INTRODUCTION

The Fraser Canyon avalanche area is located along the section of the Trans-Canada Highway between Yale and Lytton. South of Alexandra Bridge, the highway is located on the western side of the Fraser River; north of the bridge, on the eastern side. The Canadian Pacific Railway track is situated on the western side of the river with the Canadian National Railway track on the eastern side.

TERRAIN AND VEGETATION

The Fraser Canyon is situated between the Pacific Ranges to the west and the Cascade Range to the east. Mountain peak elevations in this area range from 365 m to 1830 m. Mountain valley elevations range from 120 m to 1675 m.

Most of the mountain slopes in this area are steep, broken terrain covered with mature, coniferous vegetation.

CLIMATE

The average annual snowfall for the eighteen-year period from 1960-1961 to 1977-1978 is 192 cm at Hope, 190 cm at Lytton and 176 cm at Hells Gate. The highway passes through the transition zone between the wet coastal climate and the dry climate east of the Coast Range. Temperature and snowfall vary significantly throughout the area and from one year to another.

AVALANCHES

The Fraser Canyon avalanche area consists of 92 avalanche paths. Many of the paths cannot be recognized as such from observation of the terrain and the vegetation as they consist of broken, rock slopes or narrow channels through dense vegetation.

Since 1973-1974, an average of 19 avalanches were recorded to have reached the highway annually. The amount of avalanche activity per year varied from no avalanches in 1976-1977 to 69 avalanches in 1977-1978.

HAZARD TO TRAFFIC

The average daily traffic volume (for the period 1963-1976) is 5,189 vehicles. This declines during the winter months to an average daily volume of 3,448 vehicles. The average weekend daily traffic volume during the winter months is 3,224 vehicles.

The hazard to traffic is high because, although the amount of snow deposited from one avalanche is often small, many of the avalanche paths are in close proximity and several avalanches may occur within a short distance and a short period of time. The high volume of traffic also contributes to the severity of the hazard.

ACCIDENTS

The Fraser Canyon has been the site of at least 20 avalanche accidents since 1921. Of these, 12 were highway accidents involving 62 or more vehicles (information in most cases is incomplete and the exact numbers are unknown) and 216 or more persons. The remaining eight were railway accidents involving eight trains or other vehicles and 266 or more persons.

Of the 216 or more persons involved in highway accidents, two persons were caught, three or more were partially buried, 17 or more were buried, three were injured, and one was killed. One hundred ninety-four or more persons were not touched by the moving snow but were trapped with their vehicles and were temporarily unable to continue their journeys.

Three of the 62 or more vehicles were partially buried and 14 were buried. Forty-five or more were not touched by moving snow but were trapped when they hit deposits, or when they became stuck while attempting to cross deposits, or when avalanche deposited snow blocked the highway in front of and/or behind them.

Railway accidents involved seven trains, of which two were partially buried, and five were trapped. One other railway vehicle was partially buried.

The exact locations of the accidents described below are not known. Information regarding other accidents is given in the Avalanche Path Summaries. Accident information is based on British Columbia Ministry of Transportation and HIGHWAYS Avalanche Occurrence Records and on newspaper reports.

1921-11-08 Two persons were injured and C.N.R. train service was interrupted by an avalanche west of Yale Tunnel. The avalanche deposit was estimated to be 90 m long and 3-6 m deep.

1937-12-28 A C.P.R. train awaiting a clear track signal was partially buried 5 km west of North Bend. No one was injured.

1949-02-16 A C.N.R. passenger train carrying approximately 50 persons was trapped by avalanche deposited snow at Stout, 183 km east of Vancouver.

1949-02-16 Approximately 150 highway travellers in cars and buses were trapped by avalanche deposited snow.

1949-02-23 A transport truck was buried as was its driver who was out of his vehicle at the time. The driver was killed. Two persons attempting to rescue him were caught in a subsequent avalanche, three others were buried and injured. Several men were partially buried in a third slide. The deposit was estimated to be 60 m long and 12 m deep.

1949-12-29 A train was trapped.

1950-02-13 A C.N.R. snowplough and its operator were caught and pushed over the embankment. The snowplough operator was swept into the river and killed.

1953-01-12 One man was partially buried by an avalanche while driving along Western Nickel Mines Road.

1956-01-16 A small slide at Bell Crossing blocked the road which prevented a school bus from getting through.

1965-01-01 An avalanche at Yale Tunnel swept a vehicle and its three occupants over a bank and down onto the C.P.R. tracks 70 m below the highway. One person was slightly injured.

1965-01-06 A C.N.R. train was trapped for one day between slides south of Stout.

1965-01-11 A C.N.R. passenger train was partially buried 34 km west of Boston Bar. The avalanche deposit was estimated to cover 60 m of track with a depth of 12 m.

1966-01-06 A C.N.R. passenger train carrying a total of 209 passengers and crew members was trapped 5½ km south of Stout by slides in front of and behind it. A C.N.R. work train dispatched to the site was trapped by subsequent avalanches.

1968-01-15	A C.N.R. engineer was injured in a snow, mud and rock slide which occurred about 35.2 km north of Hope.
1968-01-20	A C.N.R. freight train was derailed by an avalanche at Stout, approximately 27.2 km south of Boston Bar.
1969-02-11	Several vehicles were trapped near Boston Bar.
1972-01-20	Thirty-eight vehicles were trapped between the east portal of Ferrabee Tunnel and the west portal of China Bar Tunnel.
1972-01-20	Twelve vehicles were buried between Yale Tunnel and Sailor Bar Tunnel.
1972-02-28	A train was trapped.

AVALANCHE CONTROL

Avalanche control in the Fraser Canyon consists of preventive closure (closure of the highway during periods of high hazard). Since 1965-1966, the highway has been closed an average of 46 hours annually.