Kenai Peninsula Borough Administrative Program To Identify Lands Suitable for Common Land Uses in the Seward-Bear Creek Flood Service Area Away from Flood Hazard Areas

The Kenai Peninsula Borough Flood Plain Task Force (FPTF) was formed in order to evaluate long-term solutions to flooding and repetitive damage caused by flooding within the Seward Bear Creek Flood Service Area (SBCFSA). The FPTF adopted resolution 2009-04 which prompted the Kenai Peninsula Borough Assembly's adoption of Resolution 2009-070, authorizing the administration to pursue various solutions including land purchase, sale, and trade in order to facilitate moving property owners within the SBCFSA from flood hazard areas. The Kenai Peninsula Borough administration has prepared this program document as the framework for a long-term effort to identify and make available land suitable for private development outside of flood hazard areas for the purposes of providing safer alternatives for community development.

The land base in the Seward Bear Creek area presents natural barriers and challenges to the basic development needs of a community. The Seward Bear Creek Area is composed of steep rocky and mountainous terrain embracing an active compound alluvial valley floor. The alluvium laden valley floor intersects the tidewaters of resurrection bay forming a broad delta.

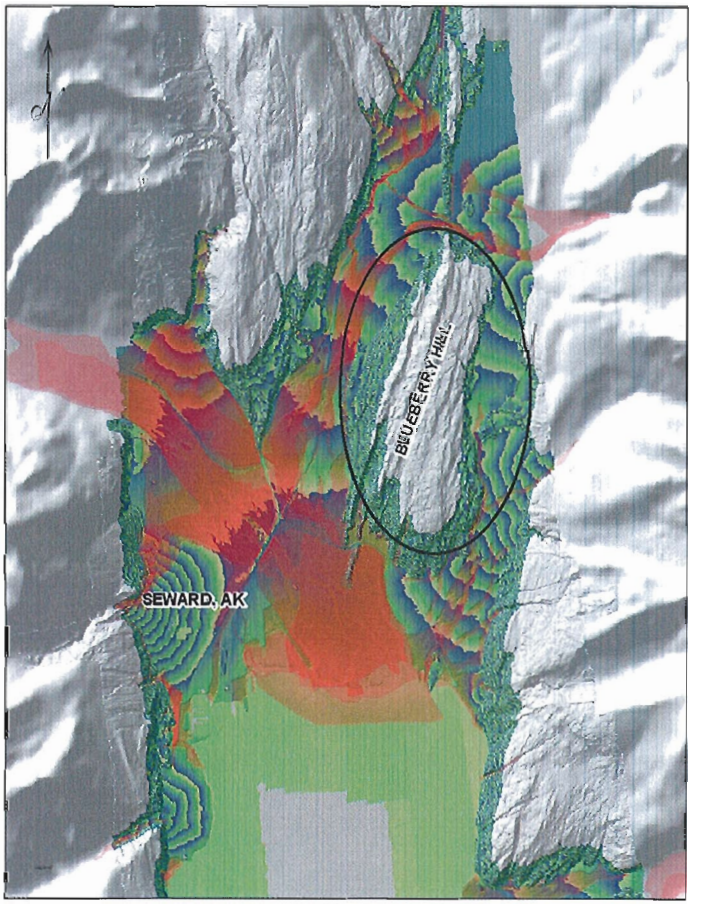
In order to achieve safe development objectives, two basic criteria need to be met: 1) the land has to support economically feasible development, and 2) the land must be relatively free from known hazards. In most populated areas these criteria are easily met, but such is not the case in the Seward Bear Creek Flood Service Area. By definition, alluvial areas are subject to repeated earth building debris flow events. In the case of Seward, high volume rainfall into very steep watersheds produce these debris flows carried by rising high velocity water and characterized by unpredictable stream migration. It can be assumed that, without the intervention of man-made flood protection measures, all area within an alluvial fan is at risk of flooding over time. Along with surface flooding, the highly porous alluvial soils serve as underground conduit for flood waters, which can create high pressure subsurface flooding, which can disrupt basements, septic systems, and other below ground improvements. Transportation systems are very sensitive to these effects as well. The city and port of Seward is connected with the Bear Creek area only by traversing a compound alluvial landscape, meaning that transportation systems cannot avoid intersection with both flood hazards and the active geologic processes of the alluvial features. Stepping outside of the alluvial valley floor, the terrain becomes immediately steep, irregular, and shallow to bedrock. The combination of steep, irregular terrain and rocky substrate makes the development of infrastructure an engineering challenge. Often, the types of infrastructure systems that are conventionally employed on flat soil ground cannot be used without significant modification on steep bedrock terrains. Take, for example, septic holding tanks and drain fields, concrete foundations, and roads at grade which are normally taken for granted but can be difficult, if not impossible, on

much of the steep rocky landforms that dominate the landscape outside of the alluvial areas of Seward Bear Creek.

To identify suitable alternative lands is not a simple formula, nor will it be simple to address the issues of how to approach development and disposition of any land so identified. The Borough has identified a multipronged approach to further the intent of the KPB Assembly Resolution 2009-070. The following tasks are considered important components to facilitate safe development in the Seward Bear Creek Area:

Blueberry Hill Feasibility Study:

The borough planning department has submitted for funding as a Coastal Impact Assistance Program project as well as a Federal Legislative Priority for a scoping and feasibility study. The purpose of the study would be to determine whether the development potential of a 900-acre upland feature that is considered one of the more likely areas to support relocation of existing human activities that presently occur in flood prone alluvial and wetland areas around Seward. This project would explore the suitability of Blueberry Hill to accept a shift of private development out of the alluvium.



This project would consider potential primary access, secondary routes, community water and sewer systems, and development density in relation to localized topography, soils, bedrock, and natural hazards. This project also consider secondary feasibility such as available borrow types and permitting requirements.

Project would evaluate possible areas to relocate private development including residential land uses out of the flood prone alluvium and wetlands. The final product would be a feasibility report discussing each of the primary considerations critical to understanding whether relocation of private development is a feasible alternative in addressing the watershed management issues unique to the Seward area. Quantified results including cost estimates for primary

infrastructure and maximum development density will allow for ready cost-benefit analysis.

Bear Lake LiDAR and Review of State Lands:

The borough planning department in partnership with the SBCFSA purchased LiDAR Digital Elevation Model (DEM) across 12.5 square miles in the area of Bear Lake and northward to allow for evaluation of development potential of 3,700 acres of state and borough lands. The LiDAR DEM provides the first detailed look at these lands from which potential access routes and potential developable areas can be identified.

Lands that are determined to have access and development potential will be reviewed as to their municipal entitlement status and eligibility, and ultimately pursued with high priority under the Department of Natural Resources process. It is likely that it will be necessary for the administration to petition for modification of the Kenai Area Plan if developable lands exist that have designations that preempt conveyance through municipal entitlement.

Old Mill Subdivision Voluntary Buyout Program:

The Old Mill Subdivision Voluntary Buyout Program is a project funded by the United States Department of Agriculture, Natural Resources Conservation Service (NRCS) through its Emergency Watershed Protection (EWP) program that provides for the voluntary purchase of improved properties in the Old Mill Subdivision near Seward for the purpose of removing structures from flood prone areas to mitigate against future flood related costs and to enhance natural floodplain functions.

Under this program property owners in Old Mill Subdivision have been given the opportunity to participate through a non-committing voluntary application. Applications are ranked based on criteria related to flooding hazards. Highest ranked properties in relation to available funding will undergo a hazardous materials inspection and a cultural resources inspection; those properties with no environmental or cultural issues will proceed for appraisal. Once appraised, the applicants of the highest ranked properties will receive an offer to buy the property for the appraised fair market value. The applicant may at that time accept or reject the offer. Those who accept will do so in the form of a purchase agreement which will lead to a typical real estate transaction.

Upon purchase of the property, the improvements will be removed and the land reclaimed. A conservation easement, being the development rights to the property, is then conveyed to NRCS. The net sum is that the property is held by the Kenai Peninsula Borough, subject to a conservation easement held by NRCS, and remains vacant property serving its natural floodplain functions.

The Old Mill Buyout has limited funding and scope but serves a dual role as a pilot project that will allow the borough and the public an opportunity to assess the pros and cons of reclaiming flood hazard areas and relocating property owners. Future funding opportunities for similar types of efforts will likely be evaluated based on the collective experience gained from the Old Mill Buyout project.

Other Relevant Data to Pursue and Promote:

The mutual interests of the borough, the SBCFSA, and the local residents in identifying safe alternatives for community development will be benefitted by a number of currently contemplated initiatives that are supported by the borough administration:

Soil Survey. USDA NRCS plans to conduct a soil survey within the SBCFSA during 2010 with publication of SSURGO data in 2012. The soil survey will map new layers of information and interpretation on area soils which can provide unique insight into local geologic processes, soil properties, and hazards. The borough planning department is exchanging information with the soil scientists to promote the capture of flood hazard related information through the soil survey efforts.

Channel Migration Zone Analysis. SBCFSA is working toward calibrating a channel migration zone (CMZ) analysis to watercourses in the SBCFSA. The channel migration zone is the area where the active channel of a stream is prone to movement over time and thus this analysis is a tool that can help define the area that a watercourse needs for natural processes and where flood protection measures can be efficiently employed.

Land Use Suitability Analysis. The Resurrection Bay Conservation Alliance has expressed interest in working toward a developing a GIS based Land Use Suitability Analysis for the Seward area. A GIS based Land Use Suitability Analysis employs GIS analysis techniques over a layering of relevant data such as slope, soils, wetlands, hydrology, transportation, ownership, and hazards to assemble representative mapping identifying collections of definable characteristics that qualify or limit the suitability of land toward specific types of uses. The Homer Soil and Water Conservation District has developed similar types of mapping specific to resource concerns in the Homer area.

Flood Insurance Rate Maps: FEMA is currently updating FIRM maps for watercourses in the SBCFSA. FIRM maps identify and classify flood hazard areas based on standard models.

Vegetation Mapping: KPB's Spruce Bark Beetle Mitigation Program (SBBMP) has developed vegetation maps for many regions within the Kenai Peninsula Borough; however, vegetation mapping has not yet been completed for the Seward area. The SBBMP is currently looking at the possibility of producing vegetation mapping in the Seward area. Vegetation information, like soils information, can provide dynamic insight into the landscape functions.

Information Sharing:

The borough administration is currently looking into hosting a "Summit in Seward" for the purpose of information sharing between local residents, the SBCFSA, borough staff, state agencies, federal agencies, and political leaders. This meeting would provide opportunity for presentations and discussions on issues and ideas regarding the many flood related issues in the SBCFSA. The Summit would be designed to facilitate communication through the ranks and to assist leaders in prioritizing Seward area projects and issues.