P.E.I. Causeway Is Seen Job Without Precedent

By ARCH MacKENZIE

OTTAWA (CP) — Four years of study have outlined the theoretical problems involved in building the Prince Edward Island causeway, a herculean project without precedent in world engineering.

Another two years of work are expected to produce a blueprint.

Independent consultants probably will be assigned to design the nine-mile highway and railway link across Northumberland Strait to join the island province of 104,000 with the mainland.

Federal spokesmen say that nowhere else in the world has a full-fledged ocean strait been crossed in such a way. When initial studies began, some skeptics said the natural forces involved could never be conquered by man.

But on April 17 Prime Minister Diefenbaker announced in the Commons that engineers have decided the causeway is feasible both from an engineering and economic view.

He said the causeway will be built and estimated the cost at $165,000,000.

EIGHT-YEAR JOB

Spokesmen said the job could be done by 1970 at the earliest if no hitches occur, allowing two years for planning and six years for construction.

A works department statement indicates there is a chance of holdups. It says a number of design problems still remain to be studied, but does not specify them.

The project recalls the problems of the Canso causeway, opened in 1955 to connect Cape Breton Island with the Nova Scotia mainland. The $23,000,000 Canso is only four-fifths of a mile long but crosses a channel with depths down to 185 feet.

P.E.I.'s causeway difficulties, however, make the Canso look easy.

The projected site is from Jourimain Island, which juts out of a marshy area on the New Brunswick ocean shore, to Borden Point on the island. This is the narrowest point of the strait.

It would put the causeway slightly north of the present ferry route between Cape Tormentine, about a mile south of Jourimain, and Port Borden.

BRIDGE RULED OUT

The CNR's icebreaking ferry service, with a long history of ice problems and high operating deficits, would be eliminated. The ship's crossing schedule is 52 minutes but it has taken up to nine hours in bad ice. Last year it cost more than $2,000,000.

Federal studies considered various proposals but centred on a solid causeway, a bridge or a combination of the two.

A bridge was practically ruled out by ice alone. During the spring breakup massive floes up to 15 feet thick and three miles wide sweep through the strait. In 1930 an iceberg with 40 feet showing above water level was reported.

Problems of a solid causeway were almost as prohibitive. Scientists estimated that tidal movements would push water 10 feet higher on one side than on the other. Storm surges could add three feet to this, causing heavy flooding along the banks.

Land compensation and remedial works for tidal flooding alone were estimated at more than $15,000,000.

MAY BUILD LOCKS

The strait holds the most valuable lobster fishery in the Maritimes. Fisheries scientists were concerned about changes in water flow and temperatures which would stem from a solid obstacle cutting the strait into two gulfs. Movement of fishing boats was another concern.

The result is a leaning toward a causeway pierced by navigation locks and one or two bridges which would permit some tidal flow in the strait. There is no permanent current.

Reports of the fisheries, transport, works and mines departments also indicate a solid rock foundation on the bottom with a maximum water depth of 90 feet which occurs at the middle of the crossing.

One report suggests a bridge at this spot, leaving a maximum depth for the causeway of 60 feet.

Some difficulty is reported in locating adequate supplies of suitable rock which must form the heart of the causeway. Chunks weighing up to six tons will be needed to form the armor along the sides.

Test borings are continuing in a search for quarrying sites.

BUILD MINIATURE

The report that gave the go-ahead to the project was one from the National Research Council's hydraulic laboratory in Ottawa which was asked to decide whether a proposed causeway design could withstand the forces involved.

Scientists built a section of the causeway in miniature, using stones weighed in exact scale to those suggested for the job. It took long hours of careful measurement. The stones were piled in a special test tank with a newly built wave generator.

When all the resultant data was checked, NRC reported the plan was sound.

The causeway - lock - bridge proposal also got a green light from the fisheries department whose oceanographers decided it would not have serious effects on the lobsters or other sea life.

Many of the construction theories involved, however, still are in the paper stage and further tests are needed.

Officials say a full model of the causeway may be built after engineers present the actual design.

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FLEMING WILL SPEAK

Finance Minister Fleming will give the opening address, and dinner speakers will be Premier Lesage of Quebec and Henry Cabot Lodge, director-general, the Atlantic Institute, Paris, formerly United States representative to the United Nations. F. D. Mathers of New Westminster, B.C., the association's president, will give the annual presidential address at luncheon June 4.

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Private Enterprise Plans New Examination Of Trend

By FORBES RHUDE
Canadian Press Business Editor

Private enterprise, in line with the trend of recent business gatherings, will again put itself under the microscope at the annual meeting of the Canadian Manufacturers' Association in Montreal June 3-5.

"Whither private enterprise?" is the subject of an address at one session, and another whole session, with a keynote topic of "why apologize for private enterprise?" will discuss the system in relation to government, education, the consumer and the unions, with the theme "building industry through better labor relations," will deal with such matters as "long - term objectives in collective bargaining" and "what hope for harmony?"

Other discussions will cover a wide range of subjects including ties with the United States and

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