

## **CRS Annual Report**

**September 1, 2016 through August 31, 2017**

### **On Activities Associated with the Douglas County Hazard Mitigation Plan**

**September 30, 2017**



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## **1. Background**

The Douglas County, Nevada Hazard Mitigation Plan was updated in 2013 in compliance with Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act or the Act), 42 U.S.C. 5165, enacted under Sec. 104 of the Disaster Mitigation Act of 2000 (DMA 2000), Public Law 106390 of October 20, 2000. Since the first plan was adopted in 2007, 14 mitigation actions have been completed or are ongoing. Three actions have been combined with other mitigation actions. The updated plan identifies ongoing and new hazard mitigation actions intended to eliminate or reduce the effects of future disasters throughout the County.

## **2. History of Flooding in Douglas County**

Nevada is the driest state in the Union, with an average annual precipitation of only about nine and one half inches, although there are areas in Douglas County that average above forty inches (CWSD). Douglas County is unique in the fact that many different types of flooding occur within its boundaries. The major flood types that may occur in Douglas County include alluvial fan flash flooding, and riverine flooding. Flash floods result from intense rainfall in localized areas during thunderstorms, usually during the months of June to November. These floods, while intense, tend to be localized because the storms usually cover a small area. Washes along the eastern boundary of Douglas County abutting the Pinenut Mountains and Gardnerville Ranchos are the area most likely to be affected by summer flash flooding. Floods from rapid snowmelt tend to occur between March and June, and can cover a large area, but tend to flood areas close to the main river channel. Floods resulting from rain on snow or frozen ground tend to occur between November and April and have caused some of the greatest regional historical floods.

## **3. Activities Conducted for this Reporting Period**

Table 8-4 of the Hazard Mitigation Plan addresses actions the County intends to implement to better prepare, protect, and mitigate the community from all flood hazards. This report will update on the progress or activities taken toward each specified action.

### **5.A. Add rain gauges to existing warning system**

County staff has been actively seeking funding and potential sites to place rain gauges to help with early warning on heavy rain. It came to the County's attention that NOAA's Reno National Weather Service office has had some changes in their equipment and has been looking at removing some older equipment for spots where it is no longer needed. They have a few radio

transmitters that have meteorological equipment (data loggers, wind sensors and temperature sensors) that might be able to be moved. Rain gauges would have to be acquired and attached to the transmitters. In order to install the transmitters, space on a tower of some sort as well as electricity would need to be made available. If the County would be willing to buy the gauges (far less cost than an entire transmitting station) and provide suitable sites, the National Weather Service has technicians available to assist in installing the program and equipment in Douglas County. The data can be retrieved by radio (RF telemetry), dial up modem (if a dial line is available on site) or internet (if internet access is available at the desirable location). County staff members are in discussions with East Fork fire District to assess locations of installing such rain gauges.

### **5.B. Adopt or update policies that discourage growth in flood-prone areas.**

The County actively enforces its Floodplain Management Ordinance, which has standards for development or construction that exceed Code of Federal Regulation (CFR) standards. County Code Section 20.50.110, Special requirements for land division in special flood hazard areas, details these requirements, and is as follows:

“Any land division proposal creating lots of less than 19 net acres under chapter 20.708 Subdivisions or section 20.712.050 Serial parcel maps for land that is within, or that has construction partially within, a special flood hazard area; an applicant must comply with the following requirements:

- A. The applicant must submit the following information:
  1. A hydrology and hydraulics study that demonstrates that the developed project will not have any adverse impact.
  2. Tentative subdivision or serial parcel maps and grading plans that:
    - a. identify the special flood hazard area, x-shaded areas, and the base flood elevation;
    - b. provide the elevation of proposed structures or building pads.
- B. If the hydrology and hydraulics study shows any adverse impact, injury to other property or expands the floodplain boundary of the effective FIRM utilizing the Corrected Effective Model or the Effective Model, as recognized by FEMA the applicant must comply with section 20.50.130. If a CLOMR and LOMR are required under that section, the final map may not be recorded or any work permitted under a site improvement permit until the CLOMR is approved by FEMA.

C. Land may not be divided for residential purposes that will result in the creation of a parcel that is less than 19 net acres, unless the applicant shows that:

1. The parcels may be lawfully created pursuant to section 20.664.095 or are Ranch Heritage parcel(s) or Agricultural 2-acre parcel(s) lawfully created pursuant to chapter 20.714; or
2. The portion of the land in the special flood hazard area will be contained on a single parcel; and
3. The land within the special flood hazard area is retained in a natural state including, without limitation, no solid fencing that impedes the flow of floodwaters or other improvements; and
4. The land within the special flood hazard area is held in common or single ownership with any overlying drainage easement and
5. A property owner's association or similar entity is legally responsible for maintenance of the land in the special flood hazard area in its natural state.

D. Existing parcels less than 19 net acres in special flood areas may not be divided for residential purposes (Ord 1251, 2008)"

### **5.C. Complete FEMA floodplain mapping of Johnson Lane, Buckbrush, and Sunrise Pass Wash.**

Activity completed. Douglas County was provided final copies of the revised Flood Insurance Rate Map and Flood Insurance Study for Douglas County and Unincorporated Areas in April of 2016. These revised maps went into effect June 15, 2016. This revision included remapping of Johnson Lane, Buckbrush, Airport, and Sunrise Pass Washes. Many homes were removed from the floodplain that were deemed to have been incorrectly mapped into the floodplain by the 2010 FIRM update. 422 parcels came out of the 100 year floodplain, and 212 parcels came into the 100 year floodplain as a result of this update.

### **5.D. Complete FEMA floodplain mapping of the entire Carson River from Alpine County to Churchill County.**

The consultant, HDR Inc, has completed the mapping and hydrology. The maps were submitted to FEMA in early 2017 and are currently going through review. To date, no comments or feedback has been communicated. Once FEM provides feedback, public comment will be solicited. In the meantime, FEMA has suggested Douglas County use the data as best available information.

### **5.E. Identify, acquire and develop locations for upstream regional detention basins (Ruhstroth, Pinenut, Buckeye, and Calle Hermosa).**

The "Douglas County Conservation Bill" was introduced into Congress in 2015. Within this Bill,

there are parcels that have been identified as Flood Mitigation Parcels for transfer to Douglas County. This will address acquisition of the majority of flood mitigation parcels. Currently this Bill is being held up in Congress and will hopefully be addressed in late 2017.

Douglas County funded, with assistance from FEMA, the Smelter Creek Regional Flood Control Project, feasibility Engineering Study, to locate and size a structure for the Ruhenstroth area. Public meetings will be held with residents to determine cost estimates and interest in pursuing implementation of the detention basin upstream of the neighborhood. As grant or match funding is sought and secured, similar studies will be conducted, expectantly on an annual basis, for the remaining locations.

#### **5.F. State Route 88 culvert expansion at Mottsville Lane, Cottonwood Slough and Rocky Slough**

Douglas County in partnership with the Nevada Department of Transportation (NDOT) is expanding culverts under US Highway 395 at the Martin Slough south of the Muller Parkway intersection. US Highway 395 acts a large dam that causes floodwaters to back up east of the highway. Large storm events may cause floodwaters to overtop and close the highway. The culvert expansion will allow the floodwaters from a 100 year flood event to flow underneath the highway. Additionally, the water that has historically accumulated east of the highway will be allowed to drain. 100% plans are complete for the Martin Slough culvert expansion. Utility were relocated during the summer of 2017, therefore the project can be constructed next summer in 2018.

Douglas County has also been awarded funding to add additional culverts under State Route 88 between the Cottonwood Slough and the East Fork of the Carson River. These culverts would provide additional flow capacity under the State Route 88 Bridge which would remove potentially 58 residences and the Minden Gateway commercial area from the primary floodplain and reduce flood risk to another 41 residences. Design has started on the culvert expansion at the Cottonwood Slough. Currently the hydraulic modeling and culvert optimization is occurring. Construction is expected to be complete by 2021.

#### **5.G. Provide emergency access to homes east of 395 (Buckeye, Zerolene, Lucerne or Gilman Road).**

The County is ready to purchase right of way at the intersection so the developer can proceed with Zerolene. The requirement for 100-year floodway access over Zerolene Road was upheld by the Board of County Commissioners at the January 2, 2017 Board Meeting. It is a development driven project and the construction date is unknown.

### **5.H. Initiate Park Ditch improvements.**

This is within the County's 5 year goals and will be addressed.

### **5.I. Replace at-grade dip sections with culverts (30 locations).**

Some locations are within the County's 5 year goals and will be addressed. The Johnson Lane Area Drainage Master Plan currently under design will provide size and cost estimates to replace approximately half of dozen dip sections with culverts.

### **5.J. Initiate Johnson Lane ditch expansion and culvert replacement.**

Activity Completed. The culvert replacement project was awarded and constructed in summer of 2015, and experienced highly erosive flood flows as a result of the July 2015 floods in the Johnson Lane area. The construction consisted of gabion structures to armor the banks of the expanded ditch. After the flood event, the heavy sediment load was removed from the ditch, and the construction completed. This was well within the 5 year implementation period expected. The project has been completed.

### **5.K. Education of public regarding flood hazards and damage potential.**

The County hired a Stormwater Program Manager in September 2014. There was a staff change in the position in February 2016. Since the creation of this position, significant outreach has been conducted as a result of activities performed by this staff member. This outreach is documented in CRS Activity 330. This activity includes the following:

1) Nevada declared the third annual Flood Awareness Week to be November 13-19, 2016. Douglas County Community Development staff spent November 16, 2016 at the Douglas County Community Center. This outreach event was very well attended, with hundreds of residents stopping by to learn about flood risk and preparedness, as well as to view the preliminary Carson River Floodplain map restudy. There was participation by the Nevada Division of Water Resources with their "flood model", various giveaway items including first-aid kits, brochures, insulated grocery bags. University of Nevada Reno Cooperative Extension participated with their floodplain protection maps and brochures, and their flood hazard brochures. Douglas County staff had maps printed of the proposed upcoming FIRM map panels update, and a computer for the Stormwater Program Manager to look up if the map change affected particular properties (at the residents' request). Residents were encouraged to attend and discuss concerns, hazards and flood insurance with all participating agencies.

2) This year Douglas County again participated in the Annual Business Showcase on April 2, 2017, sponsored by the Chamber of Commerce. Douglas County's booth included information on GIS, the library, and an expanded area with brochures, books, pamphlets and give-away items regarding floodplain protection, flood zones, flood hazards, flood insurance, and contact

information for the public to reach County staff or other resources. The booth was very busy the entire 5 hour length of the showcase, and many people were interested and took the resources available or requested additional information.

4) The Stormwater Program Manager participated in the Washoe Tribe Earth Day event on May 6, 2017. The interactive booth included a floodplain model and a watershed model to demonstrate flooding, development in the floodplain, and stormwater management.

5) The Stormwater Program Manager participated in Safety Day at Lampe Park in Douglas County on May 13, 2017. The interactive booth was shared with the Carson Water Subconservancy District, and included a floodplain model and a watershed model to demonstrate flooding, development in the floodplain, and stormwater management.

6) Douglas County Stormwater Program Manager was again asked to participate as a Flood Awareness Week team member to plan and prepare for events to be held the week of November 12-18, 2017. Meetings have been held once a month, with two meetings per month to be held closer to Flood Awareness Week.

7) Douglas County in partnership with the Carson Water Subconservancy District, contributed \$95,000 to match a recently received FEMA grant in the amount of \$285,000 to create the Johnson Lane Area Drainage Master Plan (ADMP). The primary purpose of the Johnson Lane ADMP is to identify the flooding hazards based on existing conditions and provide a prioritized list of projects that will allow the drainage facilities to function to mitigate flood risk to an acceptable level to the community. A public outreach meeting was conducted on August 9, 2017 to solicit community input and catalog residents' flood experiences. Over 100 residents in the Johnson Lane area attended the meeting.

#### **5.L. Continue to strictly enforce the County's building code Title 20, Open Space and Master Development Plan.**

County staff actively enforces County building code to enforce floodplain development requirements. It is the intent of the requirements to design and construct homes or businesses located in a flood zone to withstand potential flood related damage. This is primarily through building structures a minimum height (1 foot) above a determined base flood elevation or adjacent grade. This allows floodwaters to pass through a crawlspace or around a structure as opposed to into the structure. This requires close coordination with the building, planning and engineering (stormwater program manager) departments to ensure that new construction or substantially improved buildings meet the requirements of the lowest flood elevated to a certain height. County staff review elevation certificates at the three stages of construction, beginning with the construction drawings. Building inspectors are aware of the elevation requirements and flood venting requirements and ensure the construction meets the plans and

elevation certificates. The County also continues to enforce Title 20, Open Space, and Master Development Plans.

### **5.M. Evaluate the new FEMA criteria for repetitive loss properties within the County**

There are currently nine (9) repetitive loss properties within Douglas County. One property has already been purchased by the County to prevent any potential building and subsequent losses. The County will annually assess its repetitive loss properties and areas, and will continue to send an annual mailing to such affected properties. Since the last report, six (6) properties have been added to this list. The properties added to this list are located in the east side of the Carson Valley in alluvial fan areas of Johnson Lane and one in Fish Springs. To address these repetitive loss areas, the County has initiated the Johnson Lane Area Drainage Master Plan to identify and prioritize projects to mitigate flood risk in that area.