

Supplemental Support for FEMA CRS 610 Credit -Flood Warning

The purpose of this document is to provide support the City of Lakewood's application for credits associated with FEMA's National Flood Insurance Program Community Rating System (CRS), specifically Credit 610 for community-based flood warning activities.

BACKGROUND

The Urban Drainage and Flood Control District (UDFCD) provides direct support to the City of Lakewood through its flood warning program. Lakewood has participated in this program since its inception in 1979. In 1982 Lakewood partnered with UDFCD, the City of Wheat Ridge, Jefferson County and The Consolidated Mutual Water Company in developing an automated flood detection network and flood warning plan for the Lena Gulch watershed. In the early 1990's the gaging network was expanded to include the Bear Creek watershed in Jefferson County in which Lakewood was one of the local project sponsors. Today the UDFCD-supported ALERT System covers a much larger area involving many local governments in the Denver/Boulder metropolitan area.

In addition to the early flood detection provided by the ALERT System, UDFCD employs a private meteorological service to provide its local governments, including Lakewood, with forecasts and notifications concerning potential and imminent flood threats. The UDFCD Flash Flood Prediction Program (F2P2) operates in close partnership with the National Weather Service (NWS) during the 5-month flood season between mid-April and mid-September. The City of Lakewood also employs a meteorological service, Skyview Weather, to provide year-round notifications concerning all severe weather threats that affect the city.

More information about UDFCD services can be found at <http://alert5.udfcd.org>.

FLOOD THREAT RECOGNITION (FTR)

The earliest indication of a flood threat will be a forecast from a meteorologist. The NWS, UDFCD's F2P2 meteorologists and Lakewood's private support service comprise the information sources used by the City of Lakewood to prepare for possible flooding.

When storms are developing, Lakewood officials are routinely updated by the forecasters concerning the potential threat. In addition, automated rain gages in and near Lakewood will activate alarm notifications that are relayed by email and text message to response agencies. Radar is also used to predict heavy rain amounts up to 60-minutes prior to the storm as well as estimating precipitation amounts for each radar scan period.

UDFCD employs a service to provide a custom radar website used by Lakewood and other local governments within its jurisdiction. A link to the WDT HydroWatch website can be found on the MAPS page of the 'alert5' website. Basin-specific quantitative precipitation estimates and forecasts (QPE and QPF) can be viewed from the 'Hydro' menu. Using radar, essentially the entire City of Lakewood is covered by real-time rainfall estimates and predictions of heavy rainfall with 60-minute lead times. Using these high-tech observation tools with flood threat predictions from professional forecasters, response agencies from Lakewood (fire, police, public works, and emergency management) are well prepared to implement plans well before flooding reaches critical levels.

Streamgages are also part of Lakewood's FTR capabilities. Like the ALERT System rain gages, alarm thresholds are used with streamgages to notify key local officials and forecasters of rising water levels and when predefined maximums are exceeded. One useful webmap for monitoring stream and reservoir levels can be found on the MAPS page of the 'alert5' website.

A real-time hydrologic model has also been developed for the Lena Gulch watershed. This model uses basin-averaged rainfall from six ALERT rain gages to estimate peak flows at various hydrologic forecast points along the stream, including the inflows to and spillway outflows from Maple Grove Reservoir. Plans are underway to further improve flood predictions and spillway gate operations for Maple Grove by using radar-estimated rainfall with enhanced alerting capabilities with the goal of providing better flood control for events that exceed the 100-year threshold. Access to the real-time hydrologic model for Lena Gulch can be found on the 'alert5' HYDROMODELS webpage.

FLOOD PREPAREDNESS & RESPONSE

Both the City of Lakewood and UDFCD maintain up-to-date written plans and procedures that address how to prepare for and respond to floods including emergency communication protocols. Watershed-specific flood warning plans have also been prepared for Lena Gulch and Bear Creek. Annual exercises are conducted to test these procedures and make adjustments when needed. Special attention is given to dam safety and actions emergency. Flood disaster and recovery plans are also routinely reviewed and updated.

PUBLIC EDUCATION

UDFCD assists Lakewood by annual distributing official notices to residents and business that are in and near defined floodplains. Useful information is also provided regarding the local flood warning program and what citizens can do to protect their property and how to stay safe before, during and after a flood.

For questions concerning UDFCD's Flood Warning Program contact:

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