

## ANCHORAGE TO BEGIN PORT DEVELOPMENT PLAN

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Howard Burnett, left, vice president of Union Pacific Railroad, is introduced at an Anchorage Chamber of Commerce luncheon by Wally Hickel Jr. Burnett was head of a recent Portland Chamber of Commerce trade mission which visited five cities in Alaska. (George Skorney photo)

**ANCHORAGE** — Port of Anchorage officials have urged Oregon officials to take part in the growth of trade through the Alaska port and have announced they are about to embark on a program of comprehensive port development and marketing.

"We want Portland to know what Anchorage is doing and what the opportunities are for business up here," said Ron Garzini, director of transportation for the Municipality of Anchorage.

Garzini spoke recently to representatives of a 29-member Portland Chamber of Commerce Alaska

Trade Mission, headed by Howard Burnett, chamber president and vice president of Union Pacific Railroad.

Talking about competition with the Ports of Whittier and Seward, Port Director W.D. McKinney said the trade Anchorage handles depends upon the transportation carriers which serve the port.

"We are not ice bound in Cook Inlet in the winter," said McKinney. But he admitted ice was a bit of a mental hazard for some captains.

"Sea-Land and Tote (Totem Ocean Trailer Express) ships come into Anchorage through the ice without trouble," said Harry Bartlett, general traffic agent in Anchorage for Union Pacific.

Freight expansion for the Port of Anchorage may be in dry cargo, said Garzini. Anchorage, which has an industrial park, is not trying to capture all the trade, but it is trying to stress what it can do best, he explained.

The two port officials said Anchorage would oppose the extension of the federally-owned Alaska Railroad through Canada, if it were done with public funds. They said the Port of Anchorage was paying for its development with revenue bonds and that, from the profits of the port, money was being saved for the next expansion program.

The Municipality of Anchorage, with about 200,000 population, has over half of the people of Alaska.

Municipal Manager Douglas Weiford said the merger of the city and the borough in 1975 created a municipality of 2,000 square miles, possibly the largest in the U.S. Only 350 square miles are suitable for construction.

"You can drive 94 miles from north to south and still be in Anchorage," said Weiford.

Anchorage has a "strong mayor" form of government. The mayor, with the approval of the assembly, appoints all the officers to the 45 boards and commissions and has veto power over the assembly. Mayor George Sullivan faces seven opponents in the Oct. 3 election.

The Portland chamber group attended meetings of the Anchorage, Kenai and Soldotna Chambers of Commerce and the Fairbanks Rotary Club.

Burnett and several other Portlanders also met with Alaska Gov. Jay Hammond and Commissioner of Commerce Phil Hubbard.

"We are not only building an economic relationship with Alaska, but we are also building a strong, friendly feeling of cooperation in other areas," said Burnett.

## Scheduled Service Seen To City Port

Scheduled carrier service to the Port of Anchorage is expected from negotiations now under way between the City of Anchorage and Alaska Freight Lines.

The port has been without a scheduled carrier for more than a year.

Negotiations between the shipping firm and the port have been going on for some months.

M. W. Odom, president of the Alaska Freight Lines, arrived in Anchorage last night.

**ODOM SAID** he felt negotiations had progressed to the point where city and freight line attorneys could start drawing up an agreement for carrier service.

The Anchorage City Council last night approved a tariff rate and directed it be filed.

Council also directed the city attorney to prepare final contract documents, in cooperation with the administration and with the freight line's attorney, for consideration by the council.

**AN ESTIMATED** increase of 100,000 tons of freight is expected at the port annually as a result of the proposed weekly carrier service. Revenue is estimated at \$50,000.

Alaska Freight Lines has requested the following considerations from the port:

A van rate of \$2.20 per ton, including crane rental for freight vans, trailers and whalebacks, until Dec. 31 of this year. At that time, the rate would increase to \$2.28 per ton.

Five days free storage on inbound cargoes.

**APPLICATION OF** service charge on net contents of vans, trailers and whalebacks.

A reduction of 28 cents in service charge on each ton of all loose stow cargo.

# TAMS

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TIPPETTS-ABBETT-McCARTHY STRATTON □ ENGINEERS AND ARCHITECTS



## ANCHORAGE

### Port of Anchorage Marine Terminal Design

By Philip Perdichizzi, P.E. and Tetsu Yasuda, P.E.

The Port of Anchorage influences all of Alaska. It is the key to the prominence Anchorage holds within the state. Container ship service, modern POL facilities, and roll-on/roll-off marine terminal facilities all help make the Port of Anchorage one of the most efficient cargo handling facilities in the world. Last year the port facilities handled over two million tons (1.8 Tg) of cargo.

TAMS began assisting the Municipality of Anchorage in 1955 by formulating their first conceptual development plan. Each successive phase has followed the guidelines in that plan. The Port now has over 2,720 ft. (829 m) of wharf frontage.

The National Oceanic and Atmospheric Administration (NOAA) has weather records at Anchorage dating back to 1923. These records list the worst winter as 1955-56, the year TAMS began the Port of Anchorage development plan. Since the Port has been in operation the worst ice accumulation occurred in 1971-72. The third most severe winter occurred during 1964-65, the year the Port of Anchorage began year-round operation.

For that first winter run the Sea-Land ship's bow was filled with concrete so that the ship could safely be used as an ice breaker. The ice averaged 4 to 5 ft. (1.2 - 1.5 m) thick, with some floes 6 to 8 ft. (1.8 - 2.4 m) thick. The tides carry such floes back and forth past the wharf at Anchorage.

Arrival of a Sea-Land Service, Inc. container ship on December 8, 1964 marked the beginning of a changing operation at the Port of Anchorage. Prior to that date Knik Arm of Cook Inlet was considered an ice-locked estuary which limited the Port to strictly seasonal functions. After 1964, Anchorage took over the task of relaying supplies to the interior. Since then the city has grown to be Alaska's principal port.

It has not been a simple task designing the over-water structures in Knik Arm. There are several adverse environmental factors a structural design must overcome in this area. The major factors are the tidal range, ice buildup, ice flow, earthquake loads, and corrosion.



Philip Perdichizzi



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**Design Considerations: Tidal** — There is an extreme tidal range of 42 ft. (12.8 m) at Anchorage. The large tidal

range dictates maintaining clear, smooth, vertical surfaces. Among other things, this affects the type of fender system used along the face of the wharf. A long, smooth rubbing strip is used to prevent damage to ships and wharf as the vessels ride the tide.

During the first few years of seasonal operation, a camel system, stayed by cables, was used. This floating system had to be removed each fall so the ice flows would not destroy it. A design using truncated timbers has been used since 1965. This system is a compromise between the fendering which the ship owners desired and the rigidity ice flows dictate.

The harbor bottom is dredged to 35 ft. (10.7 m) below mean low water level. Therefore, many of the steel pipe piles and H-piles have an unsupported length exceeding 70 ft. (20 m) to accommodate the dredge depth and extreme high tides. Cross bracing cannot be used because of the pressures they would sustain after ice buildup. Each ebb and flow of the tide causes extensive ice buildup during the winter season in the estuary and on the wharf structures.

To prevent collapse of the unsupported length of the piles by ice, pipe piles and caissons along the perimeter of the wharf were filled with concrete and all other pipe piles were filled with sand.

**Design Considerations: Ice Buildup** — The buildup of ice on the structure affects the engineering design in several ways. Thus, it is important that the extent and nature of the accumulation be understood.

The first icing occurs on the piles as the tide recedes, leaving a film of water. Once the ice lasts through a complete tidal cycle, each wave deposits another layer of ice in the splash zone as the tide levels change.

If the sea water has not frozen, why wouldn't it melt this ice with the next tide? For most salt water, a density thermocline will not form so the body of salt water will tend to be of uniform temperature and, therefore, unable to melt the ice accumulation when the tides submerge it.

Gradually, the ice layers grow out-