

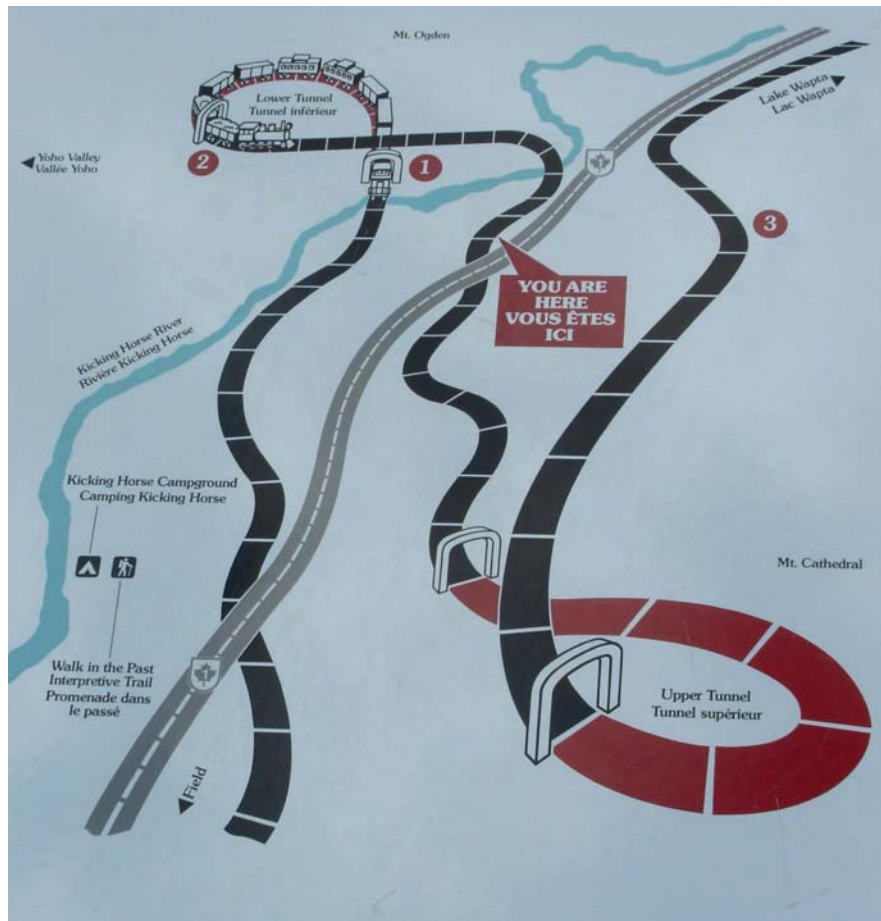
## CP Rail's Spiral Tunnels

By Allen Merta, Eastern Iowa Division

The Canadian Pacific Railway actually has two Spiral Tunnels. They are located between the community of Field and Kicking Horse Pass in Yoho National Park, British Columbia. British Columbia is the western-most Canadian province that shares a border with the U.S.

The tunnels were completed in 1909 and reduced the maximum grade from 4.5% on a section of track called the Big Hill, to 2.2%. This grade reduction enabled 2 eastbound locomotives to pull the same tonnage that previously took 4 locomotives and at 5 times the speed. In addition, safety was improved for the downhill westbound trains. Train delays were greatly reduced.

Eastbound trains from Field climb 5 miles along a 2.2% grade to the lower portal of the Lower Spiral Tunnel in Mt. Ogden. This trip takes 15 to 20 minutes. En route, the eastbound train passes through "Nose Tunnel" (132 feet long in Mt. Stephen), the Mt. Stephen snowshed, and another 181 foot long tunnel. In that process, that train will cross a 226 foot long bridge, travel through the 2,923 foot Lower Spiral Tunnel. Lower Spiral Tunnel is 2/3s of a circle.

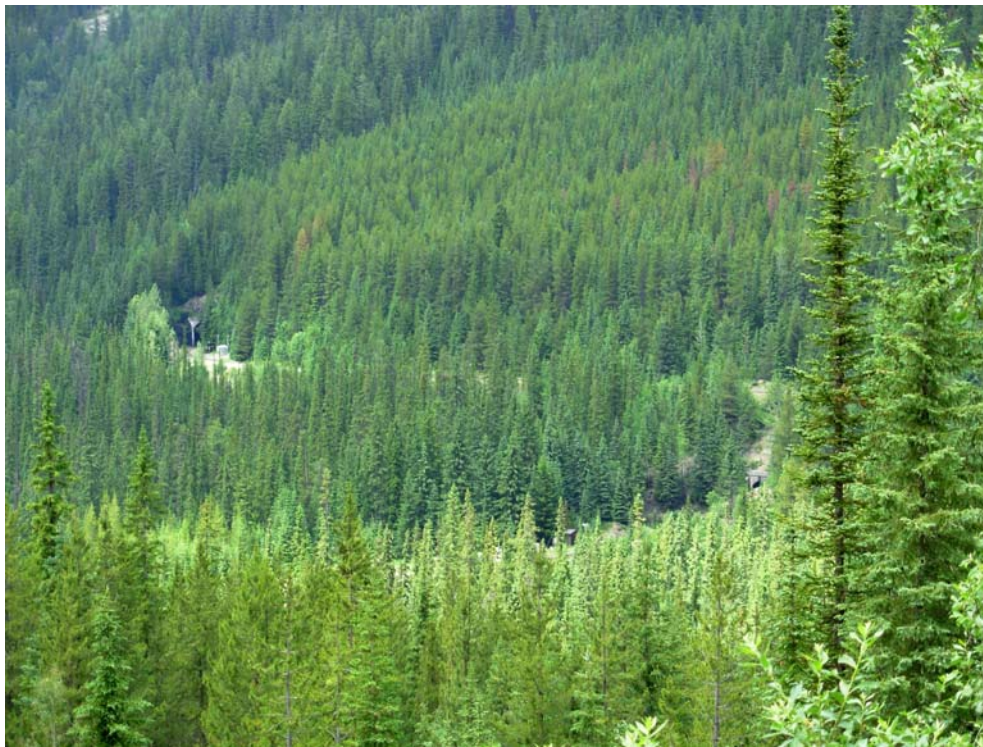


As the eastbound train continues on, it gains 51 feet when it exits the upper portal and is actually heading south. After crossing the Kicking Horse River again, the track curves southwest. At this point, the train passes below the viewpoint on the TransCanada Highway.

West of this viewpoint, our eastbound train disappears from sight beneath a highway overpass on its way to the lower portal of the Upper Spiral Tunnel. The distance between the 2 tunnels is 1 mile. The Upper Spiral Tunnel is 3,255 feet long and gains 56 feet when our train exits the upper portal. The Upper Spiral Tunnel is located in Cathedral Crags and completes  $\frac{3}{4}$  of a circle.

After exiting the upper portal of the Upper Spiral Tunnel, our eastbound train is again visible from the TransCanada Highway. At this point, the train is paralleling the original track grade that was established in 1884.

If placed portal to portal, the Spiral Tunnels would create a figure 8. Between Cathedral and Partridge sidings, which are located above and below the Spiral Tunnels, the track climbs 427 feet over a distance of 5 miles. About 30 trains per day travel this line. On the day we visited the Tunnels, trains were backed up and taking turns hitting the tunnels.

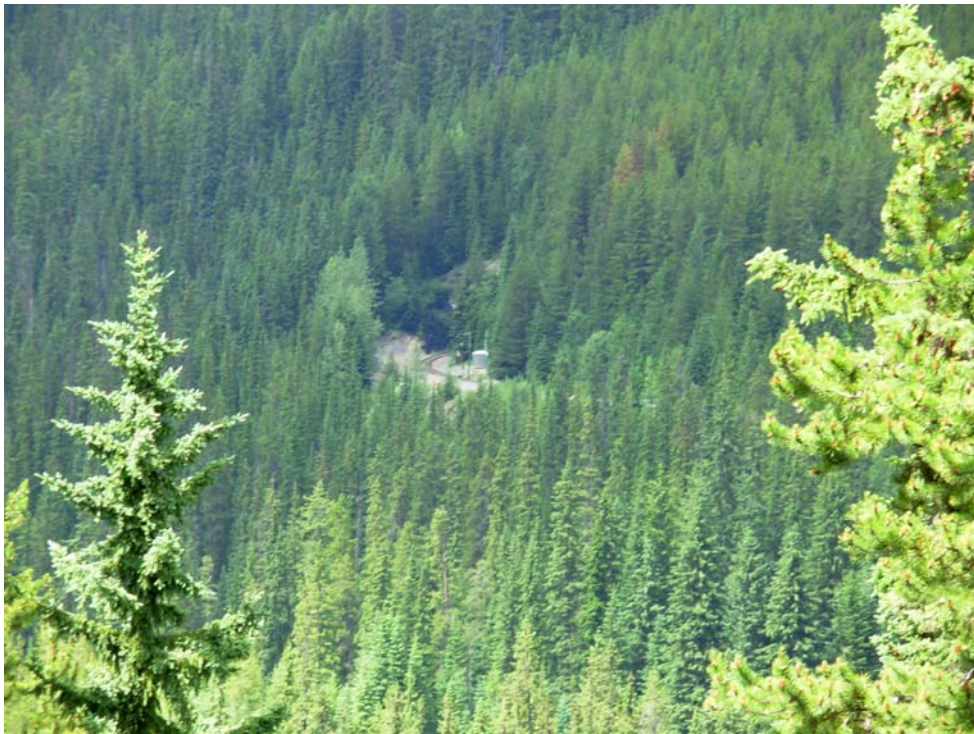


**CP Rail's Lower Spiral Tunnels as seen from the viewpoint along the TransCanada Highway**





**Lower portal, Lower Spiral Tunnel**



**Upper portal, Lower Spiral Tunnel**