

EXECUTIVE OFFICE
OF THE PRESIDENT



The Role of the Office of Emergency Planning in the ALASKAN EARTHQUAKE

OEP

OFFICE OF
EMERGENCY
PLANNING

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF EMERGENCY PLANNING
WASHINGTON 25, D.C. 20504

OFFICE OF THE DIRECTOR

September 15, 1964

Dear Mr. President:

I am pleased to submit this attached report on the status of Federal Disaster Assistance rendered to the State of Alaska under Public Law 875 since the earthquake of March 27, 1964. This report covers assistance supervised by the Office of Emergency Planning and made available since your declaration of "major disaster" on March 28 in response to Governor Egan's request.

This disaster ranks with the most extensive and costly suffered in the history of the United States. Damage to public and private property approximates \$300 million. Estimates of work eligible under PL 875 are \$63,943,000 -- more than half again as much as the amount expended on any disaster since the Federal Disaster Assistance Act was passed in 1950. In addition to this damage, eighty-two lives were lost and thirty-three persons are missing and presumed dead.

As of August 15, a total of \$17 million has been allocated for work in Alaska from the Presidential Disaster Fund. By the end of this calendar year I expect that about \$43 million in eligible work will be under contract. The Office of Emergency Planning is using the Corps of Engineers as contracting agent in all damaged areas except Kodiak where the Bureau of Yards and Docks, U.S. Navy, is performing some contracting service at OEP request. Airport and related facilities work is being contracted through the Federal Aviation Agency.

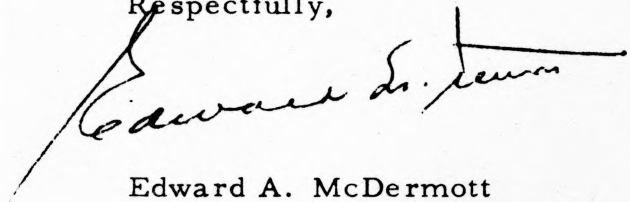
Essential services and utilities were restored on a temporary basis promptly after the earthquake. Debris clearance was expedited and accomplished. Permanent eligible restoration has in some instances been necessarily delayed by the need for soil test studies, task force surveys, urban renewal decisions by State and local authorities and decisions by the Federal Reconstruction and Development Planning Commission. All restorative work is now going forward with deliberate speed consistent with evolving decisions at Federal, State and local government level.

- (c) Damage assessment techniques must be improved and developmental work on a national system for the management of resources in an emergency must be continued as a priority nonmilitary preparedness program;
- (d) Recovery from any disaster can best be expedited by centralized authority, direction and control of the many elements of government, at all levels, that contribute to the rehabilitation effort.

The geography and economy of Alaska were badly shaken on Good Friday, 1964. An excellent start has been made toward full recovery from those effects. I have confidence that completion of the PL 875 program and the efforts of the Federal-State Commission will enable Alaska to realize the full potential of her abundant natural resources and the vitality and spirit of her people.

I trust you will find the attached report of interest

Respectfully,

A handwritten signature in dark ink, appearing to read "Edward A. McDermott", with a long horizontal flourish extending to the right.

Edward A. McDermott
Director

The President
The White House

Attachment

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(c) National Geographic Society

State Population
226,167

City Population

- 100,000 and over
- 25,000 to 100,000
- 5,000 to 25,000
- 1,000 to 5,000
- under 1,000

State Capital is shown with
star-centered symbol

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use or resale, except by License, is Pro-
hibited by Law.

The Judicial Divisions shown on
this map have been abolished, but
continue to be used for statistical
purposes until new permanent sub-
divisions are established.

ALASKA

FORMER JUDICIAL DIVISIONS

Total Number 4

1960 Populations

Division Index

35,403 First Judicial Division N 19

14,912 Second Judicial Division B 10

118,886 Third Judicial Division L 11

56,966 Fourth Judicial Division C 15

226,167 STATE TOTAL

A r c t i c O c e a n

ST. LAWRENCE ISLAND

ST. MATTHEW I.

Bering Sea

NUNIVAK ISLAND

PRIBILOF ISLANDS
(3RD J.D.)

ALEUTIAN ISLANDS
UNAK I.
UNALASKA I.
FOX IS.

50 0 50 100 150 200 Miles

2ND JUDICIAL DIVISION

4TH JUDICIAL DIVISION

3RD JUDICIAL DIVISION

1ST JUDICIAL DIVISION

ATTU I.
NEAR IS.

KISKA I.

RAT ISLANDS
AMCHITKA I.

TANAGA I.

ANDREANOF

ADAK I.

ATKA I.

AMLIA I.

© 1964

NORTHWEST TERRITORIES

C A N A D A

YUKON B.C.

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STATUS OF FEDERAL DISASTER
ASSISTANCE TO ALASKA UNDER
PUBLIC LAW 81-875

Occurrence and Effect

The earthquake which struck South Central Alaska on the evening of March 27, 1964, resulted in one of the greatest disasters in the recorded history of the United States.

The violent upheaval and subsidence of land caused by the quake itself and the mammoth tidal waves triggered by the seismic disturbance combined to produce major damage to homes, harbors, transportation systems and public facilities over an area of about 50,000 square miles.

The severest damage occurred on the Kenai Peninsula -- Cook Inlet area which includes Anchorage, Whittier, Homer, Seldovia and Seward; Kodiak Island; and Valdez and Cordova on the northern and eastern shores of Prince William Sound.

Though this triangle comprises less than ten percent of the land area of Alaska, nearly half of the population live and work in the affected area. It is the economic heart of the State. The major rail and highway lines to the interior pass through the damaged area. The fishing industry, the principal industrial and commercial firms, the major military bases, and the ports which feed the vast interior of the State are centered here.

Casualties were remarkably light; physical damage, in proportion to the total resources of the State, was extraordinarily heavy, with total public and private losses running to slightly over \$300 million.

In a wealthier State a disaster of this magnitude would have caused great economic disruption. To Alaska, the economic consequences of the earthquake were catastrophic.

All Alaskan ports in the earthquake area were inoperable except the Port of Anchorage where operations were severely restricted until emergency repairs could be made.

Approximately 150 miles of the single track Alaska Railroad from Seward north to Fairbanks suffered intermittent damage, principally at Seward, Whittier, Portage, Turnagain Arm, and Anchorage. Highways running through the area were affected by the collapse of bridges, landslides, and the subsidence of foundations.

Excessive damage occurred to the fishing fleet, small boat harbors, processing plants and other waterfront installations vital to the fishing industry, upon which the economy of Alaska is largely dependent.

Military installations, including Fort Richardson, Elmendorf Air Force Base and the Naval Station on Kodiak, suffered damages of about \$36 million. Other Federal property also sustained damages in the amount of about \$36 million.

Gross damage to public facilities of State and local governments is currently estimated at \$110 million. This includes public buildings, schools, hospitals, airfields, city-owned docks, and public utilities. In addition, it is estimated that some \$56 million will be required to restore State and local roads to pre-earthquake condition.

Private real property damaged or destroyed by the earthquake and tidal waves runs to about \$77 million. Personal property losses have not been calculated.

Immediate Post-Disaster Activities

The response of local, State and Federal Government agencies to the Good Friday earthquake was immediate and effective.

Within minutes after the earthquake struck, local and State agencies, bolstered by the Red Cross and other private relief organizations, moved into the affected areas. Welfare services, including rescue, medical care of the injured and emergency feeding and housing, were instituted immediately. State police, highway and civil defense forces supplemented local recovery efforts.

Military bases located in or near the disaster areas provided extensive emergency assistance. Staff from the Departments of Health, Education, and Welfare, Agriculture, Interior, and Commerce; the

Federal Aviation Agency, the Housing and Home Finance Agency, and other Federal agencies also joined the rescue and recovery effort.

In Washington, the Office of Emergency Planning directed its Regional Director for the Pacific Northwest to proceed immediately to Anchorage. Upon arrival, the Regional Director was to coordinate the immediate disaster relief efforts of the Federal Government and to consult with State officials on the application of further assistance if, as seemed likely, Alaska were declared a "major disaster" area by the President.

After briefing the President and advising Federal agency heads of the seriousness of the situation and the probable need for large scale assistance, on Saturday, March 28, the Director of OEP departed for Alaska for a personal on-site inspection of the damage.

At noon on March 28, the President, in response to a request from the Governor and on the recommendation of OEP, declared a "major disaster" in Alaska under the authority of the Federal Disaster Act, Public Law 81-875.

Upon the declaration of a "major disaster", the Office of Emergency Planning is authorized to direct and coordinate assistance by other Federal agencies and to administer funds allocated from the President's Disaster Fund. Such funds are used to supplement State and local efforts for the protection of life and property and the emergency repair of essential public facilities.

Within hours after the President's declaration, the Director of OEP arrived in Alaska on what was to be the first of a series of visits to the State. He consulted with State and local officials on priorities to be followed in scheduling disaster work, assigned recovery projects to other Federal agencies, and instructed his Regional Director to establish a field office in Anchorage which would serve as the focal point for all Federal disaster assistance activities in Alaska.

While the immediate emergency work was getting underway in Alaska, the Director of OEP returned to Washington to direct the total Federal effort under PL 875.

On the recommendation of OEP, the President, on April 3, approved an initial allocation of \$5 million for disaster relief operations in Alaska. A second allocation in the amount of \$12 million was made on June 12. Further allocations will be recommended to the President as the PL 875 work progresses. Most of the money made available by the President will be used for the reimbursement of Federal agencies performing work at the request of OEP.

While restoration of public facilities under the Federal Disaster Act is limited to "emergency repairs and temporary replacements", much of the work authorized by OEP in Alaska will, nevertheless, contribute to the permanent reconstruction program. Through close coordination of the plans and actions of the several departments and agencies represented on the Federal Reconstruction and Development Planning Commission for Alaska, which was established by Executive Order on April 2, an orderly and effective progression from the immediate post-disaster phase to the recovery and eventual rehabilitation periods is now underway.

Recovery Actions

As plans for the meshing of immediate recovery and long-range reconstruction activities proceeded in Washington, a wide range of emergency activities continued in the disaster area, directed and coordinated by the OEP field office in Anchorage.

Much of the work was performed by other Federal agencies under direct assignment from OEP. Other work was undertaken under the statutory authorities of other agencies.

OEP assigned specific missions to individual agencies consistent with their day-to-day responsibilities. The Corps of Engineers was requested to perform demolition and debris clearance; the emergency restoration of public utilities; and the rebuilding of docks, schools, hospitals and other essential facilities in most damaged areas of the State. The Navy's Bureau of Yards and Docks was asked to perform similar functions on Kodiak Island. The Federal Aviation Agency was requested to repair damaged State and municipal airports. The Housing and Home Finance Agency was asked to develop plans for meeting emergency housing needs.

First priority was given to the emergency repair of damaged water and sewage systems whose disruption constituted an immediate health hazard. Power and communications systems essential to the public welfare were also given prompt attention.

Demolition of damaged structures and the clearance of debris and wreckage from disaster-affected areas was begun immediately.

The various modes of transportation serving Alaska were restored to service in a relatively short time, though permanent repair and replacement will require large expenditures and up to three years of construction.

To insure that damaged or destroyed facilities would be reconstructed on sound building sites, OEP directed that scientific studies of soil foundations and altered land configurations be made at selected locations throughout the damaged area. Permanent reconstruction activities depend to a large degree on the results of this preliminary and exploratory work. Where work could proceed without awaiting the results of these tests, OEP authorized immediate repairs to essential public facilities.

Current estimates for work authorized under PL 875 range between \$60 and \$70 million. Twenty-seven percent of the authorized work was under contract by mid-August, and about 15 percent of the total work is now complete.

In addition to work authorized under PL 875, assistance is being provided by a large number of Federal agencies acting under separate statutory authorities. The Department of Defense is repairing damaged military installations. The Department of the Interior initiated repairs to the Alaska Railroad. The Bureau of Public Roads, in cooperation with the State Highway Department, is performing similar functions with respect to roads on the Federal Aid System. The Bureau of Indian Affairs, with the assistance of the Red Cross, is restoring or relocating Indian villages severely affected by the earthquake and tidal waves.

Other Federal agencies have assayed damages to their facilities and are taking steps to restore them to operational effectiveness.

The Federal financial agencies took immediate steps to assure availability of credit and funds for the Alaskan people.

The Housing and Home Finance Agency, the Small Business Administration, the Rural Electrification Administration, the Farmers Home Administration and the Bureau of Commercial Fisheries are providing loans to individuals and businesses for the repair or replacement of property affected by the disaster.

While final figures are not yet available, it is estimated that the total of all Federal assistance to Alaska, including the restoration of damaged Federal facilities and aid to the private sector through loans and debt forgiveness, will exceed \$300 million.

A description of the effects of the disaster on specific locations within the State and the actions taken, or to be taken, to aid recovery of the damaged areas follows.

ANCHORAGE



Photo No.1 Street in downtown Anchorage showing earthquake damage.



Photo No. 2 Area shown in Photo No.1 after debris removal and street repairs.



Photo No. 4 Area shown in Photo No. 3 after debris clearance and regrading.

Anchorage

Anchorage, Alaska's largest city with a metropolitan area population of 100,000, is situated on a bluff overlooking Knik Arm, a part of Cook Inlet.

Principal damage to the Anchorage area was caused by landslides, ground subsidence and fissures resulting from the earthquake. The city was not affected by the tidal wave.

The major destruction resulted from landslides in the main business district along Fourth Avenue; in the K-L Street area west of the business district; in the Government Hill area adjoining Elmendorf Air Force Base on the north side of the city; and in the Turnagain Heights residential area overlooking Cook Inlet south of the city.

Miraculously, only nine persons lost their lives in Anchorage, but about 75 percent of the city's property suffered measurable damage. One hundred commercial buildings were destroyed and many others severely damaged. Ninety-five percent of the high-rise apartments had to be condemned, and some 750 private homes were affected. The Turnagain Heights development was almost completely destroyed.

Public utilities, including water, sewer, power and telephone systems, sustained damages estimated at \$31 million. Damage to transportation facilities -- streets, parking areas and ports -- is estimated at \$13 million. City-owned public buildings, health facilities and schools add another \$11 million.

State-owned facilities located in and near the city also suffered severe damage, notably at Anchorage International Airport, where the terminal building was severely damaged and extensive damage inflicted on hangars, runways and field facilities.

Military installations in the Anchorage area sustained considerable damage, but operational effectiveness was not impaired. At Elmendorf Air Force Base, the principal damages were at the hospital, a warehouse and the power plant. At Fort Richardson, there was structural damage to the power plant, warehouses, barracks and the engineering maintenance shop. The military is making the necessary repairs.

As in other affected communities, priority attention was given to debris clearance and utility repairs in Anchorage. Approximately half of the \$1.2 million in demolition and debris clearance eligible under PL 875 is complete. The remainder is scheduled for completion in early October.

All water, sewage disposal, power and telephone systems are functioning. Additional construction necessary to winterize water and sewer systems will be completed before bad weather sets in. All this repair and reconstruction work is being contracted by the Corps of Engineers at the request of OEP. The current estimate for that portion of the work eligible under PL 875 is \$9.1 million.

Government Hill Elementary School was damaged beyond repair, and will be rebuilt at a new location, with completion estimated for July 1965. The Denali Elementary School will be restored to usable condition by November 1964. Temporary repairs have been made to a portion of another severely damaged school, West High School; but the classroom wings will have to be completely rebuilt at an estimated cost of \$3 million. They will be ready for use in September 1965. Most other schools in the Anchorage Independent School District will be ready for occupancy when the fall term begins in September.

Repairs to city-owned public buildings are scheduled for completion in September 1964.

The Anchorage City Dock, which suffered minor damage, was usable by mid-April; and other damaged port facilities were repaired in May and June. Construction of a temporary petroleum off-loading facility in Anchorage harbor was completed in July at a cost of \$443,000. Long-range plans for new port facilities will depend on the results of feasibility studies, not yet completed.

Despite the fact that the quake destroyed the control tower and terminal building at the State-owned Anchorage International Airport, the airport remained 99 percent operable. The Federal Aviation Agency is rebuilding the control tower under its own authority; and OEP has requested that agency to make other repairs under the authority of PL 875. The State wishes to replace the demolished terminal building with a facility larger than that which existed pre-disaster. The new

structure is estimated to cost \$1.6 million. OEP may not authorize expenditures in excess of the cost of a temporary replacement. It may, however, provide the State with a grant in lieu of the cost of emergency work. The State has accepted this option and will receive a total of \$789,000 towards the permanent construction.

Reconstruction and repairs to the Alaska Railroad Building Complex in Anchorage will be complete in November 1964, and the marshalling yard should be restored by November 1965.

To insure that the new construction is located in areas of relative safety from future seismic action, extensive soil studies have been undertaken.

Decisions with regard to the repair or reconstruction of city streets, the State highway, and commercial and residential property are being based on the results of these studies, and on the feasibility of stabilizing land found to be vulnerable to future landslides. Urban renewal projects for the central business district are being planned by the Urban Renewal Administration. City officials are undertaking a pilot stabilization project in Turnagain, using urban renewal funds.

Facility damage eligible for emergency repair or temporary replacement under PL 875 in the Anchorage area approximates \$23 million. Additional millions will be spent under other authorities before restoration is complete. But progress has been rapid, and the future is bright.

KODIAK ISLAND



Photo No. 5 Portion of waterfront area of Kodiak just after the earthquake.



Photo No. 6 View of small boat harbor at Kodiak showing restoration of breakwaters.

Kodiak Island

Kodiak is a large island dotted with small native villages, a naval installation and one city; Kodiak, which contains about one-third of the 7,500 inhabitants of the island. Its economy is based on fishing and the processing of king crab, salmon and shrimp.

Disaster struck in two forms. Seismic shocks caused the land mass of the island to subside about five and a half feet; and a succession of tidal waves which followed the initial shock inundated coastal communities, sinking vessels and scattering shore facilities over land and harbor areas.

The relatively low loss of life on the island -- 19 persons are dead or missing -- is attributed to seismic sea wave warnings issued by the Fleet Weather Station and to the fact that many persons fled to high ground when the first earth shocks were felt.

Kodiak City

Kodiak's big wave was a cresting, 30-foot high wall of water that flung fishing vessels over the harbor's stone jetty and sometimes two or three blocks into the city. Benson Avenue, Kodiak's main street, was a jumble of overturned boats and crippled buildings.

Shore roads, canneries, processing plants, harbor and dock facilities, public buildings and utilities were damaged or destroyed by the high water. Only 41 out of the fleet of 100 fishing boats have been accounted for, and 12 of these were damaged beyond repair.

Damage to private property is estimated at \$2.75 million for 36 residences and 67 commercial properties. Public facility damage eligible for emergency repair or replacement under PL 875 is approximately \$3.2 million.

Immediately following the President's declaration of a "major disaster", the Office of Emergency Planning requested the Navy's Bureau of Yards and Docks to clear debris and make the necessary emergency repairs to public utilities, streets, and buildings in the city of Kodiak and at other

affected communities on the island. The Navy was also asked to lend a pontoon dry dock to the city of Kodiak for the repair of privately-owned fishing vessels.

The dry dock is in use. Demolition, debris clearance and repairs to the sewage lift station and water lines are complete. Repairs to streets and sidewalks are scheduled for completion in October; and all remaining work assigned to the Bureau of Yards and Docks will be finished by December 1.

In consultation with the Alaska State Housing Authority, the Housing and Home Finance Agency and the Bureau of Yards and Docks, OEP determined that 60 emergency housing units were needed in Kodiak. The Navy obtained trailers from excess stocks at airbases in the Midwest and shipped them to the city. A site has been prepared for the trailer camp which will be ready for occupancy in September.

Under its own authority, the Corps of Engineers has cleared debris from the channel and reconstructed the breakwaters in Kodiak Harbor. As OEP's agent, it is also making repairs to State-owned facilities within the small boat harbor. This work is scheduled for completion by the end of the year.

Other port facilities are being rebuilt by city forces, with reimbursement or grants in lieu of emergency repairs to be provided by OEP from PL 875 funds.

The town's canneries are being repaired by the packing companies at a cost of \$1.5 million.

An urban renewal project for the downtown commercial area has been approved, and the acquisition of land began in July 1964, with completion for the entire project scheduled for 1967.

Kodiak Naval Station

Kodiak Naval Station, located just south of the city on Chiniak Bay, was also affected by both shock waves and tidal flooding.

Hangars, aprons and ramps suffered structural damage. Piers were under ten feet of water and two hangars were flooded. Buildings and roads along the waterfront were crushed and scoured by the waves. The road and power lines between the Naval Station and the Communication Transmitter Site were washed out for two and a half miles. Quonset huts used for gear and engine repair were swept out to sea, and other buildings and warehouses were extensively damaged by wave action. The power-generating plant was put out of operation by flooding and the coating of all switching equipment with oil.

The Bureau of Yards and Docks sent a team to the Kodiak Naval Station to give immediate engineering assistance. Seabees arrived on March 28 and began rehabilitating the power plant and repairing destroyed sections of the road.

SEWARD

Streets, utilities, port facilities and public buildings sustained damages estimated at \$8.5 million, nearly all of which are eligible for repair and replacement under PL 875. An additional \$2.5 million is required for demolition and debris clearance. The clean-up task is nearly finished; contractors employed by the Corps of Engineers will complete it in September.

Repairs to the city's hospital and public schools are scheduled for completion by the end of August 1964.

Water, sewer and street repairs are well underway, and will be completed in November 1964. Emergency restoration of the electric system was completed in May. Distribution system repairs will be completed in November, and the city's power plant will be completely restored by mid-1965.

Harbor facilities, including the city dock, are expected to be usable by the end of November 1964. Complete restoration of the small boat harbor and other port facilities is scheduled for June 1965.

Design of the railroad dock and marshalling yard is underway but no completion date has been set.

An urban renewal project is being planned for the waterfront area of the city which suffered the most extensive damage.

VALDEZ

Valdez

Valdez is a small fishing port on the northeastern corner of Prince William Sound with a year-round population of about 600.

As was the case in Seward, Valdez suffered damage in about equal proportions from earth tremors and tidal waves. Ground shocks cracked buildings, opened fissures in city streets, and ruptured sewer and water lines. Thirty lives were lost when the dock area disappeared in a sudden submarine landslide occurring during and immediately following the earthquake.

Waves generated by the slide were followed over a period of hours by a series of tidal waves, the fourth and highest of which completed the devastation of the harbor, the waterfront area, and half of the downtown business district. The small boat harbor, fuel-storage terminal and piers were destroyed, as well as the entire fishing fleet except for two boats that were out at sea.

The present location of Valdez is considered a high risk area, subject to future land subsidence and tidal flooding. Based on the results of soil studies made by the Corps of Engineers, under assignment from OEP, the Alaska Planning Commission has recommended that the entire community be relocated to a safer location some 4-1/2 miles from the present site. The townspeople have accepted the recommendation, and the Urban Renewal Administration has authorized a town planning study at the new site.

Because of the decision to relocate the town, only minimal work was performed at the old site to provide emergency services for the inhabitants until the move is made.

Debris has been removed from the old town. Emergency repairs to the city hospital were completed in May. A temporary barge terminal to serve the immediate needs of the city was constructed with PL 875 funds and has been in use since early June. Priority was given to

winterizing the existing water and sewer systems, and the work was completed in August. Temporary school repairs are scheduled for completion in September 1964. The total cost of emergency work to be performed by OEP at the old townsite is approximately \$500,000.

It is anticipated that about \$5.7 million in PL 875 funds will be made available for the construction of essential public facilities at the new townsite. This includes the installation of water and sewer systems, streets and sidewalks; and construction of a city hall, a new State hospital, and two new schools.

In addition, the city's small boat harbor is to be relocated, and new port facilities constructed for the city at a combined cost of about \$2.2 million.

The Urban Renewal Administration will provide grants to families and businesses moving to the new townsite.

Construction schedules for the new townsite have not yet been set. But contracts have been let for the port facilities and the small boat harbor, with completion scheduled for late 1965.

CORDOVA

Cordova

Cordova lies on a narrow land bridge between Orca Inlet and Eyak Lake on the eastern shore of Prince William Sound. The city has a protected deepwater harbor, and its economy is based on fishing. Prior to the earthquake, port facilities at Cordova consisted of one city-owned dock, a ferry terminal and a small boat harbor.

Damage to Cordova resulted from an earthquake-induced land rise of about six feet, local fracturing of the ground, and a tidal wave which floated away houses and boats along the waterfront and caused extensive damage to canneries and pier and dock facilities.

There was no loss of life among the town's 1,100 inhabitants.

The raising of the land has made the city's fish processing plants inaccessible from the sea. Orca Inlet Channel is now too shallow to handle larger boats, and the 100-boat fishing fleet cannot use the small boat harbor.

Since the Copper River Highway, of which Cordova is the southern terminus, was also severely damaged, the city was cut off by both sea and land.

Because of Cordova's dependence on the fishing industry, restoration of the small boat harbor and associated facilities has been given high priority. Orca Inlet Channel is being dredged and other repairs are being undertaken under the authority of PL 875.

The Corps of Engineers is performing harbor restoration under its navigational authority. The project is estimated at \$620,000, and is scheduled for completion by the end of the year.

Other State and city-owned port facilities are being repaired by the Corps of Engineers under assignment from the Office of Emergency Planning. Temporary repair of the State ferry landing ramp is complete, and the replacement of floats is underway.

The waterfront area was cleared of debris in June. Sewer repairs will be completed by October 1964. Electrical and telephone system repairs should be complete by the end of October, and repairs to the water supply system by November 1964.

The total estimated cost of PL 875 work scheduled for Cordova is \$1.4 million.

HOMER

Homer

Homer is a fishing community of about 1,200 persons located on Kachemak Bay at the southwest end of Kenai Peninsula. It is the terminus of the Sterling Highway, which runs north to Anchorage; and its deepwater, ice-free port accommodated cargo freighters and barges.

The earthquake caused moderate damage to downtown Homer, principally to the hospital and a new elementary school. A combination of general land subsidence and high water inflicted severe damage on port facilities and caused destruction of docks and canneries. Most seriously affected was the area of the small boat harbor enclosed by breakwaters which subsided into Kachemak Bay.

Sterling Highway was also damaged by land subsidence.

Repairs to the hospital and school will be completed about the first of September. By November 15, 1964, a new city dock will be in place. The replacement of floats in the inner harbor will be completed in March 1965. The small boat harbor will be restored about June 15, 1965, at an estimated cost of \$1.1 million.

All of the work programmed to date will be performed by the Corps of Engineers at the request of OEP. The total cost is expected to reach \$1.6 million.

Restoration of sunken portions of Sterling Highway has been deferred until 1965 to permit evaluation of the new pattern of erosion or deposition which may develop during the coming winter.

SELDOVIA

Seldovia

Across Kachemak Bay from Homer lies Seldovia, the only landlocked harbor between Seward and Anchorage which can accommodate ocean-going vessels. Its economy is based on fishing, agriculture, and its position as a distribution point for other communities on Cook Inlet.

Much of the town is built up over a boardwalk which runs along the waterfront on wooden pilings.

The principal effect of the earthquake on Seldovia was land subsidence which lowered the waterfront about three feet, thus exposing structures along the boardwalk to flooding during seasonal high tides. Tides in the area are normally highest in the period from September to November.

Breakwaters protecting the small boat harbor also subsided into the bay, thereby exposing inner harbor facilities to greater wave action. These breakwaters are being raised and the harbor dredged under the navigational authority of the Corps of Engineers. Estimated cost is \$500,000, and completion is scheduled for September 15, 1964.

Other repair work at Seldovia is being funded by OEP under the authority of PL 875. This includes repairs to sidewalks, streets, and bridges; the replacement of inner harbor facilities; and restoration of the municipal airport and airport access road. Extensive repairs are also required for the city water system.

An urban renewal project is being developed for Seldovia. Under this project, shore facilities now threatened by high tides can be moved to higher ground. To assist the Alaska State Housing Authority and the Urban Renewal Administration in relocating the boardwalk and associated public facilities, OEP is committing \$290,000 in PL 875 funds as a grant in lieu of emergency repairs.

OTHER COMMUNITIES

Other Communities

Whittier suffered some damage as a result of seismic shock, high water and fire. The major facilities affected were those belonging to the Alaska Railroad. Debris clearance, authorized by OEP, was completed in June at a cost of \$13,000. Restoration of damaged rail facilities has been accomplished by the Alaska Railroad.

Old Harbor and Kaguyak, coastal communities on Kodiak Island, were completely wiped out by the tidal wave. Ouzinkie, at the northeast tip of the island, was also severely damaged. All three villages are being rebuilt with assistance from the Bureau of Indian Affairs.

The high school at Palmer, north of Anchorage, suffered minor damage. Repairs were completed in May at a cost of \$10,000.

Kenai Central High School sustained \$15,000 in eligible PL 875 damage. Emergency repairs will be accomplished in September.

Klawock, on Prince of Wales Island far to the southeast of the area of major destruction, lost its harbor floats. They are being replaced by OEP at a cost of \$25,000.

Girdwood and Soldatna on the Kenai Peninsula, sustained some damage to transportation facilities, but service was quickly restored.