KENAI PENINSULA BOROUGH

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DAVE CAREY
BOROUGH MAYOR

MEMORANDUM

TO: Milli Martin, Assembly President
Members, Kenai Peninsula Borough Assembly

THRU: Dave Carey, Borough Mayor

FROM: Kevin Lyon, Capital Projects Director
Scott Walden, Emergency Management Coordinator
Max Best, Planning Director
Colette Thompson, Borough Attorney
Holly B. Montague, Deputy Borough Attorney

DATE: November 19, 2008

SUBJECT: Ordinance 2008-37, placing a moratorium within the road service area and Seward-Bear Creek Flood Service Area outside the Seward city limits on the issuance of plats under KPB Title 20, Subdivisions, permits under KPB Chapter 21.06, Floodplain Management, and right-of-way construction permits issued under KPB Chapter 14.40, for 12 months pending adoption of regulations

This ordinance would impose a 12-month moratorium on platting, floodplain, and right-of-way construction permits in the area of the Seward-Bear Creek Flood Service Area (SBCFSA) outside the city limits of Seward. The moratorium for flood plain permitting will be in the FIRM area as well as the mapped areas of flooding in 1986 and 1995 outside the Seward city limits within the flood service area. The moratorium on right-of-way construction permits and subdivision plats is proposed within the entire service area outside the city limits. There are exemptions for governmental projects, stream restoration work, replacement of destroyed structures, minor movement of lot lines, utility work, and continued construction of structures in the 1986 and 1995 flood data area for which start of construction occurred prior to enactment of the ordinance. The crux of the moratorium is to maintain the status quo and not add additional structures or infrastructure that will be subject to flood loss while long term solutions are identified and solidified.

The following report, which provides facts supporting the need for this moratorium, is summarized from the All – Hazard Mitigation Plan, Chapter 2. Additional data, mapping, and photographic evidence may be submitted to the assembly in support of this ordinance.

Flooding occurs annually in the SBCFSA. In 1986, 1989, 1995 and 2002, major fall rainstorms swept the Kenai Peninsula leaving widespread damage in their wake. The 1986, 1995, and 2002 events were substantial enough to be declared local, state and federal disasters. In 1995, the combined public and private flood damage was estimated at over 5 million dollars. The 2002 floods caused an estimated $24.5 million dollars in damage to roads and other public facilities and an additional $1.25 million in damage to private property.

The flooding in Seward is drastic and peculiar because of its geophysical attributes. Although flooding occurs in many areas of SBCFSA, a majority of the property and infrastructure damage occurs in the Seward area. The City of Seward and outlying developed areas are located primarily on alluvial fan deposits, formed at the mouths of steep tributary valleys of Resurrection Bay. Streams that contribute to the alluvial fans include the Resurrection River, Box Canyon, Japanese, Lowell, Spruce, Fourth of July, Salmon, Glacier/Kwechak, Sawmill, and Lost Creeks.

Alluvial fans are areas of eroded rock and soil deposited by rivers. When various forms of debris fill an existing river channel on an alluvial fan, the river shifts to cut a new channel. Fast moving, debris filled water can cause erosion and flooding over large areas. Alluvial fan flooding in the Resurrection River, Lowell, Spruce, Box Canyon, Japanese Creek, Fourth of July, and Salmon Creek drainages result in nearly annual road closures, property and infrastructure damage in the Seward area. Other eastern Peninsula alluvial streams which regularly damage road and railroad infrastructure include the Snow River, Trail Creek, Trail River, Victor Creek, Falls Creek and Ptarmigan Creek.

The hazards associated with alluvial fan development have been repeatedly demonstrated in recent years as detailed in the AHMP
http://www.borough.kenai.ak.us/emergency/hazmit/plan.htm .

Following a disaster, FEMA funding for damage repair is typically based on the concept of in-kind replacement or “putting it back exactly as it was”, which helps the community in the short term, but also means that similar damage will occur during the next flood cycle.
As development continues to occur, potential for flood-related damage and loss increases.

The FEMA Flood Insurance Rate Maps (FIRM) flood maps are currently the Borough’s primary flood prediction and regulatory tool. These maps represent the flood risk that was present at the time they were completed. As time goes by and significant natural and man-made changes occur within floodplains, the maps become less accurate for predicting flood risk. This is particularly true of the rapidly changing alluvial streams in the Seward area.

Many of the steep-gradient mountain streams originate in unconsolidated glacial deposits, which over time have created the alluvial fans and deltas. Flooding hazards associated with

alluvial fans include: high velocity (15 to 30 feet per second) floodwaters with tremendous potential for erosion, which can carry large amounts of sediment and debris, including boulders and trees; and the inability to confine floodwaters to a single channel. As channels fill and meander, they are capable of threatening development over a broad area. Because the Seward area is largely composed of steep mountains and alluvial floodplains, there is very little developable property that is hazard-free. Unfortunately, development and subsequent flood protection actions taken in one location often change or worsen the severity of flooding somewhere else. The question of how to protect life and property inside and outside of the mapped floodplains is difficult, often contentious, and continues to be the focus of ongoing community and agency efforts.

Adding a layer of complexity for flood risk assessment is the rate and amount of land subdivision and subsequent development, which has been increasing steadily in recent years in both developed and remote areas of the Borough. In the last 30 years, residential and commercial development in the SBCFSA has further encroached on riparian wetlands and alluvial streams, and flooding has become more frequent and severe. Roads, bridges, and culverts restrict stream movement and function as barriers to efficient water passage. Flood control structures require constant maintenance and have the potential for catastrophic failure or divert flood problems to unprotected areas.

Serious flooding has the potential to disrupt vital services such as water, sewer, power, and gas; can damage roadways, bridges, buildings, railroads, airport facilities, residential, commercial, and recreational development; and cause additional natural and environmental emergencies such as landslides. Damage to roads, bridges or utility infrastructure can directly and indirectly impact the facilities and their response capabilities or critical facilities which provide essential services for public health and safety, emergency response, and disaster recovery operations.

Although the Bear Creek Fire Station, which provides emergency services to the outlying Seward area, is located across the Seward Highway from the mapped Salmon Creek floodplain, it has come close to flooding in recent years. This is mainly due to the fact that land subdivision and subsequent development in the area has restricted the stream to a limited portion of its fan. To address the rapid gravel deposition, the stream course and floodplain above and below the Bruno Road bridge has been subject to active dredging, bank armoring and levee maintenance activities for many years. Although gravel mining is also occurring in the Kwechak and Salmon Creek floodplains, it has not kept pace with the fan building capacity of the streams, which is a primary contributor to the flood issues in the SBCFSA.

A majority of the air, land and water transportation infrastructure in the SBCFSA is subject to some degree of flood risk. The Seward Highway, Exit Glacier Road, Nash Road, and many of the secondary subdivision roads in the Seward area have been closed by past flood events. The Alaska Railroad closely parallels the Seward Highway through Moose Pass, Crown Point, and the Seward area. Flood damage to the railroad embankment and railroad bridges occurs regularly in places where the railroad crosses or parallels alluvial streams. Trail Creek and its tributaries, Snow River and its tributaries, the embankment along Kenai Lake, and the

Ptarmigan Creek bridge crossing are all areas that have experienced problems with flooding and erosion in recent years.

Because of the rapid increase of gravel deposits and the rate of subdivision and development, there is overwhelming potential for further flood-related losses. The administration believes that it is imperative that a different regulatory approach be taken to the area within the SBCFSA to mitigate further flood damage loss. The administration is currently considering the following long term solutions to flood loss within the moratorium area:

- Review and revise KPB title 20, Subdivisions to specifically address conditions on plat approval that would mitigate flood damage and loss
- Review and revise KPB 21.06, Floodplain Management, to address the unique conditions of flooding in the SBCFSA
- Review and revise KPB 14.40, right-of-way permitting, to specifically address standards and conditions for road construction and improvement permits within the SBCFSA
- Determine hazard zone(s) and development zone(s) within the SBCFSA with standards and conditions for a hazard development permit process
- Work with FEMA to obtain updated FIRM maps
- Evaluate differential tax zones for an enhanced level of service for high hazard areas
- Continue federally funded buy-out program