## MARIAS PASS



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### **ROUTE INFORMATION**



The TS2013 recreation of the modern Marias Pass route spans from Whitefish in the west and Shelby in the east, 150 miles distant across the Rockies.

Industrial facilities abound throughout the route with the large marshalling yard at Whitefish, the industries at Columbia Falls and vast Aluminum plant at Conkelley being the dominant locations in the western side of the main route.

The most demanding section of the line is between Essex and Summit, with steep grades and very tight curves.

Once over the summit the grades are less severe and the industrial activities are grain oriented with extensive facilities located at Cut Bank. The remainder of the journey east provides the opportunity for some high speed running until Shelby is reached, with its widespread industries and marshalling yard.

The Columbia Falls - Kalispell branch allows for a more genteel drive and serves multiple industries in and around Kalispell.

### HISTORY

The existence of the route across the Rockies via Marias Pass can be traced directly back to the ambition of one man; James J. Hill.

Born in modern day Ontario in September 1838, Hill had a brief formal education which ended as the result of the death of his father in 1852 when the boy would have been fourteen years old. At the age of eighteen, Hill moved to St Paul, Minnesota where he continued his own education by working in a variety of businesses.

From 1873 onwards Hill started building his commercial empire initially with a steamboat company plying the Mississippi River followed shortly afterward by a diversification into the local anthracite coal industry. By 1879 Hill had created local monopolies in both of these areas.

During this time Hill had been extensively researching the recently bankrupt St Paul and Pacific Railroad and in May 1879 he became general manager of the newly formed St Paul, Minneapolis and Manitoba Railway Co. (StPM&M) a company which also had track rights to run on the Northern Pacific Railway. Under James Hill's tutelage the StPM&M increased its net worth almost 30-fold in the first five years, and within ten years had expanded operations into Wisconsin, North Dakota and Montana.

Hill also developed interests in other railroad companies which were brought together in February 1890 in the formation of the Great Northern Railway, creating the basis for Hill's latest ambition - a transcontinental railroad – and his reputation as the Empire Builder.

"What we want is the best possible line, shortest distance lowest grades, and least curvature we can build."

\_\_\_\_\_

Although Hill had been known to personally take part in the surveying of new routes it was due to the endeavors of John F. Stevens, the Great Northern Railway's principal engineer during the latter years of the 19<sup>th</sup> Century, which led to the discovery of the lowest railroad crossing of the Continental Divide over what became known as Marias Pass.

The decision was made to scout for the pass in November 1889 which meant that Stevens not only had to work in restricted hours of daylight but also in severe winter conditions, with deep snow and night temperatures approaching -40°C. Nevertheless the route was discovered and the enormity of Stevens' accomplishment was officially recognized in 1925 with the erection of a statue in his honor close to the summit of the line.

Construction of the line progressed rapidly and rail travel between Whitefish and Shelby was possibly by the end of 1892.

James Hill was always quick to capitalize on the building of a new railroad, indeed part of his success resulted from having developing industries alongside his new routes wherever possible, and Marias Pass was no exception. Although this time his target was tourism.

Stations were opened at East and West Glacier, which stand at the entrances to the Glacier National Park, and various other lodges and inns were built throughout the Park so that Hill could promote his railroad to sightseers and tourists. Most of these buildings still stand today and many are included in the National Register of Historic Places.

Marias Pass remained a route operated and run by the Great Northern Railway until in 1970 it merged with Northern Pacific Railway (with whom merger attempts had been already attempted in 1896, 1901, 1927 and 1955), the Chicago, Burlington & Quincy Railroad and the Spokane, Portland & Seattle Railway to form the Burlington Northern Railroad.

This company lasted until 1996 when the Burlington Northern Santa Fe Railway was formed after the merger with the Atchison, Topeka & Santa Fe Railway, and who continue to operate the line today.

In 2013 the route over Marias Pass remains a key part of the BNSF network, handling a large volume of long distance freight as well as more local traffic from the myriad of connected industries.

The branch line to Kalispell originally formed the route of the main line over the Haskell Pass heading toward the Kootenai River when it was constructed by the StPM&M in 1891. By 1904 the route had been truncated at Kalispell following the opening of a preferable route to the river heading west from Whitefish.

Mission Mountain Railroad operates the line today transporting predominantly wood products and grain, and interchanges with the BNSF at Columbia Falls.



### LOCOMOTIVES

### **ES44 DC DIESEL LOCOMOTIVE**



The General Electric Evolution Series of locomotives was introduced in response to tightened federal emissions policies in 2005.

Since introduction the BNSF has been one of the main users of the locomotive.

### **TECHNICAL DATA**

WEIGHT:	416,000lbs (1.9 tonnes)
LENGTH:	71'4" (21.73m)
ENGINE POWER:	4,400hp (3,284kW)
FUEL CAPACITY:	5,000gal (22,730L)

### ES44DC KEYBOARD CONTROLS



- Throttle A / D Reverser W / S Headlights Toggle H Beacon Light B
  - Sander X
- Windshield Wipers V



Train Brake Apply ' Release ; Independent / Locomotive Brake Apply [ Release ] Sander X Horn Space Bar

### SW1500 SWITCHER



With 808 examples built between 1966 and 1971 the General Electric SW1500 has proven itself to be a versatile locomotive.

Although designed as a yard switcher, the SW1500 is often used as a road switcher, used on branch line trains, to the present day.

TECHNICAL DATA		
WEIGHT:	248,000lbs (1.2 tonnes)	
LENGTH:	44'8" (1 <mark>3.61</mark> m)	
ENGINE POWER:	1,500hp (1,119kW)	
FUEL CAPACITY:	600-1,100 Gals (2,330-4,200L)	
and the state		

### SW1500 KEYBOARD 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	В
Sander	Х
Windshield Wipers	V



### FREIGHT CARS

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

### **DOUBLE STACK CONTAINER CARS**



Introduced in North America in 1984, double-stack cars are now used for almost 70% of all intermodal traffic.

### LUMBER FLAT CARS



### **2BAY CEMENT HOPPER**



### **3BAY COVERED HOPPER**



### **4 CHUTE HOPPER**



### HIGH SIDED WOODCHIP GONDOLA



### COAL GONDOLA



### LOW SIDED GONDOLA



Historically gondola cars differed from hoppers as their lack of opening doors meant that they would have to be emptied from above, either with a shovel or by mechanical means.

### STEEL COIL CAR



Steel Coil cars are specifically designed to transport coils, or rolls, of sheet metal; in this case steel. Although its appearance suggests otherwise the Steel Coil car is a type of gondola.

### 16,000 TON TANKER



Tank cars are used to carry a variety of liquids.

### AUTORACK CAR



Developed over the years as a specialized car to transport automobiles across the nation.

### **CENTERBEAM FLATCAR**



Centerbeam cars have been developed to typically carry certain building supplies, such as wallboard or fence posts.

### **50FT BOXCAR**



### **DOUBLE DOOR BOXCAR**



Two varieties of this versatile railroad car are provided and are used for transporting many types of general freight.

### **REFRIGERATOR CAR**



Another specialized car designed to carry perishable goods at a constant temperature.

### **USFC01** FLATCAR



### SCENARIOS

### DUTIES

#### 1] Engineer Training Basics

Learn how to navigate a yard and pickup/drop off freight cars whilst driving SW1500 Switcher.

#### 2] Engineer Training Advanced

Learn about the signalling system on Marias Pass whilst at the controls of an ES44DC Diesel Locomotive.

#### 3] Cold Meat

Run from Essex to Browning on a foggy winters night. A meat packing plant needs some refrigeration cars. Drive the early morning shift to deliver them from Essex to Browning.

#### 4] Blackfoot or bust

A straight forward run from Shelby to Blackfoot on a temperate summers day.

#### 5] I'm a Lumberjack

Take some Lumber cars from Columbia Falls to Whitefish with 2 SW1500 Switchers. But make it snappy! A freight train is due to pass through shortly.

#### 6] Shelby Grain Assembly

Finish assembling a mixed freight train by adding Grain Hoppers and Autorack cars at Shelby.

#### 7] Wood from Kalispell

Drive from Kalispell to Columbia Falls. First turn at the Kalispell Wye and collect boxcars on the way to Columbia Falls.

### **CO-OPERATIVE DUTIES**

#### 8] Hauling the Harvest Grain

There has been an influx in demand for Grain product, so extra trains have been laid on. To reduce the fatigue of running these long trains, several Engineer exchanges have been built into this afternoons run.

### SIGNALLING

The signalling for the Marias Pass route is in accordance with the following BNSF practices:

### MULTI-ASPECT COLOUR LIGHT SIGNALS:

The line ahead is clear.

Stop. The line ahead is occupied.

Be prepared to stop at the next signal.

### JUNCTION SIGNALS:

Prepare to pass next signal not exceeding 60mph for diverging route

Prepare to pass next signal not exceeding 50mph for diverging route

Prepare to pass next signal not exceeding 40mph for diverging route













### JUNCTION SIGNALS (CONT.):

Prepare to pass next signal at restricted speed for diverging route.

Proceed along diverging route at line speed.

Proceed along diverging route at line speed and prepare for additional diverging route.

Proceed along diverging route at line speed and prepare to pass next signal not exceeding 35mph.

Proceed along diverging route at line speed and prepare to stop at next signal.

Proceed at restricted speed not exceeding 15mph.

Stop, and then proceed at restricted speed not exceeding 15mph.















### SPEED LIMIT SIGNAGE

Speed limit signs. Upper number (P) indicates maximum permitted line speed for passenger trains and the lower number (F) the maximum permitted line speed for freight trains.

Speed limit for the direction indicated

Warning sign indicating upcoming maximum line speed.

Warning sign indicating upcoming maximum line speed for the direction indicated.





### SCHEMATIC DIAGRAMS

The diagrams on the following pages are intended to act as a guide to locating tracks around the route.





















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	Track # 2551	
Main 1 # 2599		
Main 2 # 2598		
	Track # 2550	_











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1668 ft.

MAPS NOT DRAWN TO SCALE













### CREDITS

As Usual with all projects there is a long list of people to thank. So in no particular order here are the stars of the show.

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