



Canadian Mountain Passes

Kicking Horse and Rogers Pass

Lake Louise (Eldon)-Revelstoke



dovetail
GAMES



Milepost
Simulations

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Route Information

The route is set in the Rocky Mountains of Western Canada in Alberta and British Columbia, featuring the most interesting 155 mile section on the Canadian Pacific® mainline between Calgary and Vancouver featuring two mountain passes Kicking Horse Pass and Rogers Pass. The route can be seen marked in red on the map of the principal railways of Western Canada shown below.



The route is set in the present day and features part of the Laggan Subdivision, the entire Mountain Subdivision and the northernmost 3 miles of the Windermere Subdivision to include the large yard to the south of Golden.

The route starts at Eldon around 10 miles east of Lake Louise. Between Eldon and Lake Louise the railway follows the Bow River passing the curve made famous by Canadian Pacific's Official Photographer Nicholas Morant now known as Morant's Curve. When the second track was built between Lake Louise and Stephen the yard and facilities from Lake Louise were moved to Eldon. At Lake Louise the line splits, the northern track has a reduced grade of just over 1%, while the original southern track has grades of up to 1.8% to Stephen at the summit of Kicking Horse Pass on the Alberta/British Columbia border.

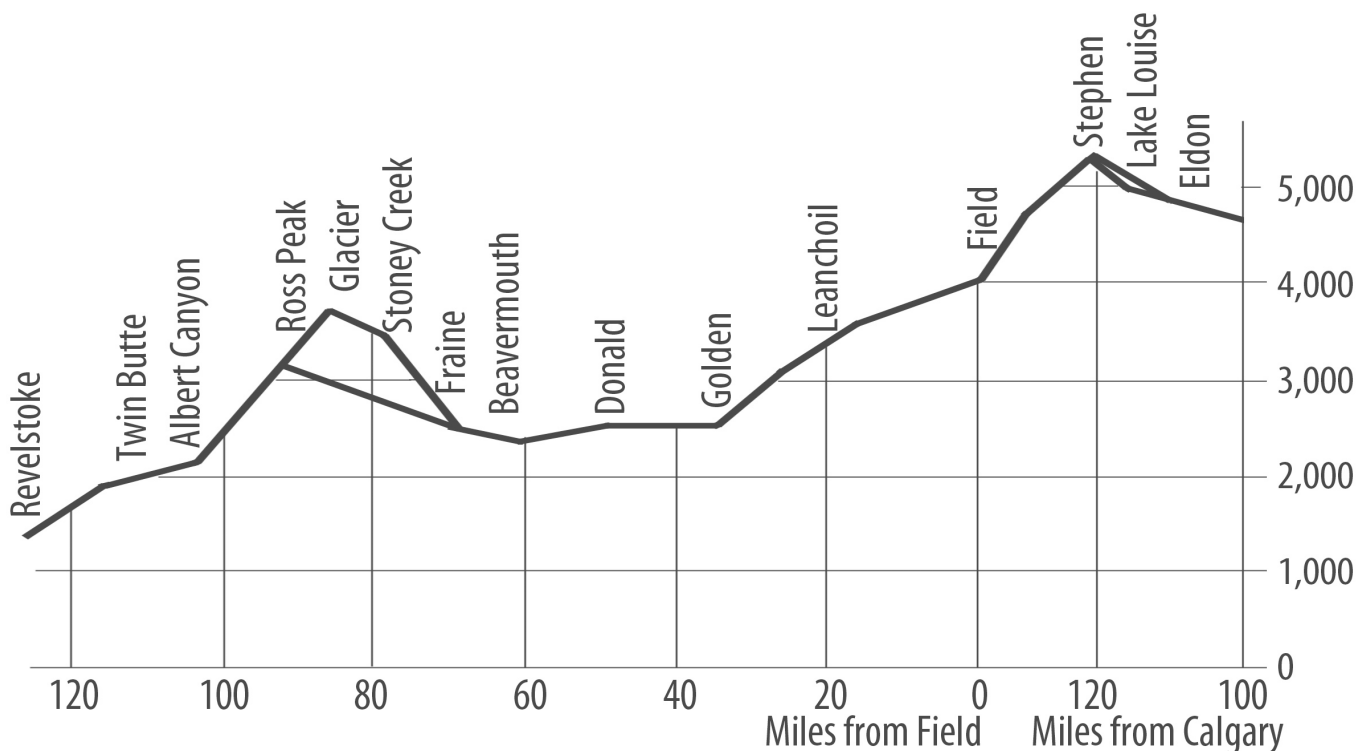
From Stephen the line descends to Golden. Between Partridge and Cathedral the line descends using the Spiral Tunnels on a 2.2% grade. Field is a division point on the railway with the Laggan Subdivision to the east to Calgary and the Mountain Subdivision to the west to Revelstoke. All trains stop here for a crew change. From Field to Leancoil the line is relatively flat, but at Leancoil the line descends on some grades exceeding 2% into Lower Kicking Horse Canyon into Golden.

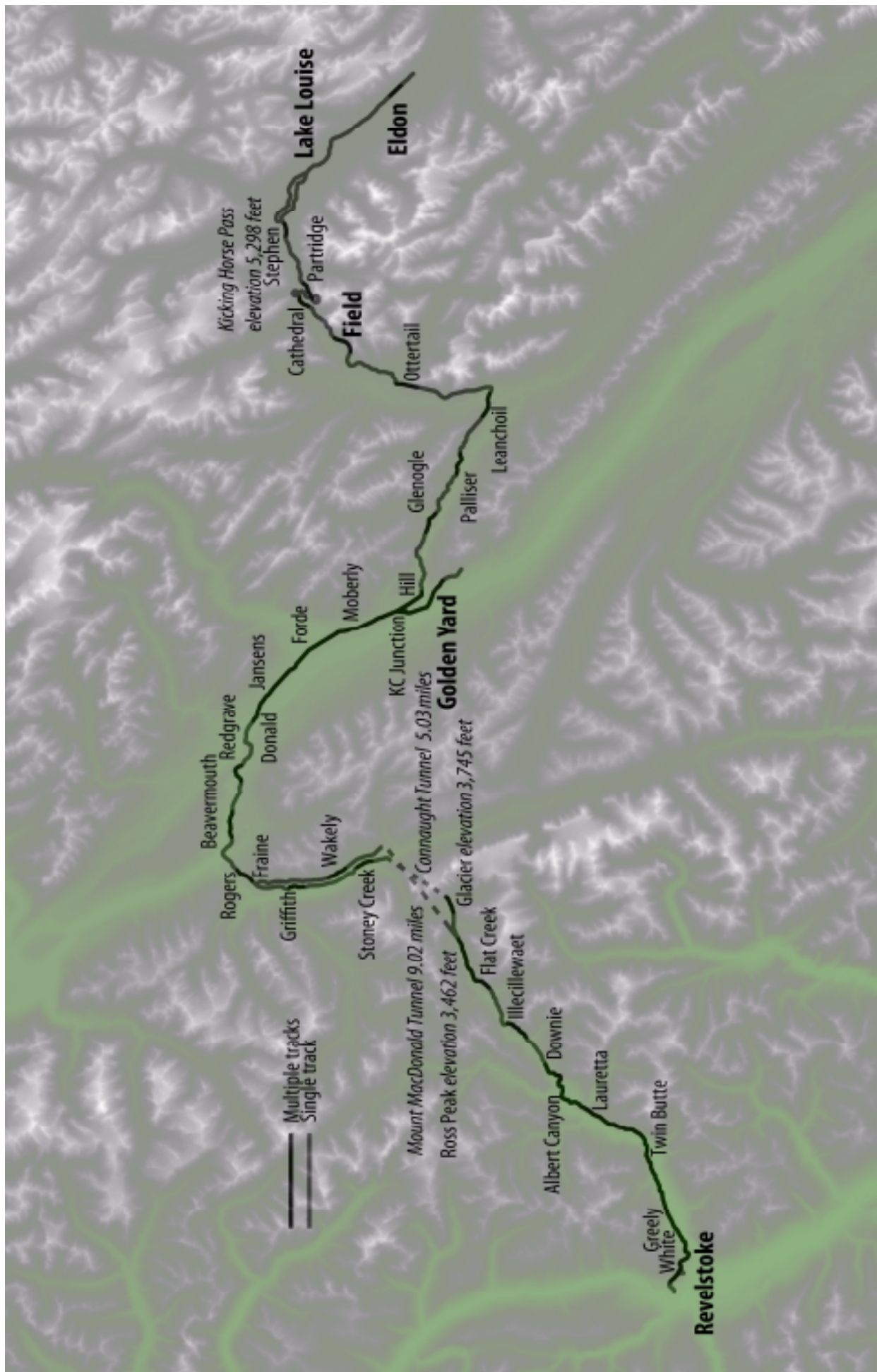
At Golden there is a small yard at Hill on the mainline but the main yard is about 3 miles south on the Windermere Subdivision. The yard is mainly used for stabling and servicing coal trains which come from the Crowsnest Pass area to join the mainline at KC Junction just west of Golden. The line from Golden is now mainly double track most of the way to Revelstoke as the coal trains have joined the traffic flow. West of Golden the line follows the Columbia River flowing northwards through the Rocky Mountain Trench. The line is flat and the fastest section of the route is to Donald. West of Donald the line goes down to single track next to Kinbasket Lake, which was created when the Kinbasket Dam was built on the Columbia River resulting in having to reroute the railway.

At Beavermouth the line turns away from the Rocky Mountain Trench leaving the Columbia River behind and starts the climb up Rogers Pass. At Fraine the line splits in two with the Connaught track having grades of up to 2.2% and the MacDonald track having grades of just over 1%. The Connaught track crosses the famous Stoney Creek Trestle; the highest railway bridge in Canada which has been used in numerous publicity photographs for Canadian Pacific® over the years. The Connaught track enters the Connaught Tunnel which it exits at Glacier in Glacier National Park. The MacDonald track climbs the valley below the Connaught track before going into the Mount Shaughnessy Tunnel and then the 9 mile long Mount MacDonald Tunnel. Both lines join up again at Ross Peak where they descend in the Illecillewaet Valley to Revelstoke, on grades of over 2% in places, until Albert Canyon where the line flattens out a bit for the final approach into Revelstoke.

Revelstoke at the west end of the route is another division point on the railway with the Mountain Subdivision to the east to Field and the Shuswap Subdivision to the west to Kamloops. Revelstoke has large yards and is another crew change point for all trains. Of note, Revelstoke is on the Columbia River, which the railway last saw at Beavermouth flowing northwards, but now is flowing in a southerly direction through Revelstoke. The railway could have avoided Rogers Pass by following the Columbia River but this would have resulted in a much longer route.

Grade Profile of route below and detailed map of route on next page.





Route History

Part of the condition for British Columbia becoming part of the Canadian Confederation in 1871 was that it would be connected to the rest of Canada by a transcontinental railway connecting Vancouver with Montreal, a distance of around 3000 miles, significantly longer than the Union Pacific/Central Pacific transcontinental railway in the USA which only started at the Mississippi River and ended in California. This involved building a railway line across some of the most difficult terrain a railway had faced at the time; through the Canadian Rockies and Selkirk mountains.

The easiest route through the Rockies was a northern route crossing the Rockies through Yellowhead Pass without needing to cross the Selkirk Mountains at all. However as this route was around 300 miles north of the US border the Canadians were worried this would leave the south of Alberta and British Columbia free for US Railroads to access, so the Canadian Pacific® found Kicking Horse Pass west of Calgary around 150 miles further south. However this involved a very steep grade of 4.5% (1 in 22) down from the summit to Field. Rogers Pass was found as a route through the Selkirk Mountains.

The Canadian Pacific® Railway was completed in 1885. The Grand Trunk and Canadian Northern later both built lines through Yellowhead Pass. The Grand Trunk and Canadian Northern railways got into financial difficulty, later becoming part of the government owned Canadian National, leaving Canada with two main railways Canadian Pacific® and Canadian National. Canadian National was privatised by the government in the 1990s.

As traffic grew on the line the 4.5% grade down from Kicking Horse Pass to Field was becoming a operational headache, so Canadian Pacific® set about trying to find a solution by building double spiral tunnels copying the Gotthard line in Switzerland which reduced the grade to 2.2% and the tunnels were opened in 1909.

Another major problem with the original route was the avalanche risk on Rogers Pass. In 1899 eight people were killed when the station was destroyed by an avalanche. However the worst was to come in 1910 when a crew of 62 were killed when another avalanche struck. This time Canadian Pacific® decided it needed a new route through Rogers Pass and started work on the 5 mile long Connaught Tunnel in 1913. This was completed in 1916 being the longest tunnel in North America at that time. The tunnel was originally double track but later made single track to improve clearance.

By the 1980s trains were becoming longer and heavier. Canadian Pacific® had many sections of grade exceeding 2% for westbound trains which required pusher locomotives and it set about reducing the westbound grade to a maximum of 1.2%. This involved a new line from Lake Louise to the Summit of Kicking Horse Pass. On Rogers Pass over 20 miles of new track had to be constructed including the 9 mile long Mount MacDonald Tunnel around 300 feet lower than the previous Connaught Tunnel.

Railway Operations

Today Kicking Horse Pass and Rogers Pass are part of a busy transcontinental railway connecting eastern Canada and the northern part of the US Midwest with Vancouver and the Pacific Ocean. The route sees regular long unit trains of coal, potash, sulphur and grain going for export as well as general manifest freight, auto trains and double stack container trains. Most unit trains going west are loaded and empty going east. As the line now has a maximum westbound grade of just over 1% the use of helper/pusher locomotives is no longer required but Distributed Power Units (DPU) are common on most trains.

The line east of Golden can see around 24 trains per day and west of Golden can see around 40 trains a day as around 8 loaded and empty coal trains of around 150 cars join the route at Golden. Scheduled passenger trains on the route were discontinued in 1991, but during the summer the line sees the Rocky Mountaineer tourist train.

Locomotive GE ES44AC



Built by General Electric's Transportation Systems division in response to the introduction of tighter emission policies that came into effect in 2005, the ES44AC and DC locomotives succeeded the successful AC4400CW series. The upgrades result in more power and less emissions from the smaller GEVO 12-cylinder engine than its 16-cylinder predecessor.

Consisting of a twin six axle or Co-Co wheel arrangement, almost 5,000 of these locomotives have been ordered by nearly all the major US and Canadian railroad companies, 291 of which are operated by Canadian Pacific®.

The Evolution Series locomotives are very similar in appearance to the Dash 9 and AC4400CW, with both AC and DC versions featuring the large cabinet behind the crew compartment on the left side, housing the Traction Inverters for the AC models. The radiators on these locomotives are longer than previous models, extending forwards towards the exhaust vents. Also present is a raised hump housing heat exchangers related to the reduced emissions.

These newer improved models have further enhanced the reputation of GE Transportation Systems to produce powerful heavy haulage machines for many freight carrier applications.

Canadian Pacific® first purchased the General Electric ES44AC in 2005 following the success of the General Electric AC4400 model. The AC traction motors of the ES44AC and AC4400CW are well suited to the mountain grades of Western Canada and operate all trains on the mainline between Calgary and Vancouver.

Technical Data

Total Built: currently around 5,000 but still in production (CP 291)

Weight: 188t

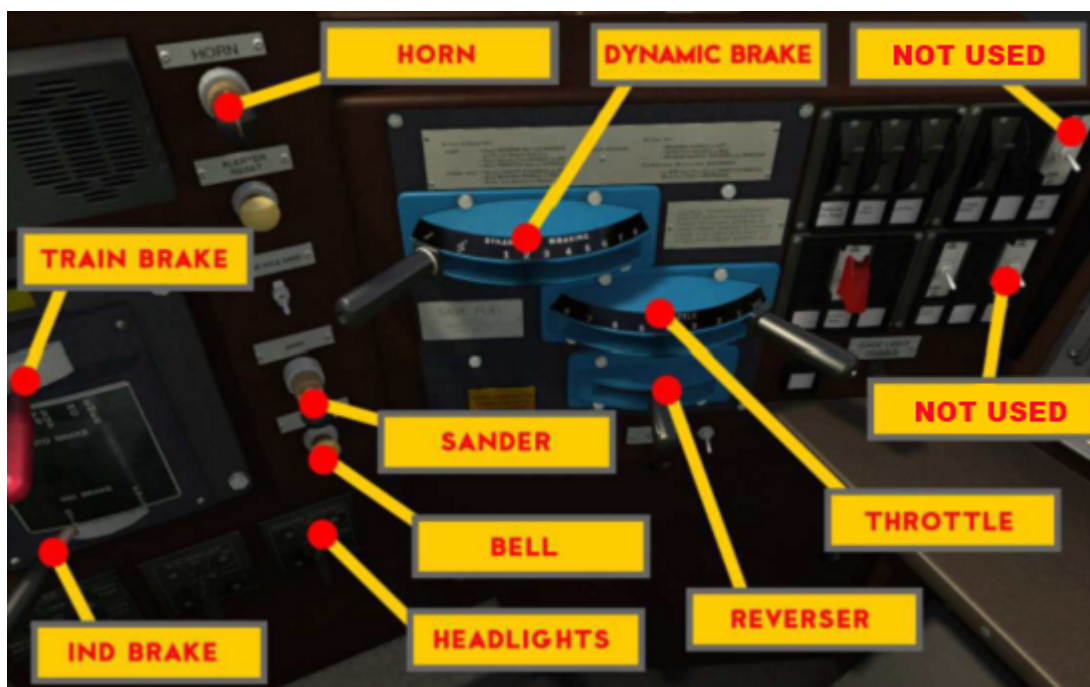
Length: 71'4" (21.73m)

Engine Power: 4,400Hp (3,284kW)

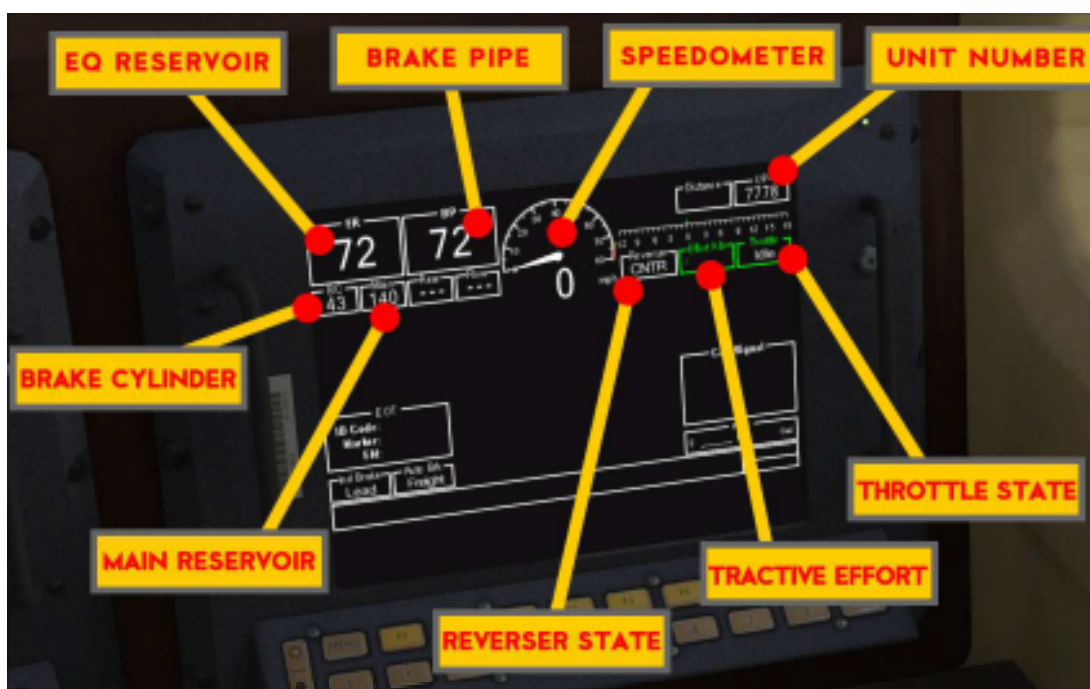
Max Speed: 74Mph (119Kph)

Fuel Capacity: 5,000gal (22,730L)

Locomotive Controls



Throttle	A / D
Reverser	W / S
Train Brake	Apply ' Release ;
Dynamic Brake	Apply . Release ,
Independent / Locomotive Brake	Apply [Release]
Headlights Toggle	H
Horn	Space Bar
Bell	B
Sander	X
Windshield Wipers	V
Steps Light	K
Cab Light	L



The switch for the Step Lights can be found on the back wall of the cab as shown below:



The switch for the Cab Light can be found above the engineers window as shown below:



Freight Cars

Several of the supplied freight cars are modelled in unloaded and loaded form.



Auto Rack



Coal Hopper Gondola Car



Container Double Stack Car



Grain Hopper



50 foot Box Car



Double Door Box Car



4-Chute Covered Hopper



Potash Car



Tank Car

Scenarios

The route includes 9 career scenarios covering the majority of the route. Some of the scenarios are fairly long so you may wish to save where you got to at any point by pressing F2 and resume later. Refer to the map on page 5 to see where locations are.

The route is also set up for Quick Drive, starting and heading to all major locations on the route and there are a selection of consists ready for use featuring the Canadian Pacific® ES44AC and rolling stock. There are also free roam scenarios starting at all major locations on the route.

Tutorial scenarios

Four tutorial scenarios are also included to help get used to driving to the route. It should be noted that the Locomotive Brakes have been improved from previous North American routes for Train Simulator so it realistically takes much longer to stop a train than you may be used to.

Simple Driving Controls

Learn how to operate trains on the Canadian Mountain Passes route using simple controls.

Expert Driving Controls

Learn how to operate trains on the Canadian Mountain Passes route using expert controls.

Braking

Become familiar with the air and dynamic braking systems of the Canadian Pacific® GE ES44AC and test your abilities on the descending 2.2 percent grade into Field.

Using the Task List for Switching

Learn how to couple and uncouple cars and perform switching using the task list.

Career Scenarios

Along the Kicking Horse

Difficulty: Medium

Time: 55 minutes

Route: Golden (Hill)-Leancoil

You are the engineer of CP Train 356 lugging a long string of empty covered hoppers east. You'll soon be departing the passing siding at Hill Yard on the Mountain Subdivision and tracing the path of the Kicking Horse River. It is a stormy autumn evening and the railroad is busy.

CP Train 200, Part 1

Difficulty: Hard

Time: 65 minutes

Route: Revelstoke-Illecillewaet

Because of the numerous single-track sections on the Mountain Subdivision, CP often "fleets" multiple trains. You are the engineer of CP Train 200, a scheduled mixed merchandise freight that typically carries some intermodal traffic as well as grain and general freight. You are ready to depart Revelstoke eastbound, but will be following a stack train up the west slope of Rogers Pass, so you will need be alert for restricting signals.

CP Train 200, Part 2

Difficulty: Medium

Time: 70 minutes

Route: Illecillewaet-Griffith

Having reached Illecillewaet on the west slope of Rogers Pass with CP Train 200 in Part 1 of this scenario, you are awaiting a meet with a westbound stack train and soon will be on your way eastbound to the summit at Glacier and then begin the east slope descent via Connaught Tunnel.

Eldon Extra

Difficulty: Medium

Time: 35 minutes

Route: Eldon-Stephen

You are the engineer of a CP extra movement dispatched to Eldon Yard to pick up a string of empty coal gons and forward them west to Hill Yard. You have a single CP ES44AC as power and given the low priority of this empties movement, you can likely expect an interrupted journey.

Golden Morning Switch

Difficulty: Medium

Time: 30 minutes

Route: Golden Yard

You are the engineer of Golden switch job VG11, the 7:00 am Monday through Friday call. Dawn is just starting to break on a spring morning as you begin work and your tasks will include shuffling some cars into and out of the Golden Car Shop and pulling together the short consist of CP Train 566, the Golden to Cranbrook Windermere Subdivision local. There's no yard power available for assignment today, so you'll be working with a husky GE ES44AC.

Spiral Bound

Difficulty: Medium

Time: 60 minutes

Route: Field-Lake Louise

You are the engineer of priority CP intermodal Train 100 and you have just climbed aboard at the Field crew change point. You'll be headed eastbound over the heart of Kicking Horse Pass en route to Lake Louise with the famous spiral tunnels ahead. Your consist is a heavy stack train and you have three GE ES44ACs as power, two up front and one on the rear.

Train 671: Potash Westbound

Difficulty: Hard

Time: 50 minutes

Route: Field-Leanchoil

You are the engineer of CP Train 671, a heavily loaded westbound potash unit train. You've just climbed aboard the train's lead unit, GE ES44AC 9377, and are ready to head west after a crew change. It's a cold, snowy January afternoon in the Canadian Rockies, so you'll have the challenges of heavy tonnage, snow, and opposing traffic ahead.

Windermere Coal, Part 1

Difficulty: Medium

Time: 50 minutes

Route: Golden Yard-Redgrave

Canadian Pacific's Windermere Subdivision is a major artery for coal mined in western Canada to move to market. Golden Yard is the staging point for coal from the Windermere Sub to move onto the Mountain Subdivision, and frequently an extra unit is added at Golden for the mainline run west. You are the engineer of a loaded unit coal train preparing to depart Golden and move onto the Mountain Subdivision via KC Junction. Your power is a quartet of GE ES44ACs, two on the point, one mid-train, and one on the rear of the consist.

Windermere Coal, Part 2

Difficulty: Medium

Time: 40 minutes

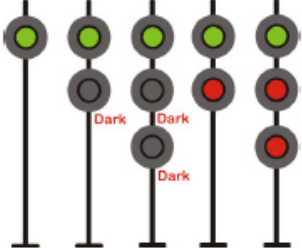
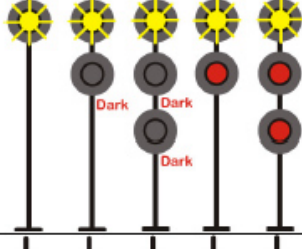
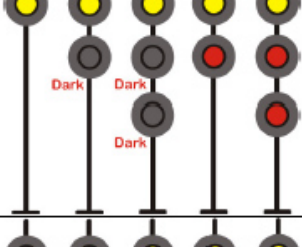
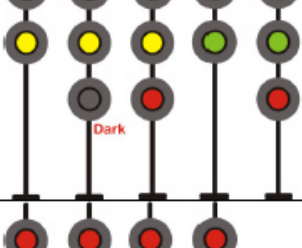
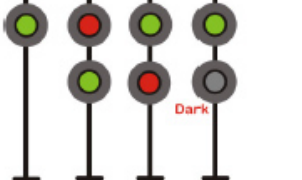
Route: Redgrave-Wakely

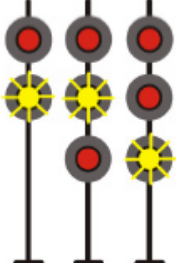
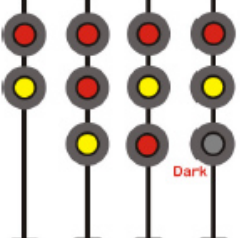


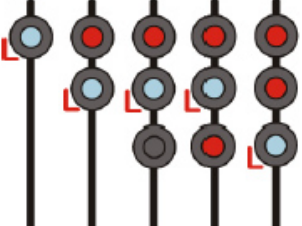
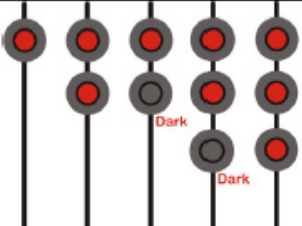
This is the second instalment of a CP unit coal train run westbound from Golden Yard and across the Mountain Subdivision mainline. You are at Redgrave, awaiting a meet with an eastbound CP empties train and will be soon headed westward for the heart of Rogers Pass.

Signalling and Signage

Signalling

Colour light signals are used for controlling running movements. They display aspects by means of red, yellow and green coloured lights.




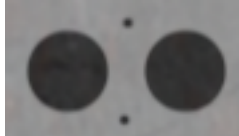
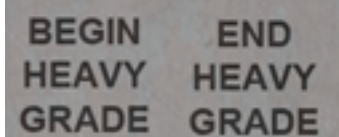
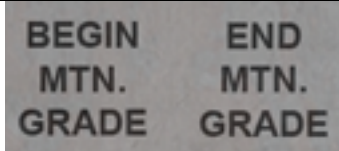
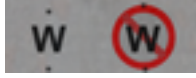

Signal Aspect	Description	Instruction to Driver
	Clear	Proceed, at the maximum allowed line speed.
	Advance Approach	Proceed: be prepared to stop after the next signal.
	Approach	Proceed: be prepared to stop at the next signal.
	Approach Diverging	Proceed: be prepared to take a diverging track after the next signal.
	Diverging Clear	Proceed on diverging track at prescribed speed for junction.

	Diverging Advance Approach	Proceed on diverging track at prescribed speed for junction. Be prepared to stop after the next signal.
	Diverging Approach	Proceed on diverging track at prescribed speed for junction. Be prepared to stop at the next signal.
	Diverging Approach Diverging	Proceed on diverging track at prescribed speed for junction. Be prepared to take a diverging track after the next signal.
	Approach Restricting	Proceed: be prepared to pass next signal at restricted speed.
	Restricting	Proceed at restricted speed.
	Stop	Stop.

Signage

Speed Limit Notes: In some cases there will be line speed changes with no visible sign however warning of the change can be seen on the HUD screen. For all diverging tracks the speed limit is 25mph this includes entry and exits from passing sidings and crossovers between tracks. All sidings, yards and industrial spurs have a speed limit of 20mph.

Milepost Notes: The mileposts between Eldon and Field are from Calgary at Field the mileposts get reset to zero therefore mileage 136.6 equals Mile 0 at Field.

	Speed Sign All trains must obey the stated speed limit
	Speed Sign Passenger Trains can travel at the upper speed. Freight trains must travel at the bottom/lower speed.
	End of track
	Plow/Flanger Flanger or Plow must be removed due to oncoming obstruction
	Grade Warning Start/End of downgrade section exceeding 0.8%
	Grade Warning Start/End of downgrade section exceeding 1.8%
	Whistle Signs Whistle for grade crossing/Whistle Prohibited
	Reduce Speed Upcoming reduction in speed limit

Credits

Route created by Jonathan Lewis, including assets and rolling stock provided by Dovetail Games. Additional rolling stock (Potash and Grain Car) produced by Michael Stephen, Scenarios by Gary Dolzall.

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