



1.3 Through/Around Breakneck Tunnel/Headlands

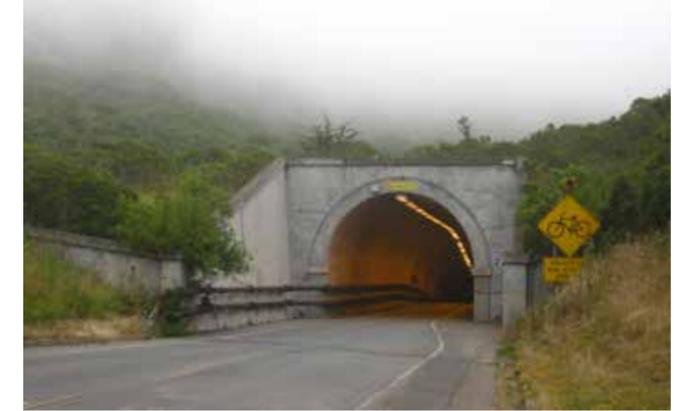
Breakneck Ridge presents the most challenging physical constraint along this route due to its size and steepness, and because the most heavily used hiking trail in the area runs up the ridge. There are only two options for navigating this land form: through the tunnel (1.3A) or around the headlands (1.3B).

1.3A - Through Breakneck Tunnel: The tunnel is approximately 30 feet wide, wall to wall, and accommodates one travel lane in each direction. Lighting is poor and the moving lanes are together 27 feet wide. Pedestrian accommodation is inadequate. At times hikers are forced to walk through the tunnel between available parking and their destination, which is typically a trailhead. This is not the proposed route.

There are two options for routing the trail through the tunnel:

Option 1: A narrow 8-10 foot two-way side path through the west side of the tunnel. The moving lanes could be narrowed to 11 feet from the existing 13.5 feet, which would have the benefit of slowing vehicles. This would leave 8 feet for a barrier-protected multi-use trail. However, only 6-7 feet of this space would be usable after subtraction for the barrier. This would not provide the level of comfort desired for this trail. An alternative would be to narrow the travel lanes further to 10 feet leaving 10 feet for the trail. Motorist warning signage for the narrow lanes and a reduced speed limit for the tunnel would accompany the 10 foot lanes.

Option 2: Narrow the travel lanes to 10-11 feet and install a 4-5 foot wide red painted shoulder. This option would slow traffic by narrowing the travel lanes, however, there would be no barrier between the shoulder and motorists. Cyclists would have to share the travel lanes, again, falling well short of the desired comfort level desired for this trail. However, this option would be implemented as part of the Route 9D corridor improvements.



Cyclist-activated warning signage with flashing beacon to notify drivers about presence of cyclists in tunnel

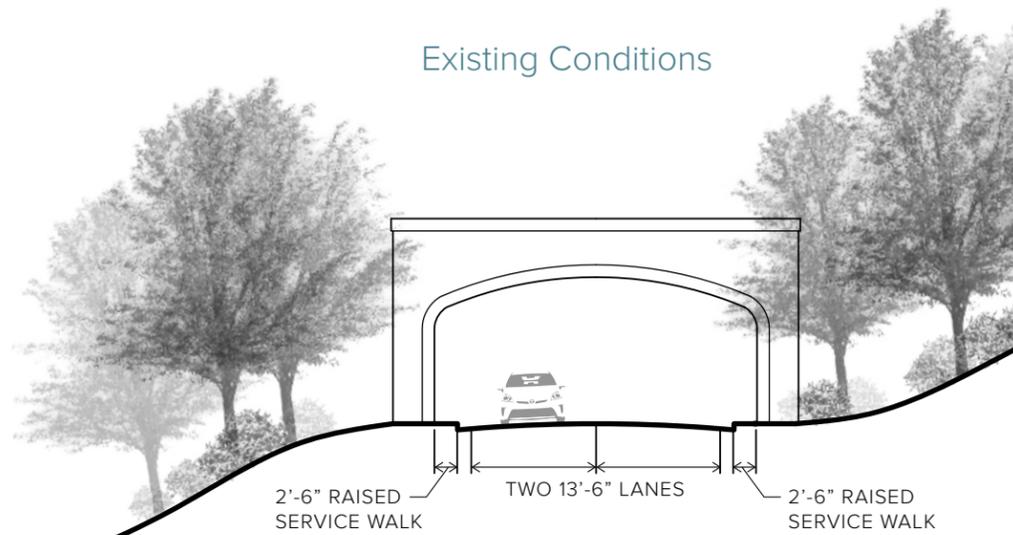


Looking north on Route 9D at the Breakneck Ridge Tunnel



Looking north on Route 9D from inside of the Breakneck Ridge Tunnel

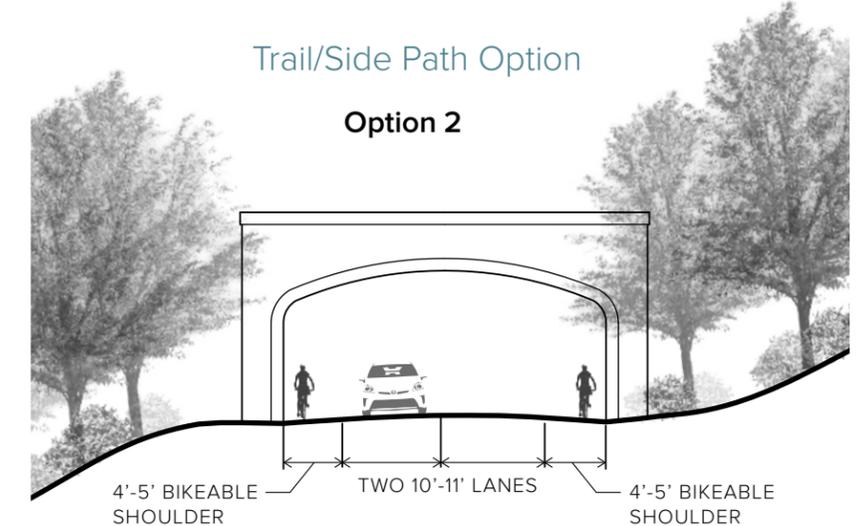
Existing Conditions



Shoulder Bike Lane Option



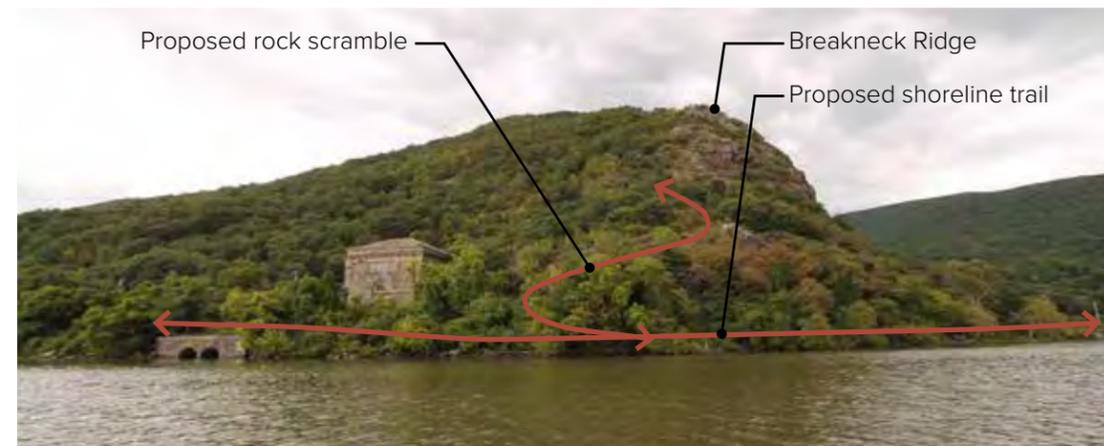
Trail/Side Path Option



1.3B - Breakneck Headlands/Shoreline: The proposed route is along the shoreline around the Breakneck Ridge headlands (see image on p. 40). The remnants of the original graded roadbed (see image below) around Breakneck Ridge can be seen today, though the roadbed is overgrown and has fallen into disrepair. With some clearing of invasive plants and native plant restoration, this area could serve as a connection around the Breakneck Ridge headlands. This connection could also host a viewing area where trail users can pause and engage the spectacular view across the river to Storm King Mountain, and West Point. For those who are not physically able to hike, there is no other opportunity to experience this unique relationship between mountains and river, meeting at the water's edge across from one another. Participants at the public meetings heavily favored this route option for its safety and scenic benefits compared to routing the trail through Breakneck Tunnel.

DEP's Hudson River Drainage Chamber is located on the north side of the ridge, set back 80 feet from the river. This facility is scheduled to be rehabilitated in 2015, with temporary staging to the north. Should the trail be routed along the historic roadbed, it would closely pass by the drainage chamber. As this is part of DEP's critical infrastructure, security measures would need to be installed to secure the facility.

It is recommended that a hiking trail (a rock 'scramble') be blazed for hikers who might want to climb from the proposed headlands trail closer to the water's edge to the existing Breakneck Ridge trail above. This will allow hikers to walk unimpeded from the Cold Spring Station up onto Breakneck Ridge via the Hudson River shoreline.

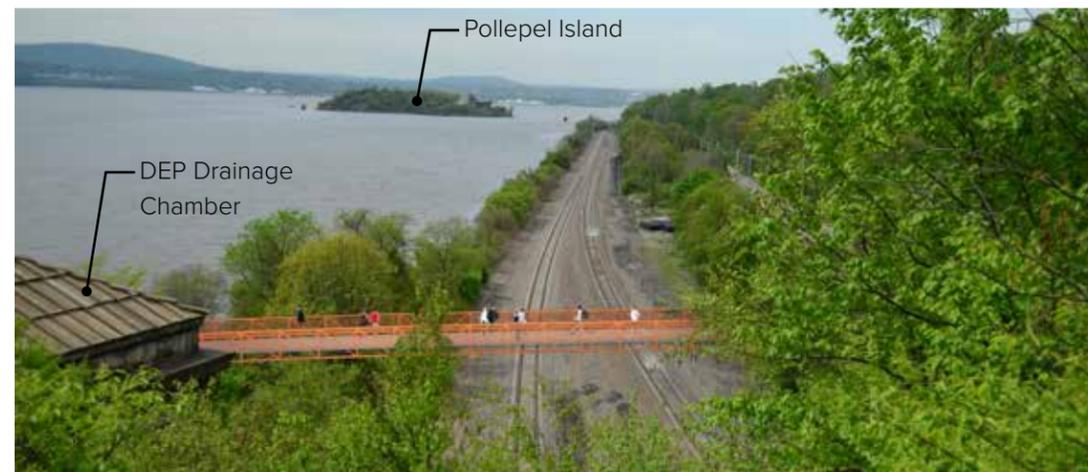


Breakneck Ridge headlands seen from the river, with DEP Hudson River Drainage Chamber

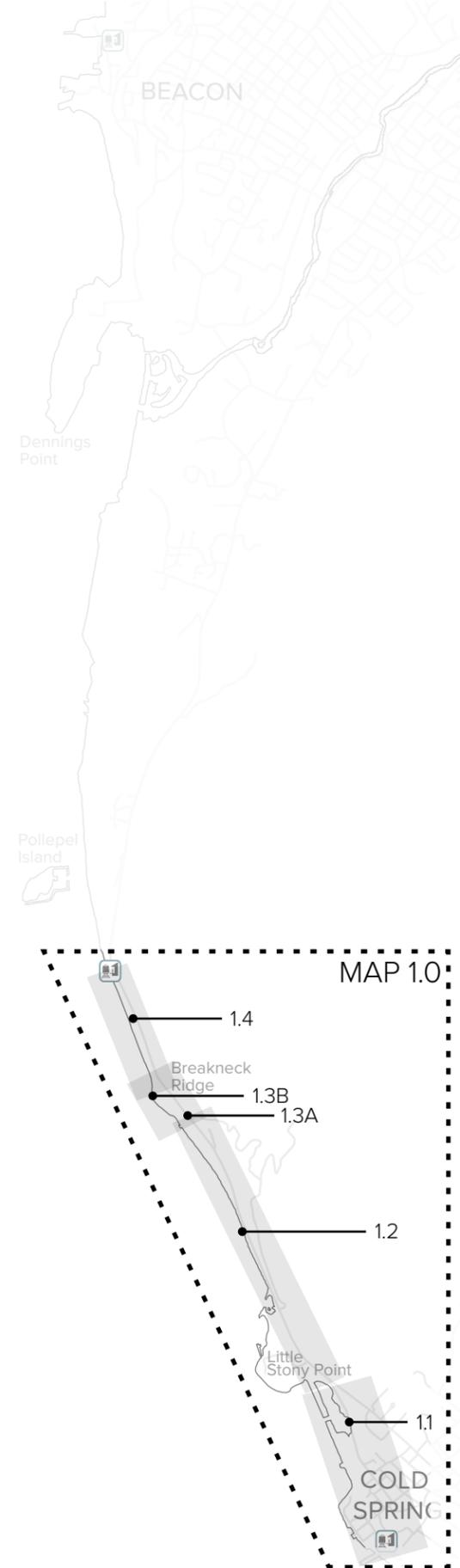
1.3C - Bike-Ped Bridge over railroad tracks: A railroad crossing is required in order to connect the proposed route around the Breakneck Ridge headlands to the preferred route north of the ridge, which lies between the Metro-North railroad and Route 9D. The north side of Breakneck Ridge is ideal for this, because the grade of the Breakneck Ridge trailhead area east side of the Metro-North railroad tracks is significantly higher than the shoreline grade, and the proposed bridge would likely connect at that higher elevation without the need for a ramp on the east side. This crossing would allow the trail to continue around the headlands, connecting the trail at a crucial, and challenging, point along the shore. Any bridge over the railroad right-of-way must meet all DOT and Metro-North requirements regarding the structure and minimum height above rail.

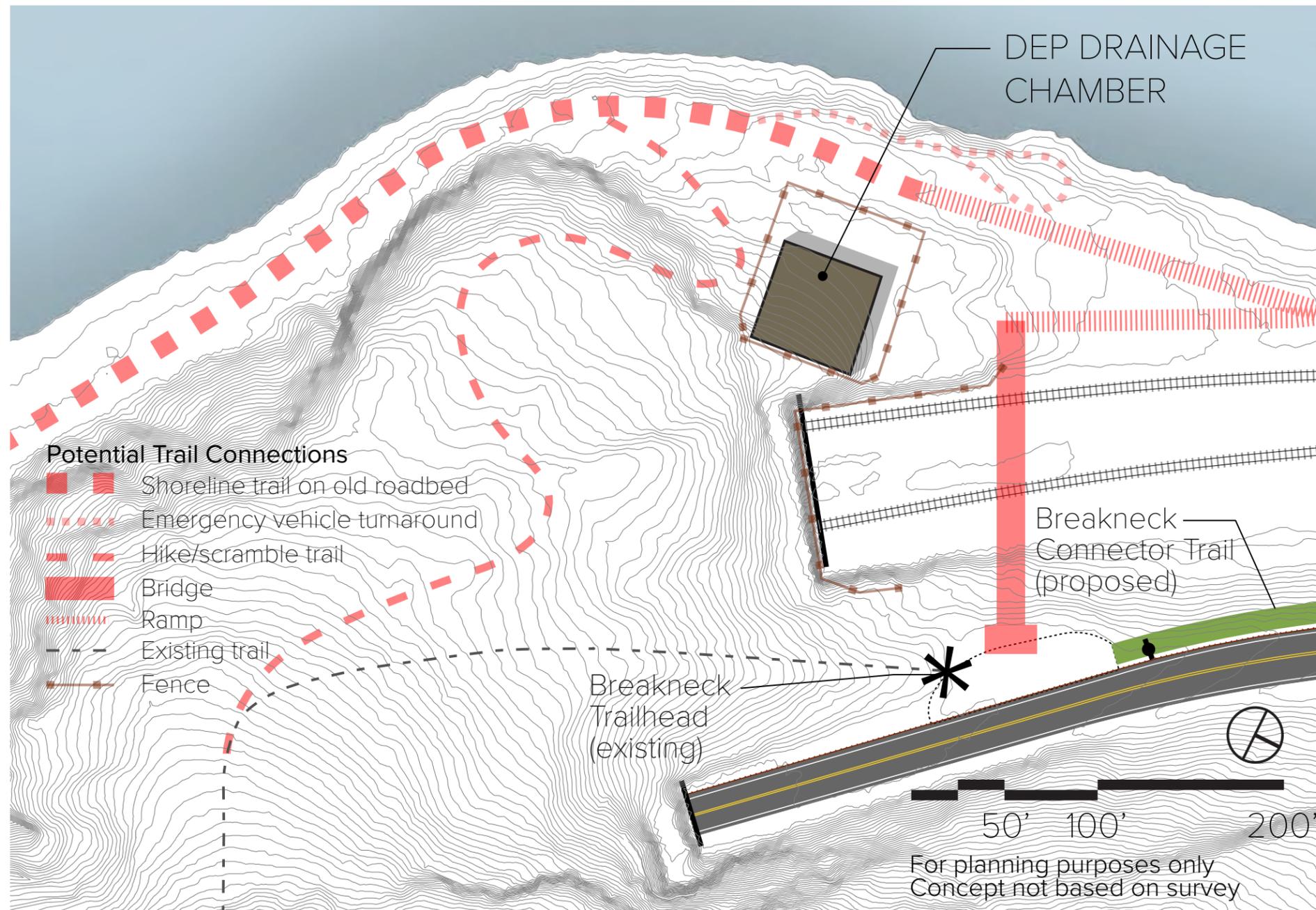


View from Breakneck Ridge headland, west across the river to Storm King Mountain



Rendering of proposed bike-ped bridge over railroad tracks at north side of Breakneck Ridge

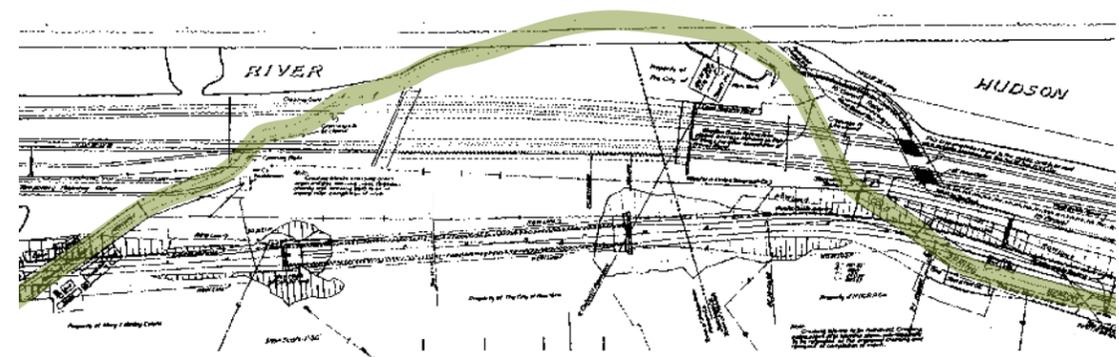




Plan showing proposed trail connections around the Breakneck Ridge headlands, including a proposed connection to the existing Breakneck Ridge trail

Emergency Access to Shoreline Trail

Access to the entire shoreline segment of the trail, from Little Stony Point to Breakneck Ridge Headlands would be provided from the south at Little Stony Point. The entire shoreline trail would be designed to accommodate vehicles, including those portions built on structure over the water. A vehicle turnaround, built on retaining walls as needed, would be provided at the north end under the ramp, west of the DEP Drainage Chamber. As an alternative, the proposed bicycle-pedestrian bridge could be designed to carry the load of emergency vehicles, as well as DEP maintenance vehicles accessing the Drainage Chamber. Such a connection on the north side of the proposed shoreline trail would allow for better circulation and access for emergency and maintenance vehicles.



Historic Plan showing old road alignment around west side of the Breakneck Ridge headlands

Summary Evaluation

1.3A Breakneck Tunnel

GOALS

SAFETY

Breakneck tunnel is narrow and vehicles travel at high speeds. Even by narrowing moving lanes as much as possible, conditions for cyclists and pedestrians would not be significantly improved over the existing conditions.

RECREATION

This segment would provide no recreational value for most trail users aside from making a connection to other recreational areas along the trail corridor.

HIGHLIGHT & RETAIN NATURAL BEAUTY

This segment would not highlight the surrounding natural beauty.

CONSTRUCTION FEASIBILITY

The limited width of the tunnel leaves few options, none of which meet the goals of this master plan. The widened walkway on the west (southbound) side of the tunnel that was considered here could be easily constructed, although it would impact underground utilities in the same area.

1.3B Breakneck Headlands/Shoreline

Completely separated from vehicular and rail traffic, this alignment would provide the maximum safety for trail users.

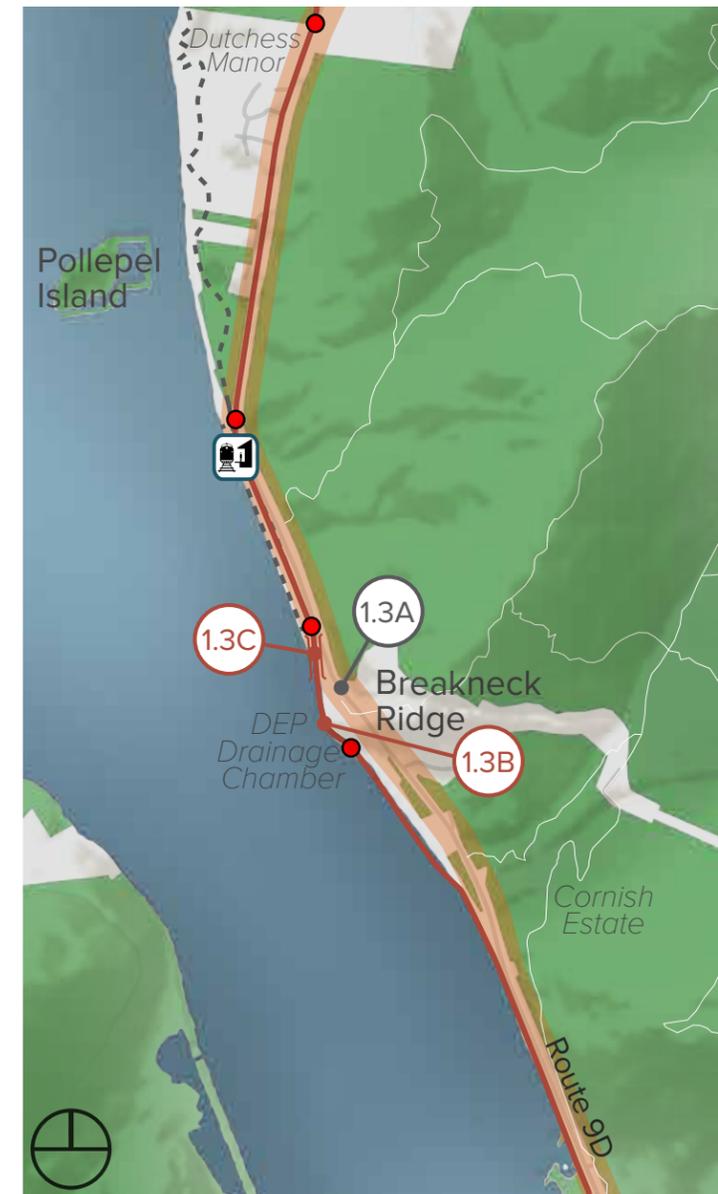
This trail segment would provide a recreational asset that would make the trail as a whole a transformative force in the region.

The uninterrupted views of the western Hudson Highlands, including Storm King State Park directly across the river, would provide greater visual access to these natural features for many more users than existing conditions allow.

This route segment will be challenging to implement, and will perhaps require means and methods that are more expensive in order to minimize construction impacts. Because the old but degraded road bed still remains, efforts to stabilize and elevate the shoreline would require less construction than the portion along the shoreline to the south.

1.3C Bike-Ped Bridge over railroad tracks

P R E F E R R E D R O U T E



Map 1.3 - Through/around Breakneck tunnel/headlands

Legend

- Preferred Route
- Change in route segment
- - - Alternate Route
- Proposed Route 9D Corridor safety improvements
- State Parks