State of Alaska
Coastal Impact Assistance Program

APPENDIX B-2

Project Descriptions
Direct to Coastal Political Subdivision Funding

Approved Projects

MATANUSKA-SUSITNA BOROUGH	
Tier 1 Projects	
AKCIAP_CPS_MSB_T1-01	*"Protect the Edge: Where the Water Meets the Land"* a Full-color 80 Page Publication and DVD About Protecting Riparian Habitat and Wetlands
AKCIAP_CPS_MSB_T1-02	Ortho-rectified Imagery and LiDAR of the Matanuska-Susitna Borough's Coastal Management Zone
Tier 2 Projects	
AKCIAP_CPS_MSB_T2-01	Groundwater Availability Assessment for the Matanuska-Susitna Valley Area

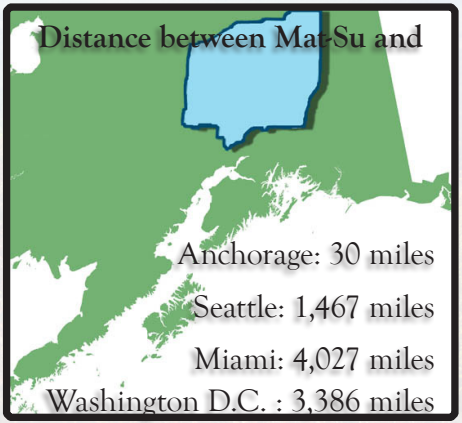
Matanuska-Susitna Borough

Brief History: Located in the heart of southcentral Alaska, the Matanuska-Susitna Borough is the third largest borough in Alaska, encompassing 24,000 square miles. By 1920, mining for gold and coal and construction of the Alaska railroad sustained the local population. During the depression the Federal Emergency Relief Administration established the Matanuska Colony, settled by homesteaders who led an agricultural lifestyle. Construction of the statewide road system and rich farmlands fueled population growth. Today, borough residents enjoy a more rural lifestyle close to metropolitan Anchorage. The landscape is comprised of mountain ranges and valleys, glaciers, rivers, and lakes, wetlands, tundra, and boreal forest. Gravel reserves found in the borough's coastal zone are its most important current mineral exports.

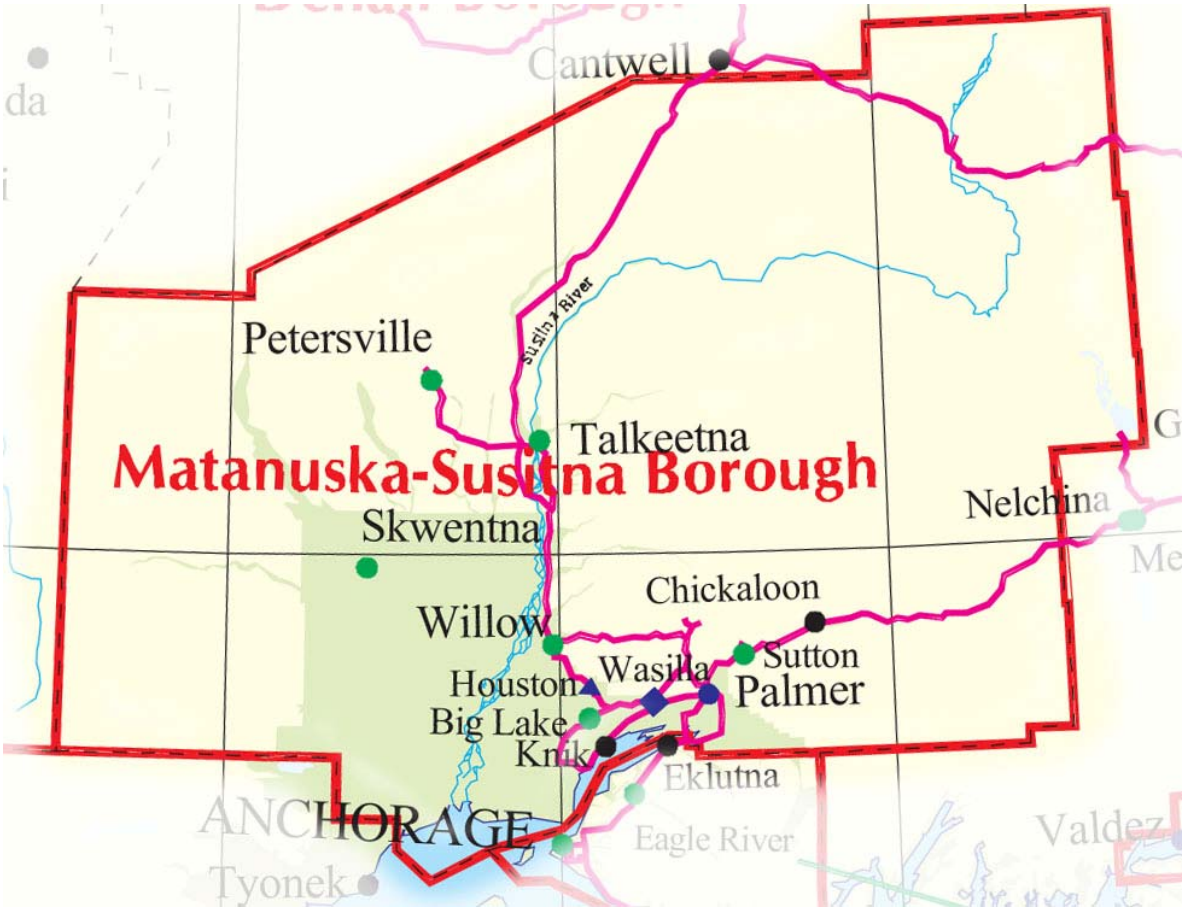
Pronunciation:	(mat-uh-NOO-skuh) (soo-SIT-nuh)
Population(2007):	82,515
Shoreline:	75 miles
Coastal Area:	4,149 square miles
Annual Precipitation:	16.5”
Hours of Daylight Summer:	19 hours, 33 min
Hours of Daylight Winter:	5 hours, 19 min
Regional Native Corporation:	Athna Inc., Doyon Ltd., Cook Inlet Regional Inc.
Legislative District:	8, 12, 14, 15, D, F, G, H


Photo by: Frankie Barker


Photo by: Frankie Barker



MATANUSKA-SUSITNA BOROUGH



STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PLAN

MATANUSKA - SUSITNA BOROUGH

PROJECT TITLE: ***"Protect the Edge: Where the Water Meets the Land"*** **a Full-color 80 Page Publication and DVD About Protecting Riparian Habitat and Wetlands.**

Note: This project was approved as part of the approved 2008 Alaska CIAP Plan. This amendment includes an increase to the budget and size of the publication.

PROJECT CONTACT

Project Contact: Susan Lee, Planner II
Address: Matanuska-Susitna Borough, 350 E. Dahlia Avenue, Palmer, AK 99645
Telephone Number: 907-745-9862
Fax Number: 907-745-9876
E-Mail: slee@matsugov.us

PROJECT LOCATION
Matanuska-Susitna Borough

PROJECT DURATION
2 Years

ESTIMATED COST

Spending Estimate ($)		
TOTAL	**Year 1**	**Year 2**
52,000	24,500	27,500

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
52,000	0	0	24,500	27,500

PROJECT DESCRIPTION
The Matanuska-Susitna Borough (MSB) and other federal and state agencies have identified protection of riparian habitat as a high priority within the Mat-Su Borough due to increased impacts of rapid development on water quality, native vegetation and fisheries. Providing educational information for the public has been recommended as an effective strategy to address the concerns about riparian habitat in the region. MSB has an out-dated publication called "Shoreline Landscaping "which needs to be expanded, revised and upgraded. The Kenai River Center has published a full color 80 page

publication called “On the River: A Guide to Owning and Managing Waterfront Property on the Kenai Peninsula” and a DVD called “Protecting Your Rivers, Protecting Your Property” which we would use as models for our new book and DVD. The book and DVD would be made available to the public free of charge and would be a major part of our community educational programs. A local nonprofit community planning group, Friends of Mat-Su (FoMS), is conducting a water quality education campaign with a grant from the U.S. Fish & Wildlife Service and support from MSB. FoMS will be continuing this project in neighborhoods surrounding water bodies and can use this publication as part of their campaign.

MSB started a mandatory land use permit in March 2008. Any landowner applying for a permit who lives near a water body is provided with information about best management practices for development around water bodies. Our new publication will be provided during this permitting process as a more comprehensive educational source for water body protection.

MEASURABLE GOALS AND OBJECTIVES

- Produce a full-color 80-page educational book and DVD about protecting, conserving and restoring native vegetation, riparian habitat and wetlands for distribution to the public.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project will support authorized use #1: *Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands.*

The rapid development within the Matanuska-Susitna Borough has increased the impacts on water quality, native vegetation and fisheries. This measure will provide educational information to the public as an effective strategy to address the concerns about riparian habitat in the region. By reducing impacts on the riparian habitat through education, coastal areas will be protected.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

The MSB publication will be created with input and review by federal and state agencies. We will include information about other agency permitting processes in the publication, and will coordinate with them to provide current information.

COST SHARING OR MATCHING OF FUNDS

CIAP funds may be used for cost sharing or matching purposes required by another grant. If they are used in this manner, a letter will be included with the CIAP grant application from the other Federal agency (the agency charged with administering the program that includes the cost sharing or matching requirement) indicating that the other agency’s program allows the use of Federal funds to meet cost sharing or matching requirements.

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PLAN

MATANUSKA - SUSITNA BOROUGH

PROJECT TITLE: Ortho-rectified Imagery and LiDAR of the Matanuska-Susitna Borough's Coastal Management Zone

Note: This project was approved as part of the 2008 Alaska CIAP Plan. This amendment includes an increase in budget and an amendment to the project to include LiDAR.

PROJECT CONTACT

Susan Lee, Planner II
Matanuska-Susitna Borough
350 E. Dahlia Avenue, Palmer, AK 99645
Telephone Number: 907-745-9862
Fax Number: 907-745-9876
E-Mail: slee@matsugov.us

PROJECT LOCATION
Matanuska-Susitna Borough

PROJECT DURATION
4 Years

ESTIMATED COST

Spending Estimate ($)				
TOTAL	**Year 1**	**Year 2**	**Year 3**	**Year 4**
976,175.90	11,399	31,399	469,189.93	464,188

Funding per Allocation Year of CIAP ($)				
TOTAL	**FY 07**	**FY 08**	**FY 09**	**FY 10**
976,175.90	31,399.15	31,399.15	460,689.78	452,687.82

PROJECT DESCRIPTION
The Matanuska-Susitna Borough coastal management zone is over 4,000 square miles in size and the watersheds directly supporting the zone are at least another 6,000 square miles in area. The zone contains more than 60,000 residents, including the fastest growing community in Alaska. It also supports the second most productive salmon

spawning region in the state, has over 10,000 miles of waterways, and more than 2,000 square miles of wetlands. These facts, combined with the proximity to the over 250,000 residents of Anchorage, create the largest seasonal influx of recreational users of coastal zone fisheries, and other resources, in Alaska. The development and use pressure on the coastal zone are growing rapidly.

Development and use pressure is particularly strong along watercourses and is encroaching into wetlands at an increasing pace. The state and federal resource protection agencies have increased their emphasis on dealing with "cumulative" impacts resulting from the increased density and intensity of development and use in the coastal zone. The borough's coastal management zone has experienced recent disasters, ranging from flooding, erosion, and wildfires. The vulnerability, and the potential costs of damage, is increasing because of the high growth rate in higher risk areas.

The informational database, which is fundamental to manage, protect, or enhance coastal resources has not kept pace with the rapid growth. An abundance of information exists about the coastal resources of the Matanuska-Susitna Borough, and data continues to be collected by many sources. Most data is collected for a single project or specific purpose with no provision for sharing. Unfortunately, the information collection and distribution has not been coordinated and is not easy to locate or used with other data due to different formats. Some is redundant and many gaps exist about specific subjects and locations. For example, photographic images of the entire coastal management zone are not available at a scale useful for identifying or evaluating existing development, and good elevation data for most of the area is nonexistent. This situation increases costs for information gathering and analysis associated with individual projects without benefiting others who may need the same information later.

The MSB and other agencies that share jurisdiction within the borough's boundaries have a common interest to use data that reflects a higher mapping standard than what was available on a larger regional level. While this problem characterizes Alaska overall, this project improves the mapping standard by acquiring higher quality imagery and elevation data for the high growth areas of the borough's coastal management zone. This project will produce ortho-rectified imagery and elevation data that integrates with the MSB's geographic information system, and is tailored to the management needs of the coastal management zone. These mapping products will be designed to grow and incorporate new data generated by multiple sources, thereby, becoming increasingly useful for years beyond the grant period.

MEASURABLE GOALS AND OBJECTIVES

The Matanuska-Susitna Boroughs' coastal management zone is over 4,000 square miles in size and the watersheds directly supporting the coastal zone are at least another 6,000 square miles in area. The entire desirable area of LiDAR and ortho-imagery acquisition is approximately 5800 square miles, of which 4000 sq. miles are within the Matanuska-Susitna Boroughs' coastal management zone. A recent price estimate from the USGS puts the cost per square mile of this LiDAR and Imagery acquisition project at approx. $650 per sq. mile, making the entire project cost $3,770,000

Total available CIAP monies available under this grant are $981,177.86, which covers approx. 1510 miles of the desired area of acquisition. This is a multi-agency effort, with additional monies coming from the Matanuska-Susitna Borough, the U.S. Geological Survey, the U.S. Army Corps of Engineers, and other interested parties. To date approx. $1.8 million in funding has been allocated to the project, which amounts to about 2770 square miles of the desired 5800 sq. miles of coverage. Additional money and partners are currently being sought out for the project.

The requested project funds will be used to cover the costs of acquisition of high quality 1-meter, or better, pixel resolution ortho-rectified imagery and/or LiDAR elevation data of the higher developed regions of the coastal zone within the Matanuska-Susitna Borough. Approximately 1510 square miles will be covered.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project will support authorized use #1, *Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands.*

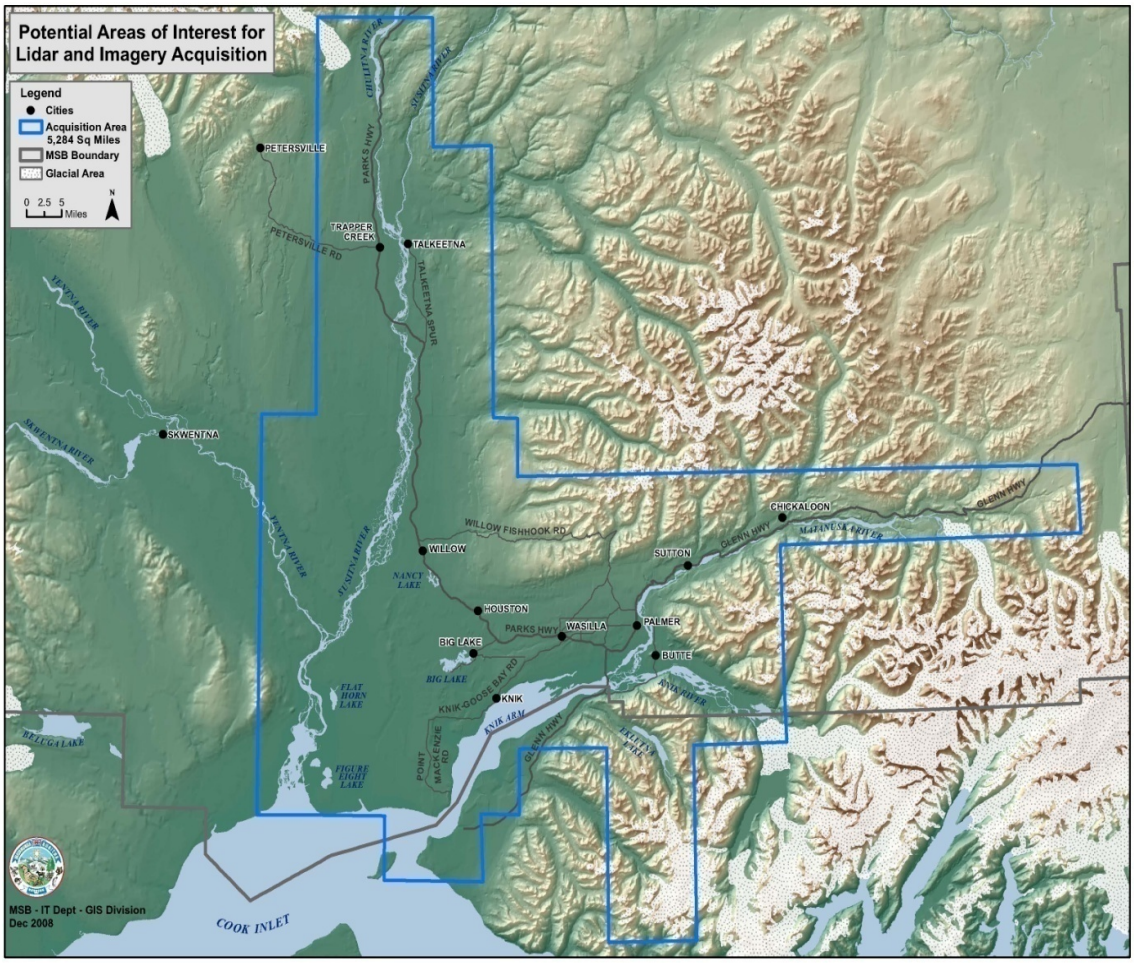
The geospatial data acquired will be used to identify trends and impacts upon coastal resources caused by development, clearing and runoff, contaminates, flooding, wildfires, erosion, and invasive species, thereby improving the Borough's ability to protect and conserve coastal areas from such impacts. Additional uses for the data, outside of this project, include emergency response, land use planning and regulations, water body management, public works development, forestry, agriculture, and fishery management.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

The Matanuska-Susitna Borough has been a cooperative partner with the United States Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), under its National Agriculture Imagery Program (NAIP) for the past 5 years. The National Agriculture Imagery Program acquires imagery during the agricultural growing seasons in areas within the United States. This cooperative agreement is to work together and provide joint funding to develop hi-resolution ortho-imagery for portions of the Matanuska–Susitna Borough.

The Matanuska-Susitna Borough's GIS Division has also set up a new Geospatial Data Acquisition Project Fund to help new efforts in collecting geospatial datasets including imagery, LiDAR, Digital Elevation Models, and other critical datasets, which are now lacking in many parts of the borough. This effort will entail building inter-agency agreements and memorandums of agreements between parties interested in collecting these important datasets.

Talks are currently underway with the USGS, USDA, Corps of Engineers, US Fish and Wildlife, and more than 20 other members of the Mat-Su Salmon Partnership on a $1.6 million imagery/LiDAR project that covers a large majority of the borough's coastal zone (see image), some funding from this grant may be directed towards that group's mapping efforts.

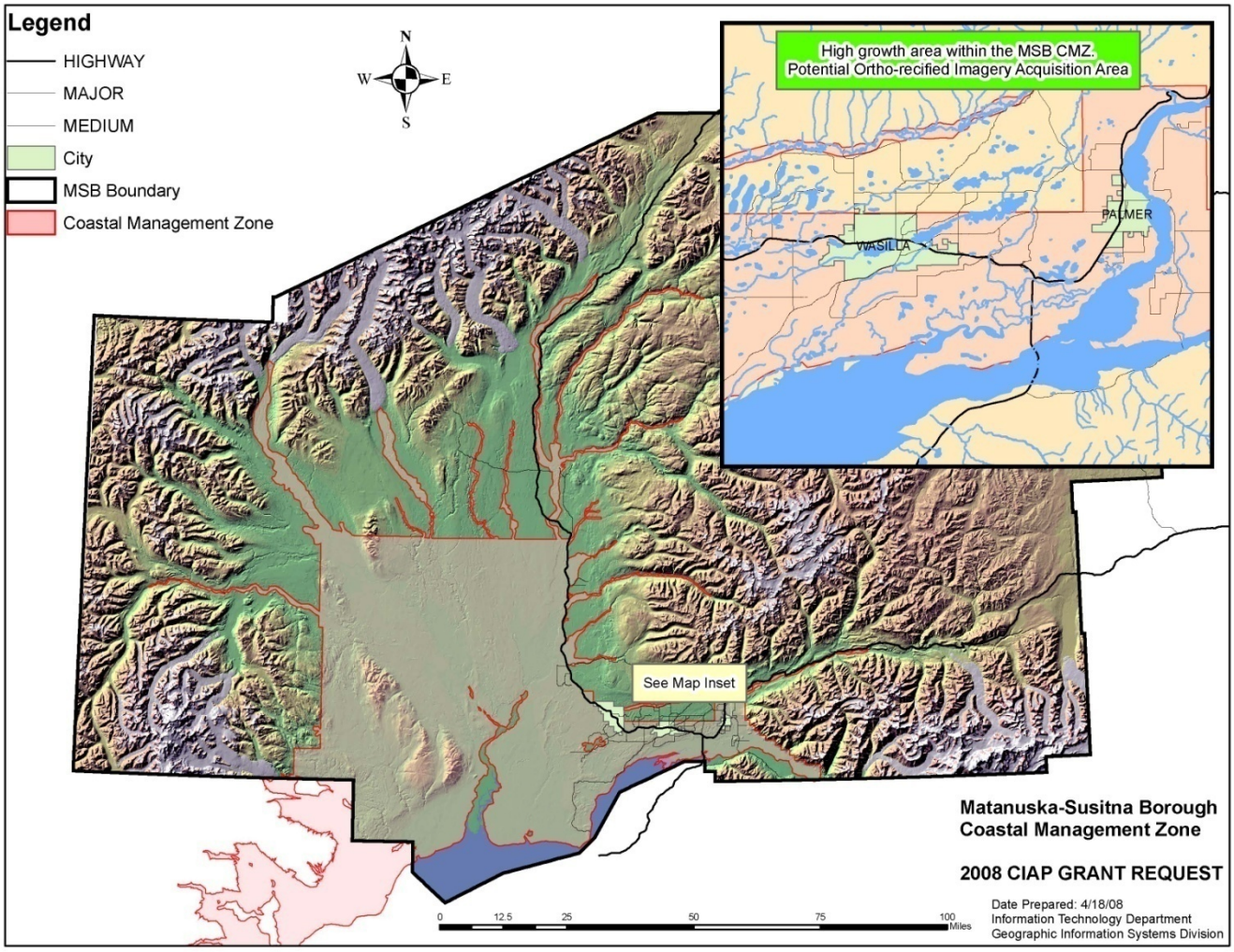


All of these efforts are modeled after the geospatial one-stop concept under the E-Government initiative supported by the President to provide government services and improved financial management to the public and other agencies.

The MSB will also provide in-kind support from the Information Technology Department including project coordination, GIS mapping/analysis software, any required additional monetary support, online map services for public distribution of information, and all required computer and networking infrastructure.

COST SHARING OR MATCHING OF FUNDS

It is unclear at this time whether CIAP funds will be used for cost sharing or matching purposes. If these funds are used for these purposes, the final CIAP grant application will include a letter from the state, federal, or local agency charged with administering the program that includes the cost sharing or matching requirement indicating that the other agency's program allows the use of federal CIAP funds to meet cost sharing or matching requirements.


Legend
HIGHWAY
MAJOR
MEDIUM
City
MSB Boundary
Coastal Management Zone
N
W
E
S
High growth area within the MSB CMZ.
Potential Ortho-recified Imagery Acquisition Area
PALMER
WASILLA
See Map Inset
Matanuska-Susitna Borough
Coastal Management Zone
2008 CIAP GRANT REQUEST
0
12.5
25
50
75
100
Miles
Date Prepared: 4/18/08
Information Technology Department
Geographic Information Systems Division

STATE OF ALASKA
COASTAL IMPACT ASSISTANCE PLAN

MATANUSKA - SUSITNA BOROUGH

PROJECT TITLE: Groundwater Availability Assessment for the Matanuska-Susitna Valley Area

PROJECT CONTACT

Project Contact: Susan Lee, Planner II
Address: Matanuska-Susitna Borough, 350 E. Dahlia Avenue, Palmer, AK 99645
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PROJECT LOCATION

Matanuska-Susitna Borough (MSB)

PROJECT DURATION

3 Years

ESTIMATED COST

Spending Estimate ($)			
TOTAL	**Year 1**	**Year 2**	**Year 3**
1,033,200	375,000	375,000	283,200

Estimated costs include compilation of existing data, new data collection, and hydrologic modeling.

PROJECT DESCRIPTION

Partners:

U.S. Geological Survey, Alaska Science Center
State of Alaska Department of Natural Resources:
Division of Mining, Land, and Water
Matanuska-Susitna Borough

Summary

Water resources are necessary to support human and ecological demands for current and future growth in many areas in Alaska, yet our knowledge of these resources is inadequate to evaluate water availability and sustainability. In no part of Alaska is this more apparent than in the Matanuska-Susitna Valley. Ground water is a significant source of the available water that supplies municipal, industrial, agricultural, and domestic water uses and interacts with surface-water sources to maintain important and sensitive ecosystems on the Alaskan landscape. An improved understanding of conditions

affecting ground-water and related surface-water resources in the Matanuska-Susitna Valley will allow resource managers to ensure sufficient water is maintained to meet the ecological needs.

The objectives of this assessment are to 1) identify and characterize major aquifers and aquifer systems, 2) determine the connectivity between shallow aquifers and surface-water bodies, and 3) assess current water-quality conditions. The assessment will build upon and update data and information from previous studies. Data will be integrated into products such as databases, reports, and hydrogeologic framework models to provide stakeholders and managers with tools and information resources to support management of their water resources. Hydrologic data will be archived in the U.S. Geological Survey (USGS) National Water Information System (http://nwis.waterdata.usgs.gov/nwis/) and made available to the public.

Problem

In Alaska's most rapidly growing area, the Matanuska-Susitna Valley, information on current ground-water availability and water quality is inadequate for planning development and assessing impacts of current development on the natural environment. Some historic knowledge exists from previous localized studies and from well-drillers logs, but a comprehensive assessment of the water resources of the Matanuska-Susitna Valley has not been undertaken. Such an assessment is critical for evaluating and forecasting the availability of water-resources necessary to satisfy sustainable anthropogenic and ecosystem water needs in the future.

Description of Study Areas

Ground Water — Although detailed information at the regional scale is lacking, the hydrogeologic framework in the Matanuska-Susitna Valley generally is characterized as glacial and fluvial deposits overlying fractured bedrock. Unconsolidated materials consisting of layered and, commonly, intermixed deposits of silt, sand, clay, and gravel vary in thickness and permeability. Water used for municipal-industrial, residential, and agriculture primarily is obtained from the unconsolidated confined aquifers.

Surface Water — Lakes, streams, and wetlands are common features of the landscape and are valued for their aesthetics, recreational potential, as well as important to ecological needs of resident and migratory species. Streams and lakes in the Matanuska-Susitna Valley are vitally important areas for spawning and rearing of salmon. Surface water generally is directly connected to local ground-water and the quantity and quality of water in each source significantly influences the other. Ground water supports baseflow in streams during periods with no surface runoff. These baseflow conditions often are the most critical for survival of juvenile fishes and eggs incubating in the streambed.

Wasilla, Cottonwood, Lucille, and several smaller creeks connect many lakes as they flow through heavily urbanized areas of the valley and directly influence ground-water quality. Effectively, these surface-water and ground-water resources may be considered a single resource (Winter and others, 1998).

***Water Quality* —**In urbanized and agricultural areas, nutrients such as nitrogen and phosphorous that originate from anthropogenic sources are at the forefront of regional ground-water and surface-water quality concerns in each of the areas because of their adverse effects on human health and the environment (Munter, 1987). Localized contaminants migrating from abandoned and existing landfills, underground storage tanks, and other sites pose a potential threat to water supplies and ecosystems (Munter and Maynard, 1987). Naturally occurring arsenic occasionally may be present in ground water at concentrations greater than the Maximum Contaminant Level for drinking water.

MEASURABLE GOALS AND OBJECTIVES

The objectives of this assessment are to 1) identify and characterize major aquifers and aquifer systems, 2) determine the connectivity between shallow aquifers and surface-water bodies, and 3) assess current water-quality conditions. The study will focus on the area approximately bounded by the Little Susitna River on the north, saltwater on the south, Palmer on the east, and Big Lake on the west. The assessment will build upon and update data and information from previous studies and available in databases residing with the Alaska Department of Natural Resources (ADNR) and the USGS. At the conclusion of this 3-year study, federal, state, and borough land and resource managers will have databases, reports, and hydrogeologic framework models to support management of their water resources. Once the project is complete, the borough will use the assessment data will be used to develop water resource protection plans and upon which land use regulations to minimize adverse impacts of land use on water quality will be based.

Hydrologic data will be archived in the USGS National Water Information System (http://nwis.waterdata.usgs.gov/nwis/) and made available to the public through this site and ADNR's website specific to this project.

PROJECT CONSISTENCY WITH CIAP AUTHORIZED USE

This project will support authorized use #1: *Projects and activities for the conservation, protection, or restoration of coastal areas, including wetlands.*

The rapid development within the Matanuska-Susitna Borough has increased the impacts on water quality, native vegetation and fisheries. This project will provide critical data to aid land managers in management of water resources and land use to ensure the protection of coastal areas, including wetlands.

The anticipated results from this study will provide for informed management of ground-water and surface-waters resources in the most rapidly growing area of Alaska. As such, the study is consistent with authorized use #1. Data resulting from this project will directly support the drafting of water resource protection plans upon which implementing land use regulations will be developed that will in turn lead to protection of coastal areas and wetlands. The land use regulations would apply to all new construction, reconstruction, or expansion of existing buildings and new or expanded uses. Allowed activities and land uses within areas covered by the land use regulations would be

required to comply with the requirements developed to protect water resources. Uses identified as those creating an unacceptable risk to water resources would be prohibited.

Specifically, this study addresses several priority water-resources issues identified by the Water Resources Discipline (U.S. Geological Survey, 1999), such as (1) the effects of urbanization and suburbanization on water resources, (2) drinking water availability and quality, (3) surface-water and ground-water interactions as related to water-resource management, and (4) hydrologic-system management.

COORDINATION WITH FEDERAL RESOURCES OR PROGRAMS

The project will be conducted with in partnership with the U.S. Geological Survey and the Alaska Department of Natural Resources Division of Mining, Land, and Water.

COST SHARING OR MATCHING OF FUNDS

CIAP funds may be used for cost sharing or matching purposes required by another grant. If they are used in this manner, a letter will be included with the CIAP grant application from the other Federal agency (the agency charged with administering the program that includes the cost sharing or matching requirement) indicating that the other agency's program allows the use of Federal funds to meet cost sharing or matching requirements.