

Satellite-Based Provincial Truck Travel Speed Analysis

In support of our Service Plan's performance measure for mobility, for 3 months in each of 2004 and 2005, MoT tracked the average travel speeds of heavy long-distance trucks on the provincial primary numbered highway system using data from Canadian Satellite Communications Ltd. (Cancom). Cancom provides services to the trucking industry to periodically determine the locations of their vehicles. MoT identified 36 highway segments representing a mix of rural and urban conditions across the province, including the heavily urbanized Lower Mainland. A method was developed to convert each of Cancom's positional latitude/longitude readings to a defined point on a highway segment. Average truck travel speeds were derived from distance and time information. A large number of individual speed measurements were obtained: 85,000 in 2004 and 116,000 in 2005. The average travel speeds were compared to the average posted speeds on each segment.

Almost all of the provincial primary numbered highway system was covered. On the order of 16 million vehicle-kilometres of truck travel were measured during the 6 months of data collection. The effects of urban areas were captured. Summer peak (August), shoulder (September) and off-season (October) conditions were all captured, on a "24/7" basis. The studies were very cost effective and resulted in much information regarding truck travel speeds on B.C. provincial highways.

Approximately 50% of all measurements were on the Highway 1/5/1 corridor from Yoho National Park near the Alberta border via Salmon Arm, Kamloops, and Hope to the Cassiar tunnel located near the Port of Vancouver on Burrard Inlet. Roughly 20% were on the highway system north of Highway 1, and about another 20% were in the Thompson-Okanagan and Kootenay regions south of Highway 1 and east of Coquihalla Highway 5. The remainder were in the Lower Mainland area and on Vancouver Island.

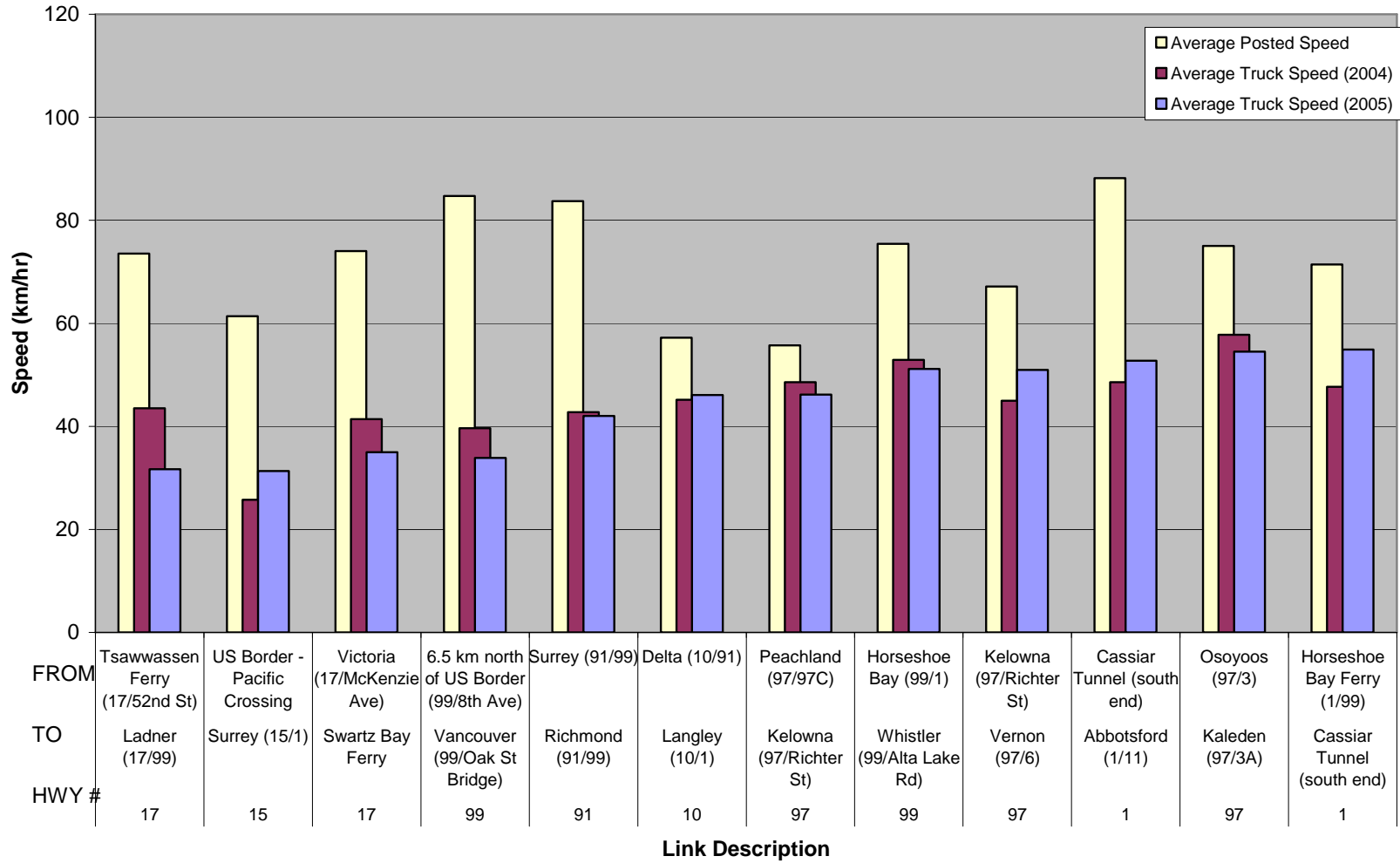
Speeds were lower where highways run through urbanized areas, except on access controlled routes such as Highway 1 through Kamloops. The average truck travel speeds varied from as low as 25 km/hr in the congested Lower Mainland to 80 km/hr in uncongested rural parts of the province. They were compared to the average posted speeds on each of the 36 segments, which ranged from a low of 56 km/hr (Highway 97 from Highway 97C near Peachland to downtown Kelowna) to a high of 109 km/hr on Coquihalla Highway 5.

The aggregate measured average truck speed for the 36 links was 71 km/hr in 2004 and 69 km/hr in 2005. In comparison, the average posted speed for the links was 88 km/hr calculated as the total distance divided by the total time if traveling at the posted speed, with an added assumed delay of 14 seconds per traffic signal. The aggregate measured average truck speed was therefore on the order of 80% of the average posted speed. The critically important Trans Canada Highway 1 from Yoho Park to the Cassiar Tunnel delivered an average truck travel speed of 71 km/hr in both 2004 and 2005. In comparison, the average posted speed for the same corridor was 94 km/h.

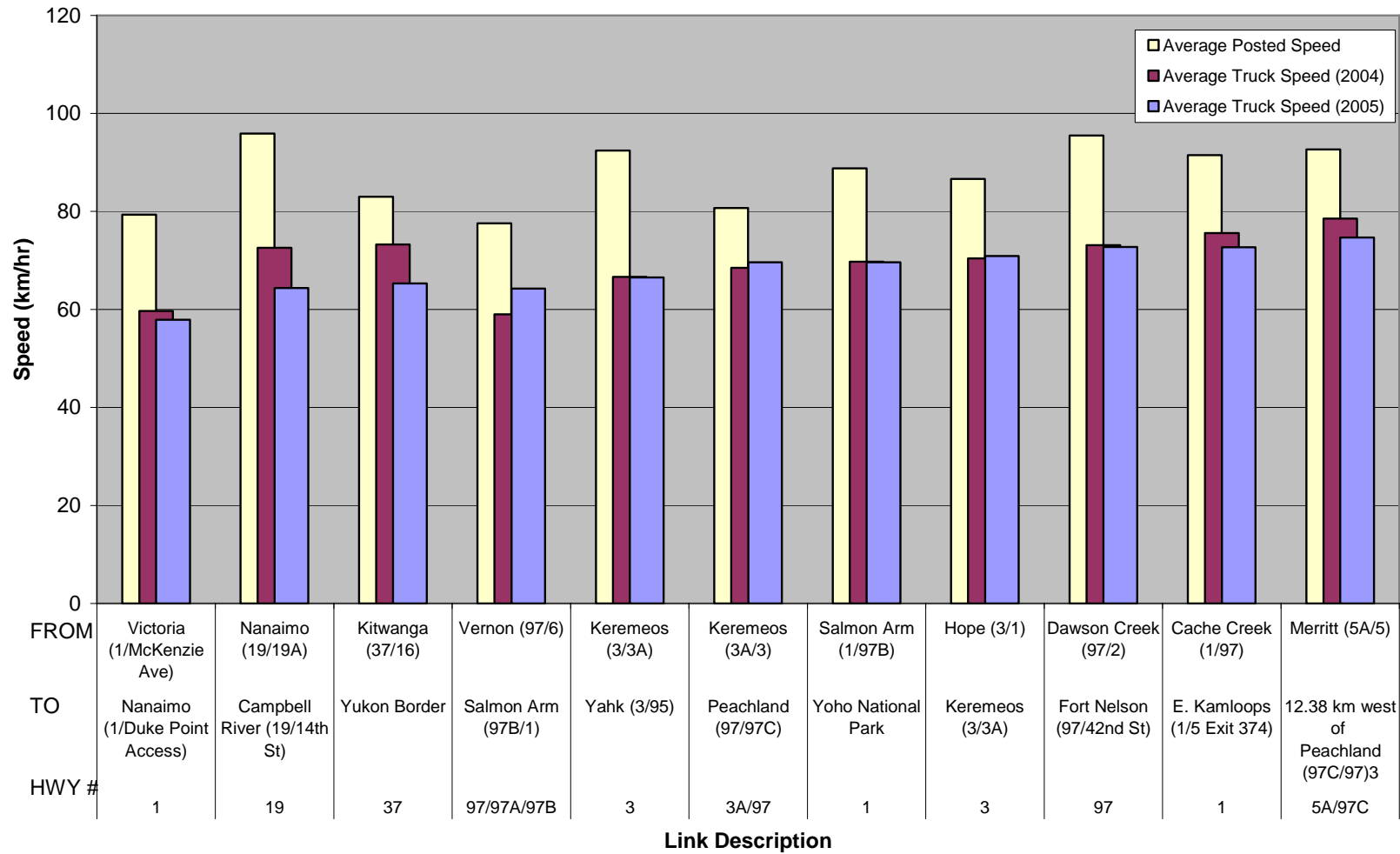
79% of the 36 links were National Highway System “core routes” (Highways 1, 3, 5, 16, 17, 97, and 99 totaling 4,855 km) which has a target running speed of 90 km/hr. The remaining links were B.C. primary highways where we desire average travel speeds of at least 80 km/h.

Figures 1, 2 and 3 show the 2004 and 2005 segment results compared to the average posted speeds. The “lowest speed links” graph generally reflects segments which pass through urbanized areas. The “highest speed links” graph generally reflects rural conditions and the “intermediate speed links” graph contains both urban and rural influences. The travel speeds achieved by trucks are probably understated due to the fact that many truck drivers keep the motor running while stopped for deliveries or at gateways such as border crossings, ports and ferry terminals.

**Figure 1 - Satellite Based Provincial
Truck Travel Speed Analysis
Lowest Speed Links**



**Figure 2 - Satellite Based Provincial
Truck Travel Speed Analysis
Intermediate Speed Links**



**Figure 3 - Satellite Based Provincial
Truck Travel Speed Analysis
Highest Speed Links**

