



High Water

PREPAREDNESS INFORMATION

*Summit County: Ready to Help
Citizens Help Themselves*

2011

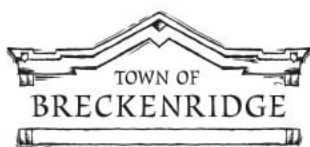
www.TownOfBreckenridge.com

www.TownOfDillon.com

www.TownOfFrisco.com

www.Silverthorne.org

www.co.summit.co.us



May, 2011

To Residents, Business Owners, and Visitors of Summit County:

Record snowfalls this season, combined with the pine beetle epidemic that has ravaged our forests, could result in a major spring run-off with above-average water levels in rivers and streams. This packet of information has been assembled to inform the community about the impacts of high water in May and/or June. The Towns and County have prepared a plan of action and are ready for a possible high water event! ***Summit County is prepared to help citizens help themselves.***

Summit County usually doesn't realize the effects of the melt until the end of May or the first part of June; however, with fewer trees to absorb the water and no tree canopy to protect the snow-pack from the sun, the snowmelt may occur at an accelerated rate. No one can predict the spring weather, including warm temperatures and precipitation which will determine the rate of flow in the county's creeks. Local and State officials have been monitoring the flows in all waterways and are prepared to respond to the possibilities of high water situations.

During April, May and June, the Public Works Departments in the county will be removing debris and obstructions in waterways. Sandbags will be available at various locations around the county; more information on sandbags is included in this packet. In the case of a significant flooding event anywhere in the county, a Fire and Law Enforcement Incident Command will be established to respond to and manage the event.

On the following pages please find a summary of information, questions and answers assembled for your convenience to prepare for high water. Maps from FIRM (Flood Insurance Rate Map) to assist you in locating your property and evaluating its proximity to the 100-year flood areas are available on-line at www.Fema.gov or you may call the planning department in your town or the county for information on your property. For additional personal preparedness information, contact the American Red Cross at 970-262-0530 or visit the Summit County Office of Emergency Management website at www.co.summit.co.us/emergencymanagement.

On behalf of the Towns of Breckenridge, Dillon, Frisco and Silverthorne and Summit County Government, thank you for your cooperation and concern.

Town of Breckenridge	970-453-2251
Town of Dillon	970-468-2403
Town of Frisco	970-668-5276
Town of Silverthorne	970-262-7300
Summit County Government	970-453-2561

HISTORY OF HIGH WATER EVENTS IN SUMMIT COUNTY

**Snow Gage Information by Basin through 2004
(measured in CFS-cubic feet per second)**

Upper Blue Basin:

Blue River below Goose Pasture Tarn - 20 years of record:

Peak flow MAX, June 18, 1995 = 681 CFS.

other key dates: July 1, 1984 = 506 CFS; June 22, 1997 = 300 CFS.

Blue River below confluence of the Swan River - 46 years of record.

Peak flow MAX, June 18, 1995 = 1390 CFS.

other key dates: June 17, 1965 = 1250 CFS; May 25, 1984 = 1050 CFS.

Lower Blue Basin:

Straight Creek -17 years of record

Peak flow MAX, June 17, 1995 = 416 CFS.

other key dates: June 19, 2003 = 289 CFS; June 22, 1996 = 205 CFS; June 22, 1997 = 205 CFS

Blue River below Dillon Reservoir - 44 years of record

Peak flow MAX, May 25, 1984 = 2010 CFS.

other key dates: July 14, 1995 = 2000 CFS; June 22, 1983 = 1990 CFS; June 11, 1996 = 1800 CFS;
June 14, 1997 = 1760 CFS.

Blue River Below Green Mountain Reservoir- 66 years of record

Peak flow MAX, July 12, 1995 = 4040 CFS.

other key dates: June 4, 1938 = 4000 CFS; July 1, 1984 = 3460 CFS; June 24, 1997 = 3190 CFS.

Snake River Basin:

Keystone Gulch - 46 years of record

Peak flow MAX, June 17, 1995 = 311 CFS

other key dates: May 25, 1996 = 130 CFS; June 27, 1983 = 118 CFS; June 4, 1997 = 101 CFS.

Snake River below confluence with North Fork - 61 years of record

Peak flow MAX, June 10, 1952, = 1250 CFS.

other key dates: June 21, 1995 = 1110 CFS; June 4, 1997 = 833 CFS; June 10, 1996 = 739 CFS;
May 31, 2003 = 704 CFS.

Ten Mile Creek Basin:

Ten Mile Creek below North Ten Mile - 46 years of record

Peak flow MAX, June 16, 1965 = 1910 CFS.

other key dates: June 17, 1995 = 1760 CFS; June 26, 1983 = 1530 CFS; June 4, 1997 = 1310 CFS;
June 30, 1984 = 1220 CFS.

Information provided by Colorado Division of Water Resources

HIGH WATER PUBLIC WORKS ACTION PLAN

WHAT CAN YOU EXPECT FROM PUBLIC WORKS?

Primary Responsibilities of Public Works Staff:

- Monitoring rivers and streams in the county.
- Removing debris which might impede the flow of water in creeks and culverts in public right-of-way.
- Evaluating levels of flooding and/or anticipated flood threat and determining needs.
- Providing up-to-date estimates about flooding potential and anticipated areas.
- Establishing priorities for the protection of life safety, essential facilities, access roads, bridge structures and culverts.
- **Providing sandbags and sand to area residents and businesses.**
- Patrolling lakes after floods for floating debris that may be a hazard to boaters.

CONTACT INFORMATION: During Business Hours

<i>Breckenridge</i>	<i>Police</i>	<i>970-453-2941</i>
	<i>Public Works</i>	<i>970-453-3170</i>
<i>Dillon</i>	<i>Police</i>	<i>970-468-6078</i>
	<i>Public Works</i>	<i>970-468-2403</i>
<i>Frisco</i>	<i>Police</i>	<i>970-668-3479</i>
	<i>Public Works</i>	<i>970-668-0836</i>
<i>Silverthorne</i>	<i>Police</i>	<i>970-262-7320</i>
	<i>Public Works</i>	<i>970-262-7340</i>
<i>Summit County Sheriff</i>		<i>970-453-2232</i>
<i>Summit County Road and Bridge</i>		<i>970-668-3590</i>

***AFTER BUSINESS HOURS CALL SUMMIT COUNTY
COMMUNICATIONS CENTER 970-668-8600***

HIGH WATER LAW ENFORCEMENT ACTION PLAN

WHAT WILL LOCAL LAW ENFORCEMENT AND THE SUMMIT COUNTY SHERIFF'S OFFICE DO IN THE EVENT OF A HIGH WATER SITUATION ?

Duties of LAW ENFORCEMENT :

- Protect life (health and well-being of the community)
- Minimize the threat to people and property in response to flooding
- Continue to provide essential police services

Priorities:

- Evaluate the threat level
 - **24 Hour stream watch during peak run-off period**
 - Communication with affected agencies
 - Obtain hydrologic information from relevant sources
- Identify actual affected areas
 - Life threatening potential
 - Need to evacuate
 - Shelter
 - Food and water
 - Temporary housing
 - Sanitation facilities
 - Secure affected area
 - Traffic
 - Crowds
 - Establish and secure access to affected area
- Warn and advise the population
 - Media
 - Emergency Preparedness Network 911
- Direct use of personnel and other resources
 - Logistics
 - Command Center
 - Communications system
 - Assistance from local agencies
 - Assistance from state agencies
- Secure property impacted by flooding
 - Public property (local government infrastructure)
 - Private property - prevent looting
- Continue to provide essential police services
 - Prioritize police response to requests for service
 - Additional manpower and other resources from local agencies

SANDBAGS and SAND in SUMMIT COUNTY

BRECKENRIDGE PUBLIC WORKS:

- *Sand and Sandbags will be provided to residents (limit 100 per household).*
- *Location of sand and sandbags: Breckenridge Public Works at 1095 Airport Road.*

970-453-3170

DILLON PUBLIC WORKS

- *Sand and sandbags available to residents at Road and Bridge Shop, 640 County Road 51, or at the Dillon Cemetery.*

970-468-2403

FRISCO PUBLIC WORKS:

- *Sandbags available at the Frisco Public Works facility located at 102 School Road*
- *First 100 bags FREE to Frisco Property owners only.*
- *Then 100-bag bundles will be sold @ \$.50 per bag or \$50.*
- *Sand pile will be located at Frisco Public Works.*

970-668-0836

SILVERTHORNE PUBLIC WORKS:

- *Sandbags available at the Public Works Shop: 264 Brian Ave., at no charge to residents.*
- *Sand piles will be located at two locations:*
 - *Hamilton Creek Rd. and Hwy. 9 (North Pond)*
 - *Public Works lot just south of the Joint Sewer Authority facility.*

970-262-7340

SUMMIT COUNTY ROAD AND BRIDGE:

- *Sandbags will be distributed free of charge in 100-bag increments to county residents. Additional bags will also be available for purchase at \$.50 per bag.*
- *Sandbags are available at the Road and Bridge Office at 37 Peak One Drive (County Commons Area) in Frisco.*
- *Sand piles will be available at the following locations:*
 - *Quandary Rd (CR 626) and HWY. 9 in Blue River*
 - *CR 450 at 0187: Road and Bridge Shop in Breckenridge*
 - *0218 CR 1003: Road and Bridge Shop in Frisco (County Commons)*
 - *Cove Blvd. (CR 120) by Snake River Sanitation in Summit Cove*
 - *Straight Creek Drive (CR 58): Catholic Church Parking lot in Dillon Valley*
 - *Ptarmigan Ranch Rd. and I-70*
 - *In Keystone across from the west end of Gondola parking lot*
 - *In Copper Mountain in the North Alpine parking lot, South of Copper Road*

970-668-3590

Clean Up Procedures after High Water:

- *Sandbags may be taken to the Summit County Landfill - no charge for dumping*
- *Sand may also be taken back to the areas in each town where it was originally procured.*

HOW TO CONSTRUCT A SANDBAG EMERGENCY LEVEE

HOW TO FILL SANDBAGS

Fill sandbags 1/2 to 2/3 full, tie at top so bag will lay flat when put in place. (Overfilled bags leave gaps in levee allowing water to seep through.)

RIGHT



1/2 Full

Weight
35-40 lbs.

WRONG



Full

Weight
70-75 lbs.

WRONG



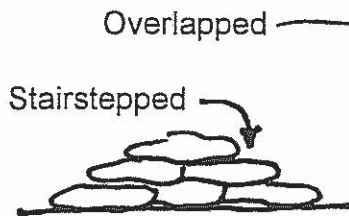
Tied too
low
1/2 Full

PLACING SANDBAGS

Sandbags should be placed flat on ground, overlapped, tamped into place, and stairstepped.

RIGHT

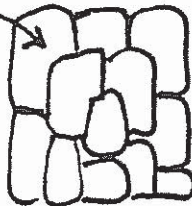
ELEVATION



Overlapped

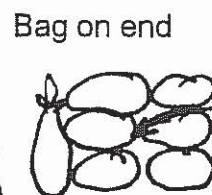
Stairstepped

PLAN



WRONG

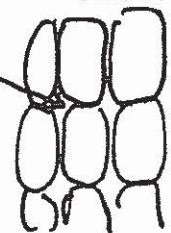
ELEVATION



Bag on end

Gaps

PLAN

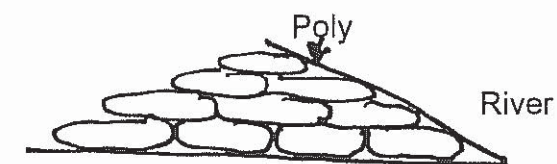


Not overlapped

POLYETHYLENE

Polyethylene (poly) comes in rolls 20 ft. wide and 100 ft. long. It's used to wrap sandbag levees to prevent seepage. Poly should be placed on downstream portion of levee first, then worked upstream with a two to three-foot overlap. Poly is held in place with sandbags.

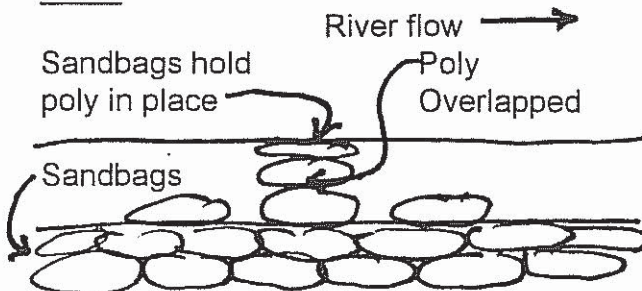
ELEVATION



Poly

River

PLAN



River flow →

Sandbags hold
poly in place

Poly
Overlapped

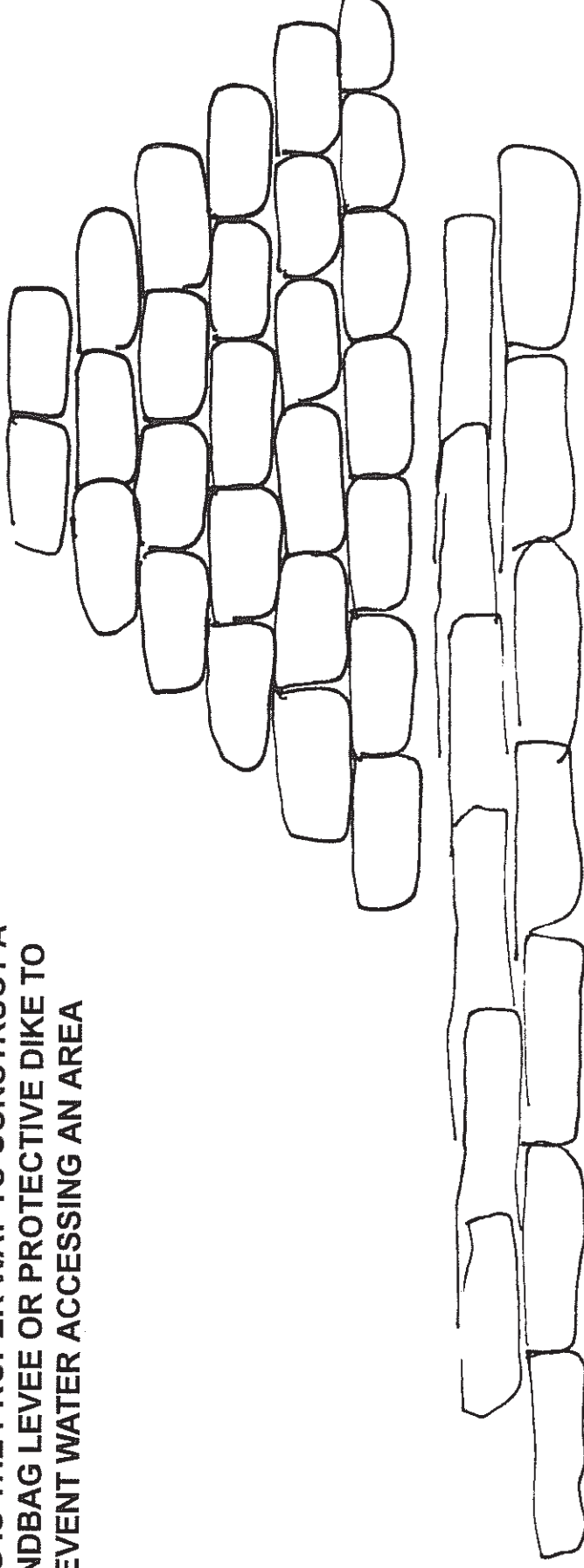
Sandbags

Estimated number of sandbags per
linear foot of wall.

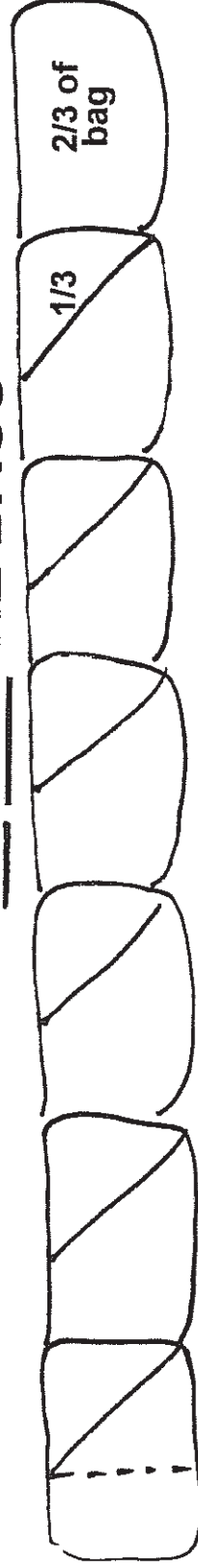
<u>Height in Feet</u>	<u>Bags Required</u>
1	5
2	10
3	21
4	36
5	55

Five feet is the practical limit of sandbag levee. If a higher levee is needed, alternate means of construction should be considered. Note: Preferred levee limit is three feet high.

THIS IS THE PROPER WAY TO CONSTRUCT A
SANDBAG LEVEE OR PROTECTIVE DIKE TO
PREVENT WATER ACCESSING AN AREA



DO NOT TIE BAGS



Only fill bags 1/2 to 2/3 full - note the lap made by the excess material - fold it diagonally in half and walk right down the top of the bags to compact. Each additional row ties the lower ones in.

HIGH WATER PREPAREDNESS

WHAT CAN CITIZENS DO TO PREPARE FOR AN EMERGENCY?

visit www.ready.gov

In preparation:

- Prepare an evacuation plan from your home to a safe area.
- PURCHASE FLOOD INSURANCE, IF DESIRED.
- Make a list of personal property to help with insurance claims.
- Choose a relative or close friend out of the area as a contact person for family members and friends.
- Prepare an emergency kit:
 - Flashlight with batteries
 - Non-perishable foods
 - Bottled water
 - First aid kit.
- Determine who will be responsible for important papers, clothing, food, family pets, etc.
- Once you formulate your plan, REHEARSE IT!

During a high water emergency:

- Never attempt to drive through high water. Two feet of water can carry away most cars.
- Organize your homeowners association, neighbors and friends to assist with filling and placing of sandbags.
- Cooperate with Police, Public Works and Emergency personnel
- Volunteer your time and energy to assist in efforts to protect town facilities and private property.



Taryn Gillette
Summit High School
Class of 2006

MORE HIGH WATER TIPS

- Move to higher ground away from rivers, streams, creeks, and storm drains. Do not drive around barricades.....they are there for your safety.
- If your car stalls in rapidly rising waters, abandon it immediately and climb to higher ground.
- Road beds may be washed out under flood waters. Never drive through flooded roadways.
- Keep children and pets away from fast moving streams and high water. Even six inches of water flowing quickly can knock you off your feet.
- Stay away from ground level transformers that are inundated by flood waters.
- If your basement is flooded, try to turn off the electric power to the house at the outside electrical panel. If the electrical panel is in the flooded area do not go near the panel.
- If you have natural gas or propane fired appliances try and turn off the supply to the house at the meter or at the tank.
- If boating on Lake Dillon early in the season, watch out for logs and floating debris dumped into the lake by fast running streams and rivers.
- If flooding occurs, get to higher ground. Stay away from flood-prone areas, including dips, low spots, valleys, ditches, washes, etc.
- Don't allow children to play near high water, storm drains or ditches. Hidden dangers could lie beneath the water.
- Be especially cautious at night when it is harder to recognize flood dangers.
- Do not camp or park your vehicle along streams and washes, particularly when threatening conditions exist.
- Know what the weather is doing. Monitor NOAA Weather Radio or your local media for vital weather-related information



HIGH WATER PREPAREDNESS RESOURCES

To watch the flow in area rivers & streams.

Go to:

<http://waterdata.usgs.gov/co/nwis/discharge>

Visit <http://cwcb.state.co.us>

303-866-3441

The Colorado Water Conservation Board (CWCB) is the state authority on the administration of flood insurance and information. They are actively engaging in preparatory activities and updating information on their website throughout the flood season.

Website links with Flood Information pertinent to Summit County homeowners:

Certificates of Elevation can be obtained from a licensed PLS (surveyor) in the state of Colorado. Blank certificates and detailed instructions can be found on-line at the FEMA website; www.fema.gov/pdf/nfip/elevcert.pdf

Summit County can provide guidance on the basis of floodway/floodplain information available to them, but cannot verify all of the information provided to them. FEMA's FIRMs (Flood Insurance Rate Maps) are available at the county commons for review by the public. They are also available on-line at the FEMA website; www.fema.gov then click on the 'FEMA flood map store' link (on the left side), then proceed to look for the flood map for your location.

- National Weather Service: <http://www.floodsafety.noaa.gov/>
- Federal Alliance for Safe Homes: www.flash.org 1-877-221-SAFE
- Flood Insurance: www.floodsmart.gov
- Emergency Preparedness: www.fema.gov or www.redcross.org
- Colorado Water Conservation Board: www.cwcb.state.co.us
- Flood Information: www.floodsafety.com
- Institute for Business and Home safety: www.ibhs.org
- US Army Corp of Engineers: <http://www.usace.army.mil/whatwedo/flooding.html>
- Flood Recovery and related health issues: <http://www.oznet.ksu.edu/library/Flood/>

FEMA FLOOD INSURANCE RATE MAPS

Flood Insurance Rate Maps (FIRM) are available as part of the National Flood Insurance Program.

Summit County can provide guidance on the basis of floodway/floodplain information available to them. FEMA's Flood Plain Insurance Rate Maps are available at the County Commons in Frisco for review by the public. Information on flood maps and flood insurance is available at

<http://cwcb.state.co.us/>

Then click on the "Flood Protection" tab on the left for the following:

- Colorado Flood and Weather Information
- FEMA Resources (maps, documents, technical guidance)
- Flood Insurance Information and Floodplain Maps
- Floodplain Management Presentations and Reports
- Forms and Documents (flood related downloads)

For assistance in determining whether your property is in the 100-year flood area, please contact the Planning Department in your town or the county:

(Please note: Flood Insurance rate maps are available for review and the various towns will answer general questions for the public. However, lending institutions, not the towns, determine whether flood insurance will be required for a property and the related liability potential.)

Breckenridge: Engineering Department at 970-453-3191
or e-mail ginny@townofbreckenridge.com

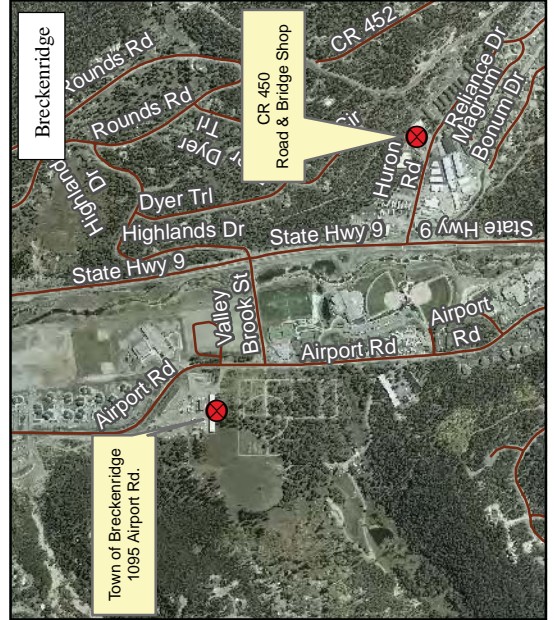
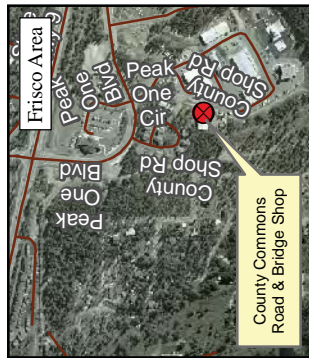
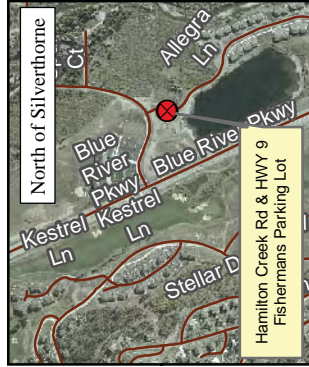
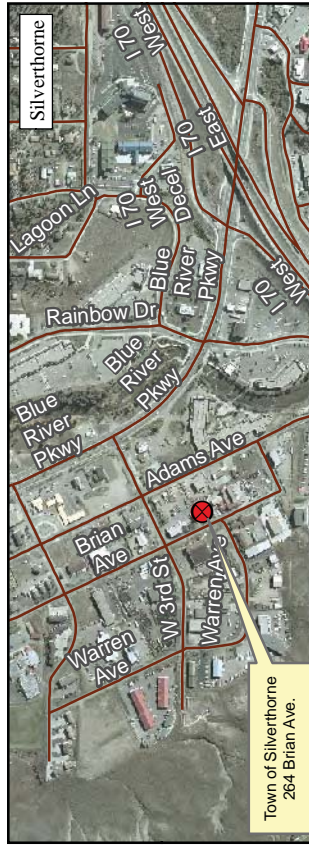
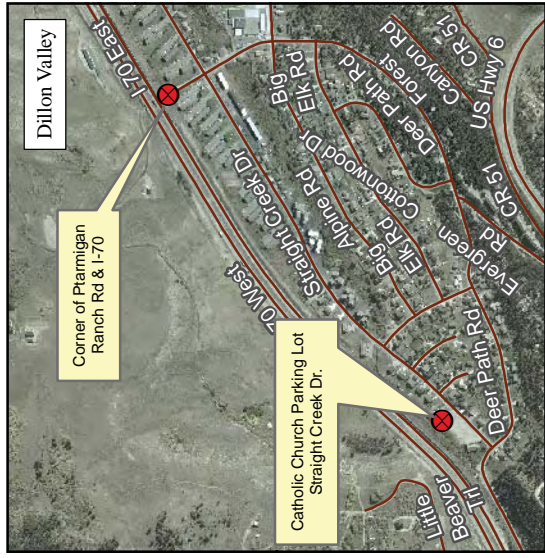
Dillon: Melissa Wyatt at 970-468-2403 or e-mail
mwyatt@ci.dillon.co.us

Frisco: Mark Gage - Flood Plain Administrator
Contact Ryan McGee at 970-668-5276 ext. 3041
or e-mail - ryanm@townoffrisco.com

Silverthorne: Public Works, Dan Gietzen at 970-262-7354 or
e-mail dgietzen@silverthorne.org

Summit County: Robert Jacobs – 970-668-4212 - RobertJ@co.summit.co.us

Summit County Sand Pile Locations



SAND BAGS MAY BE PICKED-UP AT:

- 1) Lake Dillon Fire Stations
- 2) Snake River Fire Stations
- 3) Road & Bridge @ County Commons
- 4) Keystone Road Maintenance
- 5) Public Works Buildings at Breck, Frisco, Dillon and Silverthorne

