

Northern Colorado Regional Hazard Mitigation Plan

2016 Annual Report

CRS Activity 510

The following is a summary document of updates and progress related to mitigation actions identified in the (2010) Northern Colorado Regional Hazard Mitigation Plan for the City of Fort Collins. The 2016 Larimer County Multi-Jurisdictional Hazard Mitigation Plan was adopted by the City in June 2016. This annual report was prepared in cooperation between Poudre Fire Authority and Fort Collins Utilities. This annual report was completed as part of a requirement of the City of Fort Collins' participation in the Federal Emergency Management Agency's (FEMA's) Community Rating System (CRS). Future annual reports will be focused on the action items identified in the 2016 Mitigation Plan.

UPDATES AND PROGRESS FOR THE CITY OF FORT COLLINS

Aircraft Accidents:

Annual review and update of master plan, HSEEP exercise development and delivery along with working with the FAA/TSA to adhere to constantly changing regulations and threats related to security. Those security actions included installing fencing and access gates to secure the hanger areas. The fencing is an ongoing project. Credentialing/access badge system was also put into place. The runways were recently resurfaced. Loveland Fort Collins Airport is finalizing an updated strategic plan.

Biological Hazards/Influenza:

Based upon the Leadership and Coordination chapter of our local influenza Response Plan, the primary focus is still to limit the number of illnesses and deaths through education and inoculation, preserve continuity of essential governmental functions through the continuity of operation plans, minimize social disorder and minimize economic losses. Inoculation clinics have been implemented along with additional tabletop exercises for preparedness. Local responders are working with TEEX and CSU to increase their awareness and response training to biological incidents.

Civil Disturbance

Local law enforcement officers have received training in crowd control and routinely work large scale events to further develop their knowledge, skills and abilities to handle large crowds. Other actions include tabletop exercises in the EOC and Command Rooms. Fort Collins Police also have a Mobile Field Force. Working with the Colorado Information Analysis Center and the local Terrorism Liaison Officer Program assists in providing intelligence which may assist in a Civil Disturbance. PFA has recently obtained training and equipment to implement an active shooter program in conjunction with Fort Collins Police Services, Larimer County and Colorado State University.

Climate Change Impact

Over the last several years, the City of Fort Collins has been involved in a White House Task Force that is focused on climate change and its impact on disasters. This included four major meetings and numerous conference calls. The outcome included a list of issues and suggested action items that were delivered to the White House Council on Environmental Quality last year. These action items are being looked at

locally to determine which ones can be easily implemented in our community. We will be working with the Colorado State Office of Recovery. Fort Collins is a pilot for a federal “Regional Resiliency Assessment Program” which will look at Climate Change as well as other hazards that impact our region.

During 2015 Fort Collins developed a new Climate Action Plan Framework document entitled the “Fort Collins Road to 2020” and adopted bold new carbon reduction goals to reduce community carbon emissions by 20% below 2005 levels by 2020, by 80% below 2005 levels by 2030, and to achieve carbon neutrality by 2050. The Community Advisory Committee (CAC) is a group of citizen volunteers who offer diverse perspectives and expertise to help with the planning and implementation of the Climate Action Plan. The “Road to 2020” implementation plan includes seven strategic areas, listed in no particular order with a brief description:

- Energy Efficiency: Increase energy efficiency throughout the community.
- Accelerated Alternative Energy Adoption: Increase alternative energy in all sectors, develop/enhance incentives.
- Multi-modal Planning and Development: Shift land use and parking patterns to reduce Vehicle Miles Traveled, create green streets.
- Road to Zero Waste: Increase waste diversion from landfill to 75 percent, enhance community recycling opportunities.
- Pilot Projects and District Scale Initiatives: Identify and support large-scale pilot and district-scale projects to showcase innovative CAP solutions.
- Water and Land Use: Enhance water conservation initiatives, green infrastructure initiatives.
- The Climate Economy: Expand knowledge of existing financing mechanisms from around the globe while exploring relationships to support public-private partnerships.

Dam Failure

The U.S. Bureau of Reclamation monitors the area dams as part of the Safety Evaluation of Existing Dams (SEED) Program. This includes analyses of structural performance data, regular examinations of the entire facility, periodic assessments of design and performance. Foundations have been examined along with seepage from the dams. Corrective action plans are then implemented. Evacuation plans, emergency operation plans, flood risk maps and flood mitigation plans are continually evaluated and exercised.

Drought/Extreme Heat

Fort Collins has developed and maintains a water conservation plan which includes a number of strategies. These include public information campaign expansion, on-line access to water history, low income retrofit program, irrigation technology rebates and facility audit program expansion. Fort Collins Utilities offers its water information and audit services to neighboring water districts, in addition to Fort Collins Utilities customers. Fort Collins also works with Colorado State University to host several workshops on water conservation.

Earthquake

Mitigation action items include maintaining open communications with the Colorado Geological Survey to remain informed on earthquake risk assessments, build hazard awareness through K-12 education programs, public information distribution, and appropriate offerings of hazard-related courses in local colleges and universities.

Expansive Soils

Local Land Use Plans, Capital Improvement Plans and Building/Zoning Codes address Expansive Soils. These are continually updated and enforced.

Fires Urban

The local fire department has an extensive public education program as part of their fire prevention efforts with the community. The International Fire Code is adopted and enforced throughout the city. Smoke detector “give a way” programs are part of this prevention effort along with residential fire inspections. Numerous U.S. Fire Administration Prevention programs are in place within the City of Fort Collins. More detailed information can be obtained at www.poudre-fire.org.

Fires Wildland

Vulnerability assessments are performed in the urban wildland area as part of the Community Wildfire Protection Plan. This plan includes identification of fuels management, home assessments, Firewise education, evacuation/escape routes, and restoration plans to name a few of the critical components.

Floods - Flash and Riverine

Stormwater Capital Projects

Improvements since the 2014 annual report include:

- West Vine Outfall - The West Vine Basin Outfall Channel was completed in 2015. This was a Master Plan project to alleviate 100-year flooding in the older, northwest portion of the City.
- Boxelder Authority Projects – Stormwater improvements to Boxelder Creek that prevent the split flow near Mulberry and I-25 are finished with construction and will be included in the PMR after the project at Prospect Road project is completed.
- Boxelder Creek at Prospect Road – This project is under construction. The project includes a flood control channel and new bridge at Boxelder Creek and Prospect Road. The purpose of the project is to prevent overtopping of Prospect Road in a 100-year flood event.
- Dry Creek at Vine Drive Flood Control project – A CLOMR has been approved and construction will begin this fall. This project includes the design of regional detention ponds at Vine Drive and Dry Creek. The purpose of the project is to provide a stormwater outfall for the areas around North College Avenue. The project will also provide flood control benefits along Dry Creek from Vine Drive south to the Cache la Poudre River. The project will be constructed in two phases starting in the fall of 2016 and finishing in the spring of 2018.
- Lincoln and Willow Outfall – This project was constructed in 2015 to provide an outfall for the River District and western Old Town area. The next phase of the project will extend up to Mountain and north on Riverside to Pine Street. The overall project will provide 100-year flood protection for the businesses and structures in the Old Town and River District area.

Stormwater Maintenance Projects

- Pitkin/Stover to Spring Creek Improvement Project - Design has been completed and the construction crew has installed the first 800' of 42" RCP with only 280' left in this first phase of the project. This project continued during 2016 by crossing Prospect Road and heading north on Stover to Lake with another 800 lf of 42-inch RCP. The next phase will begin in 2017 and head north to Pitkin then west on Pitkin to Remington.
- Oakbrooke Channel – Cleaned out an existing drainage channel in the Foothills Basin that drains the Foothills Mall from Stanford Road to Stover Street.
- Dry Creek Channel Dredging – Dredged out an existing drainage channel from the railroad tracks for a distance of approximately 500 feet that had filled in over time. This project will provided additional conveyance in this area and reduce the extent of the 100-year floodplain.

Updated assessment of Critical Facilities Located in Floodplains

The list of critical facilities in the floodplain are being updated as part of the Flood Warning System On-Call manual review. Critical facilities have also been assessed for areas subject to dam inundation. Critical facilities are maintained within a geodatabase for access via GIS as well as individual site contact information for those facilities within the regulatory floodplains in Fort Collins.

City Flood Warning System

Staff maintained the City Flood Warning System's (FWS) network of 75 gage installations, comprising 57 rain gages, 43 stream gages, six weather stations, three repeaters and two base stations. Three (3) new sites are currently being added to the system to provide more advanced notification of flood discharges on the City's major waterway (the Cache la Poudre River) as well as to fill in gaps in assessing fast moving intense rainfall events proximate to the Fort Collins area.

FWS OnCall staff conducted a review of its FWS system operations and responsibilities, as well as Emergency Action Plan (EAP "OnCall Manual") updates. A tabletop exercise and training session on April 28, 2016 focused on flood response operations for a variety of events in the Fort Collins area. Three distinct exercises were tailored to emulate flooding events typical to those experiences in Fort Collins. The exercises included flash flooding events and a seasonal riverine flooding event. Each of the exercises included limited use of new FWS data management software that included rain and stream stage threshold alarm notification and their acknowledgment after prescribed emergency response actions were implemented.

Stormwater OnCall season included heavy springtime rains that approached emergency spillway activation for a City – located reservoir. Early June spring high flow on the Cache la Poudre River required closure of public trails and notifications to the community about flooding of low-lying areas adjoining floodplain. The City's Facebook and Twitter social media outlets were used to update the public of rainfall events with the capability of causing local flooding, and to raise general awareness of flood risk.

Public Outreach

During 2014, Fort Collins Utilities in cooperation with internal and external stakeholders created the City of Fort Collins Floodplain Management Public Information Committee with the purpose of developing a Program for Public Information (PPI) that will guide Fort Collins Utilities in the years to come. The goal of this committee was to bring outside stakeholders together with the City to develop partnerships, provide additional expertise and perspectives, and create consistent messaging for the public. The committee had their annual meeting in March 2016 to review progress, evaluate the messages and projects and make recommendations for future changes. An Annual Evaluation Report was produced detailing the meeting and what was discussed.

Flood Awareness Week was held July 9-15, 2016. Stormwater's efforts included mailings of an updated flood awareness brochure to each City floodplain resident and property owner. Stormwater also set up flood awareness displays in 13 public buildings, placed flood awareness messages on bus benches, hung banners from Utility poles in four downtown locations, and broadcast flood awareness videos on the City Cable Channel 14. A separate mailer about floodplain management services offered by the City of Fort Collins will be sent to local realtors, insurance agents and lenders.

A Social Media campaign was included in conjunction with Flood Awareness Week this year. In order to reach a wider audience and better educate the public, regular posts were made throughout the summer months. It averaged one message per week in June and July, with two messages occurring during Flood Awareness Week. A total of 16 flood-related posts were made from May to August 2016.

Floodplain maps and FWS rain and stream gauge data are available for iPhones, Android and Windows Smartphones. Users can search by address or zoom to a specific location to see the floodplain map. Rain gauge data can be viewed in real-time.

In addition, the City website was updated to improve customer access to Stormwater services. Please see <http://www.fcgov.com/utilities/what-we-do/stormwater>.

Stormwater participated in numerous community events during the spring and summer including the CSU Housing Fair, Earth Day, Children's Water Festival, and Poudre River Fest.

Floodplain Mapping

Areas that are in the process of being remapped due to modeling updates and development projects include the West Vine Basin, Stone Creek Basin, McClellands Creek Basin, and Old Town Basin. The hydrology update for West Vine Basin was completed in 2016 and floodplain mapping will be updated in 2017.

A RiskMAP update for the Poudre River Basin has commenced to better define the flood risk for the Poudre River. Revised mapping has been submitted to FEMA and is currently under review.

A Letter of Map Revision (LOMR) for 6 projects along the Poudre River including the McMurry Natural Area, Pateros Creek Development, Shields Street Bridge Replacement, West Vine Outfall Channel, and Sterling Projects is under review by FEMA.

A Letter of Map Revision for the Woodward Technology Center, Homestead Natural Area, Mulberry Bridge Replacement, LeMay Pedestrian Bridge and Split Flow Mitigation Projects is in process and will be submitted to FEMA by the end of the year.

A Letter of Map Revision is being finalized associated with the new Mason Corridor MAX bus rapid transit system and is expected to be approved and effective at the end of 2016.

Several development and natural resources restoration projects are currently in progress along the Poudre River and will result in map revisions when they are complete in the coming years.

Regulatory Issues

There were no changes to the floodplain regulations during 2015-2016.

Stormwater Master Plans

City staff completed hydrology updates for three of the City's *Stormwater Master Plan* basins to include new EPASWMM hydrologic models in lieu of the effective, outdated MODSWMM model. The basin updates included Dry Creek, the Canal Importation Basin, and Boxelder Creek basin. A CLOMR for the 100-year floodplain for the Dry Creek basin was accepted by FEMA in 2016 for the Dry Creek at Vine Flood Control project. The Boxelder Creek 100-year floodplain will be updated as part of an upcoming LOMR for the East Side Detention Facility flood control project which is being designed and built by the Boxelder Basin Stormwater Authority. A hydrology update for the Old Town Basin was started in 2016 and will be completed in early 2017.

City Stormwater staff worked closely with the City Parks Department to complete the design for the stream rehabilitation of a reach of McClelland's Creek through the new Southeast Community Park. The project is currently under construction.

Staff participated in the planning and visioning for the Downtown Core River Project on the Cache la Poudre River near College Avenue. The project will result in flood reduction benefits for the areas around North College Avenue and the Cache la Poudre River. Overtopping of College Avenue will also be eliminated in the 100-year flood event.

Stormwater Quality

Low Impact Development (LID) – In 2015 the City continued implementation of the LID policy (first adopted in 2013 and updated in January of 2016) that requires all new developments to employ Green Infrastructure techniques in the design and construction of all new developments and in modifications to existing developments within the City of Fort Collins.

Construction was completed on several innovative rain garden projects including one located at the Fort Collins Museum of Discovery and one located at the Remington Bikeway. Both projects included functional art and educational signage that will allow the public to learn about ways the City is improving its sustainability and resiliency by adopting a wide array of potential green technologies that can be used within the City that help minimize flooding and address the impacts of climate change on its infrastructure. Several new technologies were used including a new forebay design and an educational outreach component.

The City also went through an extensive public outreach effort in order to arrive at the new LID policy, one of the features of the new policies is to allow underground detention to be used in order to maximize land use and allow for treatment and flood mitigation in tight, "ultra-urban" areas.

Staff performed public outreach to the community that highlighted the benefits and costs of LID/Green Infrastructure technologies. The outreach effort included utility bill inserts, web site design upgrades, an award winning video to explain the benefits of LID and social media campaigns that concentrated on the City's water quality program and featured Green Infrastructure demonstration projects. For more information please go to:

<http://www.fcgov.com/utilities/what-we-do/stormwater/stormwater-quality/low-impact-development>

The City continued to work with Colorado State University (CSU) on the design and installation of monitoring equipment at various stormwater treatment and capture locations. The City and CSU have used data from our stormwater wet monitoring activities to improve design for bioretention media and for outlet controls in bio-retention ponds. Maintenance Standard Operating Procedures were developed for various types of LID facilities and an inspection protocol was developed to aid contractors and engineers in providing a standardized, consistent and complete inspection of newly constructed facilities. Such a protocol will also allow City staff to more easily inspect and inventory all newly built stormwater facilities in the City for inclusion into the City's asset management program.

Water quality retrofits were included on several street capital improvements projects including the Lincoln Corridor project and the Horsetooth and Timberline intersection.

Staff is working on an LID design and construction manual that will include all aspects of designing, building and maintain LID facilities. This manual development project will continue and be completed in 2016.

Hail Storm

Most mitigation actions focus on public education as a means of preventing loss of life, injury and property damage.

Hazardous Materials Fixed Facility

Primary means for mitigation in commercial occupancies is through fire code inspection programs administered by the local fire department. This includes a hazardous materials mitigation program. Many of these occupancies also participate in the OSHA Voluntary Partnership Program. A few of these occupancies also are required to report through the EPA EPCRA and CERCLA programs.

Hazardous Materials Transportation

Poudre Fire maintains a trained and equipped hazardous materials response team consisting of technicians and specialists. They provide emergency preparedness education to their citizens. Evacuation and safe refuge areas have been identified and provided during incidents. All first responders receive recognition training in hazardous materials. Hazardous material routes have also been established and enforced within the City of Fort Collins. Emergency notification systems have been upgraded over the last several years and are continually tested.

Lightning

Action items focus mainly on education and improving communication and life safety activities. Colorado State University installed and continually tests their Thor Guard Lightning Prediction Warning System which covers a majority of the main campus. Fort Collins OEM utilizes a weather satellite

system to assist with prediction of strikes. Many new facilities have placed grounding systems at their facilities to assist with mitigation efforts.

Terrorism/WMD

Terrorism/WMD training and exercises are continually provided to all first responders. Local emergency operational plans have been developed and exercised for WMD incidents. WMD related courses are provided through the Department of Homeland Security. Active and well-trained bomb squads, SWAT teams and canine units are incorporated into this mitigation activity. The PFA hazmat team has an extensive cache of WMD detection and response equipment which they are highly trained to utilize.

Tornado

Action items include emergency preparedness education to the community, provide areas of safe refuge for affected citizens, promote the inclusion of tornado shelters in new construction and provide specialized training to first responders in the area of search, rescue and structural collapse.

Utility Interruption

Utility interruption has ongoing programs which include public education, back-up power plans, placement of power lines underground, protection of above ground power components and the maintenance of an adequate supply of emergency equipment.

Wind Storm Severe

Emergency preparedness is the primary mitigation action item. This is done through education, training and exercises. Public works departments and utility providers maintain on-call crews to assist during high wind events. Transportation departments maintain traffic control devices for detouring/re-routing or closing traffic through the hazardous areas.

Winter Storm Severe

Plans are reviewed, updated and exercised for this event. Several courses at the Emergency Management Institute (IEMC) have been attended by City of Fort Collins personnel who focused on preparedness and response to a winter storm event. Public education programs focus on preparedness for severe winter storms. Other mitigation activity includes maintaining and updating the Snow Removal Plans, providing safe refuge for affected citizens, maintaining adequate fleets of snow moving equipment, identification of the special needs population which will require special assistance and acquiring temporary snow storage sites that provide proper draining.

Additionally, Fort Collins has upgraded its EOC to provide WEBEOC for better tracking of resources and the overall incident, additional ICS training, upgrading of our emergency notification system, offering NOAA "Weather Spotter" courses, certification as a "Storm Ready Community", hosting an annual emergency preparedness fair, and ongoing public education through direct delivery presentations, pamphlets, calendars and website upgrades.

All- Incident

The PFA Training Center, including the Emergency Operations Center (EOC) now has 100% back-up power via diesel. The computers and TV communications were also upgraded.

Fort Collins OEM has installed 2 ARES (amateur radio in emergency service) systems in the EOC and will install 2 in the mobile command post in the near future.

Fort Collins OEM in conjunction with Fort Collins Storm Water recently installed a new server and antenna for our Diadvisor System

Fort Collins renewed its designation as a Storm Ready Community by the National Weather Service.

Various City departments participated in the 2015 Family Safety and Emergency Preparedness Expo in September. Many departments will be participating in the September 24, 2016 event this year. We are anticipating over 1000 participants.

In June of this year, FEMA and the State of Colorado approved the updated Regional Larimer County Hazard Mitigation Plan.

CRS Program

The CRS program is a voluntary incentive program that provides flood insurance discounts to citizens and businesses based on a community's floodplain management activities that go above and beyond minimum floodplain management standards. The Northern Colorado Regional Hazard Mitigation Plan and Larimer County Multi-Jurisdictional Hazard Mitigation Plan address not only flood issues but other natural and man-made hazards. It is credited under the Flood Damage Reduction Activities section of the CRS program.

The City of Fort Collins was presented with a Class 2 award at a City Council Meeting in June 2016 putting the City in the top5 communities nationwide that participate in the CRS program. Citizens and businesses receive up to a 40% discount on their flood insurance premiums due to the City's progressive floodplain management program.

Additional Information

To review a copy of the Larimer County Multi-Jurisdictional Hazard Mitigation Plan or obtain additional information about the Plan, please contact the Mike Gavin, Office of Emergency Management, Poudre Fire Authority, Phone: 970-416-2878.

To obtain additional information on the Community Rating System, please contact Marsha Hilmes-Robinson, Floodplain Administrator, Fort Collins Utilities, Phone, 970-224-6036.