

**Agency: Commerce, Community and Economic Development**

**Grants to Named Recipients (AS 37.05.316)**

**Grant Recipient: Cook Inlet Regional Citizens Advisory Council**

**Federal Tax ID: 92-0135368**

**Project Title:**

**Project Type:** Information Systems and Technology

# Cook Inlet Regional Citizens Advisory Council - Cook Inlet Ice Forecasting Network

**State Funding Requested: \$60,000**  
One-Time Need

**House District: Kenai Areawide (33-35)**

**Brief Project Description:**

Installation of Web-based video cameras throughout upper Cook Inlet for use by the National Oceanic and Atmospheric Administration Ice Forecaster, U.S. Coast Guard, Mariners, and Emergency Responders.

**Funding Plan:**

**Total Cost of Project: \$150,000**

|              | <u>Funding Secured</u> |                | <u>Other Pending Requests</u> |           | <u>Anticipated Future Need</u> |           |
|--------------|------------------------|----------------|-------------------------------|-----------|--------------------------------|-----------|
|              | <i>Amount</i>          | <i>FY</i>      | <i>Amount</i>                 | <i>FY</i> | <i>Amount</i>                  | <i>FY</i> |
| Local Funds  | \$31,449               | 2006/2007      |                               |           |                                |           |
| Other Funds  | \$63,500               | 2007/2008/2010 |                               |           |                                |           |
| <b>Total</b> | <b>\$94,949</b>        |                |                               |           |                                |           |

*Explanation of Other Funds:*

*Funds budgeted for this project through Cook Inlet Regional Citizens Advisory Council annual budget allocation.*

**Detailed Project Description and Justification:**

Cook Inlet is arguably one of the most dynamic bodies of water in the world. Challenges for safe navigation include extreme tides, swift currents, and winter ice conditions. All of these conditions were a factor during the grounding of the T/V Seabulk Pride in 2006. Heavy ice ripped the 574-foot tanker from its mooring, while it loaded cargo from the Kenai Pipeline dock. In only eight minutes the tank vessel was pushed north, approximately one half mile, leaving it high and dry with its propeller and bow out of the water at low tide. Most recently, the Offshore Supply Vessel Monarch was pushed into the offshore platform Granite Point, resulting in the vessel sinking. The ensuing emergency response and salvage efforts were severely hampered by heavy ice conditions moving through the area. Local response vessels were unable to conduct an effective search for the sunken vessel due to heavy ice conditions. These events serve as a reminder that we must continue to improve spill prevention safeguards in Cook Inlet. One significant gap in information noted during both incidents was real-time information about Cook Inlet ice conditions. Critical information that would have allowed responders to locate open water leads to move freely through the ice to respond to the stricken vessels. High-resolution video camera installation has already begun at various locations, initially around central and upper Cook Inlet facilities, beginning with four cameras. The proposed video network coupled with the current ice observer's network will enhance the ability of the National Oceanic and Atmospheric Administration (NOAA) Ice Forecaster to interpret satellite radar images in the same way digital still photography is being utilized today. Live video feed will allow the Ice Forecaster to see central and upper Cook Inlet on one

*For use by Co-chair Staff Only:*

**\$60,000  
Approved**

video monitor, to identify and track an event or multiple events from one location to the next, and record any event for future study. Once the system is operational, additional cameras will be installed. Two sites located on Fire Island are slated for possible camera installation: One site facing Knik Arm and the other facing Turnagain Arm. These areas are significant because the "Arms" are where most of Cook Inlet's ice is born, and enters the Inlet. Another site slated for possible camera placement is located at U.S. Coast Guard Aids To Navigation (ATON) site located in Nikiski, selected for its strategic position south of Nikiski's waterfront facilities. The "brain" of the network will be a stand-alone computer server utilizing an image enhancing software package. Video archiving will be facilitated by three, 300-gigabyte hard drives. The "eyes" of the network will be a mix of high resolution, pan, tilt, zoom, cameras, and fixed cameras. The onshore system is linked together with a high-speed broadband network circuit, while the offshore cameras will be linked to the main server via a wireless Ethernet bridge. The system will be updated as the requirements expand and as technology allows. In the past, the NOAA ice advisory and ice analysis for Cook Inlet consisted of a prediction of ice position and condition based on the interpretation of a satellite radar image, weather forecasts and occasional field observations. However, due to operational limitations, satellite radar images are not available daily. The ice observer's network currently consists of multiple fixed stations (onshore and offshore facilities), and vessel stations (offshore supply vessels) that supply live observation to the NOAA Ice Forecaster. By using various operators throughout the Inlet, a North to South network provides area wide coverage. The potential to blend some high-tech features with the established low-tech network quickly became apparent. The high-tech features consist of digital video recording cameras and a state-of-the-art operating system (located at the Anchorage NOAA / National Weather Service facility) with the ability to track tidal progression and wind driven movement of ice throughout central and upper Cook Inlet. The video network user group will consist of NOAA, the U.S. Coast Guard, mariners, facility operators, oil spill responders, and scientific users. Due to security protocols, some cameras may not be accessible to all user groups. The Ice Forecaster will use the real-time video feed in conjunction with satellite radar imagery and on-scene observations to produce a very accurate ice analysis and forecast. U.S. Coast Guard waterway management personnel may utilize the video network to confirm conditions prior to the issuance of a "local notice to mariner" broadcast, or the implementation of additional winter guidelines. For the mariner, access to a real-time video feed coupled with ice analysis reports from NOAA, will aid in vessel transit during the winter months. Spill responders may use the video feed to locate and track oil in ice or spill movement during summer months. Scientific groups may use the video archive to study ice dynamics. The Alaska Ocean Observing System or scientists conducting Cook Inlet Beluga whale studies are examples of other groups that may benefit from a live video feed and archived footage. What this means, in terms of winter navigation to Cook Inlet marine operations is very simple; Reliable, accurate ice advisories, and ice analysis. In addition to better forecasting these cameras will allow the U.S. Coast Guard to implement winter navigation guidelines more effectively. Additionally, the archived video images will be available for future ice studies. An accurate ice forecast provides much needed information to factor into the equation of vessel arrivals, dock availability, and loading times. Port managers rely on vessels moving through their port quickly and efficiently, and on schedule to move valuable cargoes through their terminals. Without an accurate ice forecast, port activity could slow to a stop if vessels voyaging North through the Inlet find themselves forcing ice, requiring them to turn back and anchor until ice conditions improve. Because Coast Guard winter guidelines require a voyage plan for barge movement, tug operators moving barges need a reliable ice forecast to aid them in planning arrivals and departures for a safe voyage through the ice. In order to conduct an effective oil spill response, constant updates on weather and sea conditions are required. Accurate and readily available ice condition reports are likewise imperative to winter oil spill response. The installation of a video ice-observing network will create a safer, more efficient marine transportation route to Alaska's largest port.

### Project Timeline:

Design work and camera location negotiations are on going. Purchase of equipment started in FY 2009 and may extend into FY 2011. Installation of the operating system and initial cameras started in FY 2009, further camera installation may extend into FY 2011, based on funding.

**Entity Responsible for the Ongoing Operation and Maintenance of this Project:**

Cook Inlet Regional Citizens Advisory Council

**Grant Recipient Contact Information:**

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Has this project been through a public review process at the local level and is it a community priority?  Yes  No