

Sea-Bus Unjams Vancouver's Traffic

One of the Vancouver Sea-Bus ferries crosses Burrard Inlet; the Vancouver skyline is in the background. The ferries are double-ended catamarans and have a service speed of more than 24 km/h (13 nautical mph).

An innovative high-speed ferry system that links the city of Vancouver to the residential area of North Vancouver 3.2 km (2 miles) to the north across Burrard Inlet is taking motorists off the previously jammed city streets and freeing commuter buses to work in other sections of the metropolitan area.

Ferries are nothing new to the Canadian city on the shores of the Pacific Ocean, but there has been a gap of 2 decades since the last conventional ferry went out of business in the 1950s, a victim of the burgeoning highway network that included two major bridges across the narrows of the inlet. Traffic continued to grow as more people moved to North Vancouver. Finally, when congestion became a serious problem, the first significant effort was made to develop a coordinated transit program as an alternative to additional automobile facilities. In 1967, a set of exclusive bus lanes was instituted, reputedly the first such arrangement in Canada, to enable buses to bypass congestion. This was highly successful; peak-hour ridership in the first 5-year period climbed from 2000 to 3000.

This successful project showed that Canadian consumers would use public conveyances if the services were attractive. Following a strong and continuing outcry against the building of a third bridge, local officials took another look at buses. It was evident that an alternative had to be found because of the delays being imposed on the buses by lengthening bridge queues and because of the limited amount of street and sidewalk space for the growing number of buses and their patrons. The solution? development of Sea-Bus, a waterborne rapid transit system that, by reinstating the ferry link that had been discontinued in 1958, would provide the capacity to handle an



important amount of current travel, plus additional capacity for future growth.

The term "waterborne rapid transit system" is not advertising hyperbole. The design of the vessels and terminals follows rapid transit principles in order that passengers may board and alight quickly. The ferries, which are in effect floating subway cars, have six sets of double doors on each side. The terminals feature side loading in accordance with current rapid transit practice. The new system can unload 400 people and load another 400 within a total of 90 s, as against 10 to 15 min with conventional ferries.

Two other innovations in the Burrard Inlet ferry system are the first of their kind in Canada. The first is a closed-circuit television security system, and the second is an automatic self-service fare system. The fare system issues a piece of paper similar to a bus transfer, but with the amount paid inscribed, and provides passengers with a ferry trip and a free connecting ride on the bus.

Vancouver officials estimate that the ferry service, coupled with traffic management techniques such as staggered work hours, will postpone indefinitely the need to build a new rail rapid transit crossing, or rail plus automobile crossing, which was budgeted at \$200 million in 1971. An added benefit is that, because the ferries are faster than the bus for many North Vancouver residents, a certain number of transit vehicles have been reassigned to improve local bus services and provide additional bridge services where needed.

Innovations of the Burrard Inlet ferry system are not confined to hardware. The relation of the waterborne system with the bus system and the planned development of the entire Vancouver transportation pattern have been carefully thought out. The integrated bus and ferry transit services for both the city and the District of North Vancouver were planned by a tripartite group consisting of the British Columbia Hydro, the Municipal Affairs and Housing Department, and the Greater Vancouver Regional District.

Says Hugh A. Curtis, the Minister of Municipal Affairs and Housing, "While the establishment of the feeder services to the ferry involved no particular difficulty, the changeover from bus to ferry where the latter was more appropriate had to be carefully handled. The standard practice in cases in which new rapid transit facilities are opened is to eliminate competing bus routes immediately and to route all buses into the rail station. The approach selected in connection with the Burrard Inlet ferry system, however, is to gently 'wean' existing bus patrons onto the ferry in a staged program and to offer both systems for those places where analysis showed either service to be attractive. That way, people's travel arrangements are not subjected to a jarring change, and special travel needs that may not be well-served by the ferry-based system can be identified and relevant bus service retained."

Curtis pointed out that doing things this way would likely result in some unnecessary duplication initially and attendant higher costs and lower load factors on each system, but he felt that resident satisfaction would be

greater and that the plan would result in a more useful and efficient transit system in the long run.

A carefully structured approach was followed in the creation of the service plan. At the conceptual level, two "polar" cases were designed to reflect two extremes: (a) no buses across the bridges from the ferry's prime market area and (b) a fully duplicated system in which the ferry service and related feeder buses were overlaid on the existing unchanged bus system. A route plan lying between these two extremes was selected for implementation.

The changes in the bus system were planned to take place in at least two stages, both tied to ferry stages. The first stage, which took effect when the ferry went into service on June 17, featured a day-long quarter-hourly weekday water service (half-hourly service on evenings and weekends) and reductions to the peak-hour bus service to North Vancouver. The second principal stage will increase the ferry service to a 10-min peak frequency and end all unnecessary bus and ferry trunk duplication.

Hugh Curtis says, "The ferry system is not intended to miraculously clear the bridges of automobiles the first year it operates or, indeed, ever. Like all transport investments involving a major infrastructure expenditure, be it an airport or a bridge, it is designed with many years' growth in mind. Indeed, the expensive part of the ferry infrastructure (the terminals) is not likely to be fully used before the end of the century, when the full system capacity of eight boats will be in service."

Based on the one-way trip, present projections for 1 year after service start-up are for 7500 passengers to be carried on a typical weekday, at a peak-period frequency of 10 min. This represents about one-seventh of the ultimate system capacity. About 21 000 people now cross the inlet by bus each weekday.

During the 2-h peak period, the ferry can transport 1500 people, the equivalent of 1000 automobiles carrying 1.5 travelers each (the present actual figure for Vancouver automobile traffic).

Vancouver residents had a chance to remember what traffic was like before the ferry opened when a wildcat strike shut down the Sea-Bus service for a day in September. Said the Vancouver Province and Sentinel newspaper, "The stoppage hit 4000 rush-hour commuters [and] caused traffic chaos as extra travelers took to the road. B. C. Hydro, operator of the harbor ferry system, moved in extra buses to run an emergency shuttle service, but they too were caught up in heavy traffic jams."