## DITCH SAFETY ACTION PLAN- TO ADDRESS DOMICILES AND LOITERING IN STORMWATE CHANNELS AND IRRIGATION CANALS

From: Ditch Safety Working Group Report to the Albuquerque City Council August 1st 2022 to Comply with

Resolution-21-188

### Summary:

In August of 2021, the Albuquerque City Council adopted Resolution 21-188 that encouraged the Ditch Safety Working Group to study ways and means to improve safety in stormwater channels, arroyos and irrigation canals in Bernalillo County. This was in response to the four drownings of adults that occurred in stormwater channels during the 2021 monsoon season. In addition, there was an increasing concern that the number of unhoused adults that had set up residence in the stormwater channels and other adults who were spending time in the arroyos were at continued risk of drowning. The agencies that manage the stormwater channels had also begun to experience security issues by persons loitering in the channels who were told to leave by maintenance crews or whom were upset when crews removed their items from the channels. The Council and the Administration determined that an action plan was required that would include measures to encouraged persons to not frequent the arroyo and a process to clear the arroyos of persons when there was an increased possibility of flood waters or maintenance was required.

The working group was to also issue a report back to the City Council that would include a summary of the development and implementation of the following objectives:

(1) Map the locations where persons regularly frequent and domicile in stormwater channels, arroyos and irrigation canals.

(2) Develop procedures or programs to guide those who attempt to inhabit stormwater facilities and irrigation canals to the appropriate housing and social services.

(3) Create a security and public safety outreach program to patrol the stormwater facilities, arroyos and irrigation canals.

(4) Identify capital improvements that can improve the safety of stormwater conveyance facilities including but not limited to access management, and the installation of a flash flood early warning system.

(5) An estimated cost to implement the procedures, programs and capital improvements.

The Resolution also asked that the working group, which was established to reduce or eliminate child drownings in the channels, should be expanded to include those agencies that could assist with eliminating adult drownings. The list of agencies that include both the tenured members of the working group and the new agencies include:

Albuquerque Community Safety Department (ACS)

Albuquerque Fire and Rescue Department. (AFR)

Albuquerque Geographical Information Services/Planning Department. (AGIS)

Albuquerque Metropolitan Flood Control Agency (AMAFCA)

Albuquerque Police Department (APD)

Bernalillo County Fire Department

Bernalillo County Sherriff's Office (BCSO)

Metropolitan Security Division/General Services Department (Metro Security)

Middle Rio Grande Conservancy District. (MRGCD)

Street and Stormwater Maintenance Division/Department of Municipal Development

### **Resolution Compliance and Action Plan Development:**

Over the course of 7 months the working group has implemented an action plan consistent with the objectives of the Resolution as follows.

### **Objective 1.**

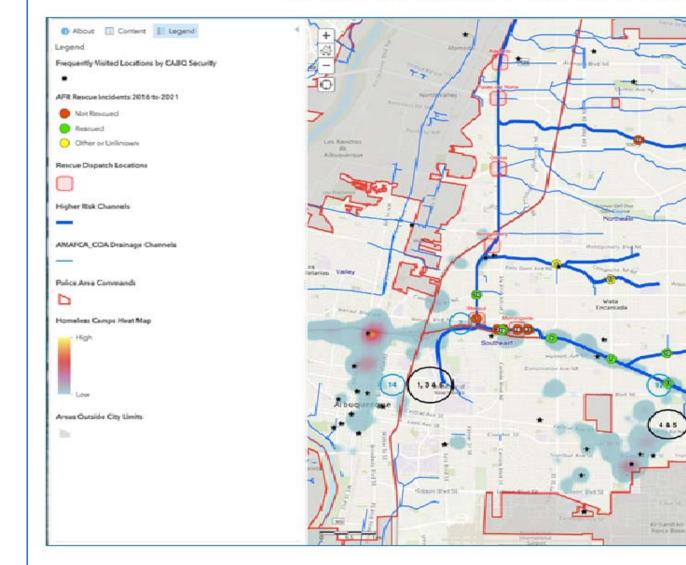
### <u>Map of stormwater channel, arroyos and irrigation canal locations where persons regularly</u> <u>frequent and Where Rescues Occur</u>

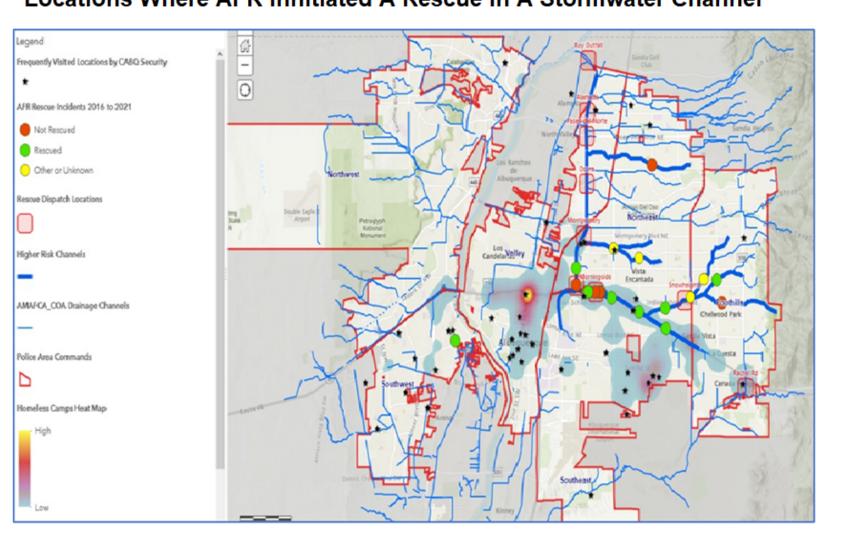
The Working Group completed mapping of areas identified by the participating agencies as locations where camp sites were located in the flood control channels and also where persons frequently loitered and where rescues and rescue attempts occurred. This enables agencies to efficiently locate persons who need to be evacuated from the channel during times of flood threat, or between periods of flood threat to approach these persons to assist them in relocating to more appropriate locations, and also to identify areas that require additional patrols to prevent accumulation of debris from camp sites.

### Locations Where Persons Domicile or Loiter

Chelwood Park

La Cuesta





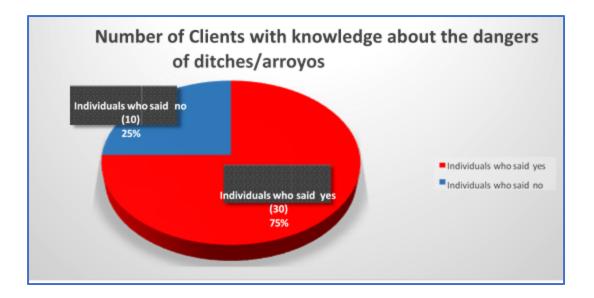
### Locations Where AFR Innitiated A Rescue In A Stormwater Channel

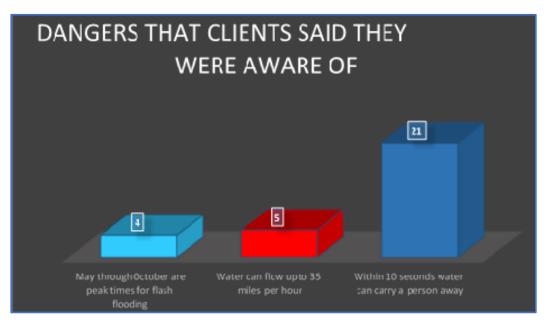
**Objectives 2 and 3:** 

- Develop procedures or programs to guide those who attempt to inhabit stormwater facilities and irrigation canals to the appropriate housing and social services, an
- Create a security and public safety outreach program to patrol the stormwater facilities, arroyos and irrigation canals.

Components two and three were combined and the following measures were implemented by the working group to complete the objectives.

- AMAFCA procured the services of a private security agency to patrol the agency's channels and ask people to leave who have set up domicile. The City's Department of Municipal Development will also as resources allow patrol the City owned channels and ask people to leave.
- The Working Group completed a survey with Hope Works that interviewed 40 persons that were residing or loitering in the storm channels to determine if they were aware of the dangers of being in storm channels and what they thought should occur to reduce the number of persons in the arroyo. Three quarters of the respondents were aware of the dangers of being in a storm channel and that a strong stormwater flow could carry them away in 10 seconds or less. However, the survey found that very few of the respondents were aware of the time of year that the flooding occurred.





Interestingly most of these persons believed steps should be taken to restrict persons from being in the channels. The steps they recommended included:

- 1) Continue to educate individuals on the danger of storm channels
- 2) Set up barriers or better fences to keep people out of the storm channels
- 3) Alerts need be made more accessible to homeless individuals who do not have access to phones, radios and television.
- 4) Prohibit Camping in the storm channels.
- 5) Put up cones or barrels when expecting heavy rain or when storm flows are likely to occur.
- 6) There needs to be a better warning system in place.

The survey also found that all 40 of the respondents stated they would follow the instructions on a handout that directed them to not enter a storm channel. Also, that they would be willing to share the card with a friend. The Working group has subsequently printed and handed out such information. as shown:

### Stay Out of Storm Channel Notices Distributed to Persons Frequenting Storm Channels:

Pamphlet handed out by AMAFCA Staff.



Business Card handed out by ABQ Community Services Department



Three videos were also produced as Public Service Announcements that provide information on how just 6 inches of water can take a person off their feet. The videos can be viewed at:

- i. <u>https://vimeo.com/595369886</u>
- ii. <u>https://vimeo.com/595368435</u>
- iii. https://vimeo.com/595369214
- The Albuquerque Community Services Department is reaching out to unhoused persons residing in stormwater channels to offer aid to relocate these persons to a safer location. The AMAFCA and DMD Metro Security patrols when contacting persons in the channels are offering to connect them with the Community Services Department. These security teams are also giving bag lunches to persons who are hungry to develop a better relationship with those they encounter.
- The City Councilor for the District where the drownings had occurred worked with the working group to develop City Ordinance O-22-31. The Ordinance, adopted by the City Council on August 1<sup>st</sup>, 2022, strikes a balance between clarifying camping and loitering are prohibited in storm water channels and enforcing these prohibitions in a manner that does not criminalize a person for being unhoused. Under the Ordinance it is unlawful for any person to:
  - Enter, to camp or to remain in a water conveyance system which is owned, maintained or operated by a public agency and which is not designated as an open space area or recreational path. Except public safety personnel and employees of the public agency that owns, maintains or operates said water conveyance system, or those persons authorized by such agency may enter the storm channel.
  - Camp or loiter upon any part of the right of way in a public water conveyance system.
  - For any person found trespassing in these facilities they will first receive a written warning, and if they still refuse to leave they may be arrested and removed. If storm flows are likely due to rains then the officer may take a person, who refuses to leave following a verbal

warning, into custody to provide for their safety.

- A process was developed to clear people from these facilities at times when stormflows seem imminent. Under this process this process the National Weather Service upon determining there is high likely-hood of stormwater flows occurring in an arroyo will issue a text message to 911 and agencies that have each been assigned a facility to patrol. The agency will then dispatch personnel to patrol the arroyo's and notify persons who are found in the facility to exit. If they refuse they will be informed that if they do not leave they will request contact the police. If the person continues to refuse to leave an APD officer will be dispatched who will ask the person to leave. If they refuse the Officer's request and there is an impending threat of stormwater the Officer will issue a citation or take them into custody. Though if there is not an impending threat, such as a person is asked to leave because maintenance crews are working in the area, the Officer will issue a written warning. If the person still refuses to leave the officer may take them into custody for trespassing.
- There have been an increasing number of cases of persons speeding along the service roads that abut the irrigation ditches and in arroyos on the West Mesa and far northeast Albuquerque. Subsequently, included in O-22-31 is a prohibition, that is extra to what was requested by Resolution-21-188, but requested by the flood control agencies during the development of the ordinance. Under this prohibition it is illegal operate off road vehicles and any vehicle not on official business in arroyos or along irrigation ditch right of ways, including any water conveyance system designated as "Open Space" or as a recreation trail, except for public safety personnel and employees of the public agency that owns, maintains, or operates said water conveyance system, or those persons authorized by such agency. The Ordinance follows the same procedure for enforcing against off road vehicles as it does for persons trespassing in the stormwater channels.

### **Objective 4**

Identify capital improvements that can improve the safety of stormwater conveyance facilities including but not limited to access management, and the installation of a flood early warning system.

- The City of Albuquerque's Office of Emergency Management prepared and submitted a grant application for the Federal Emergency Management Agency (FEMA) for funding to develop a flood alert system for installation in select flood control channels. The system would install water level monitors in the upstream sections of the channel that would upon getting wet, send a signal to activate sirens in downstream of the channels.
- Developing a signage program to enhance the signage in AMFACA, MRGCD, and City Open Space arroyos that delineate public use policies and prohibitions. The Conservancy District ordered their signs, the City Open Space Division is also working with MRGCD to develop a similar sign, and AMAFCA is waiting for the ordinance to be passed and in effect then will order signs that will include the ordinance number and title.
- AMAFCA, the MRGCD and City DMD continue to install fencing, gates, along with other barriers on their facility. As each storm channel is miles long and persons who are unauthorized to use the channels will cut through fences, therefore only the gate access areas of these facilities can be secured.

# (1) Develop an estimated cost to implement the procedures, programs and capital improvements.

- The cost to develop and to implement the pilot storm water flow alert systems is \$475,000.
- The cost to increase no trespassing signage for is estimated at \$20,000 to \$30,000 for each agency with stormwater channels including AMAFCA, MRGCD, and the City of Albuquerque.

• The remaining services, including mapping, outreach and security patrols, were not costed out as part of the report as the agencies will build these services into their annual budget and will likely have to provide these measures for several budget years until a final working program is developed and an annual expense determined.

### **APPENDIX I Resolution-21-188 Text**

### R-21-188 Text CITY of ALBUQUERQUE <u>TWENTY FOURTH COUNCIL</u>

COUNCIL BILL NO. <u>R-21-188</u> ENACTMENT NO. \_\_\_\_\_

SPONSORED BY: Cynthia D. Borrego

**RESOLUTION** 

ENCOURAGING THE ALBUQUERQUE DITCH AND WATER SAFETY TASK FORCE TO CONDUCT A STUDY TO IMPROVE THE SAFETY OF STORM WATER CHANNELS, ARROYOS AND IRRIGATION CANALS; REQUESTING THAT THE DMINISTRATION OF THE CITY OF ALBUQUERQUE CONSIDER THE STUDY REPORTS CAPITAL RECOMMENDATIONS IN THE CITY OF ALBUQUERQUE 2023 CAPITAL IMPLEMENTATION PLAN PROGRAM. **WHEREAS**, the geography of Albuquerque and Bernalillo County west of the Sandia Mountains is composed of sloping terraces descending from the Sandia Mountain Foot Hills and the Atrisco escarpment to the Rio Grande Valley. The area ecology is a transition zone between the Chihuahuan Desert and high-altitude short grass steppes with a mix of short plants and dirt patches. The microclimate of Central New Mexico includes summer and fall monsoons, that generate intense thunder storm cells; and

**WHEREAS**, the combination of these geographic, ecological and microclimates at times create flash flooding forming within a few minutes, with fast, turbulent sediment filled waters that exert energy forces that float heavy objects and rapidly overwhelm and drown human beings; and

**WHEREAS,** as Albuquerque expanded into a large city, the City of Albuquerque, the Albuquerque Metropolitan Area Flood Control Authority (AMAFCA) and the County of Bernalillo constructed a system of concrete storm channels and reengineered and expanded natural arroyos to intercept and transport stormwaters to the Rio Grande before a flash flood can form; and

WHEREAS, this system protects the hundreds of thousands of residents,

who reside in Bernalillo County, and their properties, from flooding and the accompanying damage; and

**WHEREAS,** these stormwater conveyances do not eliminate flash floods but contain and redirect them so that they do not create harm to buildings and people above and outside of the drainage systems. The stormwater's flowing within these conveyances, as water is forced into specific and narrowed areas, contain as much enhanced energy and force as a naturally occurring flashflood; and

**WHEREAS,** ever since the construction of these stormwater conveyances persons have at times been swept away and either required rescue or were overwhelmed by the water and drowned; and

**WHEREAS**, the drownings occurring in these facilities during storm events has created a public safety hazard, that requires attention of all agencies within Bernalillo County involved in the management of stormwater and providing rescue services to the public; and

**WHEREAS,** the City of Albuquerque, the County of Bernalillo and AMAFCA developed rescue procedures and/or installed devices to aid such procedures to rescue persons swept away in stormwater conveyances. Their methods help to rescue swept away persons and reduce the number of fatalities; and

**WHEREAS,** in recent years the number of indigent persons living in the public areas of the City and County increased and some trespass to set up campsites or respites in sections of the channels, the lateral pipes that connect the channels to overflow ponds and the open courses of the arroyos; and

**WHEREAS,** the presence of these human habitations in the channels and arroyos and the flash flooding that is diverted to these stormwater conveyances is a trespass and a dangerous threat to human life that in the past several weeks verified this threat and resulted in the death of four people; and

**WHEREAS,** there is an urgent need for the agencies that own and manage these stormwater conveyances and the departments that provide rescue services for persons swept away in stormwaters to work together to improve storm channel and arroyo safety; and

**WHEREAS**, a number of local agencies have formed the Ditch and Water Safety Task Force that includes participation from AMAFCA, the City of Albuquerque, the County of Bernalillo, the Middle Rio Grande Conservancy District, and the New Mexico Department of Transportation. The group instituted ditch safety education programs that help reduce drownings in these facilities; and

**WHEREAS**, AMAFCA management, whom administers the Ditch and Water Safety Task Force, has stated the Organization will engage the working group to undertake a study to improve ditch safety.

# BE IT RESOLVED BY THE COUNCIL, THE GOVERNING BODY OF THE CITY OF ALBUQUERQUE:

**Section 1.** That the Ditch Safety working group is encouraged to establish a priority study by October 1, 2021 and complete such study by June 30 of 2022 that identifies ways and means to improve safety in stormwater channels, arroyos and irrigation canals in Bernalillo County. The report should include research and recommendations on the following goals and objectives:

(1) A map of stormwater channel, arroyos and irrigation canal locations where persons regularly frequent.

(2) Procedures or programs to guide those who attempt to inhabit stormwater facilities and irrigation canals to the appropriate housing and social services.

(3) A security and public safety outreach program to patrol the stormwater facilities, arroyos and irrigation canals.

(4) A report on capital improvements that can improve the safety of stormwater conveyance facilities including but not limited to access management, and the installation of flash flood early warning systems.

(5) An estimated cost to implement the procedures, programs and capital improvements.

**Section 2.** That the Administration is encouraged to consider the capital recommendations of the study's report that apply to City of Albuquerque facilities at a raised level of importance in the development of the 2023 Albuquerque Capital Implementation Program.

**Section 3.** The agencies that serve on the Albuquerque Ditch and Water Safety Task Force are encouraged to appoint staff members to the Task Force with expertise that can accomplish the tasks set forth in Section 1 to this Resolution. The Administration of the City of Albuquerque is directed to appoint staff with the below listed specialties to serve on the Albuquerque Ditch and Water Safety Task Force:

- Hydrology Engineering,
- Hydrology Maintenance,
- Fire and Rescue Operations,
- Public Safety Outreach,
- Services for Homeless Persons,
- Geographical Information Systems,
- Facility Security, and
- Police Services.

The aforementioned appointments will be in addition to those staff members currently serving on the task force. The Director of City Council Services is directed to provide staff member to assist the Albuquerque Metropolitan Flood Control Authority in supporting the task force.

Arroyo Flash Flood Indication System 2015 GO Bond 30,000

Expand the scope of this project to fund a Stormwater Facilities Safety Study for Stormwater Channels, Arroyos and Irrigation Ditches City Wide and to reserve \$30,000 for the Study.

### **APPENDIX 2 Reference Material.**

Attached for reference is the Summer 2022 Ditch and Water Safety Task Force Summary for 2022. The summary includes a brief synopsis of the following efforts undertaken by the Task Force.

- 1. AMAFCA Operational and Physical Improvements.
- 2. Metro Security City of Albuquerque Stormwater Channel Patrol Program.
- **3.** Office of Emergency Management FEMA Hazard Mitigation Grant to Establish a Storm Flow Alert System.
- 4. AGIS Map of City Rescue Calls to Storm Channels.
- **5.** Middle Rio Grande Conservancy District efforts to decrease loitering, camping and illegal motor-vehicle access in the irrigation ditch system.
- **6.** Ditch Task Force/Hope Works focus group results on Stormwater Channel Safety Awareness amongst the Unhoused Population.
- 7. Samples of Outreach Cards distributed to persons loitering or camping in stormwater channels.

### 1. AMAFCA Operational and Physical Improvements.

- Utilizing a Public-Private partnership, AMAFCA is consistently monitoring facilities for inappropriate usage by persons and ensuring their safety. AMAFCA is also providing information to these persons for alternative services available.
- AMAFCA is installing deterrents to reduce unauthorized usage of facilities, this includes installing gates, fencing, signage, and other features to discourage unauthorized access to facilities.
- AMAFCA is removing vegetation to discourage domiciles and concealment.
- AMAFCA significantly increased public outreach in 2021 in response to the incidents that occurred.
- AMAFCA continues to develop relationships with the Albuquerque Police Department, Bernalillo County Sherriff Department, and other government agencies to utilize their services to maintain the safety of AMAFCA's facilities.
- Expending over \$28,000 a year, AMAFCA is utilizing a private vendor to remove trash and debris left behind by transients to maintain the safety of their facilities. This is on top of their vendor's normal litter removal responsibilities.
- AMAFCA conducted a survey with the City of Albuquerque of the unhoused population to better understand the reasoning and need of these individuals to be in the stormwater channels.

### 2. Metro Security City of Albuquerque Stormwater Channel Patrol Program.

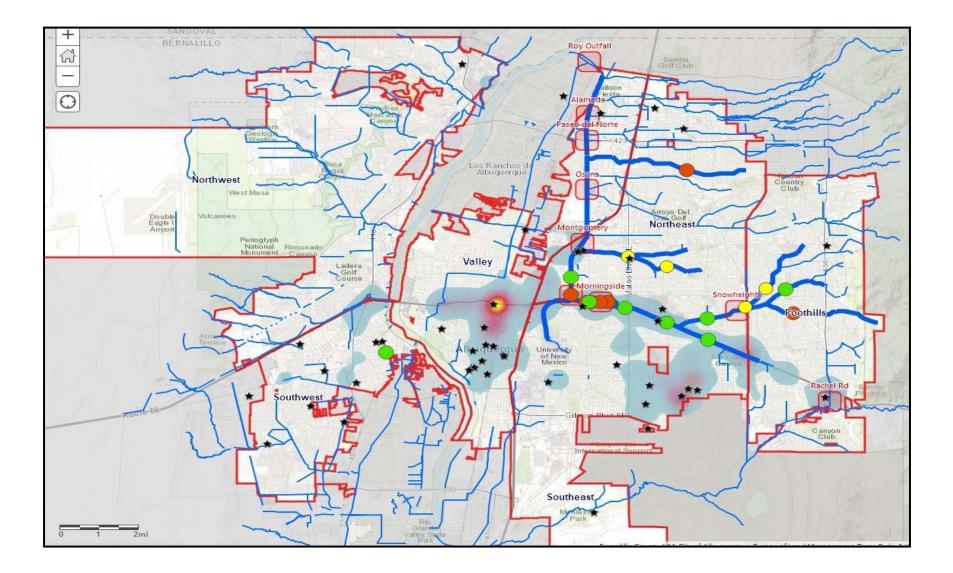
Metro Security Division patrols various locations around the City on a regular basis. The frequency of patrols depends on dispatched as well as proactive incidents. These patrol locations have been represented by a star on the included map. The 'clouded' areas indicate historical arroyo rescue dispatch locations. The map also identifies overlap locations. If an area has been identified as an immediate threat of rainwater activity, MSD mobile patrols can assist as ancillary responders with efforts to notify people who may be at risk. Response times will fluctuate depending upon proximity to need, traffic, and environmental factors. The amount of mobile patrols available varies daily due to staffing considerations and limitations.

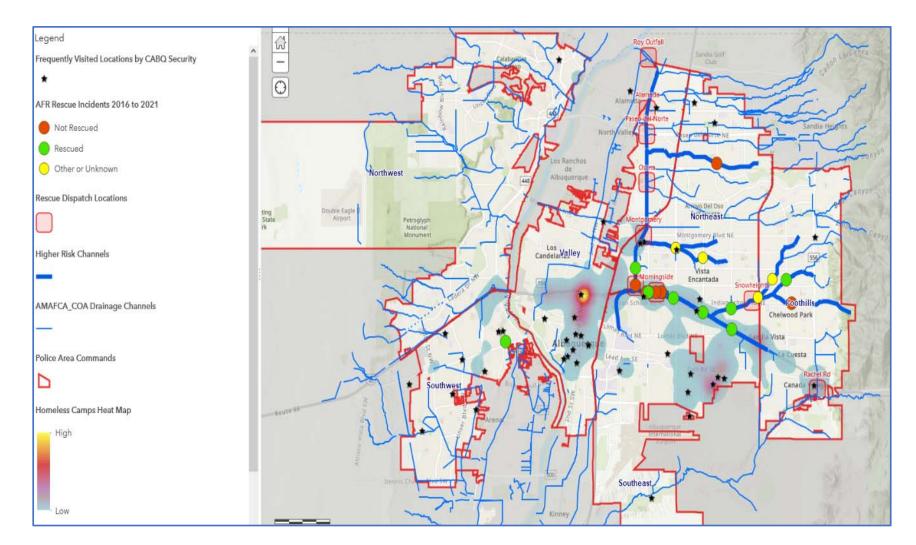
## 3. Office of Emergency Management FEMA Hazard Mitigation Grant to Establish a Storm Flow Alert System.

The City of Albuquerque requested a \$457K FEMA Hazard Mitigation Grant to install an Early Warning System to save lives during arroyo floods and will provide \$147K in matching funds. Notification of full or partial funding should occur in May or June 2022. The project objective is to warn people at risk of impending flash floods. The warning system is designed to trigger warnings in specific arroyos with warnings provided to vacate prior to flood waters arriving. The Arroyo Early Warning System will include monitors to measure rainfall amounts, speed of rainfall, of the amount of movement of water in the arroyo, and the rate of increase in depth and speed of water passing through the arroyo to trigger an alarm downstream.

#### 4.GIS Map of City Rescue Calls to Storm Channels.

The Albuquerque Geographical Information Services Division, has worked with AMAFCA, Albuquerque Fire and Rescue, the Albuquerque Community Services Department, and the Clean Cities Division of the Solid Waste Department to develop heat maps that show where rescues are attempted in the storm channel by the Albuquerque Fire and Rescue Department as well as where persons are loitering or domiciling in the arroyo. These maps are used to develop Action Plans to improve safety and reduce trespassing in the channels.





### Albuquerque Fire and Rescue Department: Stormwater Channel Rescues and Attempted Rescues.

#### 5. Middle Rio Grande Conservancy District efforts to decrease loitering, camping and illegal motorvehicle access in the irrigation ditch system.

The Middle Rio Grande Conservancy District (MRGCD) is a political subdivision of the State of New Mexico and is responsible for approximately 1200 miles of drains, ditches, and canals, as well as other works in the Middle Rio Grande Valley between Cochiti Dam and Bosque del Apache National Wildlife Refuge. It is critical for the MRGCD to maintain, protect, and control its facilities; and provide a safe environment for employees and the public who access the facilities for irrigation purposes or low impact recreation.

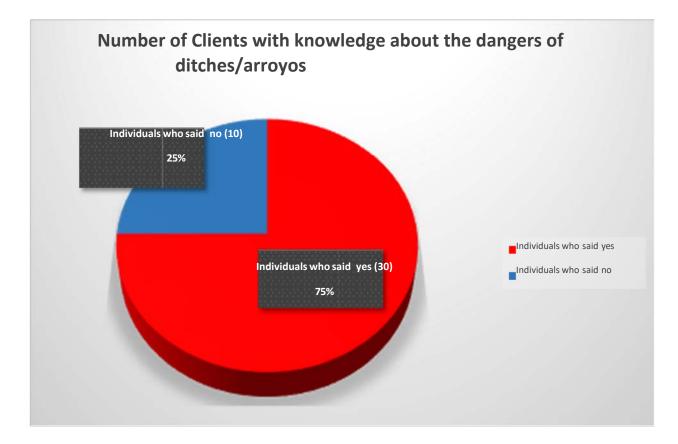
The Ditch Safety Committee has been a critical task force that provides safe working conditions for employees and educates the public on the dangers of entering waterways. MRGCD partners with the City of Albuquerque, AMAFCA, Albuquerque Police Department, Bernalillo County Sherriff's Department, and Sunny 505 to limit loitering, camping, and recreating within waterways to prevent drownings and illegal activities. Additionally, The Ditch Safety Committee provides informational services and swim passes to encourage the public to use public pools and discourage swimming in waterways.

The MRGCD worked with the City Council Services Department to develop ordinance language to prohibit off road vehicles from driving on the service roads that adjoin MRGCD Irrigation Canals. The MRGCD will now begin installing signs throughout its system to notify persons that the use of Off-Road Vehicles or Camping in the Right of Way is Illegal.

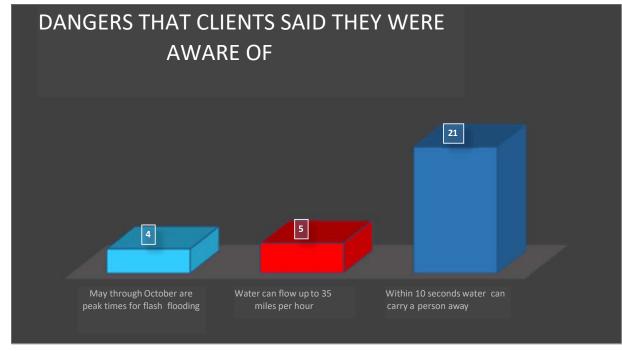
## 6. Ditch Task Force/Hope Works focus group results on Stormwater Channel Safety Awareness amongst the Unhoused Population.

The Ditch Task Force partnered with Hope Works to hold a focus group of 40 individuals. During the focus group participants were asked a series of questions related to the area's arroyos and best ways to communicate effectively with individuals experiencing homelessness in order to provide education about the dangers.

1. Are you aware of the dangers associated with the arroyos and ditches during flash flood season? (40 responses).

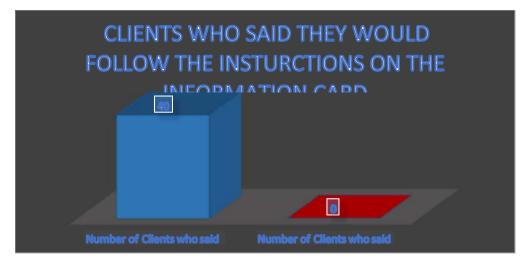


2. If the response was yes to question 1, what are some of the dangers? (based on 30 yes responses from question 1.

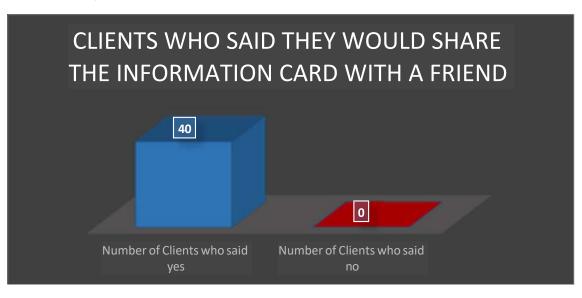


- 3. When the information cards were distributed to clients after asking the first 2 questions of the survey, these are the statements that were provided by the clients who offered feedback: (There were several statements that were duplicated by other clients).
  - Thank you for your concern.
  - I was not aware of the specific months when flash flooding was likely to occur.
  - It's not safe to camp in the arroyos.
  - I was not aware of the months that flooding occurred.
  - This is good to know especially for those of us with pets.
  - Thank you for raising awareness about this issue.

4. If you were given a card would you pay attention to the card's instructions?



5. If given a card would you share the information with a friend?



- 6. What other ways do you think would be effective and impactful to keep people safe during flash flood season? (The following comments are based on 30 responses of the 40 individuals surveyed. There were several comments listed that were duplicated.)
  - There needs to be a better warning system in place.
  - It would be a good idea to put up barriers or better fences to keep people out of the arroyos.
  - People camping out need to stay out of the arroyos.
  - Continue to educate individuals on the dangers of ditches and arroyos.
  - The City should not allow individuals to camp in arroyos.
  - News alerts need to be made more accessible to homeless individuals who do not have access to phones, radios, and television.
  - Put up cones or barrels out when expecting heavy rain, or when flooding is likely to occur.

#### 7. Samples of Outreach Cards distributed to persons loitering or camping in stormwater channels.

Flyer distributed via AMAFCA to persons in the storm channels. Cards distributed by City employees during clean ups

