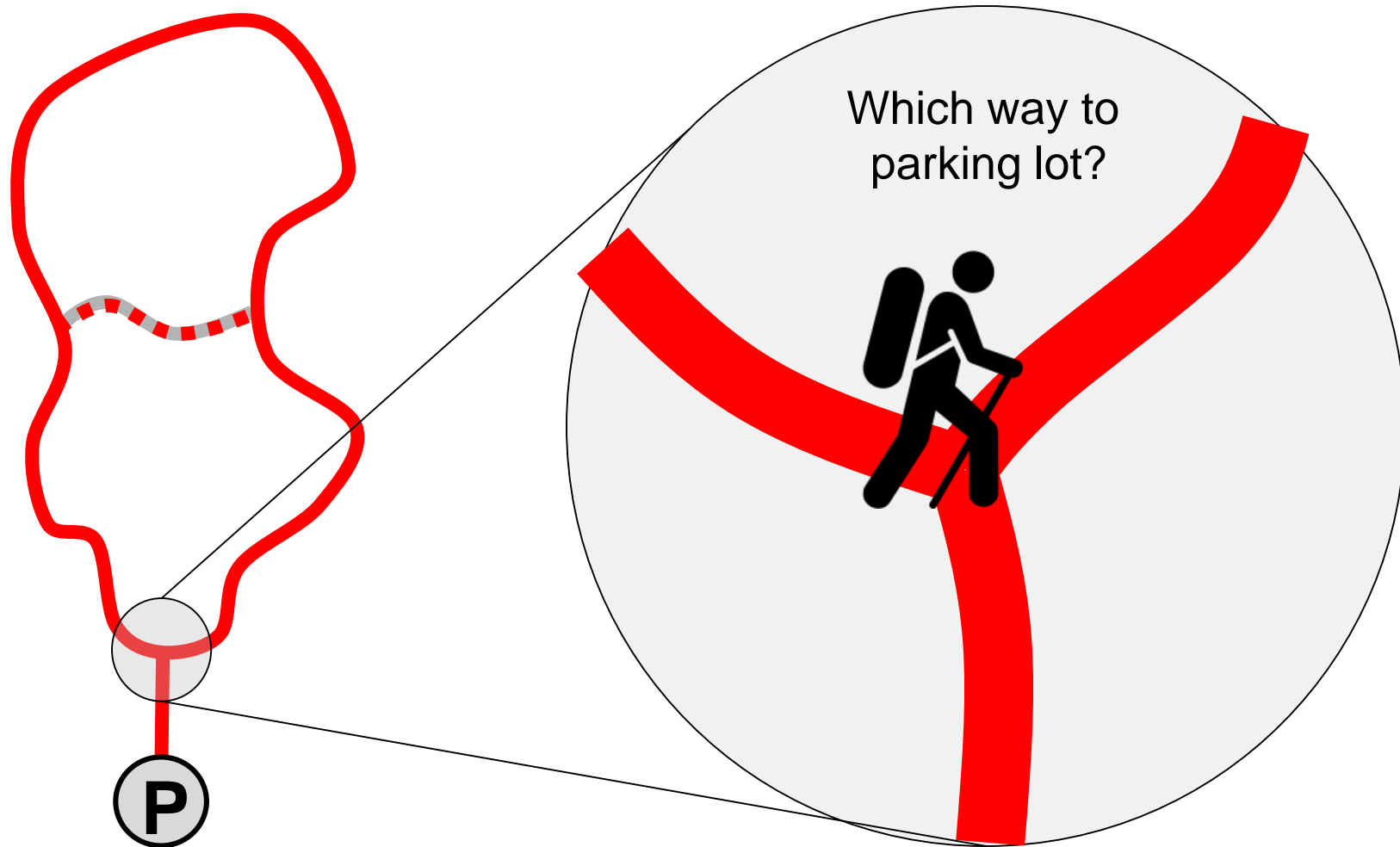
This lends clarity at trailheads, avoids confusion at “lollipop stems”, and makes it easier for hikers to find a road in an emergency.





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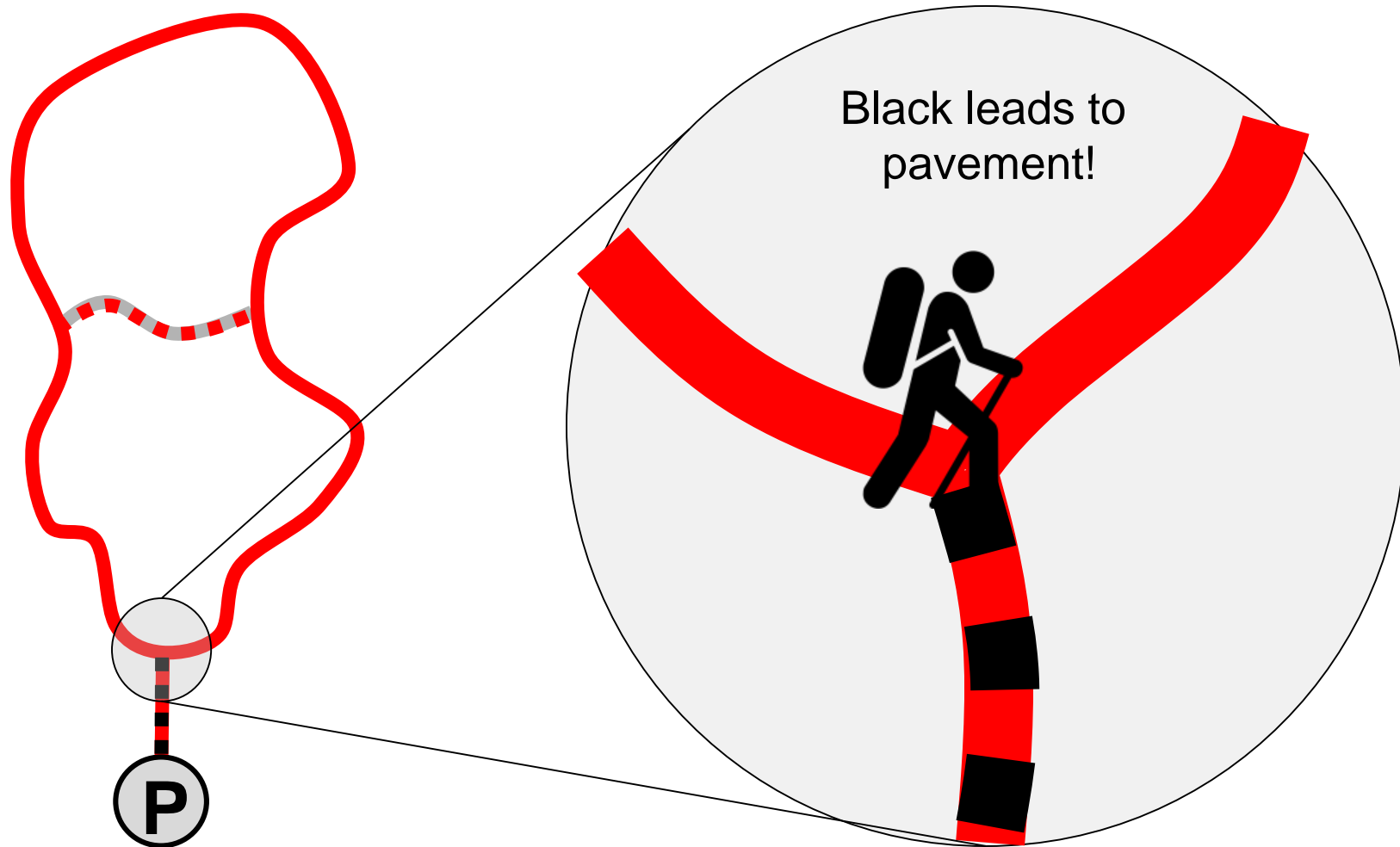
# Trailhead Connectors





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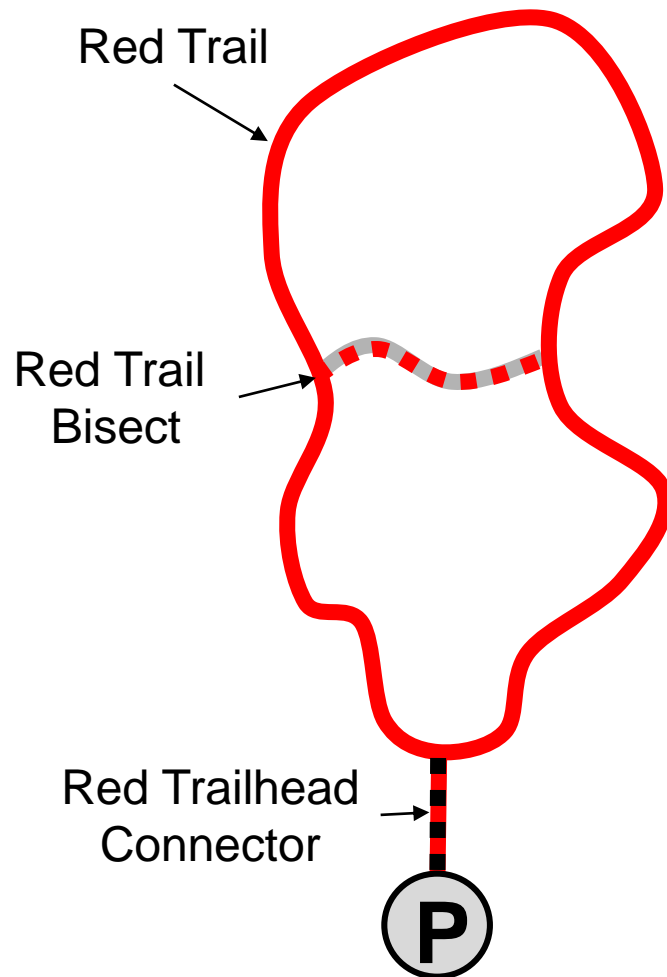
# Trailhead Connectors





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*An exception would be if the trailhead connector is long enough to be considered a linear trail and destination hike in its own right, meriting a separate color.*

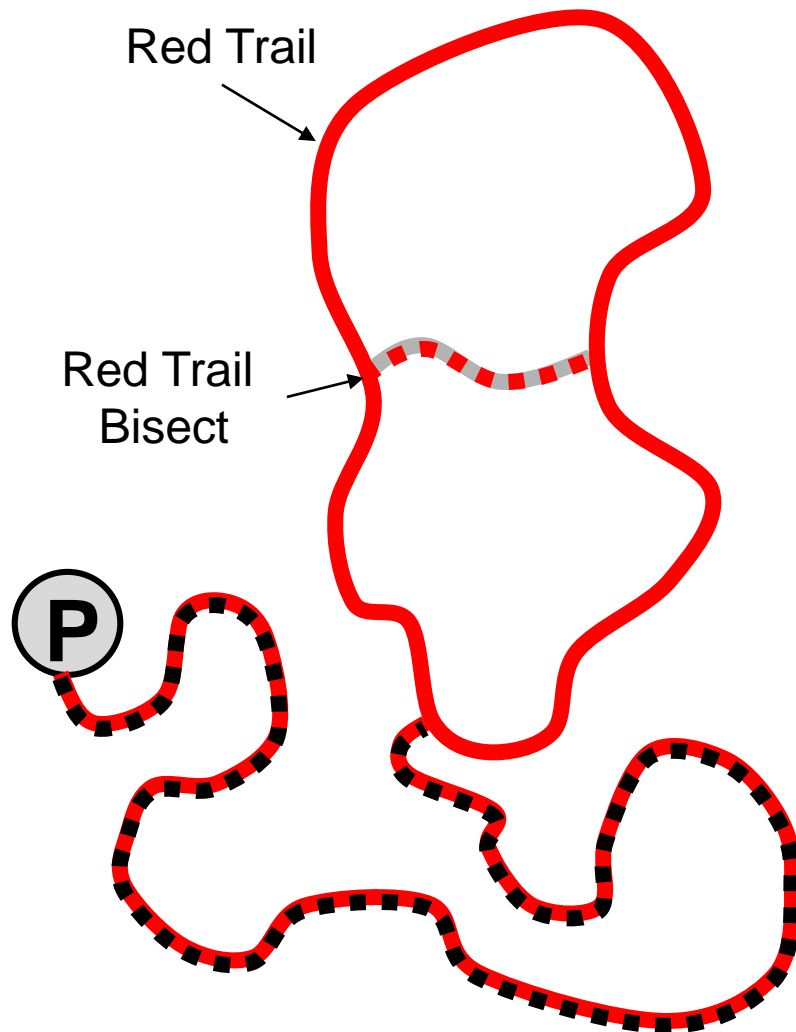






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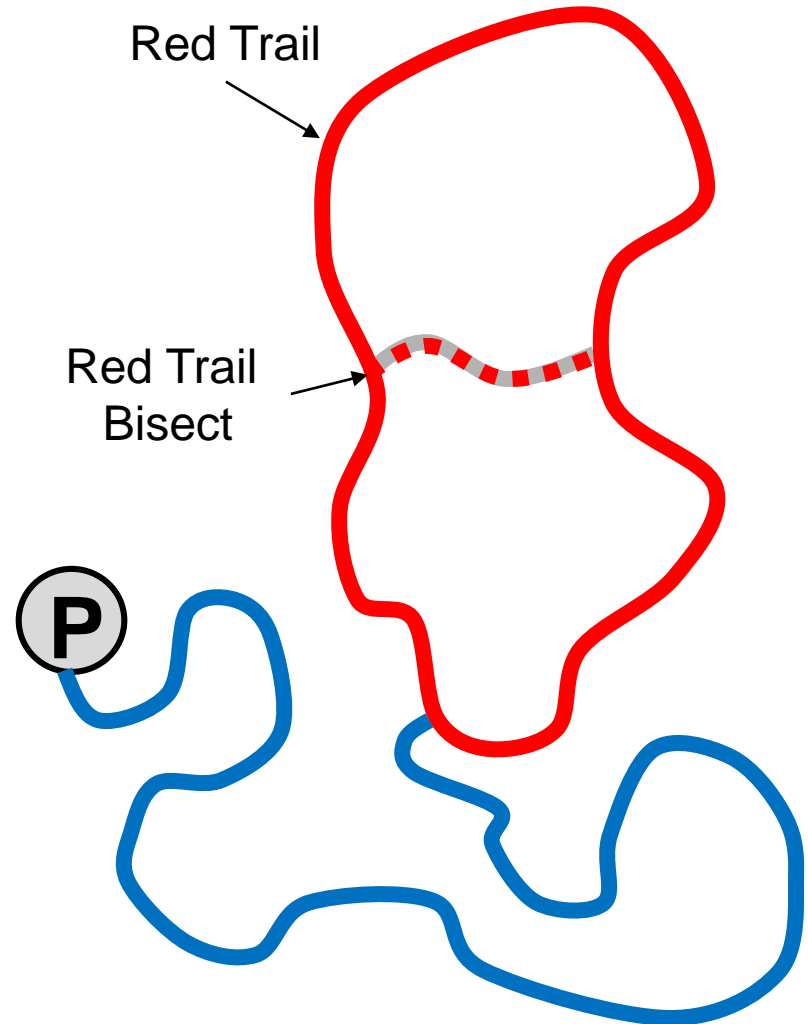
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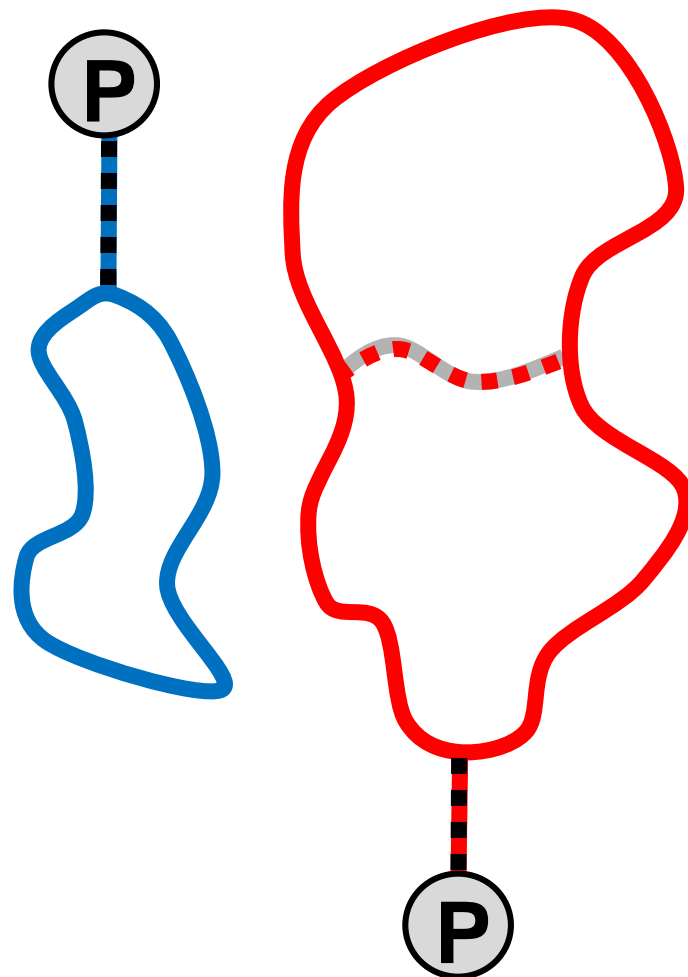
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# Parking Lot Loops

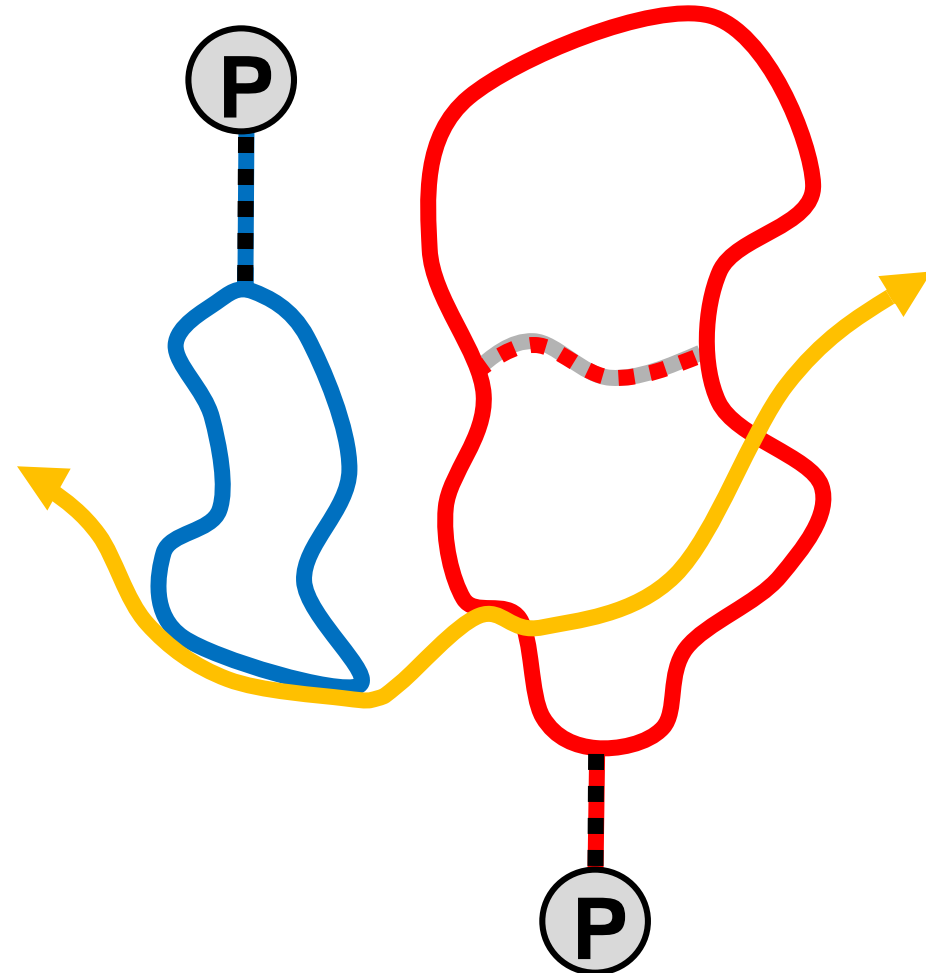
Every parking lot, where possible, should have at least one convenient loop hike option.

*An exception would be if creating a viable loop is restricted by topography, a narrow property corridor, or similar. Otherwise... always have an easy loop to direct new hikers to!*



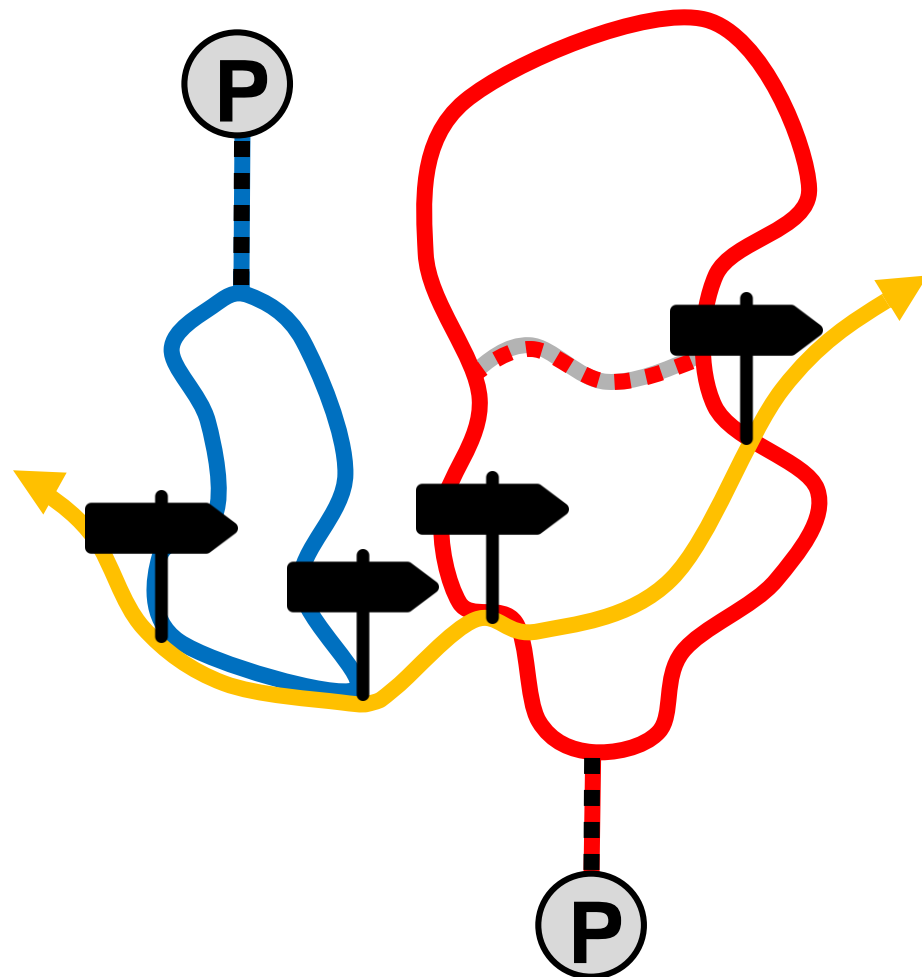
# Long-Distance Trails

Long-distance trails can be useful as “spines” of a trail network, but should have signs at intersections to establish directionality.



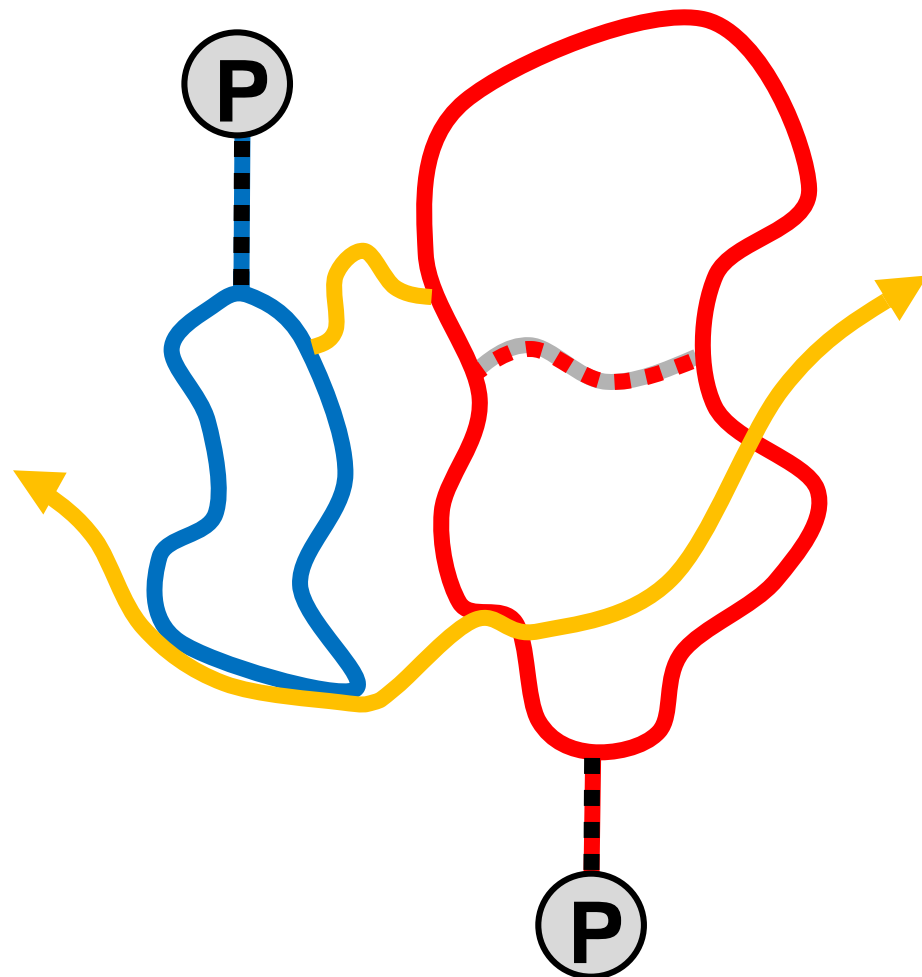
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# Trail Connectors

Many networks have a variety of short connector trails.



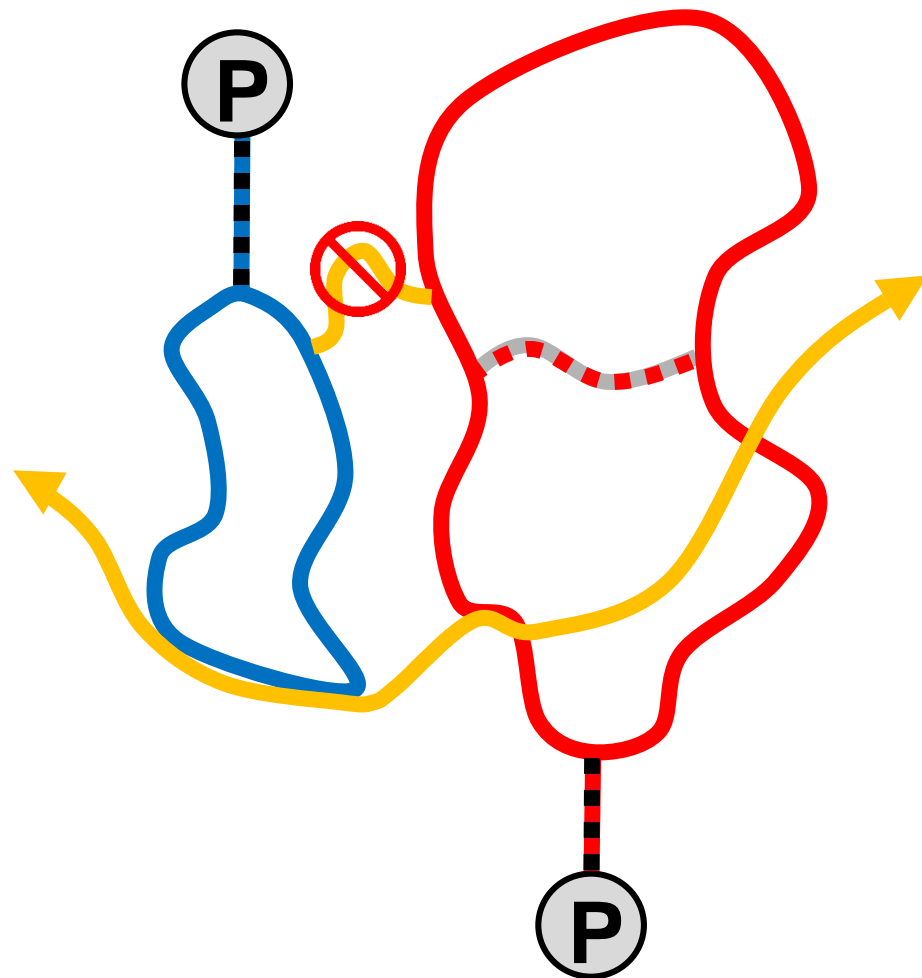


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# Trail Connectors

Many networks have a variety of short connector trails.

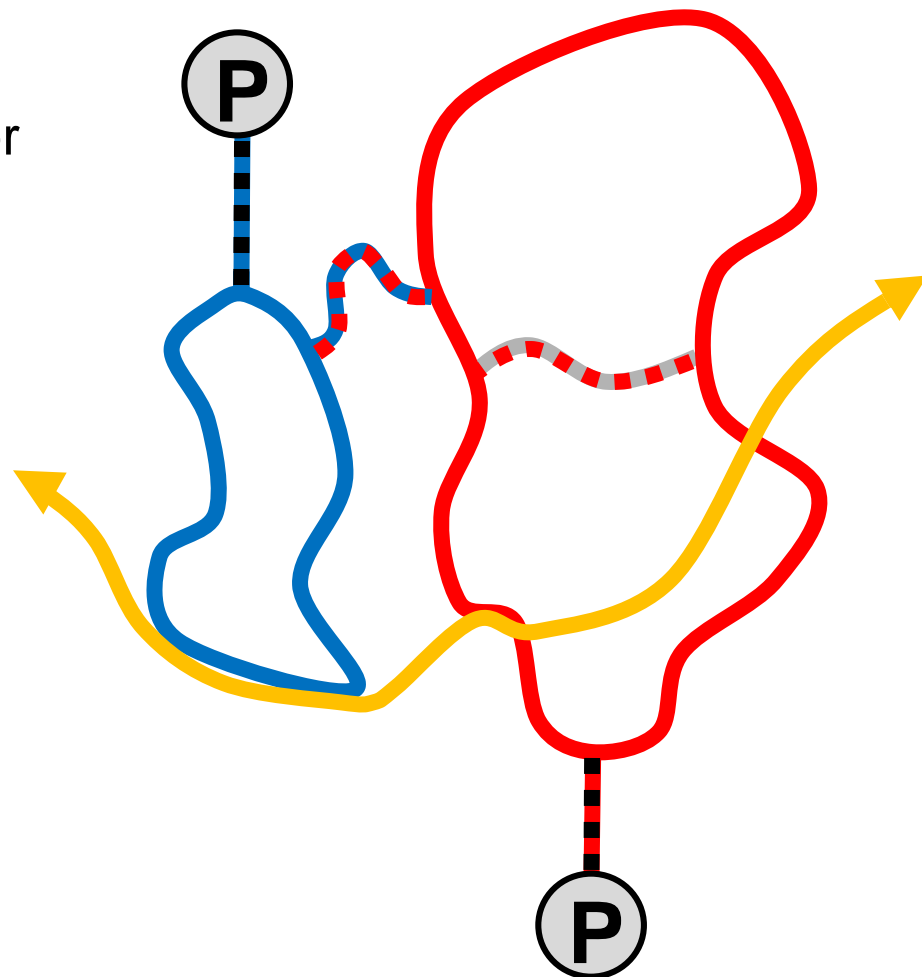
Duplicating existing blaze colors should be avoided on these short trails, even in large trail networks (i.e. no two “orange trails” in the same State Park).



# Trail Connectors

Instead, blaze half the color of each trail being connected (so a connector between the Red Loop and the Blue Loop would have blazes that were half-red and half-blue).

This is intuitive and assures people that they are heading in the right direction.

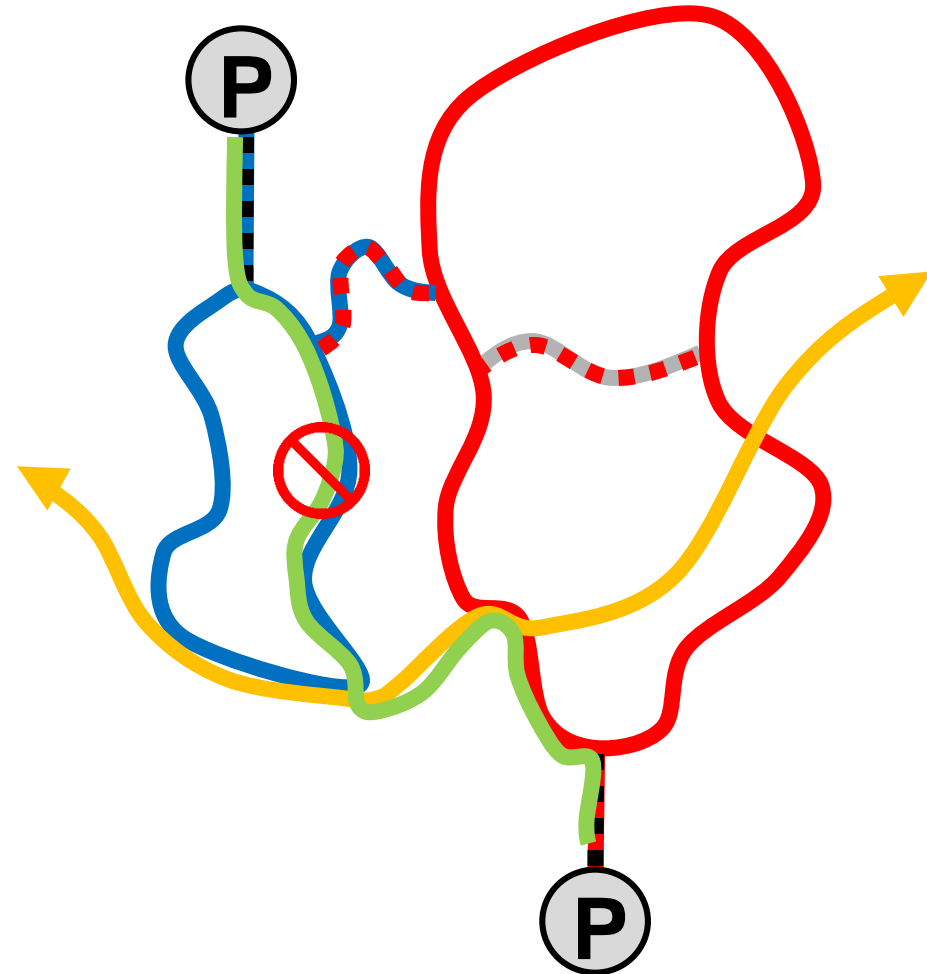




# Co-Alignment

Co-alignment of trails should be minimized, as too many blazes on the same tree can confuse hikers.

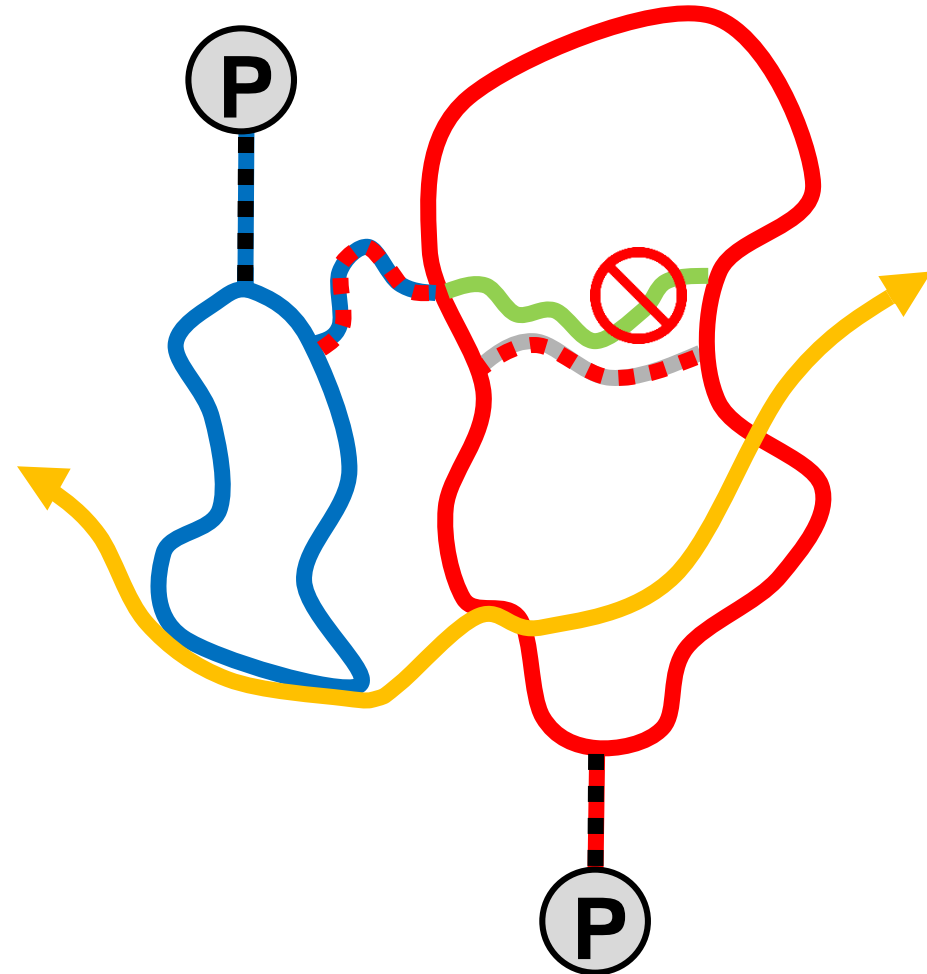
*An exception would be if, for some reason, a linear hike were exceptionally popular. In that case co-aligning the route atop other loops might be the simplest option for people to follow.*



# Redundant Trails

Redundant, parallel trails in close proximity should have the preferred route retained and the other route decommissioned.

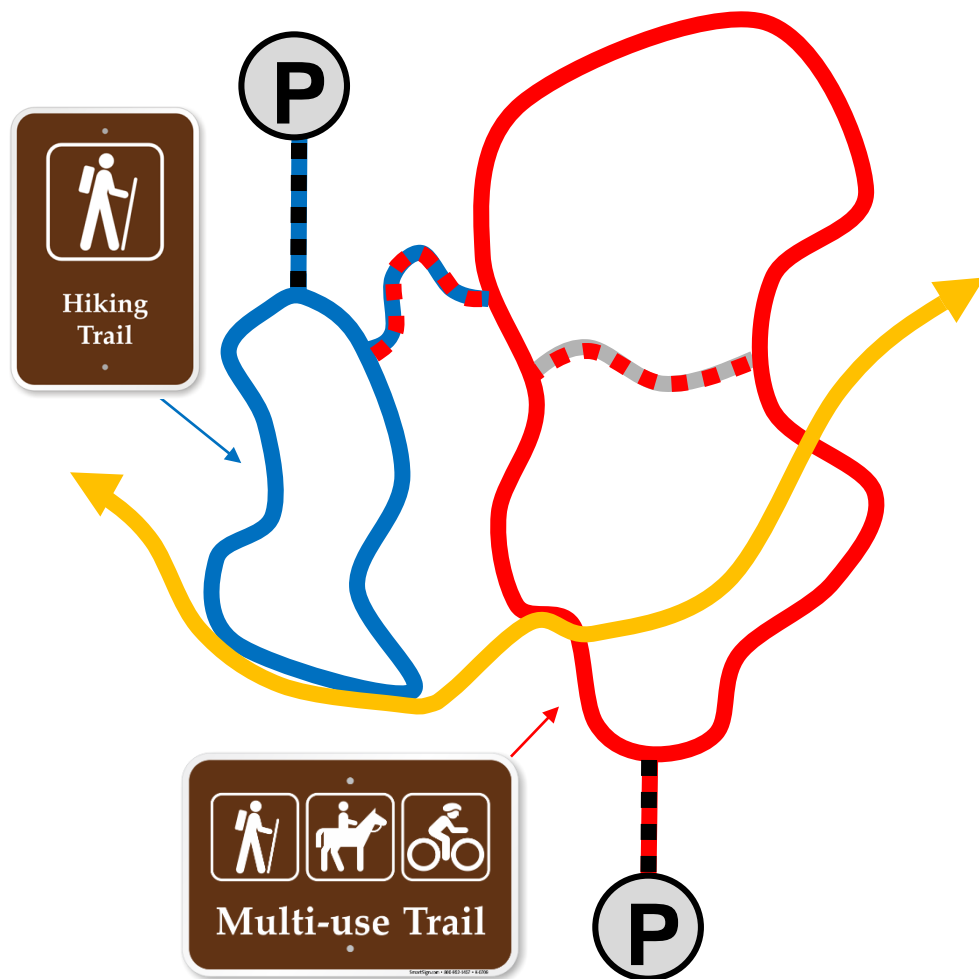
*An exception would be if both trails offer significantly different experiences – one along the base of a cliff and one along the ridge, for example, or one an amateur bike route and one an expert bike route.*



# Designated Uses

The entirety of any trail should have the same use (hiker-only, multi-use, etc).

*An exception might be if the trail experiences a radical shift in character that would cause incompatibility with a user group – an accessible trail which approaches a steep and wet slope, a bike-friendly trail that suddenly ascends a cliff scramble, etc. **This should be avoided in the layout and design phase.***





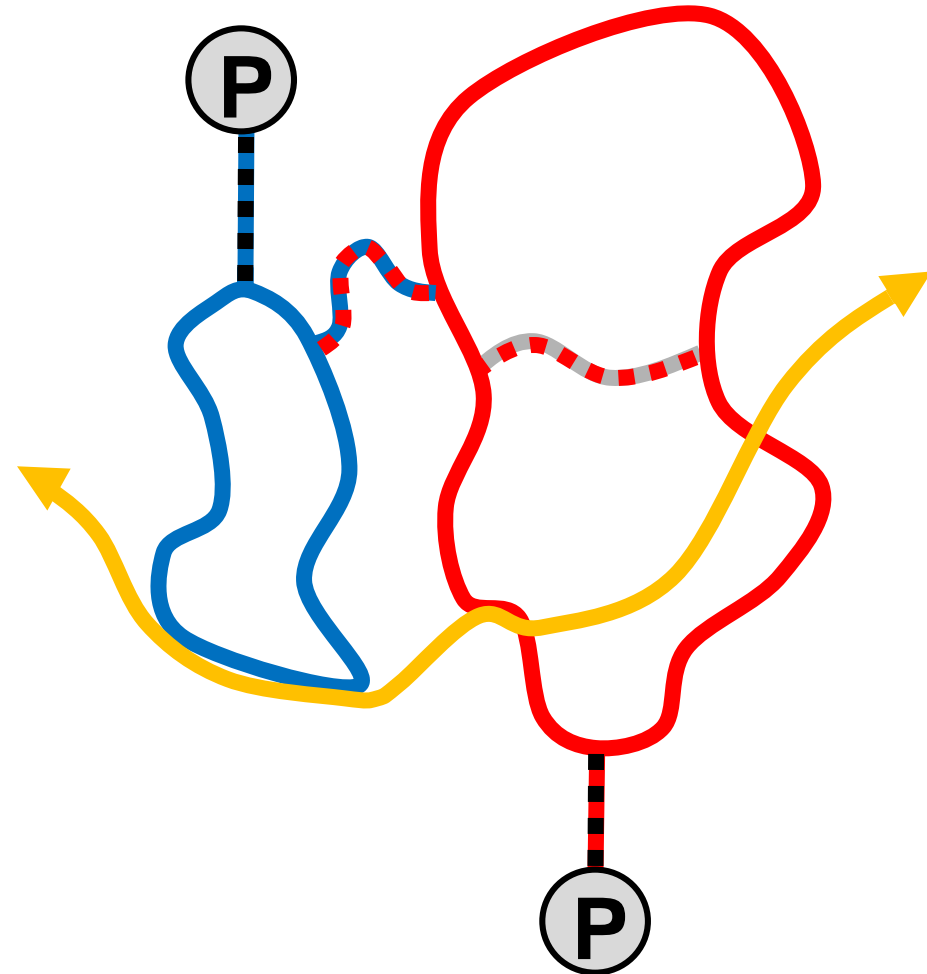
# Choosing the Right Options



# Choosing the Right Options

While each of those earlier best practice decisions made sense at the time, is the final result ideal?

Looking at this configuration, we see some different options available to us...

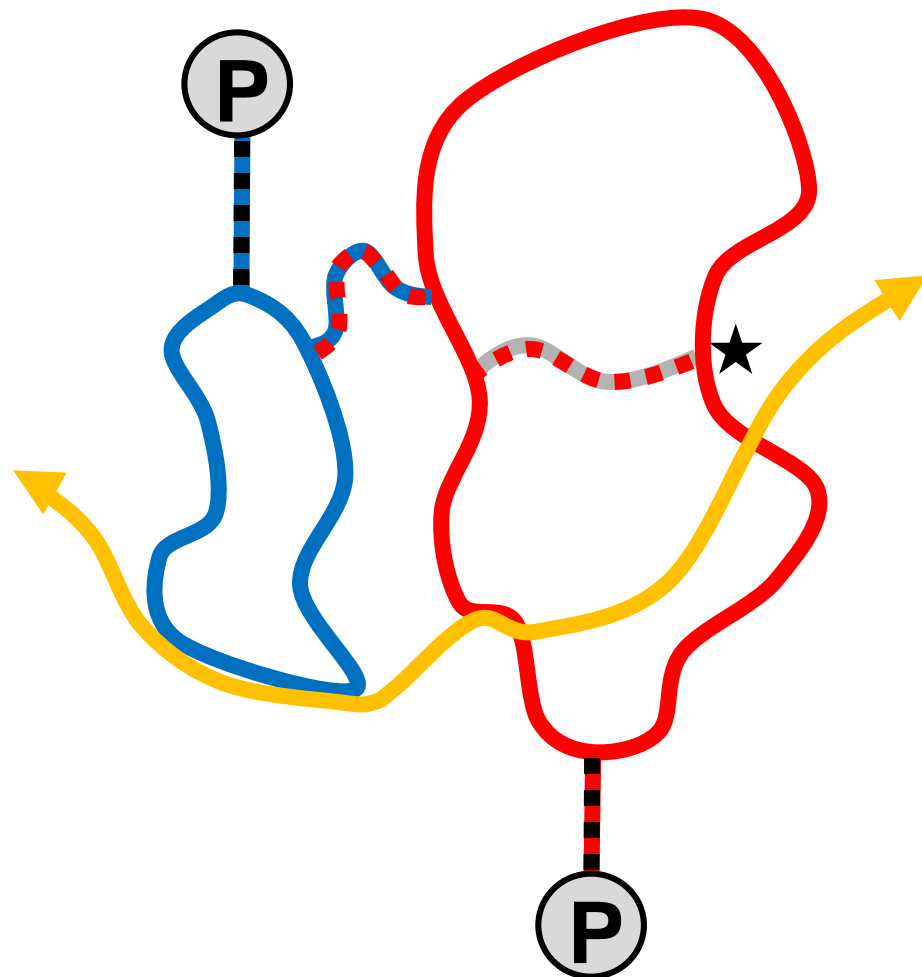


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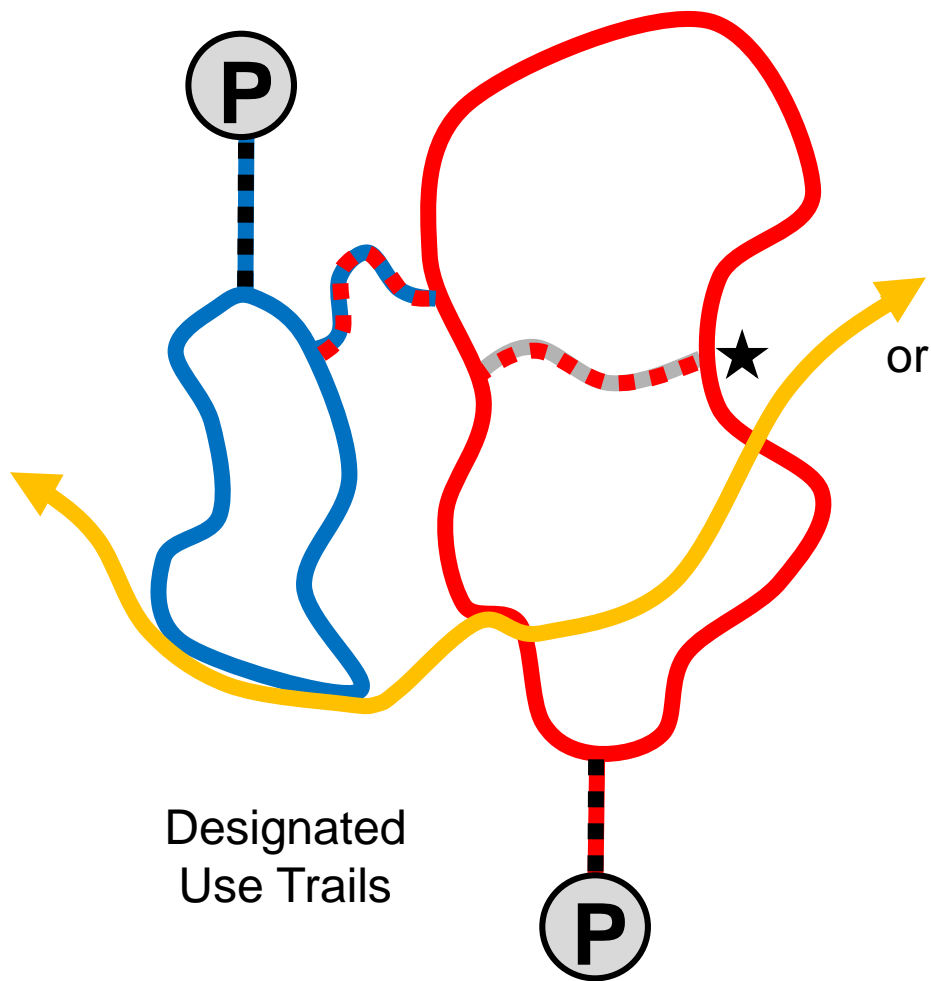
*(Let's add a star to represent a point of interest, such as a sweeping vista.)*





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# Choosing the Right Options

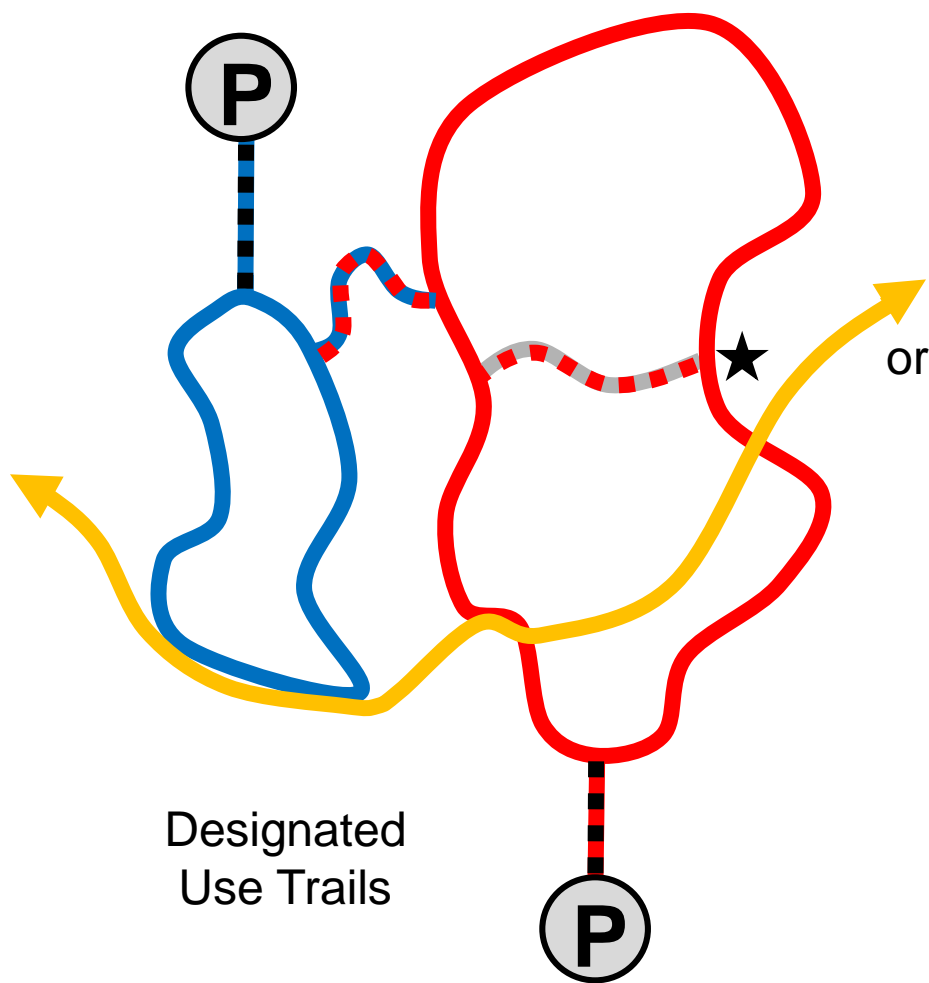


Designated  
Use Trails

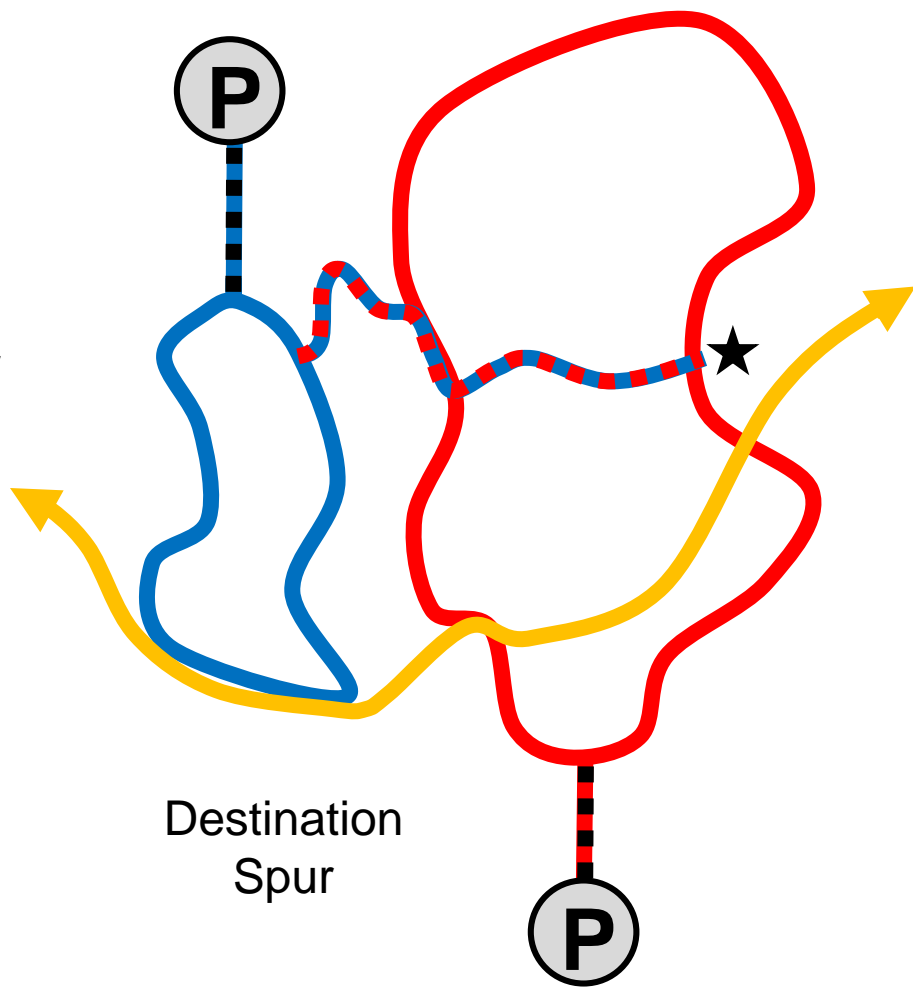


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or

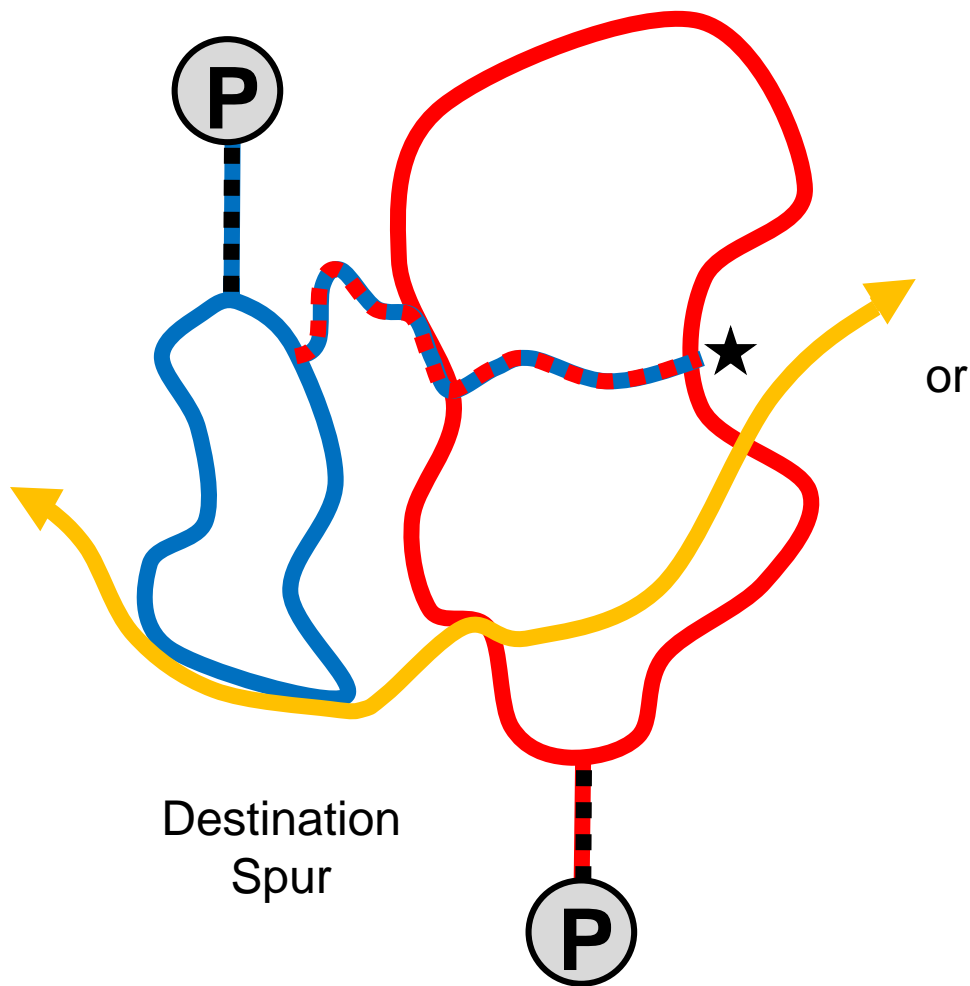




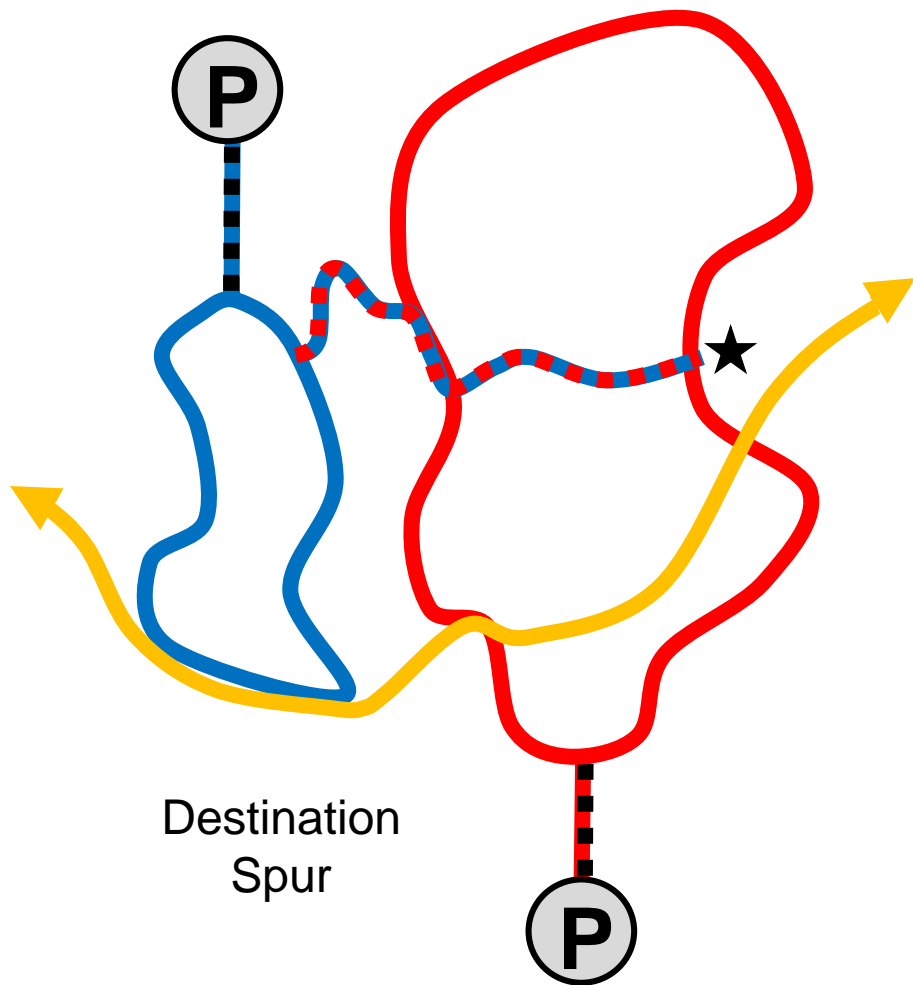


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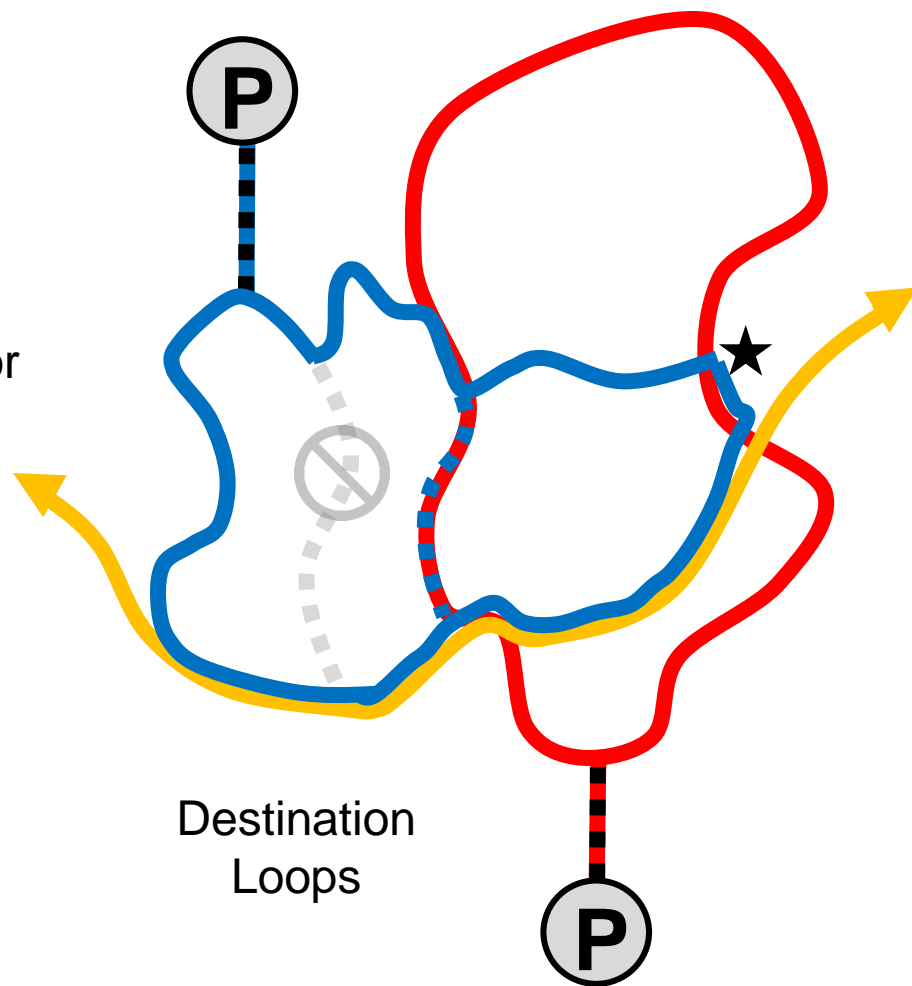
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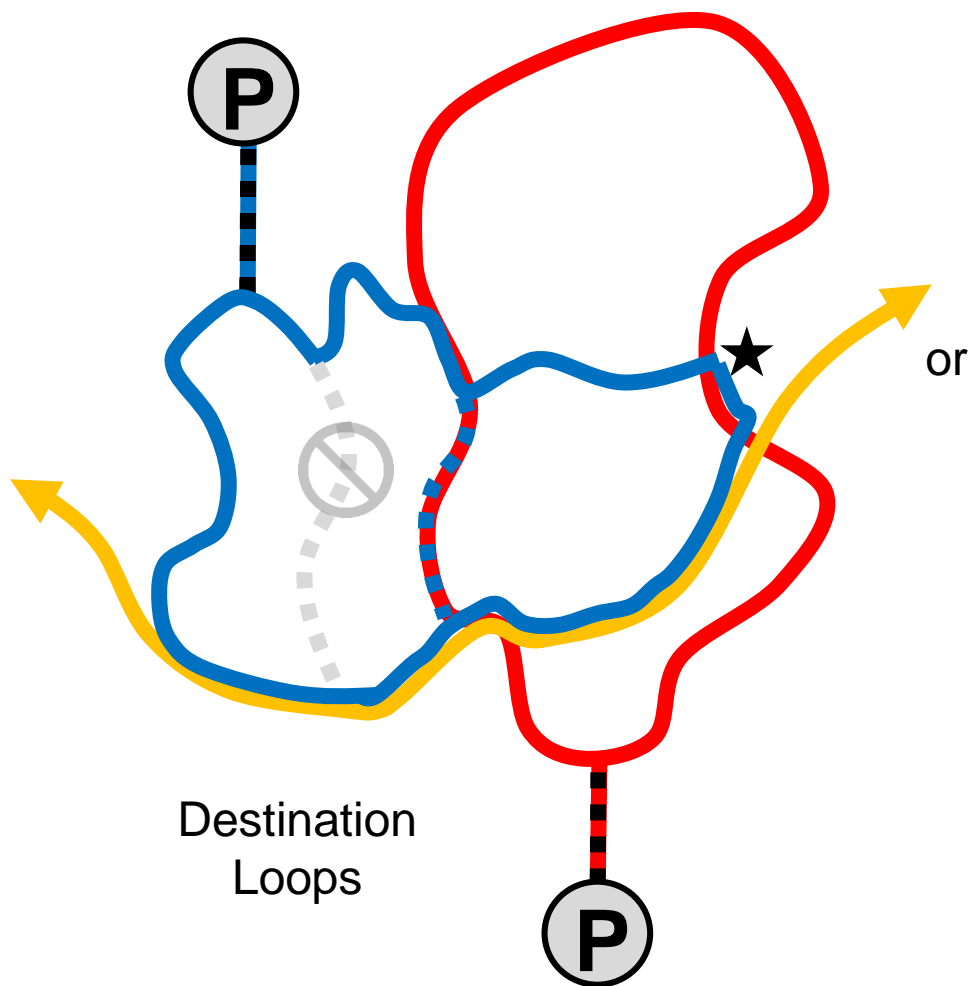
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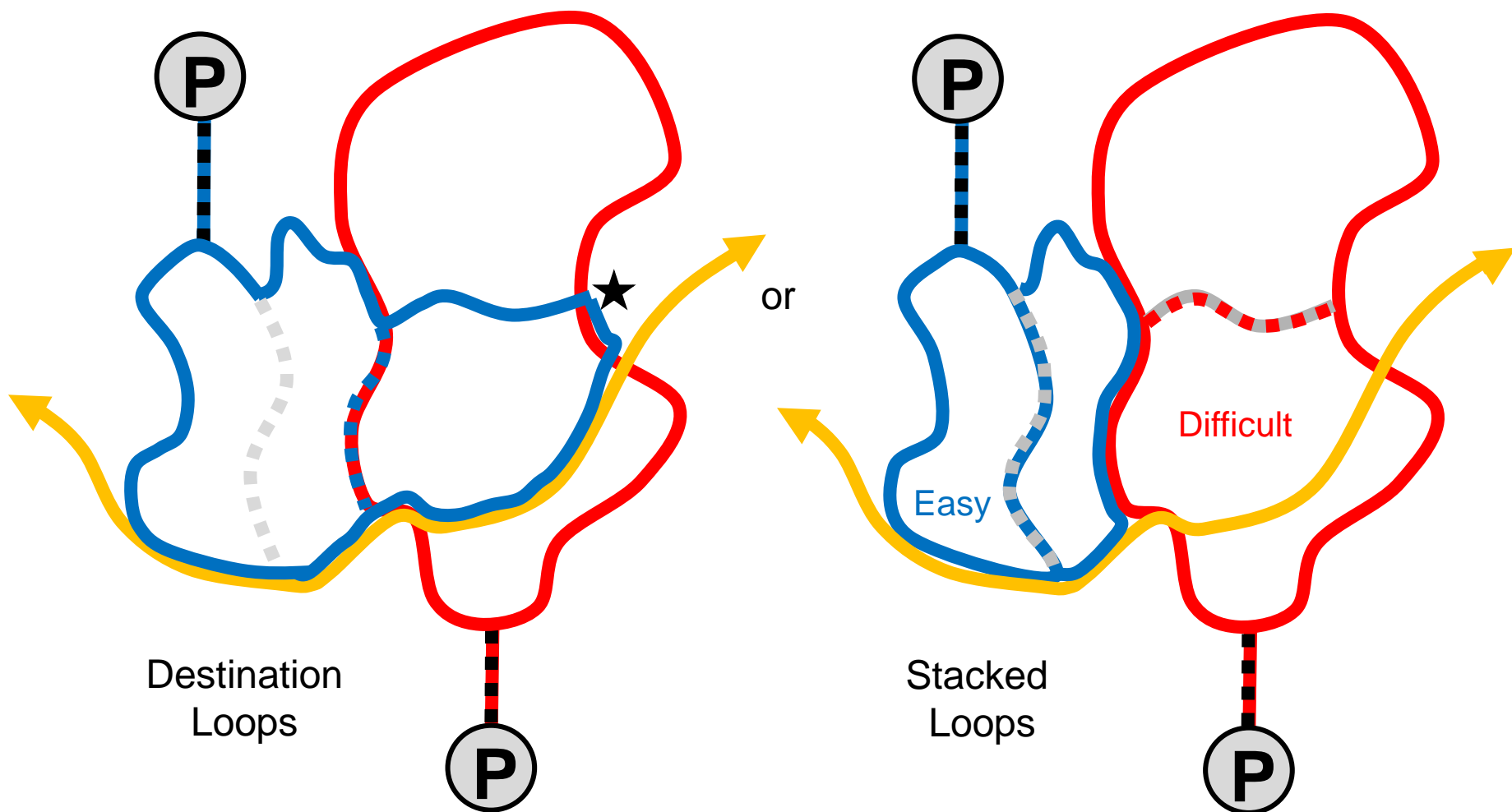
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# Choosing the Right Options



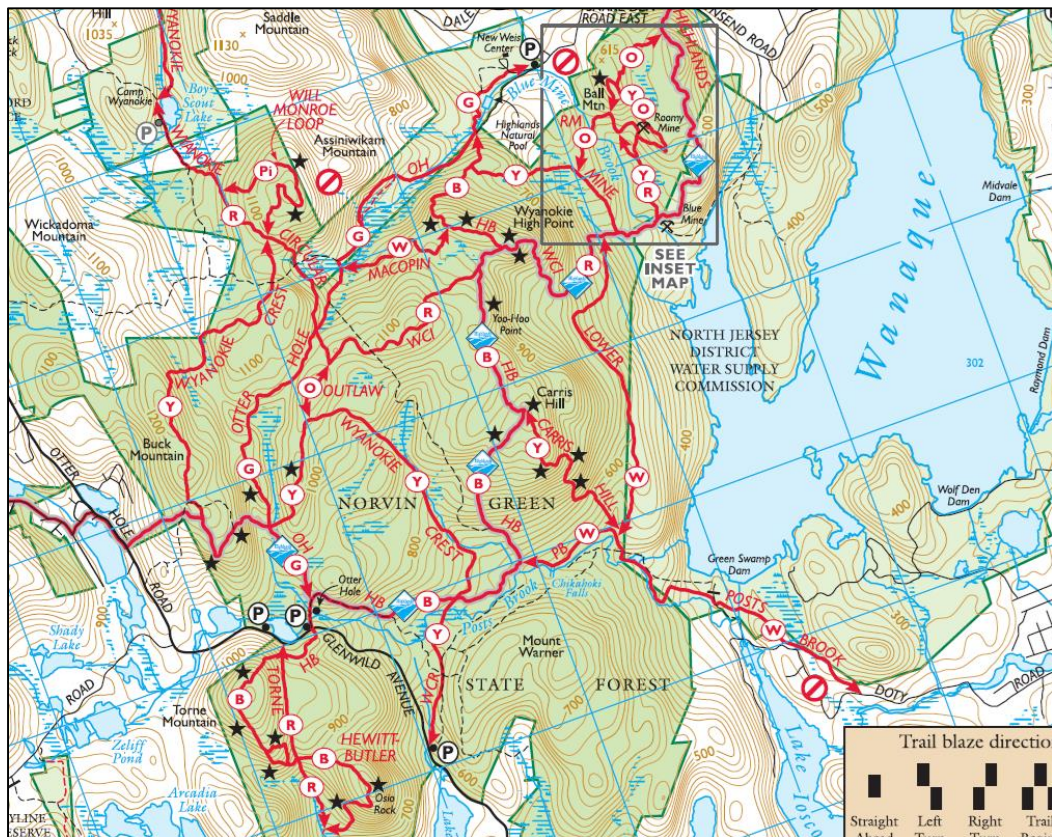
Destination  
Loops

# Choosing the Right Options





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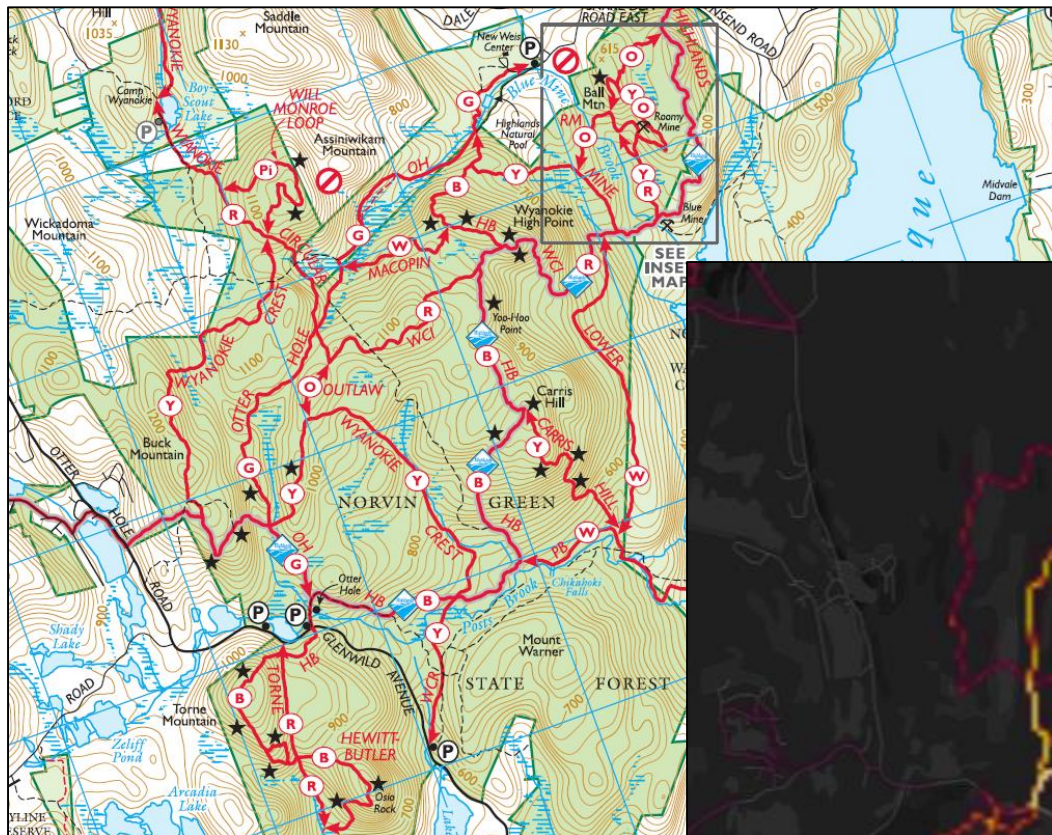


Having trouble determining what trail loops most trail users are already taking?

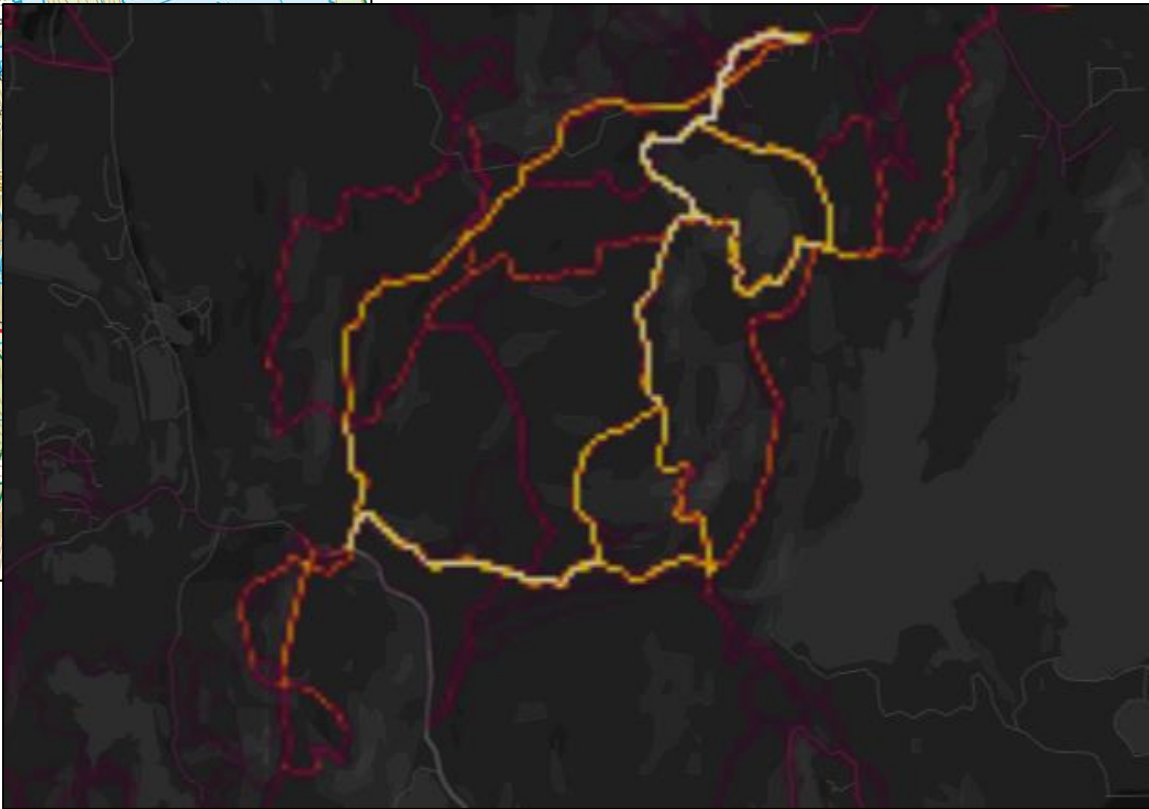
**Strava** is an app which tracks hikers, bikers, and runners. Their heat map ([strava.com/heatmap](https://www.strava.com/heatmap)) shows patterns of use.



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# STRAVA





Connecting People





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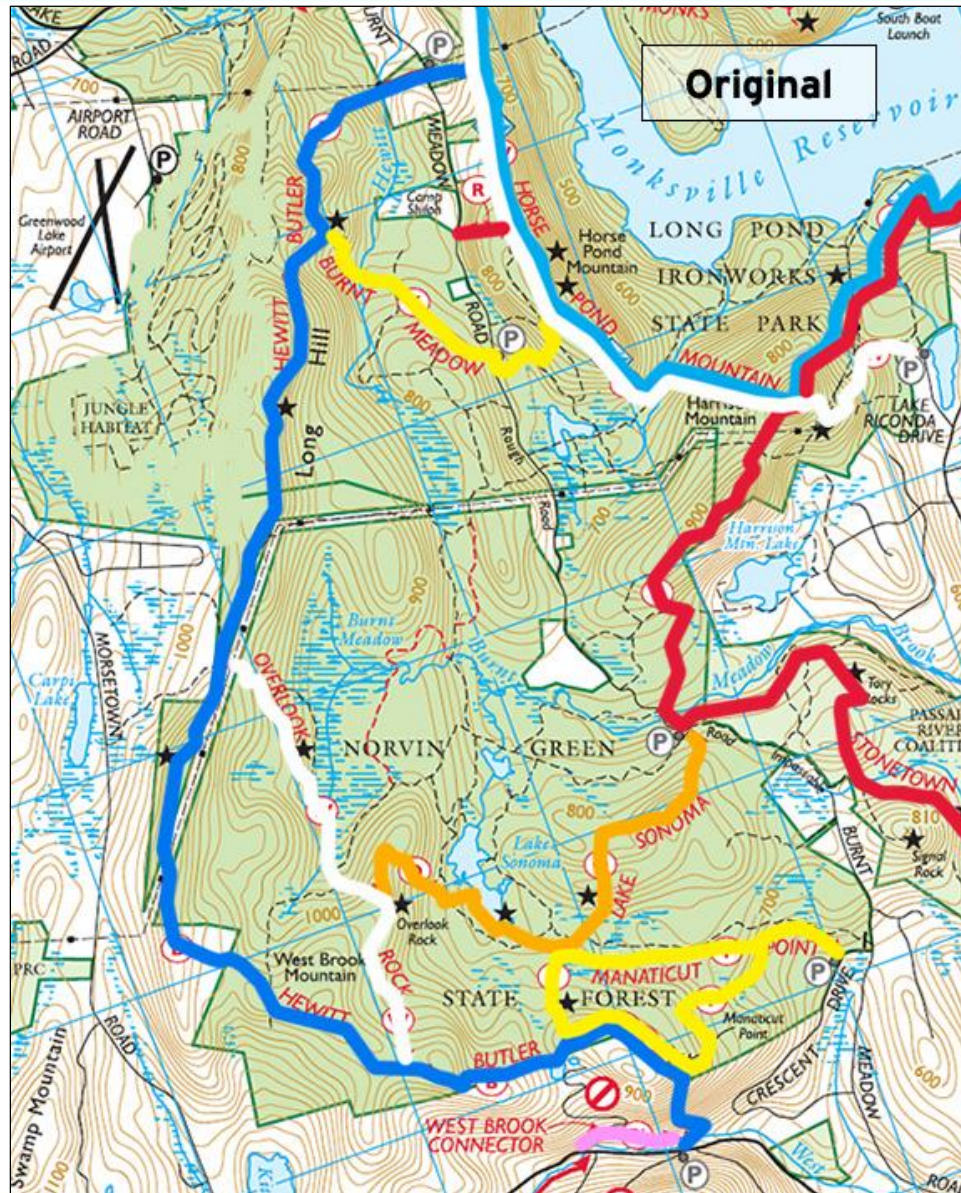


# The Latest: Norvin Green State Forest





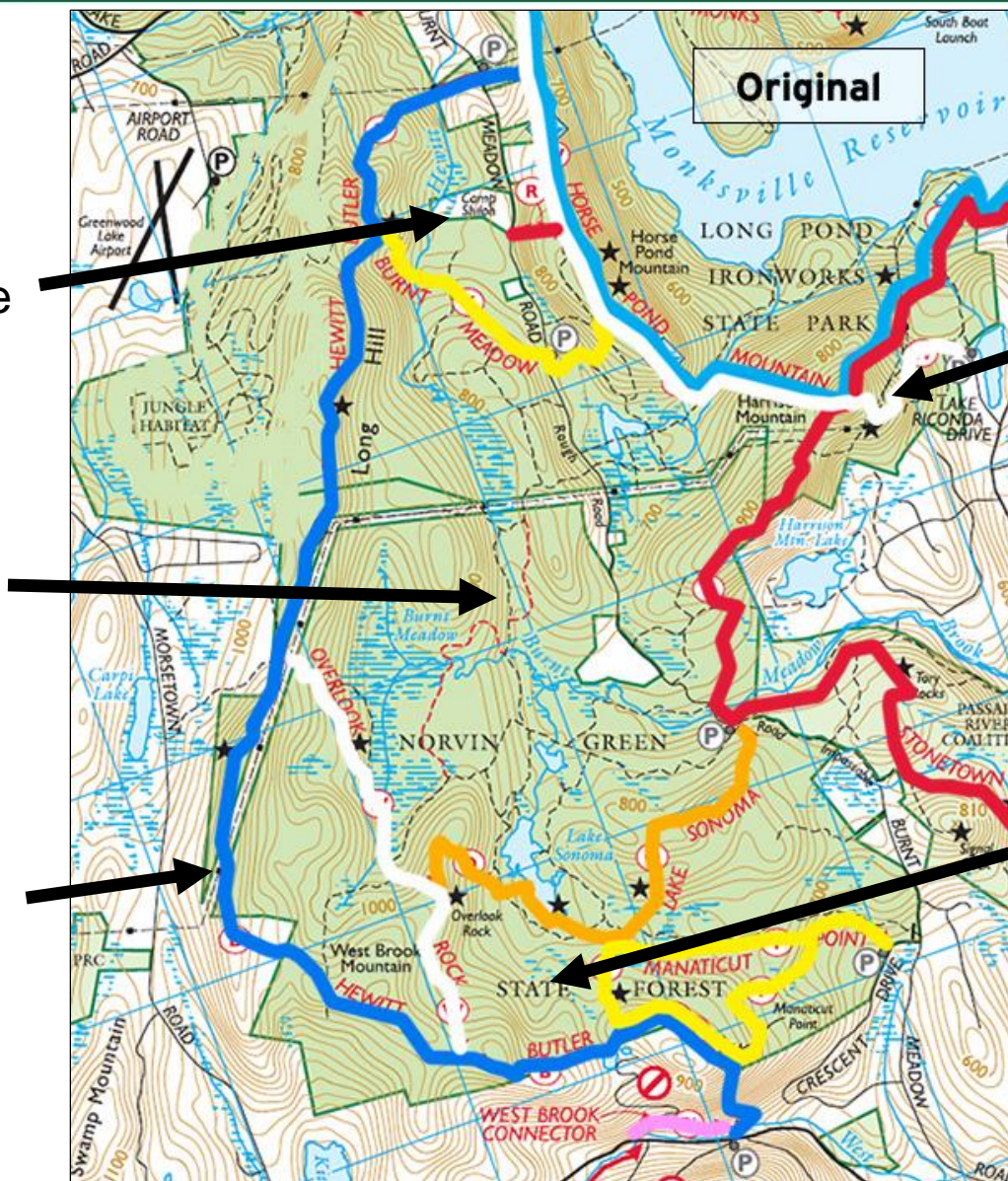
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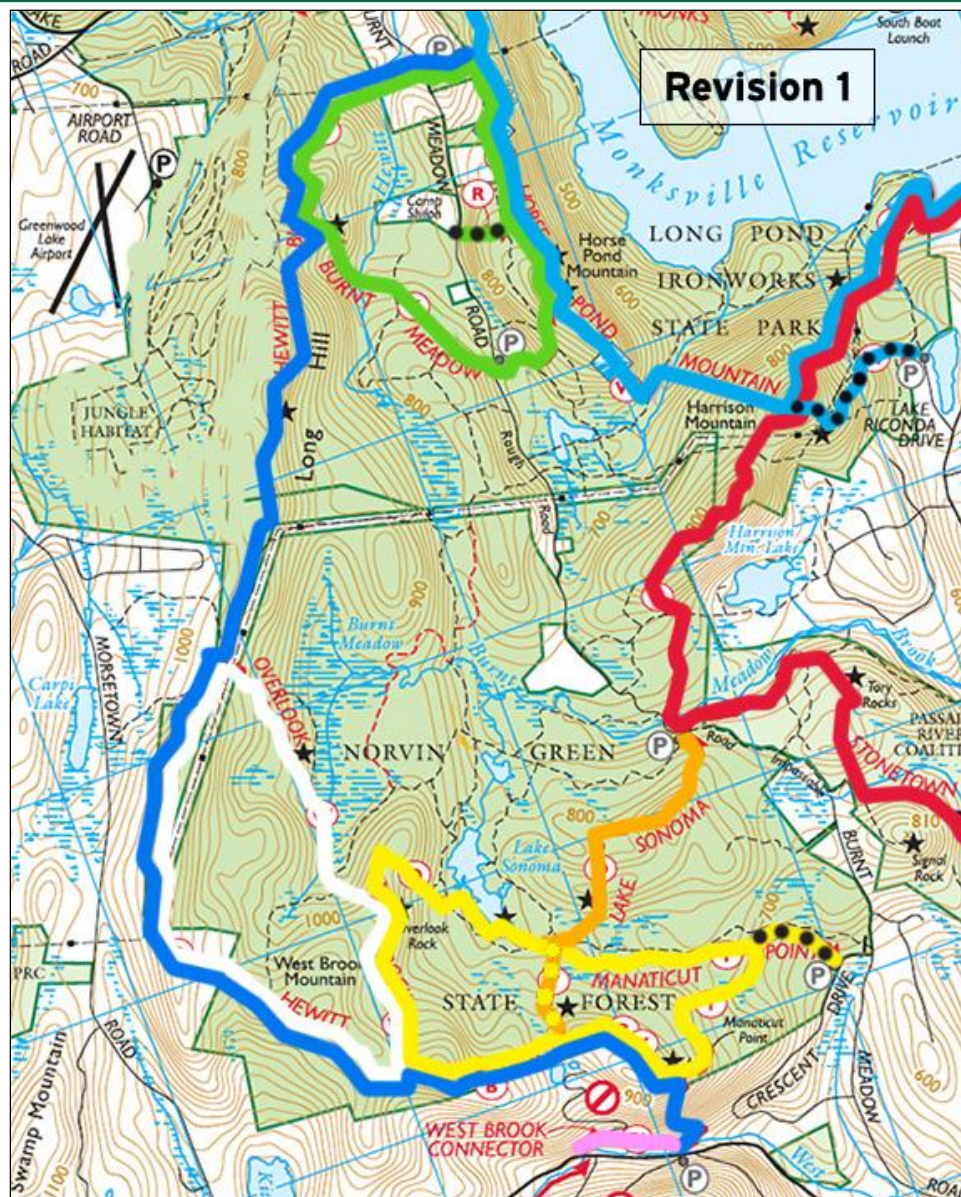
- Convenient loop, but involves 5 blaze colors.
- Limited connectivity between north and south
- “Long distance” trail sees little use, but provides lots of opportunity for navigation errors



- No indication that spur connects to the long-distance Highlands Trail
- Popular loop, but involves 4 blaze colors.

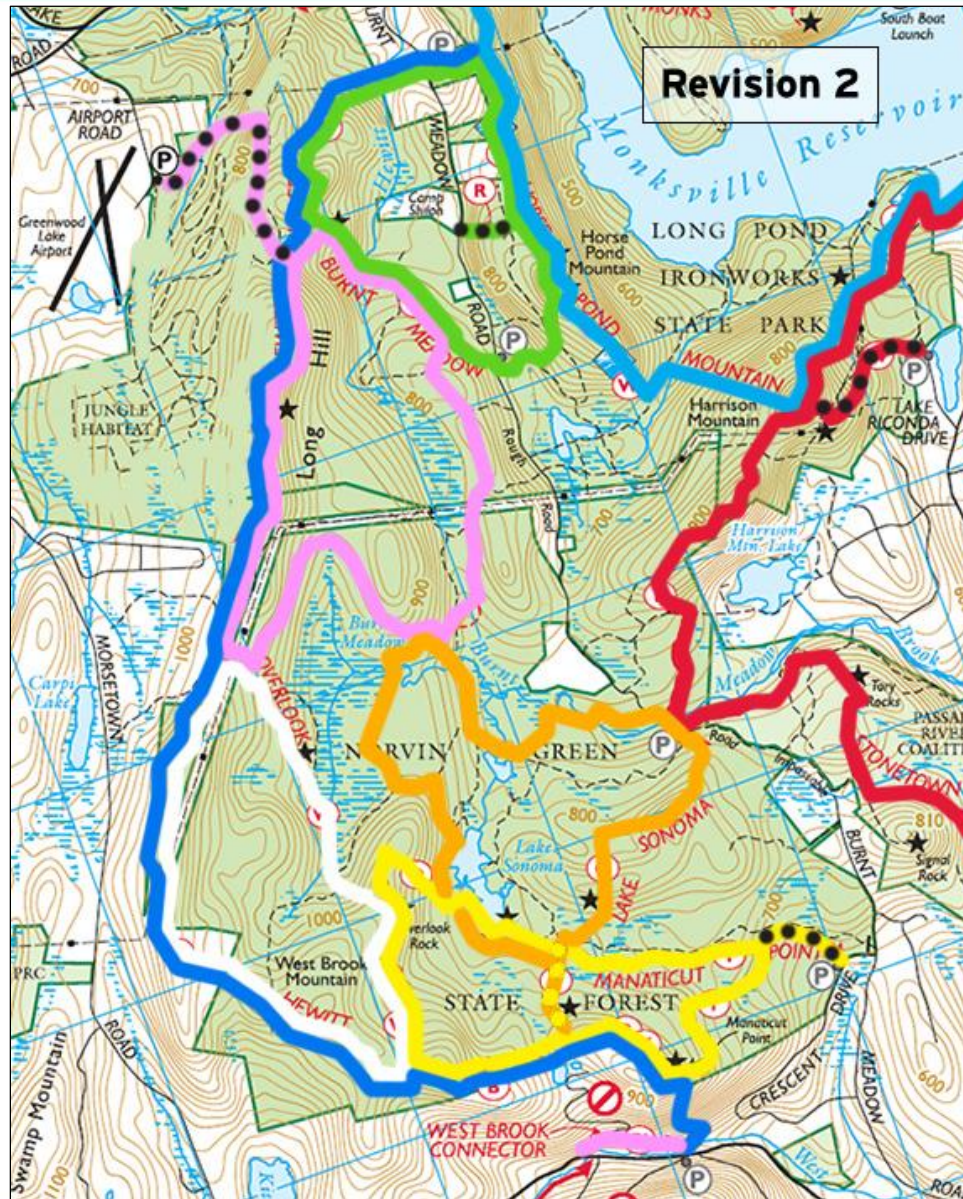


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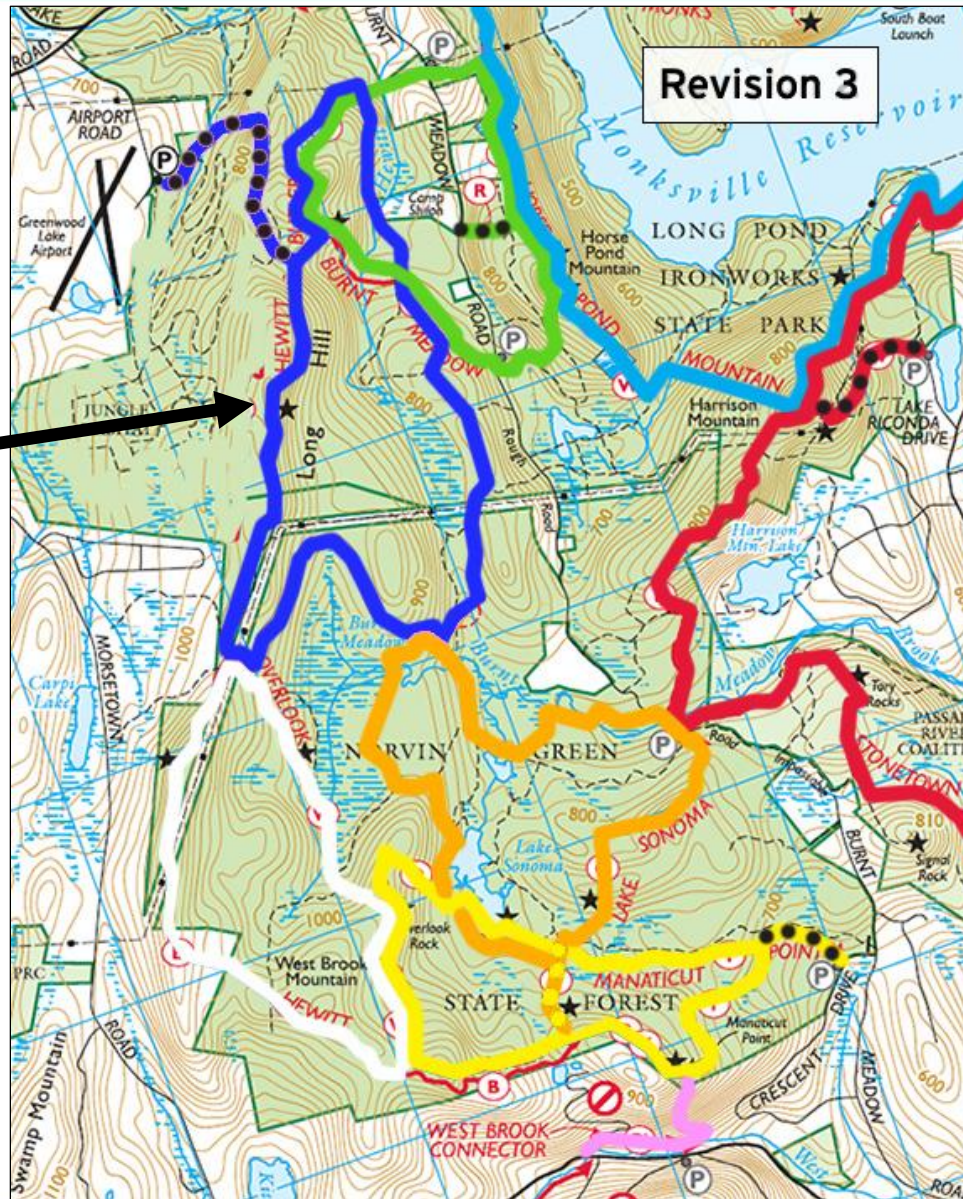
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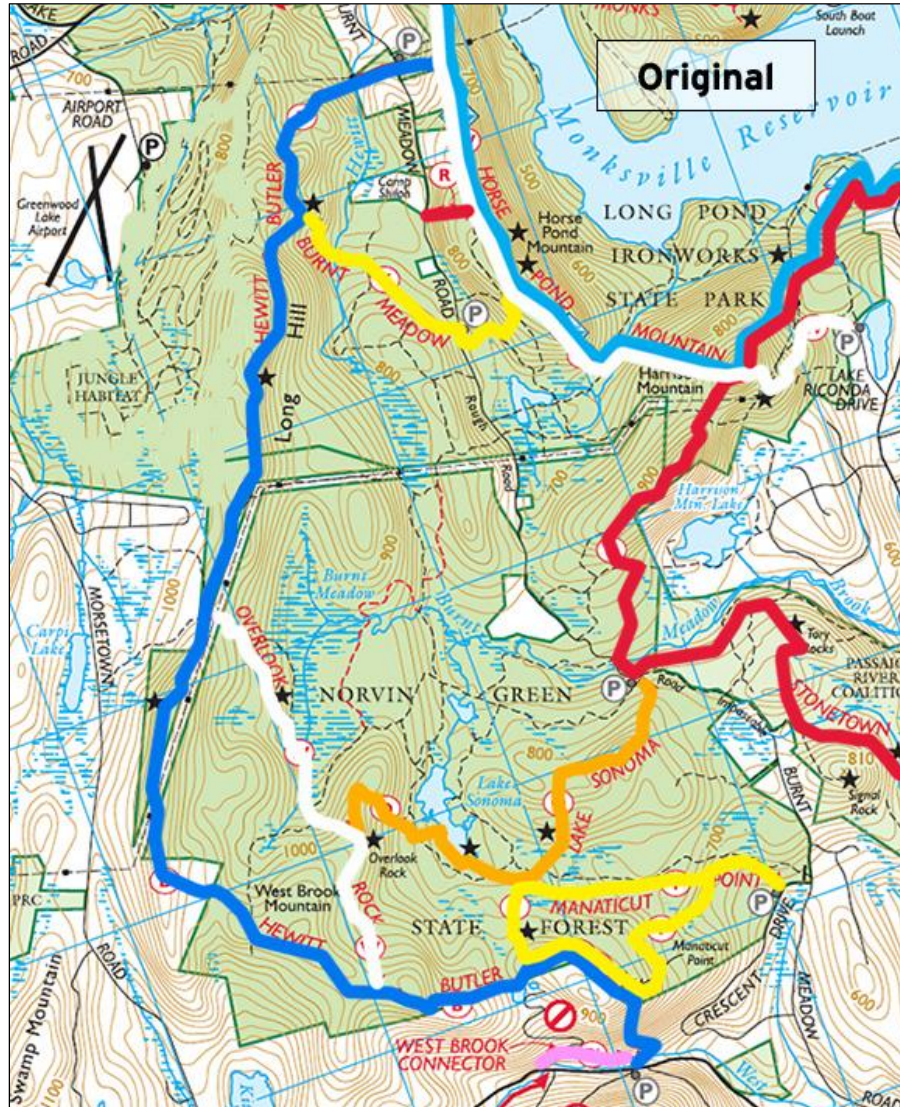
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Blue loop connects to adjacent mountain bike trail network and is multi-use





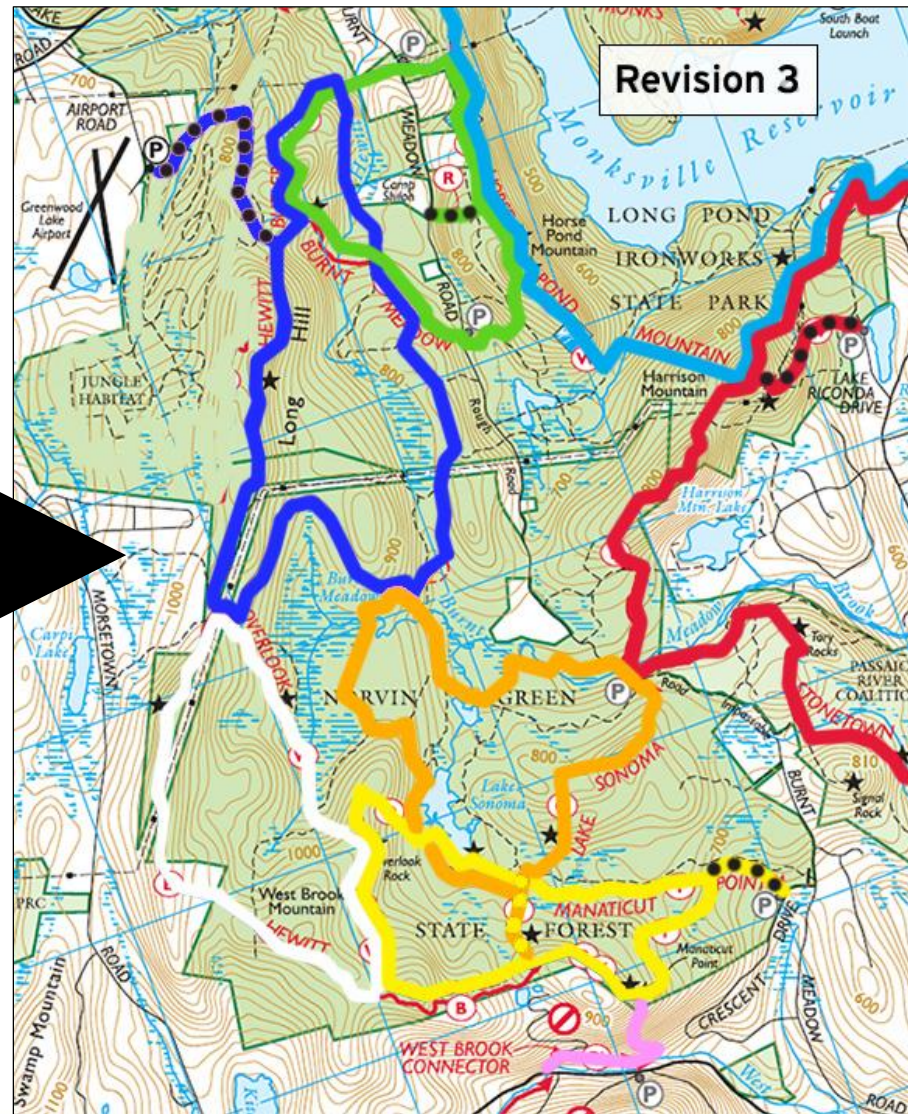
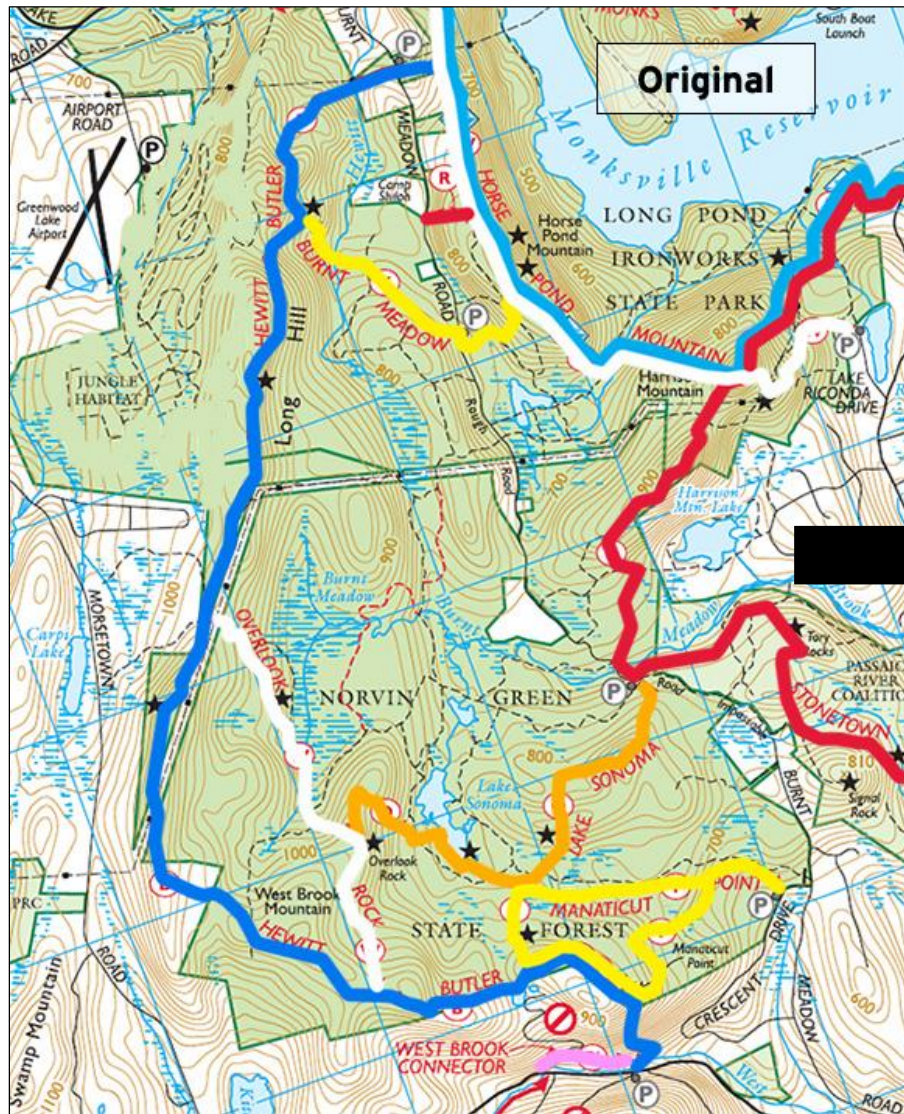
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# Implementation





# Implementation

It's fine to design theoretical trail network re-designs, but what challenges are there to implementing these best practices?

- Resistance to changing established trails, particularly historic long-distance trails.
  - **Solutions:** *Maintaining as co-aligned trail, preserving as a “digital hike” (online hike description that describes historic route along re-blazed trails).*
- Budgetary restrictions on printing new maps and signs.
  - **Solutions:** *Time changes with routine reprinting, seek grants with the understanding that trails cannot be changed if maps will be incorrect.*



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# Any Questions?