

## How To Use Volume 1: Administrative Overview

The Administrative Overview provides procedural and administrative information to support the Kodiak Emergency Operations Plan. This volume contains primarily background information, and should be used more as a reference and planning tool than as an actual response guide. Volumes Two and Three of this Emergency Operations Plan contain more operationally oriented information.

### Section Contents

#### **Section 1: Emergency Management**

This section contains the various federal, state, borough, and local statutes, rules, and regulations authorizing emergency management as well as emergency management policy statements.

#### **Section 2: Plan Management**

This section describes how the plan will be managed including record of changes, distribution list, plan review cycle, and training and exercises.

#### **Section 3: Geographic and Demographic Characteristics**

This section explains the geographic and demographic characteristics of the City of Kodiak and Kodiak Island and contains local maps.

#### **Section 4: Hazard Information and Assessment**

This section describes the natural and manmade hazards that threaten Kodiak and contains an assessment for each of the hazards identified and some hazards mapping.

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## **SECTION 1: EMERGENCY MANAGEMENT**

### **Authorities**

The Kodiak Emergency Services Organization, Local Emergency Planning Committee, and Emergency Services Council adopt this Emergency Operations Plan under the following local, state, and federal authorities:

City of Kodiak

KCC Chapter 2.32 (Emergency Services)

Kodiak Island Borough

KIB Code Chapter 2.41 (Emergency Services)

State of Alaska

AS 26 Chapter 20 (Civil Defense Act)

AS 26 Chapter 23 (Alaska Disaster Act)

AS 29 Chapter 25 (Emergency Ordinances)

AS 29 Chapter 35 (Emergency Disaster Powers)

AS 46 Chapter 9 (Hazardous Substance Release Control)

State of Alaska Emergency Response Plan

Federal

PL 81-920 (Civil Defense Act of 1950 as amended)

PL 93-288 (Disaster Act of 1974)

PL 96-342 (Improved Civil Defense 1980)

Title III, Superfund Amendments and Re-authorization Act of 1986

PDD-39 (United States Policy on Counter-terrorism)

Federal Radiological Emergency Response Plan

National Response Plan

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### Mutual Aid and Interjurisdictional Agreements

The following local, state, and federal Mutual Aid Agreements, Cooperative Agreements, Interjurisdictional Agreements, and agency plans and Standard Operating Procedures for the purposes of disaster emergency management are an integral part of this plan and are hereby referenced:

- Mutual Fire Aid Agreement adopted by USCG Integrated Support Command Fire Chief and Commanding Officer, Kodiak Fire Department, Bayside Volunteer Fire Chief, Women's Bay Volunteer Fire Chief, and KIB Mayor, August, 1994.
- Alaska State Troopers "C" Detachment (Kodiak, AK) Standard Operating Procedures for Emergency Response
- Kodiak Police Department Policies and Procedures Manual
- U.S. Coast Guard ISC Kodiak Integrated Emergency Response & Prevention Plan (IERPP)
- Port of Kodiak Security Plan
- Cruise Ship Terminal Safety Plan
- City of Kodiak Public Works Emergency Plan
- Providence Kodiak Island Medical Center Emergency Preparedness Plan
- Kodiak State Airport Emergency Control Act and Emergency Control Plan
- National Mountain Rescue Standards (for search and rescue)
- American Red Cross Disaster Plan
- Kodiak Subarea Contingency Plan and the Alaska Federal/State Preparedness Plan for Response to Oil and Hazardous Substance Discharges and Releases (Unified Plan)
- State of Alaska Emergency Alert System Plan
- Alaska Department of Health and Social Services Disaster Response and Recovery Guide and Mass Casualty Response Workbook
- Alaska Army National Guard Emergency Response plans and procedures in place
- Alaska Aerospace Development Corporation Kodiak Launch Complex Site Safety Policies and Emergency Response Plan
- Kodiak Area Native Association Disaster Plan
- Community Spill Response Agreement between the City of Kodiak and the Alaska Department of Environmental Conservation
- All other Standard Operating Procedures and Emergency Response Plans used by City of Kodiak and Kodiak Island Borough departments and agencies.

## Policy Statements

It is the policy of the Kodiak Emergency Services Organization, the City of Kodiak, and Kodiak Island Borough to safeguard life and property by making maximum use of all available resources, public and private, and to minimize the effects of environmental, technological, and civil disaster emergencies.

Because of the nature of disaster emergencies, it is also the policy of the Kodiak Emergency Services Organization, the city, and the borough that citizens are encouraged to be self-sufficient for up to 72 hours should a disaster emergency occur.

### General Policies

- Essential city and borough services will be maintained for as long as conditions permit, and will be restored as quickly as possible.
- A disaster emergency will require prompt and effective response and recovery operations using resources from city and borough departments, disaster relief agencies, volunteer organizations, and the private sector.
- Kodiak regional disaster emergency operations will be based on the principle of self-help. The Kodiak Incident Management Team will be responsible for using all available local resources prior to requesting assistance from outside.
- Environmental, technological, and civil disaster emergencies may be of such magnitude and severity that outside assistance is required.
- When the Kodiak Emergency Services Council recognizes that the resources locally available (including mutual aid) will be insufficient to respond to and/or recover from the disaster emergency, the Emergency Services Council or Emergency Services Director will request assistance from the next level of supporting government.
- When a disaster emergency situation exists, all city and borough departments will put their respective emergency operations plans and standard operating procedures into limited or full operation as necessary, integrating those plans and procedures with the actions described in this plan.
- Disaster emergency response often requires decisions to be made quickly under adverse conditions. Government entities complying with this plan shall not be liable for injury, death, or loss of property except in cases of willful misconduct or gross negligence.

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- Incident situation and status reports will be made by the Incident Management Team based upon severity of the disaster emergency or anticipated disaster emergency, to include:
  - Estimated time and location of impact.
  - Date, time, and location of the actual disaster emergency.
  - Known number of injuries or casualties
  - Estimated damage at time of report.
  - Date and time of activation of Emergency Operations Plans.
- Such reports will be forwarded to the Emergency Services Council through the Emergency Services Director.
- Access to emergency services shall not be denied on the basis of race, color, national origin, religion, sex, age, or disability. The needs of special populations shall be identified and planned for as directed by policy makers and according to federal regulations. Special populations may include, but not limited to:
  - Physically or mentally handicapped;
  - Non-English speakers;
  - The aged or infirm;
  - The incarcerated; or
  - The hospitalized.
- Local activities pursuant to the Federal/State Agreement for major disaster recovery will be carried out in accordance with all applicable state and federal non-discrimination laws. Federal disaster assistance is conditional on full compliance with non-discrimination rules and policies.

### Definition of Disaster Emergency

#### ***State of Alaska***

Alaska statute defines “disaster emergency” as the condition declared by proclamation of the governor or by the principal executive officer of a political subdivision to designate the imminence or occurrence of a disaster (AS 26.23.900). In Kodiak, disaster declaration authority is relegated to the Emergency Services Council. If the council cannot be convened, the Emergency Services Director may issue a disaster declaration subject to council approval.

#### ***Kodiak Island Borough and City of Kodiak***

Local ordinances define "disaster" as the actual or threatened enemy attack, sabotage, extraordinary fire, flood, storm, tsunami, earthquake, volcanic eruption, riot, or other similar public calamity (KCC Chapter 2.32.020(k); KIBC Chapter 2.41.020(j)).

## Responsibilities of Local Government

The City of Kodiak and Kodiak Island Borough administrations are jointly tasked with the following responsibilities related to emergency preparedness and response:

- Assignment of department personnel to the Local Emergency Planning Committee and/or Emergency Services Organization as appropriate according to the guidelines and bylaws of those organizations.
- Development of departmental emergency operating procedures and department standard operating procedures (SOP) to implement assigned duties within this plan.
- Ensuring that department personnel are properly trained to accomplish disaster emergency duties described in this plan (including ICS training).
- Assignment of department personnel and qualified alternates to Kodiak Incident Management Team positions according to the specifications in this plan.
- Establishment of department internal lines of succession of authority and training of designated alternates to fill IMT positions.
- Protection of department records, materials, facilities, equipment, and services.
- Warning department personnel of impending emergencies.
- Assignment of department personnel to the Incident Management Team and Emergency Operations Center.

## Responsibilities of Other Agencies and Private Sector Planholders

Other agencies and private facilities with emergency response plans and procedures in place are expected to include in their plans and procedures a mechanism to integrate with the Kodiak emergency response system described in this plan during regional emergencies. The Kodiak Incident Management Team (IMT) exists as a support structure to supplement agency or facility-level response during incidents that exceed an agency or facility's ability to manage an emergency. The Kodiak Emergency Operations Plan can be activated in any such emergency by contacting Kodiak Police Dispatch and requesting assistance. Activation procedures are discussed in detail in Volume 2, Section 2 of this plan.

## Direction and Control

The Kodiak Emergency Services Council (ESC) has the ultimate authority and responsibility for the direction and control of local resources during an emergency. On a day-to-day basis, this authority is delegated to city and borough department heads, which have the power to establish control of an emergency through the Incident Command System and the position of Incident Commander.

The Emergency Services Council, with the Emergency Services Director (ESD) as its chair, will function as a Multi-Agency Coordinating Group and as such will provide policy-level direction to the Incident Commander and coordinate resources and support between state, federal and local agencies and jurisdictions and private organizations. The Emergency Services Director, who is identified by local ordinance as the City of

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Kodiak Manager, may assume the duties of Incident Commander if, in his/her judgment, emergency response will be enhanced by this action. Operational control of the emergency scene should remain with the lead department or agency.

A declaration of a disaster emergency by the Kodiak Emergency Services Council is required to access state and federal disaster assistance, and may expedite procurement of local resources and funding as well. The Kodiak Emergency Services Director has the legal authority under local (city and borough) ordinance to recommend that the Emergency Services Council make a disaster declaration or, if the council cannot be immediately convened, to declare that a local disaster emergency exists, subject to confirmation by the council at the earliest practicable time.

The Kodiak Emergency Services Organization (ESO), which consists of local (City of Kodiak and Kodiak Island Borough) agency representatives, private companies and organizations, and local representatives of state and federal agencies, functions as a regional planning and preparedness body for emergency response in Kodiak. The Emergency Services Organization functions as the umbrella organization for the Local Emergency Planning Committee, and the Emergency Services Coordinator chairs the ESO. The Emergency Services Coordinator is identified by local ordinance as the Kodiak Island Borough Community Development Director or designee. If the Emergency Services Director is unable to act due to absence or incapacity, the Emergency Services Coordinator is the next person designated in the line of succession and as such will exercise the local disaster emergency declaration authority delegated to the Emergency Services Director.

The role of the Emergency Services Council in a declared disaster emergency is to act as a Multi-Agency Coordinating Group (MAC), providing policy-level guidance and oversight to the Incident Commander, coordinating resource support between agencies or jurisdictions, and acting as a liaison with the public and with the elected officials of other affected or assisting jurisdictions.

### Operational Policies

#### ***Plan Activation***

Emergency incidents occur frequently, but rarely with the scope and complexity that would require full implementation of this Emergency Operations Plan. This plan is applicable in those cases where:

- The emergency cannot be effectively managed using department policies and SOP and a local disaster emergency declaration is needed to access outside resources and funding, access additional local funding and/or expedite procurement of local response resources; or
- The emergency directly impacts more than one department's jurisdiction, and a coordinated response under the Kodiak Incident Management Team ICS structure is desirable or necessary; or
- Local resources, including resources available through mutual aid agreements, are overwhelmed and a local disaster emergency is declared under the terms and procedures described in this plan as set out by state law and local ordinance.

## **Levels of Activation**

Activation of the plan will be based on the following definitions and criteria:

### **Level III Activation**

A Level III incident is one where departmental policies and standard operating procedures (SOP) can be used and the Emergency Operations Plan generally does not require implementation. Specific sections of the plan and/or individual Incident Management Team positions *may be* activated as requested by the Incident Commander.

### **Level II Activation**

A Level II incident has special or unusual characteristics not readily managed by department policies and SOP, and/or requiring response by more than one department or agency, and/or which is beyond the capabilities of available resources (including mutual aid). A Level II incident will require partial or full implementation of this plan, including partial utilization of the Emergency Operations Center (EOC) and Incident Management Team (IMT). This will include using parts of the EOC as needed and the use of a "short team" (selectively activated ICS).

### **Level I Activation**

A Level I incident requires the coordinated response of all levels of local government to save lives of a large portion of the population and/or to protect property and the environment. Such a disaster emergency may require the sheltering or relocation of the affected population. Under such conditions, this plan shall be fully implemented. A Level I incident requires full activation of the EOC and Incident Management Team. This will include using the entire EOC and a fully staffed ICS. The activation of a full Incident Management Team will include the complete Command Staff as well as the complete General Staff with supporting Incident Command System functions activated at the discretion of the Incident Commander and General Staff.

**Activation of the Kodiak IMT and EOP occurs when the On-scene Incident Commander contacts Kodiak Police Dispatch and requests that the Emergency Services Director be contacted to activate the plan.**

**Plan Activation and IMT Call-Out procedures are described in detail in Volume 2, Section 2 of this plan.**

### **Kodiak Emergency Management Organizations and Personnel**

Government organization in time of disaster is essentially the same as under normal conditions. However, certain realignments are necessary to meet increased responsibilities promptly and adequately, and to include the assistance of public and private agencies dedicated to relief of disaster victims.

Organization for disaster response is structured so that necessary actions may be undertaken progressively, starting with the maximum utilization of local resources and supplemented, as necessary, by succeeding levels of support from agencies of the state and federal governments.

Emergency Services are defined as “the preparation for and the carrying out of all emergency functions, other than functions for which military forces are responsible, to prevent, minimize, and repair injury and damage resulting from disasters.” (KCC Chapter 2.32.020 (l); KIBC Chapter 2.41.020 (k)). In Kodiak, an Emergency Services Council and an Emergency Services Organization have been established to address local and regional emergency services. These organizations are chaired, respectively, by an Emergency Services Director and an Emergency Services Coordinator, each of whom has specifically delegated authorities and responsibilities as described in this section.

#### **Emergency Services Council**

The Kodiak Emergency Services Council (ESC) was created by local ordinance (KCC Ch. 2.32 and KIBC Ch. 2.41, revised October, 1998). The seven-member council consists of the City of Kodiak mayor and manager, the Kodiak Island Borough mayor and manager, the Commanding Officer of the United States Coast Guard ISC Kodiak, the Commanding Officer of the United States Coast Guard Air Station Kodiak, and the Alaska State Trooper “C” Detachment Kodiak Post Commander, or their designees. The Emergency Services Director (City of Kodiak Manager) is the designated Chairperson of the Emergency Services Council, and the Kodiak Island Borough Manager is the designated Vice Chairperson.

The Emergency Services Council has the following powers:

- To proclaim the existence of a local disaster;
- To adopt mutual aid plans and agreements necessary for the provision of coordinated emergency response plans;
- To approve regional emergency response plans (including the Kodiak Emergency Operations Plan) and significant revisions thereto; and
- To issue policy guidance to the Incident Commander/Unified Command during an incident where the Kodiak Incident Management Team is activated. The Council may provide input to the Incident Commander to be used in setting response objectives and incident priorities.

The ESC is responsible for reviewing and recommending for adoption by the city council and borough assembly ordinances and resolutions necessary for the implementation of

local disaster emergency response plans and agreements. The ESC may be convened by the Chairperson or, in his/her absence, the Vice Chairperson. Emergency Services Council meetings are conducted according to its adopted bylaws.

If the Emergency Services Council cannot be convened in a timely fashion, the Emergency Services Director has the authority to issue a local disaster proclamation, subject to confirmation by the Council at the earliest practicable time.

### Emergency Services Director

The Kodiak Emergency Services Director is the City of Kodiak Manager or designee. The director functions as the Chairperson of the Emergency Services Council and also as the Chairperson of the Local Emergency Planning Committee, and is empowered to do the following:

- Request the Emergency Services Council to proclaim the existence or threatened existence of a disaster and the termination thereof;
- If the council cannot be convened in a timely fashion and, in the opinion of the Director, an immediate disaster declaration is needed, to issue such proclamation, subject to confirmation by the council at the earliest practicable time.
- Request the governor to proclaim a state of emergency when, in the opinion of the Director, the resources of the area or region are inadequate to cope with the disaster.
- Represent the Emergency Services Council in all dealings with public or private agencies pertaining to emergency services and disaster.
- Represent the Local Emergency Planning Committee in all dealings with public or private agencies pertaining to emergency services and disaster.
- Serve as Incident Commander or Local On-Scene Coordinator in the Kodiak Incident Management Team when the size, scale or severity of an incident is such that other qualified Incident Commander personnel are not available or appropriate to fill the IC/LOSC position.
- Facilitate cooperation and coordination between agencies, divisions, services, and staffs in the Kodiak Incident Management Team and to resolve questions of authority and responsibility that may arise between them.
- Schedule drills and exercises in accordance with the schedules established in this plan, or more frequently if, in the director's opinion, additional drills are necessary to general emergency preparedness in the Kodiak region.

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In the event of the proclamation of a disaster, or the proclamation of a state of emergency by the governor or the state director of emergency services, the Emergency Services Director is empowered to do the following:

- Make and issue rules and regulations on matters reasonably related to the protection of life and property as affected by such disaster. Such rules and regulations must be confirmed at the earliest practicable time by the Emergency Services Council.
- Obtain vital supplies, equipment, and such other properties found lacking and needed for the protection of the life and property of the people, and bind the local government to provide compensation for the fair value thereof.
- Require emergency service of any city or borough officer or employee and, in the event of the proclamation of a state of emergency by the governor, to command the aid of as many citizens as the director thinks necessary in the execution of the director's duties. Such persons shall be entitled to all privileges, benefits, and immunities as are provided by state law for registered emergency services volunteers.
- Requisition necessary personnel or material of any city or borough or agency.
- Execute all special powers conferred by any statute or agreement approved by the city council or borough assembly, or by any other lawful authority; to exercise all police power vested in the city and borough by the constitution and general laws.

The City of Kodiak Fire Chief is the designated successor to the Emergency Services Director and will assume all authorities, powers, and responsibilities ordinarily designated to the ESD if the director is unavailable or unable to fulfill these responsibilities during a disaster emergency. Notably, the Fire Chief (or designee) has the authority to issue a local disaster declaration or to recommend issuance of a disaster declaration to the Emergency Services Council in the place of the Emergency Services Director. The City of Kodiak Fire Chief is among the personnel qualified to fill the position of Incident Commander in the Kodiak Incident Management Team, and the Fire Chief may serve as the Deputy Incident Commander when the Emergency Services Director assumes the IC position.

The Vice Chairperson of the Emergency Services Council shall assume only the power to convene the ESC in the Director's absence.

### **Emergency Services Coordinator**

The position of Kodiak Emergency Services Coordinator is the assigned responsibility of the Kodiak Island Borough Community Development Director or designee. The Emergency Services Coordinator organizes and leads quarterly Emergency Services Organization meetings, maintains all historical records associated with the ESO, and is responsible to ensure that all drills and exercises are performed as specified in this plan.

The Emergency Services Coordinator is empowered by ordinance to do the following:

- Control and direct the administrative efforts of the Emergency Services Organization for the accomplishment of the purposes of emergency services and disaster preparedness planning.
- Represent the Emergency Services Organization in all dealings with the public or private agencies pertaining to emergency services and disaster.
- Organize disaster emergency services response drills and exercises in accordance with the requirements identified in the Kodiak Emergency Operations Plan and in cooperation with the Emergency Services Director, and maintain accurate records of all such drills and exercises.
- Coordinate and oversee periodic emergency preparedness training for Kodiak Incident Management Team personnel, including ICS training.
- Organize quarterly scheduled meetings of the Emergency Services Council and call for additional meetings as needed.
- Coordinate and oversee routine updates to the Emergency Operations Plan.
- Maintain a log of all training, drills, and exercises of the EOP/IMT.

### Emergency Services Organization

The Emergency Services Organization (ESO) is a combination of the City of Kodiak personnel, Kodiak Island Borough personnel, representatives from other local, state, and federal government agencies, and volunteers from the public and from private organizations who are responsible for emergency planning and preparedness in the Kodiak region. The Emergency Services Organization operates under the direction of the Emergency Services Coordinator, and functions as the umbrella for the Local Emergency Planning Committee (LEPC). ESO members are among the qualified personnel identified in the Kodiak Incident Management Team qualified personnel roster (Volume 2, Sections 2 and 3) and as such are responsible for directing and supporting emergency and disaster operations in accordance with the assignment of responsibilities and ICS position descriptions in Volume 3.

### Local Emergency Planning Committee

The Kodiak Island Borough Local Emergency Planning Committee (LEPC) was established in 1994 and its official bylaws were adopted in June, 1995 in compliance with Title III of the Superfund Amendments and Reauthorization Act of 1986: the Emergency Planning and Community Right-to-Know Act. The Kodiak Island LEPC resides and formulates plans within the Kodiak Island Local Emergency Planning District (LEPD), which corresponds with the geographic boundaries of Kodiak Island Borough. The LEPC functions as a sub-committee of the Kodiak Island Emergency Services Organization to enhance regional emergency response planning and preparedness efforts.

The duties and activities of the LEPC are those set forth by Alaska Statute 26.23, which established the State Emergency Response Commission (SERC) in its implementation of the "Emergency Planning and Community Right-to-Know Act of 1986", enacted by the U.S. Congress. The LEPC cannot commit manpower or resources, but is mandated to prepare regional disaster emergency response plans.

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The SERC appoints all members to the LEPC, which consists of a minimum of seven (7) seats representing each of the following categories:

- Elected officials;
- Law enforcement, fire fighting, first aid, health;
- Broadcast or print media;
- Community groups;
- Owners and operators of applicable facilities;
- Representatives of emergency management;
- Members of the public that are not described in (1) through (6).

The Kodiak Island LEPC is currently composed of 15 members. Members serve two-year terms, which may be continued at the discretion of the Chair. Members may serve an unlimited number of terms.

The Kodiak Island LEPC has three officers: a Chair (Kodiak Emergency Services Director), a Vice-Chair, and a Secretary. The Vice-Chair and Secretary are elected by the LEPC membership. The Chair may appoint and dissolve subcommittees composed of members of the LEPC and the community. Subcommittees study and report on matters relevant to the LEPC.

## Plan Explanations

### Kodiak Emergency Operations Plan

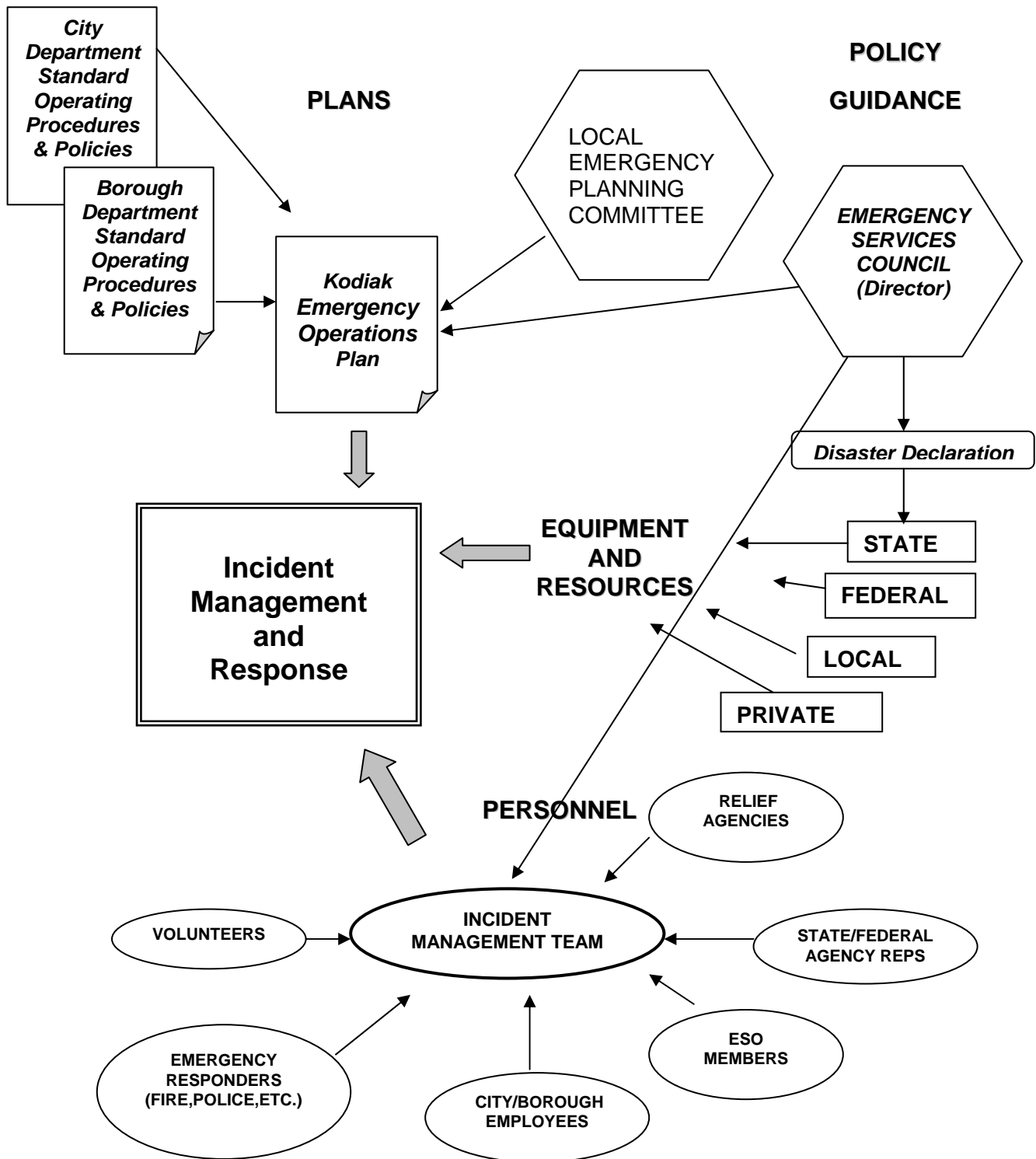
This plan predetermines, to the extent possible, actions to be taken by the City of Kodiak, the Kodiak Island Borough and its other municipalities in cooperation with the United States Coast Guard Integrated Support Command Kodiak, the United States Coast Guard Air Station Kodiak, the Alaska State Troopers Kodiak Post, and other state and federal agencies and private organizations to prevent disasters if possible, to reduce the vulnerability of residents to any effects of disasters, to respond effectively to the actual occurrence of disasters, and to provide for recovery in the aftermath of any emergency involving extensive damage or other debilitating influence on the normal pattern of life within the community. The plan consists of four volumes and various supporting appendices/annexes. It is a single comprehensive plan that encompasses all hazards for the purposes of organizing and coordinating disaster emergency relief forces and disaster emergency operations in Kodiak.

The rural communities of Ouzinkie, Port Lions, Old Harbor, Akhiok, Larsen Bay, Chiniak, Karluk, Anton Larson Bay, and Pasagshak, and the remote settlements and canneries in the Kodiak region, which include Alitak Bay Cannery, Big Sandy Logging Camp, Ben Thomas Logging Camp, Port O'Brien Cannery, and Port Bailey Cannery, are each responsible for emergency preparedness planning and directing emergency/disaster operations within their respective communities. The Kodiak Emergency Services Council shall be advised of conditions in these communities, either through the Alaska State Trooper or the Kodiak Island Borough, and will become a support agency for these communities as appropriate. Local disaster response plans for these communities will be integrated into the Kodiak Emergency Operations Plan as individual community annexes as they are developed.

### City and Borough Department and Agency Standard Operating Procedures (SOP)

Standard Operating Procedures provide implementing procedures to respond to "normal" or "standard" incidents within a department of the city or borough. The individual SOPs provide the framework for general operations and response by each department, and may also detail specific response procedures and actions. SOPs vary greatly in usage and are generally a checklist or set of instructions having the force of a directive, covering those features of operations which lend themselves to a definite or standardized procedure without loss of effectiveness. Site specific SOPs identify names, locations, call lists and so forth for response within a specific facility or location, and individual agency or department SOPs provide personnel assignments, notification and call-out procedures, line of authority, special equipment use, etc., for incident responders.

**Kodiak Emergency Response Plans and Personnel**



## Concept Of Operations

A major disaster emergency requires a coordinated response involving all levels of government, community volunteers, and private industry. Basic responsibility for disaster emergency planning and response lies with individuals and heads of households. When individuals and families cannot respond effectively, it is the responsibility of government officials to protect life and property from the effects of hazardous events. Local government has the primary responsibility for emergency management activities. When the emergency exceeds the local government's capability to respond, assistance will be requested from the state government. The federal government will provide assistance to the state, when appropriate.

This plan is based upon the concept that emergency functions for various groups involved in emergency management will generally parallel their normal day-to-day functions. To the extent possible, the same personnel and material resources will be employed in both cases. It is generally true, however, that a disaster is a situation in which the usual way of doing things no longer suffices.

**It is desirable, and should always be attempted, to maintain organizational continuity and to assign familiar tasks to personnel.**

In large-scale disasters, however, it may be necessary to draw upon peoples' basic capacities and use them in areas of greatest need. Day-to-day functions that do not contribute directly to the emergency operation may be suspended for the duration of any emergency. Efforts that would normally be required of those functions will be redirected to accomplish the emergency task by the agency concerned.

Local community emergency responders and managers/department heads usually know the best ways to apply disaster emergency relief resources within their communities. State response organizations will coordinate their activities with the Kodiak Emergency Services Council through the Emergency Services Director so that State aid is rendered in the most helpful manner. Similarly, federal assistance is intended to be supportive of State and local efforts, not a substitute for them.

In keeping with the nationwide strategy of the integrated emergency management system (IEMS), this plan is concerned with **all types** of emergencies that may develop. It also accounts for activities before, during, and after emergency operations.

### Emergency Response Ramp Up

When a disaster emergency requires a coordinated response, the following tiered response flow, or ramp up, is implemented as required. The response begins with the first responders on-scene, and depending on the incident specifics, may eventually expand to include local, state, and federal government and/or private sector responders, managers, and resources. Depending on the incident, the ramp up may include only local resources or may expand to include all of the response tiers described below.

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### ***First Responders***

The local emergency service first responders (i.e. fire, police) are dispatched to deal with the emergency. A local emergency official, usually the person-in-charge from the responding agency, assumes the role of Incident Commander and leads the response effort at the scene. The Incident Commander follows standard operating procedures, implements agency/department/organization emergency operations plan(s), communicates with the mayor/manager of the affected communities and requests additional assistance as appropriate.

#### **Local**

Depending upon the size, scale, and severity of the incident and the jurisdiction and capabilities of the first responders, the initial Incident Commander will contact Kodiak Police Dispatch and request additional support through an appropriate level of activation of the Kodiak Incident Management Team (Level III, II, or I) by the Emergency Services Director or designee. The Incident Commander position may then be assumed by a more qualified or higher-ranking individual from the responding agency, by an individual with more direct jurisdiction over the incident, or by the Emergency Services Director. For a Level II or I incident, select or full activation of the Incident Management Team (IMT) and Emergency Operations Center (EOC) will occur, and certain incident management functions will be shifted away from the scene to the EOC.

#### **Private Sector**

The local private sector chief executive whose facility is impacted will implement its Emergency Response Plan, activates its Emergency Operations Center, declare a facility disaster emergency and communicate with the local community to request assistance. Depending upon the type of incident, the Kodiak IMT and EOC may be activated to support the response, and a Unified Command consisting of a private sector facility representative and representatives of the local, state, and federal agencies with jurisdiction. For certain types of incidents, such as fires and hazardous materials releases, local agencies may maintain incident command to protect public health and safety. Likewise, if the private facility or organization responsible for the incident does not have the planning or personnel in place to support a response, the Kodiak IMT and EOC may be selectively activated to support response operations.

**Local medical facilities are an important private sector resource to consider during an emergency response. Medical resources are limited in Kodiak, so it is important to notify the hospital when an incident occurs that might result in human casualties.**

#### **State**

It is the intent of the Kodiak community to respond to disasters and other emergencies with local resources to the greatest degree practicable. When a disaster is of such severity and magnitude as to exceed the normal resources of the community, the Kodiak Emergency Services Council or the Emergency Services Director may make a formal disaster declaration in order to make additional community resources available and to help expedite an appropriate and unified community response. Once a disaster declaration has been made, the local community may also request assistance from the Alaska Division of Homeland Security and Emergency Management. The Director of the

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Alaska Division of Homeland Security and Emergency Management will coordinate the disaster response activities of State agencies, including the coordination of federal, military, and independent agency assistance as required.

Upon declaration by the state of a “Disaster Emergency,” the governor assumes command of all the state’s emergency services. The governor implements the State of Alaska Emergency Response Plan and activates the State Emergency Coordination Center, appoints a State Coordinating Officer, contacts the FEMA Regional Director and requests a Presidential Disaster Declaration for federal assistance as needed. The Alaska Division of Homeland Security and Emergency Management will determine the degree of state assistance to be provided and federal assistance to be requested.

The Kodiak Incident Management Team will continue to manage an incident, even after a state-level disaster declaration. The Kodiak Emergency Services Council will work with the State Coordinating Officer to integrate additional state and federal response personnel and resources into the existing incident management structure.

### **Federal**

Federal agencies, including the military, are assigned emergency preparedness functions by Executive Order 11490, dated August, 1970. Federal Civil Defense Guide, Part B, Ch. 1, Appendix 7, summarizes these assignments and is included here by reference (*Civil Defense only*).

When federal agencies and resources are added to the local response, the Alaska Division of Homeland Security and Emergency Management manages coordination between local governments and federal agencies. The Federal Emergency Management Agency (FEMA) is typically the lead federal agency in disaster emergencies. When FEMA becomes involved in a local disaster, the FEMA regional director will activate the Regional Operations Center and organize the Alaska Emergency Response Team and Federal Liaison Officer. The regional director will also alert the Region X Emergency Response Team and the Federal Coordinating Officer.

After completion of a preliminary damage assessment, the director of FEMA will recommend to the President whether to declare an Emergency or Major Disaster. The President will declare an Emergency or Major Disaster and appoint the Federal Coordinating Officer, who serves as the President’s representative to the disaster emergency and leads the federal response and recovery efforts from the disaster field office. A Federal Coordinating Officer would normally be requested by FEMA or the State only if the disaster was widespread and catastrophic.

In a disaster not qualifying for a Presidential declaration, assistance may be available under the statutory authorities of individual federal agencies. The Emergency Services Council or ESD may request assistance from the appropriate agencies through the Alaska Division of Homeland Security and Emergency Management. The council or director may also directly contact the Commander of the Coast Guard ISC and/or Air Station, Kodiak and request personnel or equipment support to prevent loss of life, destruction of property or to mitigate human suffering.

With the addition of federal agency involvement and/or Presidential declaration of a disaster emergency, the Kodiak Incident Management Team will expand further to

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include more federal agencies, personnel, and resources. The Emergency Services Council will continue to act as a liaison with state and federal agencies and to work jointly with these officials to develop and ratify policy directions.

### **Phases of Disaster Emergency Management**

Disaster emergency management planning can be divided into four phases: mitigation, preparedness, response, and recovery. Although each phase has tasks assigned to it, the process is dynamic and interconnected. For example, actions taken to recover from a disaster may have effects on mitigation, preparedness, and response to future occurrences.

#### **Mitigation**

Includes those actions taken to eliminate a hazard, or to reduce the potential for damage should a disaster emergency occur. Such actions include building codes, special identifications, and routing requirements for the movement of hazardous materials, land use, and zoning requirements.

#### **Preparedness**

Includes actions taken to plan, equip, and train citizens and local government personnel to respond to emergencies arising from hazards that cannot be eliminated through mitigation. This may include preparation of Emergency Operations Plans and guidelines, and exercises to test them. It may also include training in evacuation procedures, home fire safety, and purchase of equipment and supplies needed to respond to the disaster emergency.

#### **Response**

Includes actions taken to save lives and protect property during a disaster emergency. This may include search and rescue, fire suppression, evacuation, emergency feeding and sheltering. It may also include such behind the scenes activities as activating disaster plans, and opening and staffing Emergency Operations Centers from which Incident Management Teams manage operations.

#### **Recovery**

Includes those processes required to return the jurisdiction to normal. This could include reconstruction of roads and public facilities, securing financial aid for disaster victims, and review and critique of response activities.

The responsibility for mitigation and preparedness is addressed in city and borough codes, departmental standard operating procedures, and position descriptions. Response and recovery tasks are detailed in this Emergency Operations Plan.



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### **Distribution List**

The following personnel, positions, departments and agencies have copies of the Kodiak Emergency Operations Plan.

- A-B Taxi Company, Manager
- Ace/Mecca Taxi, Manager
- Alaska Aerospace Development Corp., Kodiak Launch Complex
- Alaska Chadux Corporation
- Alaska Department of Environmental Conservation, State On-Scene Coordinator
- Alaska Department of Transportation and Public Facilities, Kodiak
- Alaska Division of Homeland Security and Emergency Management, Anchorage
- Alaska Division of Forestry, Kenai
- Alaska National Guard Armory, Kodiak ~ Sargent
- Alaska State Parks, District Ranger
- Alaska State Troopers, "C" Detachment, Kodiak Post
- Alaska State Troopers, Fish and Wildlife Protection, Kodiak Post
- American Red Cross, Kodiak Office
- American Red Cross, Disaster Preparedness Office, Anchorage
- Bayside Fire Station, Chief
- Chaplains Corps.
- City of Akhiok, Clerk/VPSO
- City of Kodiak ~ Harbormaster's Office
- City of Kodiak ~ City Manager/Emergency Services Director
- City of Kodiak ~ Clerk's Office
- City of Kodiak ~ Engineer
- City of Kodiak ~ Police Chief
- City of Kodiak ~ Police Dispatch
- City of Kodiak ~ Public Information Officer
- City of Kodiak ~ Fire Chief/Emergency Services Coordinator
- City of Kodiak ~ Deputy Fire Chief
- City of Kodiak ~ Public Works Director
- City of Kodiak ~ Public Library
- City of Kodiak ~ Wastewater Treatment Plant Manager

- City of Kodiak ~ Mayor (ESC member)
- City of Larsen Bay, Clerk/VPSO
- City of Old Harbor, Clerk/VPSO
- City of Ouzinkie, Clerk/VPSO
- City of Port Lions, Clerk/VPSO
- Civil Air Patrol, Commander
- Cook Inlet Regional Citizens Advisory Council
- Cook Inlet Spill Prevention & Response, Inc
- Federal Emergency Management Agency, Region X Emergency Response Team
- Federal Contract Tower, Kodiak State Airport, Controller
- GCI Communications, Manager
- Karluk IRA Council, Clerk/Administrator/VPSO
- Kenai Peninsula Borough, Emergency Management Coordinator
- Kodiak Amateur Radio Emergency Services, Emergency Communications Unit
- Kodiak Area Native Association, EMS Coordinator
- KMXT Radio, Station Manager
- KVOK/KJJZ Radio, Station Manager
- Kodiak Island Mental Health Center, Director
- Kodiak Electrical Association (KEA), General Manager
- Kodiak Electrical Association (KEA), Power Production Manager
- Kodiak Island Borough ~ Mayor/Emergency Services Council member
- Kodiak Island Borough ~ Manager/Emergency Services Council member
- Kodiak Island Borough ~ Clerk's Office
- Kodiak Island Borough ~ Community Development Director
- Kodiak Island Borough ~ Assessor
- Kodiak Island Borough ~ Engineering and Facilities Director
- Kodiak Island Borough ~ Resource Manager
- Kodiak Island Borough School District, Superintendent
- Kodiak Island Borough School District, Maintenance and Operations Director
- Kodiak Island Search and Rescue. President
- Kodiak National Wildlife Refuge, Manager
- Kodiak State Airport, Air Traffic Control Tower

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- Lake and Peninsula Borough, Manager
- National Weather Service, Meteorologist
- Prince William Sound Regional Citizens Advisory Council
- Providence Kodiak Medical Center, Administrator
- PTI Communications, Manager
- The Salvation Army, Kodiak
- USCG AirSta Kodiak, Commanding Officer
- USCG CommSta Kodiak, Commanding Officer
- USCG ISC Kodiak ~ Fire Chief
- USCG ISC Kodiak ~ Commanding Officer
- USCG ISC Kodiak ~ Facilities and Engineering
- USCG ISC Kodiak ~ Rockmore-King Medical Clinic
- Women's Bay Volunteer Fire Dept., Chief
- Army National Guard, Kodiak – Sargent in charge
- reserved
- reserved
- reserved
- reserved

### Plan Review Cycle

The Emergency Operations Plan will be reviewed and amended, if necessary:

- Within one month following each emergency exercise or drill during which the plan is used, to reflect lessons learned during the drill or emergency.
- As appropriate to reflect any changes in City or Borough resources, departments, form of government, agency structure or other such event which would impact emergency services in Kodiak.
- At least once per year.

The Emergency Services Council, based on input from the Emergency Services Director, Emergency Services Coordinator, city and borough department directors, the Local Emergency Planning Committee, Emergency Services Organization, and other personnel as necessary, determines if changes to the Plan are necessary.

The Emergency Services Coordinator is responsible to ensure that revisions are made and incorporated into all copies of the Plan.

### Training, Drills and Exercises

Training and exercises are vital to determine the effectiveness of this Emergency Operations Plan. These preparedness activities ensure that the operational concepts outlined are sound and that personnel are adequately trained to carry out necessary functions in time of disaster emergencies. In addition, such testing will provide a basis for the updating and revision of this Plan and for the identification of inadequate resources. Participants and observers will evaluate Training and exercises and specific elements of the Plan will be changed as indicated.

City and borough departments, various agencies and organizations, and the Local Emergency Planning Committee will work with the Emergency Services Director and the Emergency Services Coordinator to develop and coordinate the delivery of ongoing disaster training and educational programs. They will also develop and implement annual exercises of this Emergency Operations Plan. The Emergency Services Director shall use state funding provided by the SERC and federal funding available through FEMA to support and finance these annual exercises. As necessary, the LEPC shall solicit additional funding to support regular training exercises for local response personnel, including, but not limited to ICS training for all EOC personnel.

#### Training Schedule and Records

Members of the Kodiak Incident Management Team and the Emergency Response Organizations described in Volume 1, Section 1 of this plan participate in periodic training relevant to their community emergency response roles. It is the responsibility of each Incident Management Team (IMT) member to ensure that his/her level of training is appropriate to his or her designated position.

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The Emergency Services Coordinator and the Community Development Department staff are responsible for ensuring that IMT members are made aware of potential training opportunities.

**The Qualified Personnel Roster in Volume 2, Section 3 of this plan indicates whether IMT members have received sufficient training to perform the duties assigned to them.**

### Drills and Exercises

Drills and exercises shall be held, at a minimum, with the frequencies described below. Additional drills and exercises shall be scheduled as necessary. The Emergency Services Coordinator is responsible to ensure that all drills and exercises are scheduled and carried out as specified in this plan, or as directed by the Emergency Services Director.

**The Emergency Services Coordinator is responsible for maintaining and updating a log of drills and exercises.**

Type of Drill or Exercise	Frequency	Participation
IMT Call Out	Monthly (unannounced)	Kodiak Police Dispatch and all agencies/departments included in notification/call out for level III incident. Exercise will be used to test accuracy of phone list. ESD will revise call out list as necessary, with assistance from ESC and KIB CDD.
EOC Mobilization	Quarterly (unannounced)	Same as Call Out Drill. At the direction of the ESD, KPD will instruct IMT personnel to report to the EOC to test set-up and communications readiness. Alternate EOC sites should also be tested during these drills.
Tabletop Disaster Drill With Selective Mobilization	Annually (announced)	All departments/agencies with a role in Incident Command for Level III activation. City/borough departments will be selectively mobilized to test evacuation procedures, emergency communications, etc.

# SECTION 3: GEOGRAPHIC AND DEMOGRAPHIC CHARACTERISTICS

## Location, Geography and Demographics

The Kodiak Local Emergency Planning District boundaries are identical to those of the Kodiak Island Borough municipality and encompass the Kodiak Island archipelago, extending from the Barren Islands on the north to Chirikof Island and the Semidi Island group on the south, and the coastal area watershed draining into the Shelikof Strait along the east side of the Alaska Peninsula from Cape Douglas to Cape Kiokak. The Kodiak archipelago and west side of Shelikof Strait within the Kodiak Island Borough is approximately 100 miles wide and 250 miles long. According to 1989 Department of Community and Regional Affairs certification information, the Kodiak Island Borough includes a total of 21,908 square miles (land and water area).

At 3,588 square miles, Kodiak Island is the largest island in the archipelago, and is the second largest island in the United States. Kodiak is located approximately 250 miles southwest of Anchorage. The population of Kodiak Island Borough is approximately 14,200 (1997 census), with the largest concentration of people living in the City of Kodiak (pop. 6,800) and service area (populated area immediately north of the City of Kodiak boundaries-- pop. 3,000), the U.S. Coast Guard Base (pop. 1,800), and Women's Bay (pop. 670). The remainder of the Kodiak Island Borough population resides in rural communities, seasonal fishing and logging camps, or other remote settlements, most of which are not accessible from the Kodiak urban road system.

Kodiak has a maritime climate characterized by cool summers and mild winters. Average annual precipitation is 54.5 inches, with considerable ranges in precipitation amounts throughout the region. Kodiak has seasonal mean temperature fluctuations from a low of 14 degrees Fahrenheit in winter to a high of 76 degrees in summer.

### Government

The City of Kodiak was incorporated in 1940 as a first class city with a City Manager/City Council form of government. Elected by Kodiak voters, the Mayor and six-member council are the governing body deciding all matters of city policy, approve new ordinances, and determine funding for all programs and services through the adoption of the city's annual budget. The City Council appoints the City Manager.

The Kodiak Island Borough was incorporated in 1963, and until 1998, was governed by a Mayor/Assembly form of government. In October 1998, the borough reverted to a Manager/Assembly form of government, similar to that of the City of Kodiak.

The U.S. Coast Guard maintains a large base on Kodiak Island, seven miles south of the City of Kodiak municipal boundary, supporting approximately 1,800 military personnel

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and their families. The Coast Guard Integrated Support Command Kodiak (ISC) maintains its own police and fire departments and has a warning siren system, which differs from that used by Kodiak Emergency Services. The ISC Kodiak has contract personnel with Level A hazardous materials response capabilities as well as oil spill response personnel, equipment, and a medical clinic and staff. While these resources are maintained primarily to support U.S. Coast Guard personnel in Kodiak, they may be available, through mutual aid agreements or similar arrangements, to supplement city and borough resources during a major emergency.

### Transportation

Kodiak is accessible to the rest of the State of Alaska by air and sea only. Road access around the City of Kodiak urban area is provided by state, borough service district, and local roads. Kodiak is served by daily commercial flights from Anchorage on Alaska Airlines and Era Aviation. Island Air and Penn Air provide charter and scheduled flights between Kodiak and the remote communities and facilities in the Kodiak region and the Alaska Peninsula, as well as between Kodiak and other Alaska communities, including Anchorage. The airport is serviced by three separate runways, the longest of which is 7,500 feet in length and capable of accommodating jet aircraft, C-130s, and C-5s.

The Port of Kodiak supports a large commercial fishing fleet and is a port on the Alaska Marine Highway System. The Port of Kodiak is open year-round to accommodate a variety of marine transportation services, including general cargo and containerships, commercial fishing vessels, tank vessels, freight vessels, and cruise ships. Kodiak harbor serves independent commercial sport fishers as well as recreational users.

The harbor is home to several enforcement and research vessels operated by the National Park Service, Alaska Department of Fish and Game, Alaska State Troopers, and the U.S. Fish and Wildlife Service (Kodiak National Wildlife Refuge). The large fleet of commercial fishing vessels may be available to perform contract services such as oil spill response. The Kodiak Harbor Office has several smaller vessels available for various functions.

The ISC Kodiak is homeport for three Coast Guard cutters: one 283-foot and one 230-foot medium endurance cutter and one 225-foot buoy tender. The Coast Guard also maintains numerous smaller boats & skiffs.

The Coast Guard Air Station supports approximately five C-130 aircraft and nine helicopters, which have been used in the past to support search and rescue missions conducted by the Alaska State Troopers. There are numerous small charter airlines operating at the Kodiak municipal airport and Trident Basin and Lilly Lake float plane airports. These aircraft may be contracted individually, and many are also available through the Civil Air Patrol.

### Medical Support Services

Medical facilities in the City of Kodiak urban area include Providence/Kodiak Island Medical Center, providing acute and long-term care with specialized rooms for surgery, obstetrics/birthing, emergency, and outpatient care. The Kodiak Area Native Association and USCG ISC Kodiak each have medical facilities, which are generally only available to Alaska natives and military personnel, respectively. In a major emergency,

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## **Geographic and Demographic Characteristics**

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however, these clinics may be able to supplement other Kodiak medical services. There are also a few small, private medical clinics and private practices in Kodiak. Private health care practitioners in Kodiak provide the following services, among others; mental health, family physicians, pharmacies, dentists, optometrists, chiropractors, surgeons, alcoholism/drug abuse, and others. Kodiak also has a Public Health Service department with several nurses on staff.

### **Public Utilities**

Pillar Creek Reservoir and Monashka Reservoir provide water, which is distributed by pipe throughout the service area by the City of Kodiak. The Coast Guard base draws its water from the Buskin Lake Reservoir. Piped sewage is processed at the wastewater treatment plant (secondary treatment), which is operated by the City. The Borough contracts for garbage collection services, and the Borough-owned landfill is located north of the City of Kodiak at Monashka Bay. Kodiak Electric Association, a cooperative utility, operates and purchases power from the state-owned Terror Lake Hydroelectric Facility. It also operates a Coast Guard-owned cogeneration plant, and owns three additional diesel-powered plants at Swampy Acres, Kodiak, and Port Lions. The USCG base operates both a wastewater and a water treatment plant.

**A detailed inventory of local response resources is provided in VOLUME 4 of this plan.**

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### Risk Factors

An informal risk analysis was performed as part of this planning effort (see Volume 1, Section 4). Sixteen hazards were identified for the Kodiak area, with the following relative risks\* associated with each:

HAZARD	RISK
Earthquake	HIGH
Tsunami	HIGH
Volcano	HIGH
Hazmat	MOD/HIGH
Energy Shortage	MOD/HIGH
Landslide	MOD/HIGH
Terrorism/WMD	MODERATE
Enemy Attack	MODERATE
Fire	MODERATE
Weather	MODERATE
Flood	MODERATE
Drought	MODERATE
Coastal Erosion	MODERATE
Civil Disorder	LOW/MOD
Transportation Accident	LOW
Avalanche	LOW

\*Please note that designation of risk in this context is based on the qualitative risk assessment presented in Volume 1, Section 4. These risk designations attempt to capture the historical frequency of occurrence, the severity of impact, and the percentage of the Kodiak population likely to be impacted by each.

## Geographic and Demographic Characteristics

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### Overview of Risk Factors and Disaster History in Kodiak

Kodiak is located within the Pacific Rim belt of seismic and volcanic activity. All of the City of Kodiak lies within seismic risk zone 4. This means that it is susceptible to earthquakes of Richter magnitude 6.0 to 8.8, in which major structural damage could occur. The 1964 earthquake (magnitude 9.2 on the moment magnitude scale) and the resultant tsunami virtually leveled the downtown area, destroying the fishing fleet, processing plants, canneries, and 158 homes.

Kodiak is susceptible to volcanic activity from the chain of andesitic volcanoes on the Alaska Peninsula. These volcanoes, which include Augustine, Iliamna, Redoubt, and Spur, have been active within the past twenty years or less. Volcanic activity can range from minor steam plumes to ash plumes to pyroclastic flows.

Landslides also threaten populated areas of Kodiak, and a 1991 mudslide in the City of Kodiak resulted in the displacement of several households. To a lesser degree, both coastal erosion and flooding threaten homes and roadways in coastal areas around Kodiak. Both wild land fires and structural fires occur in Kodiak, and serious structural and environmental degradation, as well as human health risks, may occur. Kodiak experiences frequent stormy weather, with occasional high winds gusting to as much as 70 or 80 mph or higher. High winds and/or heavy rainfall or snows have the potential to cause structural damage to homes or power lines and to cause road closures and traffic accidents. Bad weather can also preclude air and vessel traffic in and out of Kodiak, which could lead to temporary shortages in certain amenities.

The inshore waters and coastline of Kodiak are vulnerable to the introduction of petroleum products, oil, or hazardous chemicals from a variety of sources. Marine vessel fuel, jet fuel, lubricants, toxic chemicals, crude oil, and other petroleum products are transported through Kodiak by vessel and aircraft. Refined fuels and several hazardous chemicals, including ammonia and chlorine, are stored in facilities throughout the island in varying quantities. Pollution risks in Kodiak include oil and hazardous materials spills of all sizes as well as chronic leaks or low volume inputs.

Commercial air traffic in and out of Kodiak consists of an average of 4-5 flights per day, and there are many smaller aircraft, both commercial and private, that operate in and around Kodiak. Therefore, the possibility exists for a plane crash or midair collision to occur. The State Airport maintains its own emergency operations plan for transportation disasters, but an airplane disaster could have broader ranging community impacts, including the obvious psychological trauma, the possible need for acute medical care and/or sheltering of survivors, and the community impacts caused by a disruption in air traffic to and from the airport.

Cruise ships sporadically visit Kodiak, and in the summer of 1998 there were ten local visits by a cruise ship which carried upwards of 600 passengers and crew on board. Such cruise ship visits may increase the risk of marine transportation accidents or emergencies.

In the fall of 1998, the Alaska Aerospace Development Corporation completed construction of a Rocket Launch Facility at Narrow Cape on Kodiak Island. While the Rocket Launch Facility is located at some distance from the Kodiak urban area, the

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periodic launching of rockets and satellites from that location also presents certain risks to the local population and environment, including damages caused by explosion, fire, and falling debris. There is also the added risk of a transportation accident involving the airplanes, trucks, and vessels used to transport the rocket and satellite components and fuel to the Narrow Cape facility. The Rocket Launch Facility operates under an emergency response plan that would be integrated with the EOP in the event of an incident.

The September 11, 2001 terrorist attacks against the United States demonstrated that this country is susceptible to terrorist acts, including the use of weapons of mass destruction. While Kodiak's remote location makes it a somewhat less likely target than other locations nationwide, the potential consequences of terrorism to the population and infrastructure are significant.

Because the range of possible emergencies Kodiak faces is so broad, this plan has been designed to be general enough to be useful in a variety of situations.

### **Kodiak Region Maps**

The following pages contain maps of the Kodiak region, including the Kodiak urban area and road system communities that are part of the local disaster response organizations and policies described in this plan. They include:

- Kodiak Island Borough Map
- Kodiak Urban Area Map
- Kodiak Urban Area Map: Bells Flats and Russian Creek Subdivisions
- Kodiak Urban Area Map: Middle Bay and Kalsin Bay Region
- Kodiak Island Borough Address Map
- Chiniak Area Zoning Map
- Pasagshak Subdivision Map

Maps of the six outlying cities/villages in Kodiak are not included herein because each of these communities has developed their own community disaster response plan with appropriate maps. These plans and maps are included as annexes to this plan.

# SECTION 4: HAZARD INFORMATION AND ASSESSMENT

## Introduction

The development of an all risk Emergency Operations Plan for the Kodiak region required the analyses of hazards, both natural and manmade, that threaten the people, property, and environment within the community. The hazard analysis is the foundation for mitigation strategies, planning and preparedness activities, response capabilities, and recovery and restoration. There are several concepts involved in analyzing the dangers posed by natural and technological hazards. “Hazard”, “vulnerability”, and “risk” have different meanings but are sometimes used interchangeably. This document adopts the following definitions:

**Hazard:** Any situation that has the potential for causing injury to life or damage to property and the environment.

**Vulnerability:** The susceptibility of life, property, and the environment to injury or damage if a hazard manifests its potential.

**Risk:** The probability that injury to life or damage to property and the environment will occur.

The hazard analysis performed for the purpose of this plan is limited in scope. While a complete, detailed analysis of all hazards would be informative; it is not currently feasible or practical given resource and time constraints. This limited hazard analysis still has considerable value in providing qualitative information about the types and relative severity of risks faced by Kodiak to focus regional emergency planning and preparedness efforts. The following steps were used:

- **Hazard Identification** → Hazards believed to have a major impact on the community were analyzed. Sixteen were identified that pose *the most serious threat for causing injury or damage to property and the environment*.
- **Vulnerability Analysis** → The resources, property, or populations in the community susceptible to damage from each hazard were identified and the scope of the potentially affected area and population; the amount and value property that may be damaged; and the environment that may be affected was identified for each hazard.
- **Risk Analysis** → The probability of damage or injury taking place in the region and the actual damage that might occur were considered for each hazard based on the vulnerability analysis. A “worst case scenario” was chosen for this analysis. The risk analysis provides information on the probability that a worst case incident will occur, the type of harm to people, the type of damage to property, and the type of damage to the environment.

## Methodology

In order to rank each hazard in this risk analysis, a “severity rating” has been assigned for the history, vulnerability, maximum threat, and probability associated with each hazard. These rankings are based on the criteria described below. The severity ratings associated with each hazard have been used to compare the relative risks.

The "Overall Risk" identified for each hazard considers the four factors defined below, and provides a basis for comparison among hazards so that Kodiak can determine priorities for emergency preparedness, allocate response resources, and plan drills to address those hazardous incidents most likely to occur.

**History:** The recorded occurrence of previous similar disasters or events.

Severity Rating	Criteria
Low	0-1 event per 100 years
Moderate	2-3 events per 100 years
High	4 + events per 100 years

**Vulnerability:** The percentage of population and amount/value of property that is at risk from each hazard.

Severity Rating	Criteria
Low	<1 % affected
Moderate	1-10 % affected
High	>10 % affected

**Maximum Threat:** The maximum percentage of population and property that could be impacted under a worst case scenario.

Severity Rating	Criteria
Low	<5 % affected
Moderate	5-25 % affected
High	>25 % affected

## Hazard Information and Assessment

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**Probability:** The number of occurrences of each hazard in the past 100 years and the factors that have contributed to increased or decreased risk for the hazard involved.

Severity Rating	Criteria
Low	>1 chance per 100 years
Moderate	>1 events per 50 years
High	>1 events per 10 years

The methodology used to develop this hazard analysis is loosely based on the guidance as detailed in “Hazardous Materials Emergency Planning Guide,” NRT-1, July 2001, National Response Team, “Guide for All-Hazard Emergency Operations Planning,” State and Local Guide 101, Sept. 1996, FEMA and “Capability and Hazard Identification Program,” FEMA, and NFPA 1600 “Recommended Practice for Disaster Management.” However, in this case, the numerical system developed in these publications has been dropped from the analysis in favor of a more generalized, qualitative approach.

**Summary of Kodiak Hazard Analyses**

<b>Hazard</b>	<b>History</b>	<b>Vulnerability</b>	<b>Max. Threat</b>	<b>Probability</b>	<b>Overall Risk</b>
<b>Earthquake</b>	High	High	High	High	<b>HIGH</b>
<b>Tsunami</b>	Mod.	High	High	High	<b>HIGH</b>
<b>Volcano</b>	High	High	High	Mod.	<b>HIGH</b>
<b>Hazmat</b>	Mod.	Mod.	High	High	<b>MOD/HIGH</b>
<b>Energy Shortage</b>	Mod.	High	High	Mod.	<b>MOD/HIGH</b>
<b>Landslide</b>	High	Mod.	Mod.	High	<b>MOD/HIGH</b>
<b>Terrorism/ WMD</b>	Low	High	High	Low	<b>MODERATE</b>
<b>Enemy Attack</b>	Low	High	High	Low	<b>MODERATE</b>
<b>Fire</b>	Mod.	Mod.	Mod.	High	<b>MODERATE</b>
<b>Weather</b>	Mod.	High	Mod.	Mod.	<b>MODERATE</b>
<b>Flood</b>	Mod.	Mod.	Mod.	Mod.	<b>MODERATE</b>
<b>Drought</b>	Mod.	High	Mod.	Low	<b>MODERATE</b>
<b>Coastal Erosion</b>	High	Low	Mod.	Mod.	<b>MODERATE</b>
<b>Civil Disorder</b>	Low	Mod.	Mod.	Low	<b>LOW/MOD</b>
<b>Transportation Accident</b>	Low	Low	Low	Mod.	<b>LOW</b>
<b>Avalanche</b>	Mod.	Low	Low	Low	<b>LOW</b>

## Avalanche

An avalanche is a mass of sliding snow occurring in mountainous terrain where snow is deposited on slopes of 20 degrees or more.

Kodiak is at risk from snow avalanches, although there is no residential development located in known avalanche paths. However, there are avalanche-prone areas (for example, Pyramid Mountain) in close enough proximity to developed areas and winter recreation areas that this threat may increase. In general, however, winter snowfall is moderate in coastal areas, where Kodiak's population is centered.

The most common hazard associated with avalanches is blockage of the highways. During particularly cold winters, it is possible that enough snow could accumulate on hillsides adjacent to the Chiniak Highway to present the possibility of small, localized avalanches. Larger avalanches, involving tons of snow, may occur in interior portions of Kodiak, which are at this time unpopulated. Moderately large avalanches have also affected the Pasagshak Highway in the area around the river mouth. Complete blockage of the road for one or more days may result from such avalanches and would impact the small population in Pasagshak, isolating them from the urban road system until the roads are cleared.

Persons at greatest risk of personal harm from avalanches are those who recreate in the areas prone to avalanches, primarily skiers, snowboarders, and people riding snowmobiles. With the growing popularity of backcountry winter recreation, particularly snowboarding, it is likely that the risk of personal injury from avalanches could increase. The Kodiak Island Search and Rescue organization holds annual avalanche awareness seminars in an attempt to educate skiers, snowboarders, and snowmobilers about avalanche risks on Kodiak. Some of this risk could be averted by avoiding activity in mountainous areas that are in the paths of potential avalanche chutes.

At this time, no avalanche hazard maps exist for Kodiak.

### SUMMARY OF KODIAK AVALANCHE HAZARD ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	Low
Maximum Threat	Low
Probability	Low
<b>Overall Risk</b>	<b>Low</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

## Civil Disorder

Civil Disorder is defined as a riot, violent protest, demonstration, or illegal assembly.

Civil disturbance involves a continuum of activity ranging from lawful protest, such as strikes against a particular employer, through sabotage of governmental facilities, to the taking of hostages and assassinations. At their extreme, acts of civil disobedience may be considered as acts of terrorism. However, for the purpose of this analysis terrorist acts are considered in a separate category.

At the various seats of local government, the employees and facilities may become targets for acts civil disturbance. In addition, facilities of local, state, and federal agencies may also become the focus for violent activity. Finally, persons or organizations determined to disrupt normal activities may attempt to damage or destroy such vital services as phone, electricity, water, and others. Results of these and other actions may precipitate other emergencies such as fire, flood, transportation, hazardous materials incidents, and others. Risks to persons and property depend on the nature and extent of each incident.

Pre-planning and “worst case scenario” analysis are ways to begin mitigation for acts of civil disturbance and acts of terrorism.

### SUMMARY OF KODIAK CIVIL DISORDER HAZARD ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	Low
Maximum Threat	Low
Probability	Low
<b>Overall Risk</b>	<b>Low</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

## Coastal Erosion

Coast erosion is defined as the removal of weathered material including rock and sediment in coastal areas due to wave and tidal action.

Many coastal areas in Kodiak are subject to the effects of coastal erosion. Wind, wave, flooding, and tidal action can impact large portions of the shoreline, including beaches and small cliff areas. Erosion may cause damage to roadways, residences, and other structures. Nearly all erosion leads to a loss of vegetation, except in the highest mountain areas. The effects of erosion on coastal areas are generally gradual, although dramatic coastal erosion may occur following a storm or flood event.

Significant coastal erosion has occurred in several communities in the Kodiak Island Borough, including Karluk, Akhiok, Larsen Bay, Ouzinkie, and Chiniak. Erosion is also occurring in the Spruce Cape area in the Kodiak urban area. Erosion in Spruce Cape threatens a few homes as well as hiking trails and public use areas in Fort Abercrombie State Park. There have been erosion studies initiated in several of these communities, and some mitigation has occurred in Ouzinkie, where a breakwater was constructed to slow the erosion. The village of Karluk was actually relocated in the 1970s due to erosion caused by a breach in the Karluk spit. In Chiniak, where sections of the highway are being dangerously undercut by erosion, there has been some discussion of relocating portions of the road further inland.

In general, large-scale erosion cannot be stopped. Mitigation of erosion is often expensive but it can be accomplished through public awareness, zoning ordinances, and other comprehensive planning and regulation measures such as setback policies that limit development too close to the shoreline. These policies do not actually slow the course of erosion but may serve to keep property out of harm's way. In extreme cases, shoreline fortification may be used to slow coastal erosion in some areas, however this process is expensive and often creates additional long-term problems by interrupting natural sediment transport and aggravating erosion problems in adjacent areas. At this time, no coastal erosion hazard maps exist for Kodiak.

### SUMMARY OF KODIAK COASTAL EROSION HAZARD ASSESSMENT

Categories	Severity
History	High
Vulnerability	Low
Maximum Threat	Moderate
Probability	Moderate
<b>Overall Risk</b>	<b>Moderate</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Drought

A drought is a prolonged period without rain.

Although Kodiak normally receives substantial precipitation during the course of the year, a prolonged dry spell and/or several years in a row with below-normal rainfall could result in a drought. In addition, the presence of drought conditions may lead to, or aggravate, other emergency conditions, such as wildfires and energy shortages/disruptions.

The City of Kodiak pipes water to city and borough service area residents from the Pillar Creek and Monashka Reservoirs. Drought restrictions could range from minor voluntary measures to mandatory reduction of all water use, with penalties for violations. Actual conservation actions will be determined by the Public Works Department in response to existing conditions.

Planning and preparedness for drought is primarily the responsibility of the local and regional governments. Response to drought will require close coordination with the Fire Department to ensure that minimum water levels are maintained for fire suppression. Coordination of curtailment activities and public information concerning the drought should also be closely coordinated with other water users in Kodiak.

Mitigation depends heavily on public education, individual preparedness, and careful monitoring of water supply sources by local governments, especially during times of low rainfall.

#### SUMMARY OF KODIAK DROUGHT HAZARD ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	High
Maximum Threat	Moderate
Probability	Low
<b>Overall Risk</b>	<b>Moderate</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Earthquake

An earthquake is defined as a sudden oscillatory motion of the ground, ie.shaking, and may be accompanied by surface faulting, liquefaction, landsliding, subsidence and ground failure. Some large earthquakes generate tsunamis that can be particularly destructive along nearby shorelines. Flooding from large tsunamis may extend inland great distances in low-lying coastal areas.

Approximately 11 percent of the world's earthquakes occur in Alaska. Of the ten largest anywhere since 1904, three were in Alaska including the 1964 magnitude 9.2 Prince William Sound earthquake which severely impacted Kodiak Island. The vast majority of the large earthquakes in Alaska are along the Aleutian Islands, the Alaska Peninsula region including the Kodiak Archipelago, the Kenai Peninsula and Prince William Sound. This belt of earthquakes is the seismically active part of the Aleutian subduction zone, the convergent plate boundary between the Pacific and Northern American plates. The Aleutian megathrust is the great low angle fault between the plates and is the source of the largest subduction earthquakes. The 1964 earthquake originated on the Aleutian megathrust. The subduction zone also contains many other seismically active faults (intra-plate faults) in the adjacent margins of the North American and Pacific plates. Great megathrust earthquakes typically cause very strong shaking over large regions that lasts several minutes. These kinds of earthquakes are accompanied by permanent regional uplift and subsidence of the land surface. Land level changes from megathrust earthquakes are particularly damaging along shorelines where sudden permanent sea level changes of many feet can occur. In the City of Kodiak, sea level rose about 5 feet during the 1964 earthquake. Megathrust earthquakes also commonly cause very large seismic sea waves or tsunamis, and may generate high wave run-up on nearby coasts. On Kodiak Island, the 1964 Prince William Sound earthquake produced tsunami run-up height of as much as 33 feet above normal tide level at Cape Chiniak and about 20 feet at Womens Bay and along the waterfront at Kodiak City. Great megathrust earthquakes also trigger many landslides, snow avalanches, and submarine slumps at distances as much as several hundred miles from the epicenter. (For example, there were major landslides in the Kodiak area following the 1964 earthquake, and the epicenter was near Whittier over 250 miles away.)

Along the Aleutian subduction zone intra-plate faults are the source of many more earthquakes than the megathrust. Some of these (shallow crustal earthquakes) cause significantly stronger ground motion (shaking) near their epicenters than megathrust earthquakes. Intra-plate earthquakes in the Aleutian subduction zone region have been recorded up to magnitude 8+. Such earthquakes can cause severe shaking and major damage over hundreds of square miles. Intra-plate earthquakes of magnitude 6 (the threshold for severe damage) or greater are frequent in the Aleutian subduction region; Kodiak Island experienced six such earthquakes (magnitude 6.5 to 7.1) between 1999 and 2003. Fortunately, the recent large intra-plate earthquakes in the Kodiak Island area were located at sufficient depth and distance from populated areas to caused only minimal damage.

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The Narrow Cape fault has the greatest potential for producing the most severe ground motions and large tsunami in the Kodiak City area. However, other shallow faults including the Kodiak Island fault also have significant seismic potential. Additionally, earthquakes on faults in the subducted Pacific plate beneath Kodiak contribute to the overall seismic hazard.

The 1964 Prince William Sound earthquake provides a relatively recent example of the very real threat to Kodiak posed by earthquake activity. Nineteen (19) people lost their lives on Kodiak Island during the 1964 quake and tsunami and several villages were destroyed as was the waterfront and much of the downtown part of Kodiak City. A powerful earthquake and tsunami also destroyed the first Russian settlement at Three Saints Bay in 1788, resulting in the relocation of the early Russian settlement to Kodiak City. Major damaging earthquakes struck Kodiak City in 1792, 1833, 1854, 1866, 1880, 1900, 1912, and 1938. Several other strong earthquakes have caused localized damage at various places on the Island during the past 200 years. Five of the historic earthquakes generated significant tsunamis, the largest in 1964.

Since arrival of the first Russian settlers in the late 1700's, the average time interval between earthquakes that resulted in significant damage at Kodiak City has been about 23 years. The longest historic interval between strong and damaging earthquakes is 41 years. The last earthquake to produce significant damage in Kodiak City was in 1964. Unless a strong earthquake strikes in the next several years, a new record length for the longest earthquake-damage free interval in Kodiak City's written history will be set in 2005.

Overall, largely because of the Aleutian subduction zone, Alaska is the most seismically active region in North America. Kodiak is one of the most earthquake prone areas in Alaska. If the pattern of earthquake occurrence that has characterized the last 200 years continues, Kodiak is due for another major earthquake in the near future.

The general effects of strong earthquakes include damage to bridges, buildings, roads and highways, port and harbor facilities, airport facilities, electrical utilities, public, private, and government communications facilities, water impoundment and distribution systems, and drainage and sewage systems. In addition, an earthquake of magnitude greater than about 6, if located near populated or developed areas, may result in additional emergencies such as fires, explosions, and hazardous materials incidents; disruption of vital services such as water, sewer, power, gas and transportation; damage to and disruption of emergency response facilities and emergency communications resources and systems. Very severe earthquakes have triggered civil and political emergencies such as public panic, looting, and civil disorder, and have caused mass casualties.

Since 1964, the collective Kodiak memory of our most recent earthquake and tsunami disaster has dimmed, concern about seismic issues diminished, and preparation efforts declined, especially in the form of hazard mitigation. The time until the next locally severe earthquake is decreasing. Today, no up-to-date inventory of specific seismic hazards is available for the Kodiak Island Borough. Little modern detailed Seismic Safety Planning and even less seismic hazard mitigation has been done. The vulnerability of the Kodiak Island community to strong earthquakes is high. The

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probability of a powerful local earthquake in the relatively near future is also high. The need to identify and mitigate the most severe hazards soon is very great.

Earthquake mitigation is essential, as these events occur without warning. Increased awareness and community-wide education about what do before, during, and after an earthquake are essential to mitigate this potential hazard. Engineering solutions may also be used to increase the likelihood that certain structures will withstand a major earthquake. However, most of the buildings in Kodiak were constructed pre-1990 and are not believed to meet current earthquake stability standards.

**All Kodiak vital facilities, and especially designated EOC and shelter locations, should be evaluated for earthquake stability and retrofitted as needed.**

### SUMMARY OF KODIAK EARTHQUAKE HAZARD ASSESSMENT

Categories	Severity
History	High
Vulnerability	High
Maximum Threat	High
Probability	High
<b>Overall Risk</b>	<b>High</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Enemy Attack

As defined in the Federal Emergency Management Agency (FEMA) hazard identification, enemy attack is hostile action taken against the United States by foreign forces resulting in the destruction of military or civilian targets or both.

It is difficult to determine the attack objectives of hostile force(s). Many factors affect the validity of assumptions concerning the effects of an enemy attack. Among them are enemy targeting priorities, weapon size and design, height of burst, and the delivery system accuracy and reliability. In addition, such things as weather conditions, time of year, topography, and methods and materials used in local building construction can alter effects of enemy attack.

The FEMA guidance as provided in the Nuclear Attack Planning Basis-1990 Final Project Report (US GPO, 1987 719-953/60059) is accurate in its assessment of weapons effects in Kodiak. The FEMA project estimates the potential physical effects of a nuclear attack on the population of the United States in terms of the degree of the potential risk. Three types of potential nuclear attack effects include (1) the direct effects risk from blast overpressure generated by the explosion of a nuclear weapon; (2) the potential thermal and secondary blast-ignited fire risk created by the combined effects of blast overpressure damage and the thermal pulse or fireball of a weapon; and (3) the fallout risk from radiation generated by surface-burst weapons. All three categories of nuclear attack effects have the potential to threaten Kodiak residents.

According to various FEMA publications, the U.S. Coast Guard Integrated Support Command (ISC) on Kodiak has been identified as a potential military target subject to hostile action. Likewise, the newly installed Kodiak Launch Complex also has the potential to be a target for enemy attack due to its potential use in testing missile defense systems. However, the U.S. Coast Guard ISC on Kodiak is one of thousands of military bases in the United States, and is not likely to be a prime strategic target. Additional information about weapons of mass destruction, including nuclear, biological, and chemical agents, is presented in the Hazard Analysis for Terrorism/WMD.

Preparation for this kind of hazard should focus on sheltering and evacuation.

#### SUMMARY OF KODIAK ENEMY ATTACK HAZARD ASSESSMENT

Categories	Severity
History	Low
Vulnerability	High
Maximum Threat	High
Probability	Low
<b>Overall Risk</b>	<b>Moderate</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

**Energy Shortage/Interruption**

Energy shortage is defined as the shortage or interruption of vehicle fuel, heating oil, or disruptions of electrical power.

Energy shortages/interruptions in Kodiak include the shortage or interruption of vehicle fuel, heating oil, bottled gas, or disruptions of electrical power. The region’s supply of fuel, heating oil, bottled gas, and production of electrical power may be affected by international, national or Alaska conditions, or as a result of major natural or technological emergencies such as earthquakes or periods of unusually cold weather. The moment at which a reduction in supply becomes an emergency, or requires specific action is difficult to pinpoint. Conditions may be exacerbated by panic buying, hoarding, or the time of year in which the crisis occurs. People and property at risk are dependent on the extent of shortages or outages. It may involve small segments of the population (for example, one or more of the villages or remote facilities) or can be region wide.

Mitigation of possible energy shortages/disruptions, particularly in connection with another disaster such as an earthquake or tsunami, depends again on public education and awareness. The Kodiak region must be prepared to function without normal sources and supplies of energy and entities such as hospitals, schools, emergency services, and other vital agencies must have in place alternate and/or backup supplies and capabilities for energy use.

**SUMMARY OF ENERGY SHORTAGE/INTERRUPTION HAZARD ASSESSMENT**

<b>Categories</b>	<b>Severity</b>
History	Moderate
Vulnerability	High
Maximum Threat	High
Probability	Moderate
<b>Overall Risk</b>	<b>Moderate/High</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Fire

Two major categories of fire threaten the Kodiak region.

- Wildfire - Any instance of uncontrolled burning in grasslands, brush or woodlands.
- Structural fire - The uncontrolled burning in residential, commercial, industrial or other properties in developed areas.

Kodiak has the potential to experience both large structural and urban/wildland interface fires. Large wildland fires also have the potential to affect Kodiak communities through secondary effects such as air space and road closures due to smoke. Fires may arise as isolated incidents, or be caused by other emergencies such as earthquakes. In addition, they may be complicated by the presence of hazardous materials or extreme weather conditions.

Although most of the forest areas in Kodiak are relatively small when compared to other areas in Alaska, wildland fires have occurred in the past and threatened populated areas. In Kodiak, grass fires have occurred in the past and have threatened populated areas and property.

Structural fires also pose a risk to populated areas, and the April, 1997 fire at the Star of Kodiak fish processing plant demonstrated that structural fires may also involve hazardous materials releases (in that case, approximately 30 pounds of ammonia.) Also, the large number of vessels which homeport in or visit Kodiak present the risk of shipboard fires in local ports or harbors.

There are several fuel transfer facilities in the City of Kodiak and Women's Bay. Spills or releases at any of these fuel farms present a fire and explosion risk. Likewise, complications arising from rocket launches at the Kodiak Launch Facility at Narrow Cape also present a risk for fire from explosion or falling debris.

The Kodiak urban/road system area is served by four fire departments: Kodiak Fire Department, Women's Bay and Bayside Volunteer Fire Departments, and the U.S. Coast Guard ISC Kodiak Fire Department. These four entities have mutual aid agreements in place and often supplement each other's efforts during large fires and other emergencies. Several of the outlying communities in the Kodiak Island Borough also have limited firefighting capabilities. However, a large wildfire or structural fire in a remote area may require supplemental firefighting either from one of the urban Kodiak fire departments or from other state or federal agencies, most likely the National Park Service, which has responsibility for wildland firefighting outside the Kodiak urban area.

The maintenance of mutual aid and cooperative fire agreements are necessary to ensure long-term mitigation of fire risk. In addition, hazardous materials reporting and safety (including safe handling of petroleum), public education and awareness, and evacuation planning are all necessary to mitigate the threat posed by fires in Kodiak.

### SUMMARY OF KODIAK FIRE HAZARD ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	Moderate
Maximum Threat	Moderate
Probability	High
<b>Overall Risk</b>	<b>Moderate</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

## Flood

Definitions: Several different types of floods may occur in the Kodiak region:

- Riverine flood - Periodic overbank flow of rivers and streams.
- Flash flood - Quickly rising small streams after heavy rain or rapid snow melt.
- Urban flood - Overflow of storm sewer system usually due to poor drainage following heavy rain or rapid snowmelt.
- Coastal flood - Flooding along coastal areas associated with severe storms, typhoons or other events.

Kodiak is at risk to flooding from heavy rains, rapid snow melt, tidal storm surges and wave runup. The effect of flooding would most likely be a disruption of vital services such as water, sewer, power, gas and transportation; damage to roads, bridges, buildings, port and harbor facilities, airport facilities, utilities and communications systems and additional natural/environmental emergencies such as landslides.

The extent of the scope of flooding will determine the populations at risk. A “worst case scenario” would affect the entire urban area/road system to some degree.

Mitigation depends heavily on zoning ordinances, building codes, flood proofing measures, and other comprehensive regulatory actions designed specifically for the reduction of flood damage. Public awareness and individual preparation as well as adequate warning systems are also important to reduce the loss of life and property. Public sheltering capabilities along with flood control structures and restoration of services after a flood are also important elements of flood preparedness.

Because the Kodiak Island Borough does not participate in the National Flood Insurance Program, there are currently no flood hazard maps for the region.

### SUMMARY OF KODIAK FLOOD HAZARD ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	Moderate
Maximum Threat	Moderate
Probability	Moderate
<b>Overall Risk</b>	<b>Moderate</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Hazardous Materials Release

A stationary hazardous material release involves the uncontrolled release of hazardous materials from a fixed site such as hazardous materials fabrication, processing or storage sites, or hazardous waste treatment, storage or disposal facilities. A transportation-related release is the uncontrolled release of hazardous materials during transport along corridors such as highways, rail lines, pipelines and waterways.

“Hazardous materials” refers generally to extremely hazardous substances, petroleum, natural gas, synthetic gas, acutely toxic chemicals, and other toxic materials. For planning purposes, oil and other petroleum products are usually treated separately from other hazardous substances, and oil spill responses are generally organized differently than hazardous materials releases due to the different jurisdictional authorities for each (Hazardous materials releases often have a more significant public health component than oil spills, and are therefore usually led by local emergency responders, at least until the immediate health risk abates.) However, for the purposes of this risk analysis (based on the State of Alaska model Community Disaster Response Plan), hazardous materials and oil spill incidents are considered together as a single risk group. Hazardous material release incidents addressed in this analysis include releases from both fixed facilities (manufacturing, processing, storage, and disposal) and transportation accidents (highway, waterway, and air).

Hazardous materials (hazmat) are transported through Kodiak via road, sea, and to a limited extent, air routes. All classes of hazmat (liquids, gas, explosives, flammables, petroleum products) occur on these routes, although the largest quantities of hazmat are generally transported by tank vessel. Hazardous materials are also stored or produced at a number of fixed sites in the Kodiak area.

Ocean-going vessels transport hazmat into and out of the port of Kodiak and through adjacent waters, including Shelikof Strait, Cook Inlet, Prince William Sound and the Gulf of Alaska. Spills in any of these areas have the potential to impact Kodiak. Transportation vessels include bulk ships for transporting crude oil, liquefied natural and petroleum gas, petroleum fuel products, ammonia, fertilizer, and acids. Freight vessels such as log ships often carry significant quantities of bunker fuel and other petroleum products through local waters. Containerized shipping vessels transport cargo that may include smaller quantities of toxic substances. Air transport is not a common means of transporting hazmat into or out of Kodiak, although small quantities of hazardous substances may occasionally be transported to remote locations by commercial or military aircraft.

Rocket fuel for the Kodiak Launch Complex may be transported through the community and presents the potential for spills and leaks as well. Although most of the rocket fuel used for KLC missions will be solid, there may also be smaller quantities of liquid propellant associated with some of the missions. Contingency planning for accidents or spills resulting from activities at the Kodiak Launch Complex is the shared responsibility of the Alaska Aerospace Development Corporation, which operates the KLC site, and the contracting agency responsible for each launch mission. The KLC has adopted an emergency response plan, which includes safety policies and procedures. Contracting agencies must also prepare a mission-specific safety plan consistent with the KLC safety

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policies. All safety and contingency planning for hazardous materials transport to and from the KLC will be done by the contracting agency. The City of Kodiak, through the fire department, will track all such planning.

There are various fixed site facilities scattered throughout Kodiak Island Borough storing hazardous materials. Refined petroleum products, including diesel, gasoline, propane, home heating fuel, and jet fuel represent the vast majority of hazardous substances stored and transferred in Kodiak. Crude oil and other unrefined petroleum products are also present in limited quantities. Two types of extremely hazardous substances (EHS) have been identified in significant quantities in the Kodiak area: anhydrous ammonia (NH<sub>3</sub>) and chlorine (Cl<sub>2</sub>). The overwhelming concentration of these chemicals is in the City of Kodiak, with smaller amounts identified in other Kodiak Island Borough communities, including Port Lions, Larsen Bay, Alitak Bay cannery, and Port O'Brien cannery (Uganik Bay). The facilities that use and store these chemicals are fish processing plants.

While hazardous chemical releases pose an appreciable risk to the environment, hazardous material spills also present the potential for serious human injury and loss of life. Therefore, the proximity of hazardous substances to populated areas is an important factor used in determining risk as it relates to hazardous materials spills and releases. Risk is considered greatest where the likelihood of a release is highest and the consequences would be most severe. Most hazardous material incidents in Kodiak have involved petroleum products. Numerous small incidents from fixed sites and marine vessels have occurred, and small diesel spills are common in the harbor. The Kodiak region was also oiled by the 1989 *Exxon Valdez* oil spill.

*The Unified Plan, Annex L*, contains additional information on the chemical properties and characteristics of anhydrous ammonia, chlorine, and other hazardous chemicals, including the specific threats to human health posed by each substance as well as by petroleum products, and the requisite level of Personal Protective Equipment for handling each substance. The Alaska Department of Environmental Conservation has prepared a document entitled *State and Regional Hazard Profiles* (May 1995), which contains an inventory of facilities that store hazardous materials in the Kodiak region and throughout the state.

In 1994, the City of Kodiak commissioned a study to analyze the risks associated with hazardous materials storage and transportation in Kodiak. The report, *Analysis of Hazards* (Arthur D. Little, June 10, 1994), contains information on specific facilities in and around Kodiak. The City of Kodiak Fire Department also collects federal and state-required hazmat reporting data (under SARA Title III reporting requirements) from storage facilities in Kodiak. Information on hazardous materials fixed sites (including their location, EHS type and quantities, and contingency planning in place) is included in subsequent pages of this discussion.

The primary responsibility for hazardous materials response lies with the responsible party and with local fire departments. Response and cleanup for oil spills is also the legal responsibility of the responsible party (the spiller). However, if no responsible party is identified or if cleanup and response are inadequate, the U.S. Coast Guard (through the Captain of the Port Western Alaska) will assume responsibility for response activities. The Kodiak Subarea Contingency Plan, developed jointly by the Kodiak Island Borough, Alaska Department of Environmental Conservation, and the U.S. Coast Guard,

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is the guiding document for oil spill response activities in Kodiak. During spill response operations, the Kodiak Emergency Services Director or designee will act as the Local On-Scene Coordinator in the Unified Command. See the Kodiak Subarea Contingency Plan (available through KIB Community Development Dept.) or online at <http://www.akrrt.org/Kodiakplan/KodiakPlanTOC.shtml>) for further discussion of oil spill incidents.

Populations that are at a particular risk to the effects of a hazardous material release include hospital patients, the elderly, and the very young (school children, daycare facilities). A map depicting the location of these special populations is included in Volume 2, Section 7 of this plan.

Mitigation of hazardous materials risk relies on community education and prompt notification in the event of a release. Kodiak has in place a location-specific hazardous materials warning siren to notify nearby populations of a hazmat release. This siren resembles a telephone busy signal. The hazardous materials warning siren, which sounds similar to a telephone busy signal, is tested weekly in conjunction with the local tsunami siren alert and warning system (Wednesdays at 1400 Alaska time), and a different hazmat siren is tested each week. Kodiak Fire Department is responsible for these hazmat siren tests and announces the siren test locations in advance. It is important that all residents be educated regarding the meaning of these sirens and appropriate shelter-in-place procedures.

A worst-case scenario for Kodiak would involve a large hazardous chemical release that threatens public health or a major oil spill impacting large shoreline areas. Appendix A of this plan contains an inventory of hazardous materials storage facilities in the Kodiak region. Information on oil and gasoline storage and transfer facilities, and response capabilities may be found in the Kodiak Subarea Contingency Plan for Oil and Hazardous Substance Releases (Subarea Plan).

### SUMMARY OF KODIAK HAZARDOUS MATERIALS RELEASE RISK ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	Moderate
Maximum Threat	High
Probability	High
<b>Overall Risk</b>	<b>Moderate/High</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Landslide

A landslide, sometimes referred to as a “mass wasting” or “slump”, is the rapid sliding of a large mass of rock, mud, and/or water.

Kodiak is at risk from landslides, particularly along coastal roads and in hillside residential areas. Inclement weather, heavy rains, and steep topography create landslides, which can range from small local events to events involving tens of thousands of tons of rock and mud. Velocity of the movement can range from a slow creep to up to three hundred km per hour. Landslide paths have been identified along Rezanof Drive and the Chiniak Highway.

The most common hazard associated with landslides is the blockage of roadways. Vehicles, powerlines, gaslines and other structures may be damaged. In Kodiak, some residential development is located within landslide paths and on terrain susceptible to mass wasting. In 1991, a landslide, caused by 8.5 inches of rainfall in a 24-hour period, resulted in the evacuation of 50 homes and 150 people in a Kodiak hillside residential area. More recently, smaller localized landslides have caused temporary road closures along Rezanof Drive.

Populations at risk are those who live, work or recreate in those areas prone to landslides as well as those traveling the road system through known landslide slide paths and run-out zones.

Mitigation depends on public awareness and individual preparation along with adequate landslide forecasting; warning systems and control measures to reduce the loss of life and property; zoning ordinances and other comprehensive regulation measures specifically for the reduction of landslide damage; public sheltering capabilities; and the restoration of services.

#### SUMMARY OF KODIAK LANDSLIDE HAZARD ASSESSMENT

Categories	Severity
History	High
Vulnerability	Moderate
Maximum Threat	Moderate
Probability	High
<b>Overall Risk</b>	<b>Moderate/High</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Terrorism/Weapons Of Mass Destruction (WMD)

Terrorism is a federal crime defined as “the implied or unlawful use of violence, committed by a group of two or more individuals against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in the furtherance of political or social objectives.” Such terrorist incidents may include the actual, threatened, or implied use of weapons of mass destruction (WMD).

As demonstrated by the bombings and 911 attacks on the World Trade Center in New York and the Murrah Federal Building in Oklahoma City, the United States is not immune to terrorism. Terrorists may strike from abroad or reside among citizens in the U.S. As demonstrated by the use of nerve agent in the Tokyo subway, terrorists may also employ WMD in addition to conventional weapons or explosives to achieve their objectives.

WMD are divided into weapons that employ nuclear/radiological material or biological/chemical (NBC) agents and those that are composed of large amounts of explosive or incendiary matter. NBC weapons are designed to spread a toxic chemical, biological, or radiological contaminant. Historically, terrorist WMD attacks have occurred at places of special significance, against identifiable segments of the population, on dates of interest to the terrorist or the intended victims, and at special events; however, any place people gather in large numbers could be a terrorist target. Enclosed areas, such as public buildings or rooms, are of special concern with regard to NBC weapons.

Potential target locations within the Kodiak region are described in greater detail in the Terrorism/WMD hazard assessment worksheet in Appendix A of this plan. Examples include:

- Locations of special significance, such as the courthouse, religious buildings, city hall, medical facilities, schools, communications and utility distribution nodes, the USCG base, and the launch complex.
- Transportation nodes, such as the airports and sea ports.
- Tourist attractions, such as the downtown shops and cruise ships.
- Gathering places such as large shopping areas or restaurants, sport venues, school auditoriums, fairgrounds (i.e., during concerts and festivities), and disaster scenes.
- Commercial hazardous chemicals or explosives at bulk storage sites or canneries, or in transit.

Potential target populations include religious or ethnic minorities, political opposition groups, controversial groups (e.g., fishermen vs. ecologists), government agencies or workers, tourist and convention groups, cruise ship passengers, Alaska Marine Highway passengers, and commercial air carriers and passengers.

Terrorist acts are more likely to occur on dates or anniversaries of significance, such as government holidays, religious observances or holidays such as Yom Kippur, Ramadan, Christmas, etc., important dates in the lives of controversial figures or celebrated martyrs of the terrorists cause (especially dates of birth, arrests, convictions, or death), and other

## **Administrative Overview**

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famous anniversaries or special dates such. Acts of terrorism are often opportunistic, and may be carried out at times when casualties or damage would be greatest and response would be most difficult. Examples might include:

- Winter months for use of chemical or radioactive materials indoors, making mass casualty decontamination more difficult.
- During preparations and active launch times for the rocket launch facility.
- Following response to a significant disaster such as an earthquake or tsunami.
- Tourist season, in conjunction with Alaska Marine Highway ferry, cruise ship docking, or other high influx of tourists. This includes initiating the release of biological or other materials aboard the ship prior to its arrival.
- During special events, such as awards, elections, or inauguration ceremonies, high-profile trials or other court cases, especially involving organizations or residents of Kodiak, celebration parades for holidays, sports championships, or local festivities, sporting events such as high school championship games, or conventions and trade shows.

Intelligence collection and dissemination is an effective way to mitigate the risk of a terrorist attack or WMD incident. Local officials should assess information concerning warning indicators and recommend appropriate short-term defensive actions. Enhanced physical security measures can also mitigate terrorism and WMD risks. Some of these measures may include:

- Constructing or modifying facilities to make an effective WMD attack more difficult or so the facility can better withstand and recover from WMD effects.
- Limiting access to vulnerable areas to only authorized personnel.
- Establishing a program of background checks and personnel security.
- Procuring security monitors and WMD detection devices.

To date, there have been no terrorist attacks involving WMD on Alaska, the Kodiak Island Borough. There are currently no known terrorist groups in the Kodiak region or in the state of Alaska that have been identified as having involvement in WMD incidents.

## SUMMARY OF KODIAK TERRORISM/WMD HAZARD ASSESSMENT

Categories	Severity
History	Low
Vulnerability	High
Maximum Threat	High
Probability	Low
<b>Overall Risk</b>	<b>Moderate</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

**Appendix B of this plan contains a Terrorism Threat Analysis and WMD Target Vulnerability Assessment.**

### **Transportation Accidents**

A transportation accident emergency includes an accident involving passenger air, highway, rail, and marine travel resulting in death or injury.

The three major types of transportation accidents considered under this plan are air, highway, and marine. Transportation accidents that occur along the road system, air space, and upon the navigable waters would not normally constitute a major emergency, unless hazardous materials, or mass casualties or fatalities complicated the accident.

Kodiak is home to a small state airport (5-7 scheduled commercial flights per day plus light aircraft, charter, and military traffic), which is also used by the U.S. Coast Guard Air Station Kodiak. Kodiak also has a municipal airport that serves small commercial and private aircraft and two float plane bases. Both fixed wing aircraft and helicopters operate in the area, and military planes (primarily Coast Guard) frequently practice maneuvers in the Kodiak area.

The Kodiak Launch Complex (Alaska Aerospace Development Corporation) at Narrow Cape is a launching platform for both satellites and missiles, and misfires or accidents at that facility pose the risk of air accidents and transportation disasters. Planning for transportation safety is the responsibility of the contracting agency (organization or company that owns the satellite or rocket to be launched) and not of the KLC. All rocket launch safety plans filed with the FAA for activities at the Kodiak Launch Complex should also be submitted to the Emergency Services Director and should be consistent with the policies and procedures in this plan.

Kodiak experiences a moderate seasonal increase in vehicular traffic during the summer months with the arrival of additional RVs and vehicles on the state ferry. However, since Kodiak is not connected to the mainland by any roads, vehicle traffic remains relatively constant in the area. Logging trucks and other large transport vehicles on the narrow, coastal Chiniak Highway pose an accident risk, as do school buses and other passenger vehicles along the Chiniak Highway and other local roads.

Most of the goods and commodities are transported to Kodiak via barge or containership. Freight is also transported, to a limited degree, by commercial aircraft. Cruise ships periodically visit the Port of Kodiak. Cruise ships visiting Kodiak in the past range in size from smaller ships carrying 150-350 passengers, to larger vessels with a capacity of approximately 600 passengers plus several hundred crewmembers. In addition to cruise ships and freight vessels, there is a great deal of smaller vessel traffic in the Kodiak area. Fishing vessels ranging in size from small tenders to large catcher-processor vessels transit the area, as do tank barges and tankers, research vessels, and U.S. Coast Guard cutters.

Numbers of people and value of property at risk depends on the size and location of the accident. Most transportation accidents are localized and are mitigated by local resources and augmented with mutual aid agreements. Accidents on a larger scale or those that involve hazmat and/or mass casualties will require additional resources. These events may also impact much larger areas due to secondary effects. The state airport has its own disaster response plan in place to respond to airplane crashes.

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Transportation disasters may also create sheltering problems, if an accident occurs where large numbers of people are temporarily displaced to Kodiak.

Coordination among response agencies and entities such as the airport, cruise line, or harbor offices are important tools for mitigating transportation accidents.

### SUMMARY OF KODIAK TRANSPORTATION ACCIDENT HAZARD ASSESSMENT

Categories	Severity
History	Low
Vulnerability	Low
Maximum Threat	Low
Probability	Moderate
<b>Overall Risk</b>	<b>Low</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

### Tsunami

Tsunamis are natural phenomenon that are a series of traveling ocean waves of great length and long period usually generated by submarine geophysical displacement caused by disturbances associated with earthquakes, volcanoes, or landslides in oceanic and coastal regions. A tsunami may or may not be preceded by an earthquake. In Kodiak, the most serious threat is from local tsunamis - those generated in Alaska Pacific waters. These waves have reached 100 feet and more in height in parts of Alaska. Because they are generated immediately offshore, they may strike the coast with far less warning than tsunamis which are generated in the western Pacific.

Submarine landslides, which may induce local tsunamis, can and have occurred without an earthquake. These waves could impact any or all shoreline areas in the Kodiak region, depending on the size and direction of movement of the tsunami. Any tsunami greater than one meter in height may cause a variety of incidents such as industrial/technological emergencies (e.g. fires, explosions, and hazardous materials incidents); disruption of vital services such as water, sewer, power, gas and transportation; and damage to or disruption of port and harbor facilities, public works facility and rolling stock, and the waste water treatment facility.

Until recently, evacuation areas in Kodiak were identified as all areas below the 100-foot elevation above sea level. This figure was chosen to allow for a margin of safety (all structures above this elevation were presumed safe from tsunami inundation), and was not actually linked to tsunami inundation levels. In 2002, the Alaska Division of Geological and Geophysical Surveys and the Geophysical Institute, University of Alaska Fairbanks, in cooperation with the Kodiak Island Borough and the City of Kodiak, published a series of Tsunami Hazard Maps of the Kodiak region. The results of this project, which used a numerical modeling method to study tsunami waves generated by earthquake sources, showed that the 1964 event is considered a worst-case scenario for Kodiak. However, this study did not model tsunamis generated by local submarine landslides.

The West Coast/Alaska Tsunami Warning Center (WC/ATWC) in Palmer, Alaska issues tsunami warnings to Kodiak and other areas in Alaska, British Columbia, Washington, Oregon, and California. The Palmer ATWC uses satellite telemetry, seismic and sea level data, and other information to track seismic activity and potential tsunamis in the Pacific basin. When a large earthquake occurs, geophysicists at the ATWC determine its epicenter and magnitude, and if these data meet certain known criteria for the possible generation of a tsunami, the ATWC will issue a **Tsunami Warning** for a limited area near the epicenter. A tsunami warning message (issued in Kodiak through the Police Dispatch) includes predicted tsunami arrival times at selected coastal areas and requires that those areas prepare for the possibility of immediate flooding from the tsunami. A **Tsunami Watch** is issued to areas adjacent to the warning area alerting them to the possibility of a tsunami threat. Upon issuing the watch and warning threats, the ATWC geophysicists will confirm whether or not a tsunami has been generated by examining additional data, and based on this information they will issue regular updates to the affected areas. In the event of a tsunami watch or warning in Kodiak, Kodiak Police Dispatch will follow the call-out procedures outlined in Volume 2, Section 5 ("Alert and Warning") of this plan.

To alert the public to the existence of a tsunami warning or watch for Kodiak, a tsunami warning signal system has been installed throughout populated areas. These warning signals are tested every Wednesday at 2:00 p.m., along the Kodiak urban road system and at the U.S. Coast Guard ISC. The tsunami warning signal for the City of Kodiak and service area is a wavering tone for a 3-minute repeating period. The tsunami warning siren for the U.S. Coast Guard ISC is a wavering blast for 1 minute followed by 30 seconds of silence, repeated until the Commanding Officer or Incident Commander order it silenced. Both signals indicate that according to the best available information, a tsunami wave is coming. In the outlying communities in Kodiak Island Borough, tsunami sirens are less standardized and are not tested on a weekly basis, however each community is working to develop a commonly recognized siren or signal to indicate that a tsunami is coming. Whenever these signals are sounded (except Wednesdays at 2:00 p.m. in the urban area/Coast Guard ISC), local residents should follow the evacuation procedures outlined in Volume 2, Section 6 of this plan.

Tsunami hazards are best mitigated by extensive preplanning of warning systems, evacuation routes, evacuation procedures and public education and awareness of these systems and routes. Tsunami evacuation routes in the Kodiak road system area are marked with signs indicating evacuation areas and recommended evacuation directions. Because Kodiak is such a large port, it is important that vessel owners receive early notification to carry out vessel evacuation. Vessel owners must work cooperatively with the harbormaster to ensure safe and effective evacuation, if possible. Public service announcements explaining the tsunami warning signals and evacuation procedures for Kodiak will be played on local radio stations/newspapers to educate local community members.

The City of Kodiak participates in the National Weather Service's TsunamiReady program, which promotes tsunami hazard preparedness as an active collaboration among federal, state and local emergency management agencies, the public, and the NWS tsunami warning system. This collaboration supports better and more consistent tsunami awareness and mitigation efforts among communities at risk.

### SUMMARY OF KODIAK TSUNAMI HAZARD ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	High
Maximum Threat	High
Probability	High
<b>Overall Risk</b>	<b>High</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

**Kodiak Tsunami Evacuation Map**

## Volcano

A volcano is an eruption from the earth's interior producing lava flows or violent explosions issuing rock, gases and debris.

Kodiak is located adjacent to the famed "Pacific Rim of Fire," which begins across from the Kenai Peninsula and runs along the Alaska Peninsula and the Aleutian Islands chain. Several active volcanoes are located along the Kenai and Alaska Peninsulas and Katmai coast that can impact the Kodiak, including the Katmai range from Mt. Douglas to Mt. Martin; and Mt. Spurr, Mt. Redoubt, Mt. Iliamna, and Mt. Augustine on the Alaska Peninsula. These volcanoes are classified as strombolian type, are mildly to extremely explosive, and have been active for some time, as indicated by numerous buried ash layers in surrounding soils. There have been four eruptive episodes in the past 35 years. Three of these volcanoes, Mt. Augustine, Mt. Redoubt and Mt. Spurr have been "active and eruptive" in the last five years. The effects associated with volcanism include severe blast effects, turbulent clouds of ash and gases, lightning discharge, volcanic mudflows, pyroclastic flows, corrosive rain, flash flood, outburst floods, earthquakes, and tsunamis. Some of the results of these activities have been ash fallout in various communities, disruption of air traffic, road transportation and maritime activities. Vulnerability is dependent on the type of activity and current weather, especially wind patterns.

In 1912, the Kodiak region was blanketed in volcanic ash from the Katmai/Novarupta eruption on the Katmai Coast. That volcano blew an estimated six cubic miles (more than 33,000 million tons) of ash and debris into the air.

Because there are few populated areas within range of potential pyroclastic flows, the hazards Kodiak faces from volcanic eruption are primarily from secondary results, such as ash clouds and gasses, corrosive rain, and seismic activity. Volcanic activity may cause localized tsunamis, which could impact the Kodiak region. Mitigation will depend on the community's ability to cope with potential long term effects and continual activity from the volcanoes. The ability to function and carry out services in airborne ash environments is a way to mitigate these effects as well as keeping the public involved during an event. Protection of special populations (i.e., those susceptible to reduced air quality and airborne contaminants) is also a concern.

### SUMMARY OF KODIAK VOLCANO HAZARD ASSESSMENT

Categories	Severity
History	High
Vulnerability	High
Maximum Threat	High
Probability	Moderate
<b>Overall Risk</b>	<b>High</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

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### Weather Extremes

Severe weather includes ice storms, blizzards, extreme cold, drought, and high winds.

There are no regular occurrences of severe weather such as typhoons or tornadoes in Kodiak, however weather extremes such as high winds, large hail or heavy rainfall do threaten the area. Winds in excess of 50 miles/hour occur occasionally, and wind gusts may reach speeds of 90 miles/hour or more. Freezing rain, occasional heavy snowfall, and high winds are the dominant winter weather hazards that affect the Kodiak area. Periods of extreme cold occur on a less than frequent basis. The effect of extreme weather would most likely be a disruption of vital services such as water, sewer, power, gas and transportation; damage to and disruption of emergency response facilities, resources and systems. Populations at risk depend on the extent of the scope of weather system. A “worst case scenario” would affect all populated areas to some degree.

Mitigation depends primarily on individual preparedness, which may be facilitated through public education, and shelter planning. The City of Kodiak participates in the TsunamiReady program, which is part of the National Weather Service’s StormReady Program. Additional information about the program is available online at <http://www.stormready.noaa.gov/>

#### SUMMARY OF KODIAK WEATHER EXTREMES HAZARD ASSESSMENT

Categories	Severity
History	Moderate
Vulnerability	High
Maximum Threat	Moderate
Probability	Moderate
<b>Overall Risk</b>	<b>Moderate</b>
The worksheet used to calculate these risks is included in Appendix A of this plan.	

## **APPENDIX A: HAZARD ASSESSMENT INFORMATION**

This Appendix contains the worksheets used to calculate the hazard assessment values in VOLUME 1, SECTION 4 of this plan.

**The information in this section is considered sensitive in nature and is not intended for the public domain.**

Appendix A is located in a separate binder with other KEOP Appendices. For access to this information, contact the Kodiak Emergency Services Coordinator through the KIB Community Development Department.

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## **APPENDIX B: WEAPONS OF MASS DESTRUCTION TARGET VULNERABILITY ASSESSMENT**

This section assesses the vulnerability to a WMD attack for selected potential targets in the Kodiak region using the methodology for preparing a target vulnerability profile with regard to a WMD incident as stated in the Office of Justice Programs FY 1999 State Domestic Preparedness Equipment Program, without reference to any specifically identified potential threat element (PTE).

**The information in this section is considered sensitive in nature and is not intended for the public domain.**

Appendix A is located in a separate binder with other KEOP Appendices. For access to this information, contact the Kodiak Emergency Services Coordinator through the KIB Community Development Department.