CITY COUNCIL AGENDA

PUBLIC NOTICE is hereby given that the City Council of Spanish Fork, Utah, will hold a regular public meeting in the Council Chambers in the City Office Building, **40 South Main Street**, Spanish Fork, Utah, commencing at **6:00 p.m. on December 21, 2010**.

AGENDA ITEMS:

1. CALL TO ORDER, PLEDGE, OPENING CEREMONY, RECOGNITIONS:
   a. Pledge, led by invitation
   b. Employee of the Third Quarter
   c. Community Covenant – Utah National Guard

2. PUBLIC COMMENTS:
   Please note: In order to be considerate of everyone attending the meeting and to more closely follow the published agenda times, public comment will be limited to three minutes per person. A spokesperson who has been asked by a group to summarize their concerns will be allowed five minutes to speak. Comments which cannot me made within these limits should be submitted in writing. The Mayor or Council may restrict the comments beyond these guidelines.

3. COUNCIL COMMENTS:

4. PUBLIC HEARING:
   a. * Abandonment of River Cove Plat E
   b. * Vacation of Sandbar Way within River Cove Plat E

5. CONSENT ITEMS:
   These items are considered by the City Council to be routine and will be enacted by a single motion. If discussion is desired on any particular consent item, that item may be removed from the consent agenda and considered separately.
   a. * Minutes of Spanish Fork City Council Meeting – December 7, 2010
   b. * Ambulance Provider Contract with Blue Cross Blue Shield
   c. * Resolution approving the Amended Pre-Disaster Mitigation Plan
   d. * Elevator Repair Contract
   e. * Elevator Maintenance Contract for the Justice Center
   f. * North Park Questar Easement
   g. * Amendment to the NRCS Agreement
   h. * Utah Benchmarking User Data Agreement
   i. * Rodeo Contract with Diamond Fork Riding Club
   j. * UDOT ICORE Supplemental Agreement Sewer Trunkline Realignment
   k. * Riverbottoms Real Estate Purchase Agreement
   l. * NRCS Grant River Trail Project Change Order #6

6. NEW BUSINESS:
   a. * Horrocks Engineering Contract to update Citywide Traffic Model to Year 2040 using

* Supporting documentation is available on the City's website www.spanishfork.org

Notice is hereby given that:
- In the event of an absence of a quorum, agenda items will be continued to the next regularly scheduled meeting.
- By motion of the Spanish Fork City Council, pursuant to Title 52, Chapter 4 of the Utah Code, the City Council may vote to hold a closed meeting for any of the purposes identified in that Chapter.
- This agenda is also available on the City's webpage at www.spanishfork.org

SPANISH FORK CITY does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in the employment or the provision of services. The public is invited to participate in all Spanish Fork City Council Meetings located at 40 South Main St. If you need special accommodation to participate in the meeting, please contact the City Manager's Office at 804-4530.

latest Census Data – Chris Thompson

b. * North Park Connector Trail Change Order – Chris Thompson
c. * North Park Trail Change Order – Chris Thompson
d. * 100 North I-15 Storm Drain Detention Basin Design – Chris Thompson
e. * Powerline Crossing Agreement with UTA – Junior Baker
f. * SFCN Cable Television Rate Increase – John Bowcut
g. * Pavillion Rental Rate Increase – Dale Robinson
h. Independent Financial Audit Report - Fiscal Year 6-30-10 – Kent Clark

7. CLOSED SESSION:
   a. Real Estate

ADJOURN:

ORDINANCE NO. 25-10

ROLL CALL

VOTING	YES	NO
G. WAYNE ANDERSEN MAYOR *(votes only in case of tie)*		
ROD DART *Council member*		
RICHARD M. DAVIS *Council member*		
STEVE LEIFSON *Council member*		
JENS P. NIELSON *Council member*		
KEIR A. SCOUBES *Council member*		

I MOVE this ordinance be adopted: Councilmember _____
I SECOND the foregoing motion: Councilmember _____

ORDINANCE 25-10

ORDINANCE VACATING RIVER COVE SUBDIVISION, PLAT "E"

WHEREAS, River Cove Subdivision, Plat E was approved by Spanish Fork City and recorded with the Utah County Recorder in 2007; and

WHEREAS, due to the downturn in the national and local economy, the improvements were never installed in the subdivision; and

WHEREAS, it is in the best interests of both the City and the Developer to vacate the subdivision and allow it to be reapproved at a later date when the economy is improved and construction of homes is again taking place; and

WHEREAS, the Planning Commission considered the vacation of River Cove

Subdivision, Plat E on Wednesday, the 1st day of December, 2010 and recommended it be vacated; and

WHEREAS, notice of the intent to vacate the subdivision was posted on the property, advertised in the Spanish Fork Press, a paper of local circulation, and on the State of Utah Notice Website; and

WHEREAS, a public hearing was held before the City Council on Tuesday, the 21st day of December, 2010, where public comment was received; and

WHEREAS, the council finds that it is in the best interest of the public to vacate River Cove Subdivision, Plat E; and

NOW THEREFORE, be it ordained and enacted by the Spanish Fork City Council as follows:

I.

The property dedicated as River Cove Subdivision, Plat E, as recorded in the office of the Utah County Recorder on the 9th day of August, 2007 as entry number 115730:2007, Map Filing #12400 is hereby vacated, which property is more particularly described as follows:

BEGINNING AT A POINT WHICH IS LOCATED S89°20'15"W ALONG THE SECTION LINE 726.38 FEET AND S00°39'45"E 1013.22 FEET FROM THE NORTH QUARTER CORNER OF SECTION 25, TOWNSHIP 8 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN; THENCE N84°25'14"E 143.18 FEET; THENCE N78°17'35"E 61.49 FEET; THENCE S87°36'42"E 123.88 FEET; THENCE S00°21'55"E 62.80 FEET; THENCE S28°39'45"E 209.82 FEET; THENCE S38°19'43"E 198.61 FEET; THENCE S51°40'17"W 102.00 FEET; THENCE S24°39'23"W 67.91 FEET; THENCE S54°52'36"W 112.82 FEET; THENCE N38°19'43"W 96.91 FEET; THENCE N32°30'47"W 60.31 FEET; THENCE N38°19'43"W 254.09 FEET; THENCE N27°34'19"W 202.08 FEET; THENCE N05°34'46"W 66.36 FEET TO THE POINT OF BEGINNING.
CONTAINING: 3.833 ACRES

II.

This ordinance is effective upon recordation with the Utah County Recorder.

ORDERED PUBLISHED BY THE CITY COUNCIL OF SPANISH FORK, UTAH,

this 21st day of December, 2010.

G. WAYNE ANDERSEN, Mayor

Attest:

KENT R. CLARK, City Recorder

ORDINANCE NO. 26-10

ROLL CALL

VOTING	YES	NO
G. WAYNE ANDERSEN MAYOR *(votes only in case of tie)*		
ROD DART *Council member*		
RICHARD M. DAVIS *Council member*		
STEVE LEIFSON *Council member*		
JENS P. NIELSON *Council member*		
KEIR A. SCOUBES *Council member*		

I MOVE this ordinance be adopted: Councilmember _____

I SECOND the foregoing motion: Councilmember _____

ORDINANCE 26-10

ORDINANCE VACATING A DEDICATED STREET LOCATED
WITHIN RIVER COVE SUBDIVISION PLAT E

WHEREAS, River Cove Subdivision, Plat E dedicated a right of way to the city for a street, which street is known as Sandbar Way in Spanish Fork; and

WHEREAS, due to a downturn in the national and local economy, the subdivision improvements, including the portion of Sandbar Way withing River Cove Subdivision, Plat E, were never constructed; and

WHEREAS, River Cove Subdivision, Plat E has been vacated; and

WHEREAS, the developer of River Cove Subdivision, Plat E is the adjacent property owner; and

WHEREAS, the Planning and Zoning Commission considered the vacation of the portion of Sandbar Way within River Cove Subdivision, Plat E on Wednesday, the 1st day of December, 2010 and recommended it be vacated; and

WHEREAS, a public hearing was held before the City Council on Tuesday, the 21st day of December, 2010, where public comment was received; and

WHEREAS, the council finds it is in the best interest of the public to vacate this street and has determined that no property owner needs the street for access;

NOW THEREFORE, be it ordained and enacted by the Spanish Fork City Council as follows:

I.

The property dedicated for a street within River Cove Subdivision, Plat E known as Sandbar Way is hereby vacated as a street, which property is more particularly described as follows:

BEGINNING AT A POINT WHICH IS LOCATED S89°20'15"W ALONG THE SECTION LINE 572.15 FEET AND SOUTH 1001.02 FEET FROM THE NORTH QUARTER CORNER OF SECTION 25, TOWNSHIP 8 SOUTH, RANGE 2 EAST, SALT LAKE BASE AND MERIDIAN; THENCE N78°17'35"E 61.49 FEET; THENCE ALONG THE ARC OF A 345.00 FOOT RADIUS CURVE TO THE LEFT 242.80 FEET (CHORD BEARS: S18°10'02"E 237.82 FEET); THENCE S38°19'43"E 312.54 FEET; THENCE S24°39'23"W 67.91 FEET; THENCE ALONG THE ARC OF A 270.00 FOOT RADIUS CURVE TO THE LEFT 16.47 FEET (CHORD BEARS: N36°34'53"W 16.47 FEET); THENCE N38°19'43"W 84.76 FEET; THENCE N83°19'43"W 2.83 FEET; THENCE S51°40'17"W 111.15 FEET; THENCE N32°30'47"W 60.31 FEET; N51°40'17"E 105.04 FEET; THENCE N06°40'17"E 2.83 FEET; THENCE N38°19'43"W 178.17 FEET; THENCE ALONG THE ARC OF A 405.00 FOOT RADIUS CURVE TO THE RIGHT 270.46 FEET (CHORD BEARS: N19°11'52"W 265.46 FEET) TO THE POINT OF BEGINNING.
CONTAINING: 0.956 ACRES

II.

The property is vacated to the abutting land owner, Westfield Development.

DATED this 21st day of December, 2010

_____
G. WAYNE ANDERSEN, Mayor

Attest:

_____
KENT R. CLARK, City Recorder

Draft Minutes
Spanish Fork City Council Meeting
December 7, 2010

Elected Officials Present: Mayor G. Wayne Andersen, Councilmembers Steve Leifson, Rod Dart, Keir A. Scoubes, Richard Davis, Jens P. Nielson.

Staff Present: Junior Baker, City Attorney; Seth Perrins, Assistant City Manager; Dave Anderson; Community Development Director; Richard Heap, Public Works Director; Chris Thompson, Assistant Public Works Director; Dale Robinson, Parks & Recreation Director; Kent Clark City Recorder/Finance Director; Dee Rosenbaum, Public Safety Director; Shelley Hendrickson, Planning Secretary; Elaine Hansen, Special Events Coordinator; Dave Oyler, City Manager.

Citizens Present: Richard V Harris, Monica Rawlings, Janet Sidman, Marcelo Vidolin, Jan Lyman, Dorothy McAffee, Nicole & Jake Norris, Trey Cook, Christian Tanner, Charlie Olsen, Cody Dorins, Phillip Olsen, Shawn Jensen, Maran Kelly, Skyler Clark, Nate Matis, Thad Jensen, Glen Bradford, Brendon McConnell, Jacob Hardman, Freddy Jimenez, Kyle Quist, Tyler Wangsgard, Cary Hanks.

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CALL TO ORDER, PLEDGE, RECOGNITION:

Mayor Andersen called the meeting to order at 6:02 p.m.

Skylar Clark, from Scout Troop 1537, led in the pledge of allegiance.

Employee of the 3rd Quarter

Not addressed.

School/Recreation Coloring Contest Winners

Elaine Hansen explained that the City had launched a children's coloring contest and announced the winners of the contest. She had them stand before the City Council and introduce their name and the Elementary School that they attend.

Mayor Andersen congratulated all of the winners and said it was a great way to start off the season and thanked everyone for their participation.

Citizen Request: Veterans Facility

Glen Bradford
Mr. Bradford addressed the City Council. He said he was representing the Veterans Council and was present to update the City Council on the Veterans Facility and solicit their help. He further explained the process for obtaining funding, where other cities were in the process and what the State Legislature was willing to do. He said he felt the impact a Veteran's Facility would have on the community would be very good and that they bring in very influential people. The facility will cost between 17 and 18 million dollars. He said he needed help financially and explained how

members of the community could donate. He said for every $30,000 dollars that is raised the federal government would match.

Mayor Andersen thanked Mr. Bradford for his efforts and asked him to give him a call so they could get together.

Thad Jensen
Mr. Jensen gave the City Council a short report on the situation with the land in Spanish Fork City that would be donated for the Veteran's Facility. He thanked the City for their support and said that there were over 24, 000 veterans in Utah county.

Citizen Request: Snow Removal in the Oaks

Jan Lyman
Ms. Lyman introduced herself and said she was the President of The Oaks HOA. She explained the issues with the snow removal on Green's Lane, explained she was aware of the City standards and that Green's lane was not wide enough to meet City standards but that they were in need of help She explained the Oaks subdivision plat by using the overhead.

Richard Heap explained that Fairway Lane was not dedicated and was part of the open space for the HOA. Discussion was held between the Lyman's and Mr. Heap about snow removal.

Mayor Andersen explained that the City Council could not make a decision during the meeting. He furthered explained that he did not know what the engineering issues were as to whether or not the City would take the street over. That there were a number of areas in the City that are like this and associations that would like to have the City take them over and that he did not want to set a precedence. He said that he would get with staff and address it.

Councilman Nielson explained a situation in the Spanish Trails Subdivision and how the HOA handled their issue.

Mr. Heap explained that another issue was that the setbacks from the street to the front of the houses did not meet City standards.

Mayor Andersen said it looked like there were some challenges but that he would discuss them with City staff.

PUBLIC COMMENTS:

Carie Hanks
Ms. Hanks thanked the City Council for participating in the lights parade and thanked the City for there help.

COUNCIL COMMENTS:

Councilman Scoubes said that the Nebo Chorale and Harmonic would be holding their Christmas program. He pledged his support for the Veterans home and said that the Solid Waste District

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would be holding their meeting next week where they would have a decision as to who would be hired or at least have a board to review the names for hiring.

Councilman Dart said that he was watching the news and reported that in Salt Lake City it was $50 fine for not clearing snow. He encouraged citizens to help one another to clear the snow. He thanked Officer Harding for performing a good deed and extended a thank you to the Police Chief for his efforts in making our City a better place to live.

Councilman Leifson
No comment

Councilman Davis explained that he had been to an Airport board meeting. He said that they discussed the financial report, wetland mitigation, annexation of the west side of the airport, the closure of roads and expanding the runway to make it a B2 airport. He expressed his appreciation to Matt Taylor, Doug Ford, Cris Childs and David Bradford. He encouraged the citizens to attend the Festival of the Lights and also explained what Tabitha's Way, run by Wendy Osborn, was all about. He explained where it was located in the City and said he was amazed at what Ms. Osborne was doing. He also commented on snow removal.

Councilman Nielson expressed his support for the Veteran's Facility.

Mayor Andersen expressed that he supports the Veteran's Facility as well, that he was aware that the land was secured but that they would need to look into the infrastructure and what was involved with that. He encouraged citizens to support the Festival of Lights. He said he felt that the light parade was a success and appreciated the Chamber and Ms. Hanks. He reported that he had been to Las Vegas with the rodeo committee and that they were very successful in getting some specialty acts for 2012 and already had them arranged for 2011. He read a note from the Police Chief on the annual shop with a cop and thanked the chief and the officers.

<u>CONSENT ITEMS:</u>

a. Minutes of Spanish Fork City Council Meeting - November 16, 2010

Councilman Leifson made a **motion** to **approve** the consent items.
Councilman Scoubes **seconded** and the motion **passed** all in favor.

<u>NEW BUSINESS:</u>

Wetland Mitigation

Mr. Childs explained the agreement and said that part of the project was mitigating the wetlands on the airport. He said it did not establish a price but the funding to acquire would be from Federal and State funding. He further explained what wetland mitigation was and that the wetlands on the airport were marginal and the parcel of land in Provo would be much better.

Councilman Neilson made a **motion** to **authorize** the mayor to sign the wetlands mitigation contract. Councilman Davis **seconded** and the motion **passed** all in favor.

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Power Line Tree Trimming Ordinance – Junior Baker

Mr. Baker explained we have a power system in our City and regularly trim trees by power lines. He explained a major outage that came about from tree limbs in the power lines. He said he felt it was wise to put together an ordinance about safety and liability not aesthetics. He said that the City would try to work with the citizens but ultimately our goal was to get trees out of the lines. He said this was the only way to have a safe and reliable power system.

Councilman Davis said he felt that the guys trimmed the trees pretty good.

Councilman Dart made a **motion** to **approve** the Power Line Tree Trimming Ordinance. Councilman Leifson **seconded** and the motion **passed** all in favor by a roll call vote.

Fritzi Building Site Plan Phasing Agreement – Junior Baker

Mr. Baker explained this was a proposed contract that would allow the phasing of Site improvements. He said the building was in rather poor condition and had sat vacant for quite some time. He said that the owner made it clear that if he could not phase the improvements that the building would sit vacant and that Staff felt that it would be better to phase the improvements than to have it sit vacant. He explained that it was a three phase agreement and what was required at each phase with the first phase being electrical improvements (any other use above 40,000 square feet would trigger a wall), second phase improvements would be along Arrowhead Trail and the third phase being improvements on Cal Pac. He further explained that the neighbors felt that the improvements should be done. Staffs recommendation is to phase it.

Councilman Dart asked if he knew the electrical cost that had already been installed. Mr. Andersen said that from what the owner said it was around $250,000. Discussion was held regarding a masonry wall, number of employees for the business coming in and whether or not there was adequate parking.

Clint Argyle
Mr. Argyle said he was a concerned and involved neighbor and his biggest concern was that it could be several years before the building would look nice. He said that the owner had made some landscape improvements with regard to tree trimming and mowing of weeds. He said he felt that it was not a cost issue but a business decision to defer costs. He explained that he felt that there had been many additions made without any improvements being made. He said he would like the Council to consider landscape to be at the beginning of the phasing and not the end. He said he felt that if the phases don't get triggered we may never get the end result and asked the Council to consider a time limit. He also felt that the owner should have to bond.

Mr. Baker said that the first phase for electrical improvements was finished and that the owner would be required to bond on the other improvements.

Councilman Nielson asked if landscape was an existing requirement and not anything new. Mr. Baker explained the standard and that it was not a tough standard to meet. Mayor Andersen said he felt it would be easier to keep the building looking nice if a tenant was in it.

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Discussion was held regarding landscape, new construction improvements versus existing structures and whether or not the agreement could negotiate when the improvements would be made.

Mr. Argyle said that he felt the Council had the citizens' best interest in mind and that the front part of the building should be done. He explained he didn't feel that it was asking too much.

Tom Scribner
Mr. Scribner said he was the attorney for Fritzi Development. He said at DRC Mr. Argyle had two complaints. He said that the owner had taken action at the site, obviously cannot plant shrubs and trees until the spring, but was cleaning up the site. He said that he had driven by the site and he said it was looking much better.

Councilman Neilson asked how he felt about the approach of a time limit. Mr. Scribner said the problem was that the building was unique. He said that because of the age of the structure that for warehousing purposes it did not have the height and due to the economy would be better to approach it on the tenant phasing. Councilman Davis said he felt the masonry wall would need to go in and have a timeframe.

Councilman Scoubes asked about the phased timeline and said that landscape was on its own. He said in order to facilitate the land owner but also the tenants was it possible to do landscape in a pro-rated phasing with the phasing (100 feet of lawn, 200 feet of sprinklers etc.) then in phase one you do a portion of the landscape.

Mr. Scribner said he felt that that was the attempt with the phasing.

Mayor Andersen explained that if the agreement was too cumbersome that it would collapse and that simpler most of the time was better.

Mr. Scribner credited the staff in coming up with a common sense approach.

Councilman Davis asked about the landscape for the first phase. Mr. Oyler explained the masonry wall was part of the first 70,000 square feet. The second phase being Arrowhead Trail and the third phase everything on Cal Pac. He explained that the second phase may never be triggered.

Discussion was held regarding the company that is wanting to occupy the structure.

Councilman Leifson made a **motion** to **approve** the Fritzi Building Site Plan Phasing Agreement. Councilman Neilson **seconded** and the motion **passed** all in favor.

Sanitary Sewer System Model – Chris Thompson

Mr. Thompson explained that there were a lot of old sewer lines in town and that they had budgeted money to fix them. He further explained that he would like to use some of the money to update the sewer model in order to know what areas to focus on. He said there was an immediate need to provide some developers with information on some sewer issues.

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Councilman Nielson asked what the issues were. Mr. Thompson said it was from leaking pipes. Infiltration.

Councilman Nielson made a **motion** to **approve** the Sanitary Sewer System Model bid from Bowen and Collins. Councilman Davis **seconded** and the motion **passed** all in favor.

Golf Pro Shop Inventory Purchase – Dale Robinson

Mr. Robinson explained the Golf Pro Inventory Contract and said that as the Council was aware they were in a transition with the golf course. He said that Aaron Brown was running the pro shop as a business. He said he had done extensive inventory and felt that purchasing it for $30,000 (which was substantially less than the cost) would be okay.

Councilman Dart made a **motion** to **approve** the contract for the purchase of the Golf Pro Shop Inventory at the Golf Course. Councilman Leifson **seconded** and the motion **passed** all in favor.

ADJOURN:

Councilman Davis made a **motion** to **adjourn** to Closed Session to discuss Land Purchase and Personnel. Councilman Nielson **seconded** and the motion **passed** all in favor at 7:15 p.m.

ADOPTED:

_____

Shelley Hendrickson, Planning Secretary

DRAFT

MEMO

To: Mayor and Council
From: S. Junior Baker
Date: 14 Dec. 2010
Re: Ambulance Provider Plan

On the agenda for December 21st is a consent item for an ambulance provider contract with Blue Cross Blue Shield of Utah. This allows us to receive direct payment from the insurance company for ambulance billings. We are limited to the amount contracted for. This will assist us in more promptly collecting from those patients who are covered with Blue Cross health insurance.

As I reviewed the contract, I had several concerns, since the contract is directed more toward medical clinics, doctors, and hospitals than ambulance service. Since the only medical services we provide are ambulance services, there are parts of the contract which are not applicable to us and other parts that we simply cannot meet. However, we are informed this is a form contract approved by the insurance commissioner and can't be changed, although our concerns were recognized and Blue Cross agreed a change is needed for ambulance providers. Blue Cross assured us that there will be no negative results over the concerns we raised. Despite the concerns, the billing department is recommending approval since it will aid in our collections.

As this is a form contract, it appears as a consent item.

REGENCE BLUECROSS BLUESHIELD OF UTAH
PARTICIPATING EMERGENCY MEDICAL SERVICES (EMS) AGREEMENT

THIS PARTICIPATING EMERGENCY MEDICAL SERVICES AGREEMENT is effective as of _____("Effective Date") between Regence BlueCross BlueShield of Utah, ("Corporation") and Spanish Fork City, on behalf of Spanish Fork Ambulance a licensed Emergency Medical Service ("EMS") provider in the state of Utah. This Participating EMS Agreement is a master agreement which may be amended from time to time, pursuant to Section VIII of the Agreement, and through the addition, alteration or elimination of those Provider Networks in which EMS has agreed to participate.

By virtue of EMS's participation in a given Provider Network, EMS will furnish services to members of those Health Plans offered or administered by the Corporation (or another entity, with access to the applicable Provider Network pursuant to an agreement with Corporation) which rely on that Provider Network for the provision of Covered Services. This Participating EMS Agreement, and the applicable terms and conditions for participation in those Provider Networks in which EMS agrees to participate, are collectively referred to herein as the "Agreement." Participation in each Provider Network is enforceable under the terms and conditions contained in the relevant Provider Network addendum and, in the event of a conflict between the language of the Participating EMS Agreement and any addendum relating to a particular Provider Network, the language of the relevant addendum will prevail.

IN CONSIDERATION of mutual covenants and promises stated herein and other good and valuable consideration, the undersigned have agreed to be bound by this Agreement as of the Effective Date.

I. DEFINITIONS

1.1 CERTIFICATE. Means the evidence of insurance provided to an insured under a group or individual Health Plan.

1.2 COINSURANCE. Means the percentage amount of the applicable fee schedule amount that the Member's Health Plan requires the Member to pay for a Covered Service. Where the Member's Health Plan provides for payment of copayment, coinsurance or deductibles by the Member, payment by Corporation for Covered Services shall be the fee schedule amount less the applicable copayment, coinsurance and/or deductible.

1.3 COPAYMENT. Means a fixed dollar amount of the applicable fee schedule amount that the Member's Health Plan requires the Member to pay for a Covered Service. EMS may collect such copayments at time of service. Where the Member's Health Plan provides for payment of copayment, coinsurance or deductibles by the Member, payment by Corporation for Covered Services shall be the fee schedule amount less the applicable copayment, coinsurance and/or deductible.

1.4 COVERED SERVICES. Are those health services and supplies provided to Members by Participating Providers, including EMS, which qualify for payment under the terms of a Member's Health Plan, as described in the applicable Certificate or policy, including any amendments thereto.

1.5 CREDENTIALING/RECREDENTIALING. Means the processes employed by Corporation to determine whether a facility, hospital, physician, practitioner or other health care professional satisfies the Corporation's criteria for initial or continued participation in a network.

1.6 DEDUCTIBLE. Means the dollar amount that the Member must pay each calendar or contract year before Corporation begins to make payments.

1.7 EMERGENCY. Means a medical condition manifesting itself by acute symptoms, including severe pain, of sufficient severity such that, in the judgment of a reasonable lay person, the absence of immediate medical attention could be reasonably expected to result in: (i) serious

jeopardy to the health of a Member; (ii) serious impairment of bodily functions; or (iii) serious dysfunction of any bodily organ or part.

1.8 HEALTH PLAN. Means any group or individual, insured or self-funded health care plan established and/or administered by Corporation, or by an another entity with access to the applicable Provider Network pursuant to an agreement with Corporation, including, but not limited to the Federal Employee Health Benefits Program, other state and federal employee Health Plans, and other Blue Cross and Blue Shield Plans.

1.9 MEDICALLY NECESSARY. Means health care services or supplies that a prudent health care provider would provide to a patient for the purpose of preventing, diagnosing or treating an illness, injury, disease or its symptoms in a manner that: 1) comports with generally accepted standards of medical practice; 2) is supported by current scientific evidence; 3) is the most clinically appropriate service or supply in terms of type, frequency, extent, site, and duration; and 4) is not primarily for the convenience of the patient, patient's family, Participating Provider or other health care provider. The decision as to whether a service or supply is Medically Necessary for purposes of payment by Corporation rests with Corporation's Medical Director, or his or her designee, however, such a decision will in no way affect the health care provider's determination of whether medical treatment is appropriate as a matter of medical judgment. Such decisions shall be subject to the Corporation's appeals process as set forth in this Agreement and the Participating Provider Administrative Manual.

1.10 MEMBER. Means a person covered under any Health Plan which provides for health care services as well as participants in other Blue Cross and Blue Shield Plans, who may, on occasion, require services while in Corporation's service area.

1.11 PARTICIPATING PROVIDER. Means any facility, hospital, physician, practitioner, or other institutional or professional health care provider who has contracted with Corporation, directly or through intermediaries, to furnish Covered Services to Members.

1.12 PROVIDER NETWORK. Means a network of Participating Providers that have contracted with Corporation to furnish services to Members in accordance with specific payment and related policies and procedures established by Corporation for that network.

1.13 THE REGENCE GROUP (Regence). Means Regence BlueCross BlueShield of Utah, Regence BlueShield of Idaho, Regence BlueCross BlueShield of Oregon and Regence BlueShield of Washington, each an independent licensee of the Blue Cross and Blue Shield Association.

II. PROVISION OF MEDICAL SERVICES

2.1 MEDICALLY NECESSARY SERVICES. EMS will provide Medically Necessary services to Members in accordance with the terms of this Agreement. Corporation will only bear financial responsibility for Medically Necessary, Covered Services furnished to Members by EMS.

2.2 COVERED SERVICES. Corporation will define the Covered Services for the Health Plans for which EMS has agreed to provide services. Corporation has established procedures pursuant to which EMS may verify whether services are Covered Services, as outlined in the Provider Administrative Manual.

2.3 ACCESS TO CARE. EMS will provide services to Members in accordance with the professional standards of care with which such services are furnished to all persons treated by EMS. The quality and availability of services will be no less than the quality and availability of services provided to all persons treated by EMS.

2.4 RELATIONSHIP WITH MEMBERS. Corporation will not be liable for, nor will it exercise control or direction over, the methods or professional judgments relied upon by EMS and EMS's employees or representatives in providing services pursuant to this Agreement. EMS will be solely responsible for supervising and controlling EMS's employees and contractors to assure that such services are provided in a manner that complies with generally accepted standards of care. EMS will be solely responsible for all clinical decisions regarding the medical care and treatment of Members. Nothing in this Agreement in any way limits EMS's right to communicate freely with Members, including the right to inform Members that EMS believes services are appropriate or necessary, even if Corporation has determined the services are non-Covered Services.

2.5 NON-DISCRIMINATION.

2.5.1 EMS will provide the Covered Services contemplated herein without regard to the race, age, sex, religion, creed, color, national origin or ancestry of any Member. In addition, during the term of this Agreement, EMS will not unlawfully discriminate against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical handicap, health status, marital status, age or sex. EMS will include the nondiscrimination and compliance provisions of this clause in all subcontracts entered into to fulfill its obligations under this Agreement.

2.5.2 EMS recognizes that, as a government contractor with the Federal Employee Health Benefits Program, Corporation is subject to various federal laws, executive orders and regulations regarding equal opportunity and affirmative action, which may also be applicable to subcontractors. Corporation, therefore, agrees that any and all applicable equal opportunity and affirmative action clauses will be incorporated herein as required by federal laws, executive orders and regulations, including, but not limited, to the following:

A. The nondiscrimination and affirmative action clauses contained in Executive Order 11246, as amended, relative to equal opportunity, for all persons without regard to race, color, religion, sex or national origin; the Rehabilitation Act of 1973, as amended, relative to the employment of qualified handicapped individuals without discrimination based upon their physical or mental handicaps; the Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended, relative to the employment of disabled veterans and veterans of the Vietnam Era; and the implementing rules and regulation prescribed by the Secretary of Labor in Title 41, Part 60 of the Code of Federal Regulations.

B. The utilization of small and minority business concerns pursuant to clauses contained in: the Small Business Act as amended; Executive Order 11625; and the Federal Acquisition Regulation at 48 CFR Chapter 1. Part 19 Subchapter D and Part 52, Subchapter H, relative to the utilization of minority business enterprises, small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals in the performance of contracts awarded by federal agencies.

C. The utilization of labor surplus area concerns clauses contained in: the Small Business Act, as amended; Executive Order 12073; 20 CFR Part 654, Subpart A; and the Federal Acquisition Regulation at 48 CFR Chapter 1, Part 20 of Subchapter D and Part 52 of Subchapter H, relative to the utilization of labor surplus area concerns in the performance of government contracts.

D. Compliance with Title III regulations contained in the Americans with Disabilities Act of 1991 providing equal access to public accommodations to disabled persons.

III. PAYMENT FOR MEDICAL SERVICES

3.1 EMS COMPENSATION. EMS will be compensated for Medically Necessary Covered Services provided to Members in accordance with the compensation arrangements for the applicable Provider Network and the terms of Members' Health Plans. The compensation arrangements for each Provider Network in which EMS is participating are set forth in exhibits and addenda attached hereto and incorporated herein. Corporation will comply with applicable state and federal laws governing timeliness of claims payment.

3.2 COMPENSATION FOR REFERRALS. EMS agrees not to accept any compensation in return for referring any Member to a provider for the furnishing of any item or service payable by Corporation. EMS also agrees to refer Members to providers in accordance with applicable state law and the laws and regulations of the Medicare program.

3.3 MEMBER IDENTIFICATION. EMS will check Member identification cards of all patients who present themselves as Members in any Health Plans and will promptly report to Corporation any apparent abuse of the privileges of such Health Plans.

3.4 BILLING FOR EMS SERVICES.

3.4.1 EMS agrees to submit claims for Covered Services electronically via X12-4010-X098 electronic format, or on the most current CMS 1500 form. Claims should be submitted within thirty (30) days of the date of service and, in any event, shall be submitted no later than twelve (12) months from the date that Members receive services. Claims not submitted within twelve (12) months of date of service shall be disallowed, and the EMS shall not bill the Member or Corporation for services or supplies associated with such claims. Claims for which Corporation is the secondary insurer must be submitted within sixty (60) days of the primary carrier's payment or denial, or twelve (12) months from the date of services, whichever is later. Should a Member fail to provide EMS with information regarding Member's coverage through Corporation prior to expiration of the twelve (12) month claim limitation period, Member shall be responsible for payment. The specific information to be provided on claims submitted by EMS as a participant in a given Provider Network is set out in the applicable addenda and/or Provider Administrative Manual.

3.4.2 EMS will not engage in misleading billing practices or otherwise interfere with timely and accurate claims adjudication. Such practices include, but are not limited to:

- allowing another individual or entity to bill using the EMS's name;
- billing for services that cannot be substantiated from written medical records;
- billing for services not actually rendered;
- repeatedly failing to supply information requested by Corporation for claims adjudication;
- repeatedly using incorrect billing codes, unlisted codes, or multiple codes for a single charge;
- unbundling charges.

3.5 MEMBERS TO BE HELD HARMLESS. EMS hereby agrees that in no event, including, but not limited to, non-payment by Corporation for any reason, including, but not limited to, a determination that the services furnished were not Medically Necessary, Corporation's insolvency, EMS's failure to submit claims within the time period specified in Section 3.4 above or breach of this Agreement, will EMS bill, charge, collect a deposit from, seek compensation,

remuneration or reimbursement from, or have any recourse against Members or persons other than Corporation for Covered Services furnished pursuant to this Agreement. Nothing in this provision shall prohibit collection of applicable copayments, coinsurance or deductibles, or late charges thereon, billed in accordance with the terms of Corporation's agreements with Members. Nor will it prohibit EMS from collecting payments from Members for non-Covered Services or services that were not Medically Necessary where EMS has notified the Member in advance of the Member's payment responsibility in accordance with section 3.9 or section 3.10 of this Agreement. This section shall survive the termination of this Agreement regardless of the cause giving rise to the termination.

3.6 THIRD-PARTY PAYMENT. Members may be eligible for coverage from another payer including, but not limited to, other individual or group health plans, liability insurers, entities providing workers' compensation or occupational disease coverage, Medicare or other government programs. The parties will inform each other whenever a Member has coverage from such other payers. EMS will collect payment from third-party payers, using EMS's customary collection procedures, whenever such payers have primary responsibility to provide or pay for Covered Services in accordance with the coordination of benefits or maintenance of benefits and third-party liability requirements of Members' Health Plans.

If Corporation is required to pay a portion of EMS's charges for Covered Services not covered by other payers, Corporation will pay EMS only that amount which, when added to the amounts paid or owed by the other payer and any copayment, deductible or coinsurance charges for which the Member is responsible, will not exceed EMS's agreed upon allowance for such services pursuant to this Agreement. Furthermore, in accordance with Section 3.5 above, EMS will not bill, charge, seek compensation, remuneration or reimbursement from, or have any recourse against Members, for amounts in excess of these agreed upon allowances. Either party may request adjustments to erroneous payments made under this coordination of benefits provision if it notifies the other of the error within thirty-six (36) months after such payment is made.

3.7 DUPLICATE BILLING. Unless otherwise instructed by Corporation, EMS agrees to refrain from submitting more than one bill to Corporation for Covered Services furnished to Member pursuant to this Agreement. EMS will not, under any circumstances, including a delay in Corporation's processing of EMS's claims, bill Members for Covered Services which are the subject of such claims.

3.8 ADJUSTMENTS. Either party will be entitled to request an adjustment of an erroneous payment if it notifies the other of the overpayment or underpayment within eighteen (18) months of the date the payment was made. Except for those payments referenced in Section 3.6, payments made to EMS for claims submitted in violation of Section 3.4.3, or as otherwise required by law, all payments will be final unless an adjustment is requested within this eighteen (18) month period.

EMS agrees that if a refund is not received by Corporation within forty-five (45) days after Corporation notifies EMS of the obligation to refund an overpayment, Corporation may deduct the amount which was to be refunded from future payments due to EMS.

3.9 NON-COVERED SERVICES. It is recognized that Members may request services of EMS which are not Covered Services and which are, therefore, payable by the Member. In such cases, Members shall be financially responsible for such services. In no event will Corporation be responsible for any amount of money owed by a Member to EMS for such non-Covered Services in the event that EMS is unable to collect such amount from a Member.

3.10 SERVICES NOT MEDICALLY NECESSARY. Neither Members nor Corporation shall be liable for any health care services which are determined by Corporation to be not Medically Necessary, except where the Member requests such services after being informed in writing by Corporation or EMS prior to receiving the services that they are deemed not Medically

Necessary. In such cases, the Member will be solely responsible for paying for such services. In no event will Corporation be responsible for any amount owed by Member to EMS for such medically unnecessary services in the event that EMS is unable to collect such amount from a Member.

3.11 INELIGIBLE MEMBERS. Corporation is not obligated to make payment to EMS for services provided to an individual who is not, at the time such services are received, a duly eligible Member. The fact that an individual possesses an identification card will not obligate Corporation to pay or provide benefits if, on the date(s) that such services were rendered, the individual is, or is later found to have been, ineligible for medical benefits. Corporation has established a procedure by which EMS may verify Member eligibility prior to providing services as described in the Provider Administrative Manual. Determinations of medical necessity or medical appropriateness determinations issued by Corporation pursuant to requests for preauthorization to render services to a Member, does not guarantee that the Member is eligible or will continue to be eligible for benefits, and/or that the services rendered are Covered Services under the Member's Health Plan.

IV. COMPLIANCE WITH CORPORATION'S POLICIES AND PROGRAMS

4.1 REGULATORY COMPLIANCE AND ACCREDITATION. EMS warrants that it is, and at all times during this Agreement will remain, in compliance with all applicable local, state and federal laws, rules and regulations including, but not limited to those (a) regarding licensure, certification and accreditation; (b) necessary for participation in the Medicare and Medicaid programs; and (c) regulating the operations and safety of EMS. EMS will provide Corporation with available documentary evidence of its compliance with the foregoing requirements and will provide Corporation with immediate written notice, no later than ten (10) working days, of any material change in the status of EMS's, which is likely to impair or interfere with EMS's performance under this Agreement, including, but not limited to (a) loss or suspension of licensure or certification; (b) placement on probation by professional licensing or certification agency; (c) the issuance of any formal charges against EMS by any governmental agency, or any other licensing or accreditation organization which would, if sustained, materially impair EMS's ability to comply with EMS's duties and obligations under this Agreement; and, (e) suspension or expulsion from the Medicare or Medicaid programs.

4.2 PARTICIPATING PROVIDER ADMINISTRATIVE MANUAL. The operational procedures to be followed in implementing Corporation's general policies and programs and those specific to the Provider Networks in which EMS is participating will be set forth in the applicable Participating Provider Administrative Manual to be made available to EMS by Corporation, the terms of which are incorporated herein by reference. The Participating Provider Administrative Manual(s) shall be made available through Corporation's Website, or upon request by EMS, in printed format. The Participating Provider Administrative Manual is subject to modification from time to time at Corporation's sole discretion, provided such modification to the manual shall include its effective date. Corporation shall use reasonable efforts to provide EMS with notification of such modifications via Corporation's Website or other communications and publications.

4.3 UTILIZATION MANAGEMENT AND QUALITY IMPROVEMENT. To the extent that EMS participates in Provider Networks for Health Plans which have implemented utilization management and/or quality improvement policies and programs, EMS will fully comply with such policies and programs, the details of which are described in the applicable addenda and/or Participating Provider Administrative Manual.

4.4 MAINTENANCE AND RETENTION OF RECORDS. EMS will maintain medical, financial and administrative records concerning services provided to Members in accordance with Corporation's requirements, applicable federal and state laws and generally accepted business and professional practices. EMS will ensure that a medical record is established and maintained

for each Member who receives services from EMS in accordance with generally accepted professional practices. This record will be opened at the time of a Member's first visit. EMS will maintain such records for a period of at least six (6) years from the date of service. The obligations of EMS under this section will survive the termination of this Agreement, regardless of the cause giving rise to such termination.

4.5 ACCESS TO BOOKS AND RECORDS. Both parties, their authorized representatives, and government regulatory agencies, will have the right to inspect, review and make or obtain copies of medical, financial and administrative records, directly related to services rendered to Members for purposes that may include but not be limited to: accuracy of claims, coverage for services, medical necessity, proper utilization and appropriateness of services, credentialing and recredentialing, quality improvement and appropriateness of billing, upon notice of not less than five (5) business days, during regular business hours. Copies of records will be furnished to Corporation or its designee upon request and without charge to Corporation or Members. Insofar as Members are required to execute an authorization for the release of their medical records to Corporation, upon becoming Members, EMS agrees to accept from Corporation as a legally sufficient release of Members' medical records Members' participation in Health Plans of Corporation, and Corporation will not be required to obtain an additional medical release form from Members in order to inspect, review, or make copies of Members' medical records. This provision will survive the termination of this Agreement, regardless of the cause giving rise to such termination. Corporation shall have access to EMS's records for six (6) years after termination.

4.6 CONFIDENTIALITY OF MEDICAL RECORDS. Both parties will maintain the confidentiality of information contained in Members' medical records and will release such records only: (a) in accordance with Section 4.5, above; (b) subject to applicable laws; (c) as necessary to other providers treating Members; or (d) with the consent of Members. This provision will not be construed to prevent the parties from releasing information based on such records to organizations or individuals taking part in research, experimental, educational or similar programs, provided that no identification of individual Members is made in the released information.

4.7 CREDENTIALING/RECREDENTIALING. EMS will comply with all of Corporation's credentialing or recredentialing criteria. EMS shall promptly provide information required by Corporation to conduct credentialing or recredentialing. Except as otherwise required by law or regulation, Corporation shall maintain the confidentiality of and not disclose such information to third parties.

V. RELATIONSHIP OF THE PARTIES

5.1 INDEPENDENT CONTRACTOR. EMS and Corporation are independent contractors. This Agreement is not intended to create an employer-employee, partnership or joint venture relationship between Corporation and EMS or their respective directors, officers, employees or agents.

5.2 USE OF NAME. Each party will have the right to use the name of the other party to inform existing or potential Members, patients and other providers under contract with Corporation that EMS participates in one or more of Corporation's Provider Networks. Except as provided herein, neither EMS nor Corporation will use the other party's symbol, trademark or service mark or otherwise use the other party's name without the prior written consent of the other party, and will cease any such use as soon as is reasonably possible upon the termination of this Agreement.

5.3 RELIANCE ON PARTICIPATION APPLICATION. EMS acknowledges that in reviewing and offering EMS participation in any of Corporation's Provider Networks, Corporation has relied to a material extent upon the statements and information supplied by EMS in EMS's application

for participation and credentialing. EMS warrants that such statements and information are true and complete to the best of EMS's knowledge and belief. EMS agrees to hold Corporation harmless with respect to any claims that may arise from inaccurate or incomplete statements and information supplied by EMS.

5.4 USE OF NETWORK PROVIDERS. EMS agrees that it shall require all physicians and other health care providers providing services to Members at EMS to be Participating Providers. In the event services are unavailable from a Participating Provider, prior to rendering services EMS shall notify the Member in writing that the services will be provided by a non-Participating Provider and that Member may be responsible for additional charges in excess of the agreed upon allowances under this Agreement less any copayment, coinsurance or deductible. EMS will be financially responsible for such additional charges if EMS fails to provide such notice.

5.5 NON-EXCLUSIVITY. This Agreement will not be construed to be an exclusive agreement between Corporation and EMS. Nothing in this Agreement or any related documents will be construed to restrict the participation of any of the parties in any other health care delivery system or payment plan.

5.6 ACCESS TO PROVIDER NETWORKS. The parties understand and agree that Corporation may contract with other affiliated entities including, but not limited to, other Regence Group plans, The Regence Group, subsidiaries and other Blue Cross and/or Blue Shield Plans, for access and use of those Provider Networks in which EMS participates. Upon execution of any such contract, EMS understands and agrees that EMS will furnish services to those utilizing these Provider Networks pursuant to a contract with Corporation in accordance with the terms of the Members' Health Plan as described in the applicable Certificate or policy and in accordance with the same terms and conditions of participation and compensation as apply when such services are furnished to Corporation's Members, as set out in this Agreement and in the applicable addenda.

5.7 RELATIONSHIP TO BLUE CROSS BLUE SHIELD ASSOCIATION. EMS acknowledges that this Agreement constitutes a contract between EMS and Corporation, that Corporation is an independent corporation operating under a license from the Blue Cross and Blue Shield Association, an association of independent Blue Cross and/or Blue Shield Plans (the "Association") permitting Corporation to use the Blue Cross and/or Blue Shield Service Mark in Corporation's service areas as specified by Association, and that Corporation is not contracting as the agent of the Association. EMS further acknowledges and agrees that it has not entered into this Agreement based upon representations by any person other than Corporation and that no person, entity or organization other than Corporation shall be held accountable or liable to EMS for any of Corporation's obligations to EMS created under this Agreement. This provision shall not create any additional obligations whatsoever on the part of Corporation other than those obligations created under other provisions of this Agreement.

VI. INSURANCE AND INDEMNIFICATION

6.1 EMS LIABILITY COVERAGE. EMS will obtain, at EMS's own cost, and keep in force, adequate policies providing comprehensive general liability, professional liability and other insurance at levels acceptable to Corporations, as may be necessary to insure EMS and EMS's agents and employees against any claim or claims for damages arising out of the rendering of, or failure to render, services pursuant to this Agreement. EMS will maintain policies of general liability and other insurance amounts consist with Corporation's credentialing criteria. Evidence of the insurance coverage required under this section will be made available to Corporation upon credentialing and/or recredentialing or by request. EMS will give Corporation at least fifteen (15) days advance notice of cancellation or any modification of such medical malpractice insurance.

6.2 CORPORATION LIABILITY COVERAGE. Corporation will obtain, at Corporation's own cost, and keep in force, adequate policies providing comprehensive general liability and other insurance in amounts, consistent with industry standards, as may be necessary to insure Corporation and Corporation's agents and employees against any claim or claims for damages arising out of the performance of its obligations under this Agreement. Evidence of the insurance coverage required under this section will be made to EMS upon request.

6.3 NOTICE OF CLAIMS. EMS will notify Corporation immediately of the filing of any legal action or formal charge against EMS or other person(s) for whose acts or omissions EMS is responsible, filed by any Member or of any pending or threatened claim or incident which may give rise to such claim with respect to any Member. Corporation will promptly notify EMS of the initiation of legal action against Corporation by a Member concerning or relating to services rendered by EMS hereunder.

6.4 INDEMNIFICATION. Within the limits of their respective policies of professional and general liability insurance, and to the extent not otherwise inconsistent with the laws of the applicable jurisdiction, each party will indemnify and hold harmless the other, its appointed boards, officers, employees, agents and subagents, individually and collectively, from all fines, claims, demands, suits or actions of any kind or nature arising by reason of the indemnifying party's acts or omissions in the course of its performance of its obligations under this Agreement. Nothing in this Agreement or in its performance will be construed to result in any person being the officer, servant, agent or employee of the other party when such person, absent this Agreement and its performance, would not in law have had such status.

VII. TERM AND TERMINATION

7.1 TERM. This Agreement will take effect on the Effective Date set forth above and will continue in effect unless and until terminated by either party. Termination of the Participating EMS Agreement will terminate EMS's participation in all of Corporation's Provider Networks. Termination of EMS's participation in any one or more of Corporation's Provider Networks shall not result in the termination of this Participating EMS Agreement or of EMS's participation in other Provider Networks in which EMS participates.

7.2 TERMINATION WITHOUT CAUSE. Either party may terminate this Agreement or EMS's participation in any one or more of Corporation's Provider Networks at any time upon ninety (90) days' prior written notice to the other party. This option may be exercised by either party "without cause" and does not require either party to establish or prove that there is cause for the termination or to disclose the basis of their decision to the other party.

7.3 IMMEDIATE SUSPENSION BY CORPORATION. Notwithstanding any other provision of this Agreement, Corporation may suspend the EMS from further performance under this Participating EMS Agreement immediately upon notice to EMS in the case of any of the following:

7.3.1 EMS fails or refuses to provide or arrange the provision of Covered Services to members in a manner consistent with this Agreement;

7.3.2 EMS's license is suspended, revoked or restricted in any material way that would affect the ability of EMS to provide Covered Services to Members;

7.3.3 EMS's general or professional liability insurance, as required by this Agreement, is terminated without replacement coverage having been secured;

7.3.4 EMS is suspended or expelled from participation in the Medicare or Medicaid program;

7.3.5 EMS's bankruptcy or insolvency;

7.3.6 EMS engages in fraudulent or misleading billing practices, or otherwise willfully interferes with timely and accurate adjudication of claims; or

7.3.7 EMS provides false or misleading information on his/her credentialing or recredentialing application;

7.3.8 EMS fails to satisfy Corporation's credentialing or recredentialing criteria;

7.3.9 EMS, on behalf of or in communication with its patients, physicians or other providers, takes any action or makes any communication which fundamentally undermines or could fundamentally undermine the confidence of Members, potential Members, their employers, unions, physicians, providers or the public in Corporation or in the quality of care provided to Members.

At Corporation's discretion, suspension may include suspending any and all obligations of Corporation's under this Agreement.
After notice of suspension has been given, Corporation will follow the procedure outlined in section 7.5 to determine whether the Agreement should be terminated.

7.4 IMMEDIATE TERMINATION BY EMS. Notwithstanding any other provision of this Agreement, EMS may terminate this Agreement immediately upon notice to Corporation in the case of the following:

7.4.1 Corporation's license is terminated or suspended.

7.4.2 Corporation's liability coverage is terminated without replacement coverage having been secured.

7.4.3 Corporation's bankruptcy or insolvency;

7.5 TERMINATION UPON BREACH. This Agreement, or EMS's participation in any one or more of Corporation's Provider Networks, may be terminated by either party for a material breach by the other of its obligations under this Agreement or any applicable Provider Network(s) by giving thirty (30) days written notice to the breaching party of the breach. Any such termination will be effective on the date stated in the notice of termination if the other party has failed to cure the breach prior to the expiration of the fifteen (15) day period following receipt of such written notice. At the written request made by the EMS prior to the effective date of termination, representatives of Corporation will meet with EMS to discuss reasons for termination. Once terminated, if EMS wants to be reinstated, EMS may appeal the termination, but only for reasons as set forth in Corporation's appeal process in the Provider Manual.

7.6 CONSENT NOT REQUIRED. This Agreement may be terminated without the consent of any Member, Participating Provider or any other third party.

7.7 EFFECT OF TERMINATION. Termination will have no effect upon the rights and obligations of the parties arising out of any transactions occurring prior to the effective date of termination. In the event of termination, EMS will cooperate with Corporation in the orderly transfer of Members' care, including the provision of copies of records to other Providers participating in the applicable Provider Network. The parties will cooperate on promptly resolving any outstanding financial, administrative or patient care issues upon the termination of this Agreement or EMS's participation in any one or more of Corporation's Provider Networks. .

7.8 NOTICE OF TERMINATION. Both parties may notify Members of termination of this Agreement and of EMS's continued participation status in the Corporation's Provider Network(s).

7.9 CONTINUATION OF SERVICES AND PAYMENTS. Upon Corporation's request, EMS will continue to render Covered Services to Members under EMS's care at the time of termination of this Agreement, or EMS's participation in any one or more of Corporation's Provider Networks, until the services being rendered to Members by EMS are completed or reasonable and medically appropriate provisions have been made for another provider to assume responsibility for providing such services; but in no event shall EMS be required to provide services pursuant to this section for longer than ninety (90) days after notice of termination was given. The provision of such services and the reimbursement to EMS for these services will be subject to all applicable terms of this Agreement on the same basis as those services provided during the term of this Agreement.

7.10 PRIOR ACTS. In the event of termination of this Agreement, for whatever reason, each party will remain liable for its activities or the activities of its employees or representatives during the term of the Agreement.

7.11 BANKRUPTCY. If bankruptcy, receivership or liquidation proceedings are commenced with respect to any party hereto, and if this Agreement has not otherwise been terminated, then a non-filing party may suspend all further performance of this Agreement pursuant to Section 365 of the Bankruptcy Code or any similar or successor provision of Federal or State law. Any such suspension of further performance by a non-filing party pending the defaulting party's assumption or rejection will not be a breach of this Agreement and will not affect the non-filing party's right to pursue or enforce any of its rights under this Agreement or otherwise.

VIII. AMENDMENTS

8.1 AMENDMENTS. This Agreement may be amended by Corporation by giving thirty (30) days prior written notice to the EMS of such amendment(s) at the addresses set forth in this Agreement. EMS may reject the amendment, thereby terminating participation in all of Corporation's EMS Networks, by giving Corporation written notice at the addresses set forth in this Agreement, no later than fourteen (14) days after receipt of the written notice of the amendment.

Any addenda, appendices, fee schedules or exhibits hereto, as well as the terms of participation in those Provider Networks in which EMS participates, may be amended by Corporation by giving thirty (30) days prior written notice to EMS of such amendment(s) at the addresses set forth in this Agreement. If an amendment is not acceptable to EMS, EMS may terminate this Agreement, or participation in the Provider Network being amended, by giving Corporation written notice at the addresses set forth in this Agreement, no later than fourteen (14) days after receipt of the written notice of the amendment. If EMS terminates participation in any one of Corporation's Provider Networks this shall not result in termination of EMS's participation in all Provider Networks.

Upon receipt of a timely termination notice from EMS, Corporation may, at its option, accept such termination or continue EMS's participation in the Provider Network(s) being amended without the amendment upon notice to EMS at the addresses set forth in this Agreement, ten (10) days prior to the implementation of the amendment at issue. If Corporation accepts EMS's termination, this termination will be effective one day prior to the effective date of the amendment at issue.

If Corporation does not receive a timely notice of termination from EMS, EMS's provision of services, submission of claims and/or acceptance of payment shall constitute acceptance of such amendment as of its effective date. This Agreement or any section hereof may also be amended at any time by mutual written consent of the duly authorized representatives of the parties.

IX. GENERAL PROVISIONS

9.1 SEVERABILITY. If any provision of this Agreement is rendered invalid or unenforceable by any state or federal statute or regulations, or declared null and void by any court of competent jurisdiction, the remaining provisions of this Agreement will remain in full force and effect.

9.2 ASSIGNMENT. This Agreement, and any rights or obligations hereunder, shall not be assigned, delegated or transferred by EMS without the prior written consent of Corporation. Upon thirty (30) days advance notice, Corporation may assign this Agreement to any entity that controls, is controlled by, or is under common control with Corporation, now or in the future, or which succeeds to its business through a sale, merger or other corporate transaction.

9.3 DISPUTE RESOLUTION. Corporation shall maintain an internal appeals process to adjudicate disputes between EMS and Corporation. EMS must exhaust the internal appeals process before seeking arbitration as provided herein. All claims or disputes between the parties arising out of, or relating to, this Agreement that cannot be resolved through the internal appeals process shall be settled by final and binding arbitration in accordance with the Commercial Arbitration rules and regulations of the American Arbitration Association then in effect, or such other dispute rules upon which the parties agree. Such arbitration may be initiated by either party by making a written demand for arbitration on the other party within sixty (60) days after completion of the internal appeals process. The demand for arbitration must identify all issues on which the party seeks arbitration, the contractual provisions on which the party relies, the amount in dispute and the relief requested. Any issue not preserved through exhaustion of the appeals process and timely and complete demand to arbitrate shall be conclusively deemed to have been waived by the party and shall not be the subject of any arbitration, litigation, internal, external or extrajudicial process.

The arbitration shall be conducted in Salt Lake City, Utah unless the parties mutually agree otherwise. The parties agree that the dispute shall be submitted to one (1) arbitrator selected by mutual agreement of the parties. If the parties cannot agree on an arbitrator, they shall obtain a list of ten possible arbitrators from a neutral source, such as American Arbitration Association, and shall strike arbitrators from the list in turn, beginning with the party who won a coin toss, until only one arbitrator remains. The remaining arbitrator shall hear the dispute, unless either party show such bias as would disqualify a judge from hearing the proceeding, in which case the arbitrator shall be the next to last name stricken. Each party shall be responsible for its own costs; however, the parties shall share equally the fee of the arbitrator, excluding the filing fee, if any, incurred in commencement of the proceeding. The arbitrator shall be bound by applicable federal and Utah's substantive law and shall render a written decision within thirty (30) days of the hearing. The results of the arbitration will be final and binding on both parties. Judgment upon an award rendered by the arbitrator may be entered in any court having jurisdiction.

9.4 BINDING EFFECT. This Agreement will be binding upon and inure to the benefit of the respective successors and assigns of Corporation and EMS.

9.5 WAIVER OF BREACH. Waiver of a breach of any provision of this Agreement will not be deemed a waiver of any other breach of the same or different provision.

9.6 FORCE MAJEURE. Neither party will be deemed to be in violation of this Agreement if it is prevented from performing its obligations by events beyond its control, including without limitations, acts of God or of the public enemy, flood or storm, strikes, or statute, rule or action of the government or agency. The parties will make a good faith effort, however, to assure that Members have access to EMS's services, consistent with applicable law, despite such events.

9.7 NOTICES. Any notice required to be given pursuant to the terms and provisions hereof will be in writing and will be mailed to the parties at the addresses set forth below. The parties may change the address at which notice is to be given by supplying written notice of the change in advance.

Any written notice required by this Agreement shall be deemed to have been made when delivered personally, by confirmed facsimile transmission, or one business day after being placed, properly addressed as set forth below by mail to the other party at its respective address provided.

9.8 GOVERNING LAW/VENUE. This Agreement will be governed by laws of the state of Utah. Venue for arbitrations conducted pursuant to Section 9.3 shall be held in Salt Lake City, Utah.

9.9 HEADINGS. The headings contained in this Agreement are for reference purposes only and will not affect the meaning or interpretation of this Agreement.

9.10 ENTIRE AGREEMENT/SUPERCESSION. This Agreement, its exhibits, addenda and any amendments thereto promulgated pursuant to Section VIII of this Agreement and any documents incorporated by reference constitute the entire agreement between Corporation and EMS. It supersedes all prior written or oral understandings between the parties relating to the subject matter of this Agreement.

9.11 LEGISLATIVE, REGULATORY AND/OR LEGAL REQUIREMENTS. This Agreement will be deemed amended to conform to legislative, regulatory or legal requirements effective the date of such requirements. Corporation will use its best efforts to provide EMS with notification of such changes.

9.12 TERMS OF AGREEMENT CONFIDENTIAL. The terms of this Agreement are confidential and EMS shall not disclose them, except as explicitly provided in this Agreement or required by law. Nothing in this Agreement shall be construed to prohibit EMS from disclosing to a Member the general methodology by which the EMS is compensated, provided no specific dollar amounts or other specific terms are mentioned.

IN WITNESS WHEREOF, the parties have caused this Agreement to be signed on the date and year written below.

SPANISH FORK CITY	REGENCE BLUECROSS BLUESHIELD OF UTAH
By:_____	By: _____
Title:_____	Byron K. Clawson, Vice President Provider Services
Date:_____	Date:_____

Office Address to be used in notices:

SPANISH FORK CITY	REGENCE BLUECROSS BLUESHIELD OF UTAH
Attn:_____	Attention: Provider Services
_____	2890 East Cottonwood Parkway
_____	Salt Lake City, UT 84121-7035

EXHIBIT A
TO PARTICIPATING EMERGENCY MEDICAL SERVICES (EMS) AGREEMENT
PAYMENT METHODOLOGY AND FEE SCHEDULE

I. GENERAL REIMBURSEMENT PROVISIONS

By virtue of Provider's participation in Corporation's Participating Provider Network, Provider agrees to accept as payment in full for Covered Services provided to Members the lesser of Provider's billed charge or the Emergency Medical Services Fee Schedule.

II. DESCRIPTION OF ELIGIBLE SERVICES

Eligible Services for which Provider may be reimbursed under this Agreement are set forth in this Exhibit. Provider shall not bill Corporation or Members for any Covered Services not listed in this Exhibit.

III. REIMBURSEMENT METHODOLOGY AND FEE SCHEDULE

1. Ground Transport

a. Corporation shall reimburse Provider the maximum rates as described in Administrative Rule R426-16-2 Maximum Ambulance Transportation Rates and Charges, Subsections 1-7.
b. Any adjustments made to the Maximum Ambulance Transportation Rates and Charges as described in Administrative Rule R426-16-2, Subsections 1-7, will be effective by Corporation within sixty (60) days of publication.

2. Air Transport

a. Corporation shall reimburse Provider at 100% of the Centers for Medicare and Medicaid Services (CMS) current Ambulance Fee Schedule as published in the Federal Register for the locale where the service is provided.
b. Corporation shall make annual adjustments to Corporation's Fee Schedule on July 1st of each year, or such other date as determined by Corporation and with advanced notice to Provider, utilizing the Centers for Medicare and Medicaid Services (CMS) current year RVU's.

3. Supplies

a. Routine supplies include but are not limited to, disposable gloves, tape, bandages and syringes, are included in the Maximum Ambulance Transportation Rates and Charges.
b. In addition to the transport, Corporation will reimburse the following HCPCS codes A0382, A0384, A0392-A0398, A0422, A0999 in accordance with Corporation's standard fee schedule.

JANUARY 15, 2009 AMENDMENT

This AMENDMENT effective on the **FIFTEENTH DAY of January, 2009,** hereby amends the following agreements, (collectively, the "Agreements" and each individually, the "Agreement") and any and all amendments, addenda, attachments, or exhibits thereto, by and between **Regence BlueCross BlueShield of Utah** ("Corporation") and **Physician, Medical Group, Urgent Care Center, Agency, Facility, Long Term Acute Care Hospital, Skilled Nursing Facility/Rehabilitation, or Emergency Medical Service Provider** (individually and collectively referred to herein as "Provider"):

Regence BlueCross BlueShield of Utah Participating Physician Agreement
Regence BlueCross BlueShield of Utah Participating Medical Group Agreement
Regence BlueCross BlueShield of Utah Participating Urgent Care Center Agreement
Regence BlueCross BlueShield of Utah Participating Ambulatory Surgery Center Agreement
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Regence BlueCross BlueShield of Utah Participating Rehabilitation Facility Agreement
Regence BlueCross BlueShield of Utah Participating Emergency Medical Services Agreement
Regence BlueCross BlueShield of Utah Participating Skilled Nursing Facility/Rehabilitation Agreement

RECITALS

WHEREAS, Provider and Corporation are parties to one or more of the Agreements;

WHEREAS, Corporation desires to amend the Agreements for its own purposes and to be compliant with the terms of the settlement agreement Corporation entered into to resolve the *Love, et al. v. Blue Cross and Blue Shield Association, et al.* class action lawsuit; and

NOW THEREFORE, in consideration of the foregoing premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

AMENDMENTS

1. This Amendment only amends current Agreements to which Provider and Corporation are already parties. It in no way means that a Provider is now a part of any Agreement listed above, unless that Agreement between Provider and Corporation is already in effect on the effective date of this Amendment.

2. Section 9.3, "DISPUTE RESOLUTION", of the Agreement is deleted in is entirety and replaced with the following:

9.3 – DISPUTE AND COMPLAINT RESOLUTION.

9.3.1 Member Complaints. Provider agrees to cooperate fully with the Corporation in the investigation and resolution of Member complaints and grievances concerning Covered Services provided under this Agreement. Upon request, Provider will furnish the Corporation with a copy of its procedures for handling Member complaints.

9.3.2 Internal Provider Appeal Processes. Corporation shall maintain one or more internal provider appeal processes to adjudicate disputes that may arise between Provider and the Corporation. The Corporation's internal provider appeal processes are set forth in the Participating Provider Administrative Manual, which is incorporated herein by reference. Unless otherwise indicated herein or in the Participating Provider Administrative Manual, Provider must exhaust the applicable provider appeals process before initiating any of the post-appeal processes set forth herein.

If Provider submits a dispute to the Provider Billing Dispute Appeal Process, and the Corporation fails to timely render a decision based on the time frames described in the Participating Provider Administrative Manual, Provider may bypass the Provider Billing

Dispute Appeal Process and proceed directly to one or more of the post-appeal processes described below.

9.3.3 Post-Appeal Processes. If, after the exhaustion of the applicable internal provider appeal process, either party is dissatisfied with the outcome of the internal provider appeal and wants to further dispute the issue(s), the disputed issue(s) must be submitted to one or more of the processes as described below. Any prerequisites to initiating one of the processes described below must be met before the process can be initiated.

9.3.3.1. Binding External Review. For disputes that have exhausted the Provider Billing Dispute and Medical Necessity/Investigational Procedure Appeal Process, Provider may elect to resolve the disputed issue(s) by binding external review, if certain conditions are met. In all cases, if a dispute is submitted to external review, the decision of the external reviewer is binding and is the final decision on the disputed issue. Disputes submitted to external review shall not be submitted to mediation or arbitration as provided herein. A description of the external review process, and any prerequisites to initiating the external review process, can be found in the Participating Provider Administrative Manual. Disputes that do not meet the criteria to be submitted to binding external review, may be submitted to binding external review only upon mutual written agreement of the parties.

9.3.3.2. Mandatory Non-Binding Mediation. For disputes that have not been or cannot be submitted to external review, the disputed issue(s) must be submitted to mandatory non-binding mediation prior to seeking arbitration. Mandatory non-binding mediation must be requested within sixty (60) days following the date of Corporation's decision on Provider's last internal provider appeal. Where Provider is allowed to bypass the internal provider appeal process as provided herein, mandatory non-binding mediation must be requested within sixty (60) days from the last day the Corporation has to timely respond to a dispute. Provider and Corporation shall each bear their own costs of mediation and shall split equally the costs of the third-party mediator.

9.3.3.3 Binding Arbitration. If, after exhausting the Corporation's internal provider appeals process and mandatory non-binding mediation, either party is still dissatisfied with the outcome and wants to further dispute the issue(s), the disputed issue(s) must be submitted to binding arbitration. Such arbitration must be initiated by making a written demand for arbitration on the other party. The demand for arbitration must identify all issues on which the party seeks arbitration, the contractual provisions on which the party relies, and the amount in dispute and the relief requested.

The arbitration shall be conducted within one hundred and fifty (150) miles of Provider's principal office address where notices under the Agreement are sent, unless the parties mutually agree to conduct the arbitration in a different location. The parties agree that the dispute shall be submitted to one (1) arbitrator selected by mutual agreement of the parties. If the parties cannot agree on an arbitrator, they shall obtain a list of ten (10) possible arbitrators from a neutral source, such as the American Arbitration Association, and shall strike arbitrators from the list in turn, beginning with the party who won a coin toss, until only one arbitrator remains. The remaining arbitrator shall hear the dispute, unless either party shows such bias as would disqualify a judge from hearing the proceeding, in which case the arbitrator shall be the next to last name stricken. The parties shall share equally the fee of the arbitrator, excluding the filing fee, if any, incurred in commencement of the proceeding. The parties shall have the right to make substantive motions. The arbitrator shall be bound by applicable federal

and state law, and shall render a written decision within thirty (30) days of the hearing. The arbitrator shall award the prevailing party any applicable filing fees and arbitrator's fees paid by the prevailing party. The arbitrator also may award the prevailing party attorneys' fees and costs associated with the arbitration proceeding. Judgment upon an award rendered by the arbitrator may be entered in any court having jurisdiction thereof.

The parties agree that the joinder or consolidation of an arbitration proceeding under the Agreement with an arbitration of disputes or claims of any non-party to the Agreement is prohibited, regardless of the nature of the issues or disputes involved.

9.3.4 Failure to Timely Appeal. If the disputing party, (the party that demands or initiates the internal appeal, external review, mediation or arbitration) fails to demand or initiate an internal appeal, external review, mediation or arbitration as required by this Agreement, and within the time frames prescribed in the Participating Provider Administrative Manual and this Agreement, the Corporation's last determination on the disputed issue(s) shall be deemed final and binding. In addition, the disputed issue(s) shall be conclusively deemed to have been waived by the disputing party and shall not be the subject of any further internal, external, judicial, or other dispute resolution process. Once the decision is deemed final, nothing in this Agreement shall prevent the prevailing party from pursuing remedies available to it, including without limitation, a judicial remedy to collect any amounts owed to it by the other party. Also, nothing in this Agreement shall prevent a party from asserting defenses, claims, causes of action or demands in response to an internal appeal, external review, mediation or arbitration initiated by the disputing party. This provision shall survive termination of this Agreement.

9.3.5 Precedential Effect of Decisions. The parties agree that any disputes that arise under this Agreement shall be considered independently and on their own merits, without regard for any other determination made by a third-party through one of the post-appeal processes or by Corporation through the internal provider appeal process or otherwise. The parties agree that none of the determinations made under this Agreement through one of the dispute resolution processes described above shall be used as precedent for other disputes that may arise between Corporation and Provider or between Corporation and any third-party. This provision shall survive termination of this Agreement.

3. Section 9.8, "GOVERNING LAW/VENUE", of the Agreement is deleted in is entirety and replaced with the following:

9.8 – GOVERNING LAW/VENUE.

9.8 GOVERNING LAW/VENUE. The validity of this Agreement and of any of its terms and provisions, as well as the rights and duties of the parties hereunder, shall be interpreted and enforced pursuant to and in accordance with the laws of the State of Utah and other applicable state and federal law. In the event any legal proceedings are instituted between the parties arising out of this Agreement, such legal proceedings shall be subject to the terms set forth in Article 9.3 above and instituted in the courts of the County of Salt Lake, State of Utah. Each of the parties agrees to submit to the jurisdiction of such courts.

As of the effective date above, this Amendment is incorporated into and becomes part of the Agreement.

To the extent that there is any conflict between the terms of the Agreement and the terms of this Amendment, the terms of this Amendment will prevail.

Except as stated in this Amendment, all provisions of the Agreement will remain in full force and effect.

JULY 1, 2009 TRANSPARENCY AMENDMENT

This AMENDMENT effective on the **FIRST DAY of July, 2009,** hereby amends the following agreements, (collectively, the "Agreements" and each individually, the "Agreement"), and any and all amendments, addenda, attachments, or exhibits thereto, by and between **Regence BlueCross BlueShield of Utah** ("Corporation") and **Physician, Medical Group, Urgent Care Center, Agency, Facility, Long Term Acute Care Hospital, Skilled Nursing Facility/Rehabilitation, Emergency Medical Service Provider, or Provider** (individually and collectively referred to herein as "Provider"):

Regence BlueCross BlueShield of Utah Participating Physician Agreement
Regence BlueCross BlueShield of Utah Participating Medical Group Agreement
Regence BlueCross BlueShield of Utah Participating Urgent Care Center Agreement
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Regence BlueCross BlueShield of Utah Participating Rehabilitation Facility Agreement
Regence BlueCross BlueShield of Utah Participating Emergency Medical Services Agreement
Regence BlueCross BlueShield of Utah Participating Skilled Nursing Facility/Rehabilitation Agreement

RECITALS

WHEREAS, Provider and Corporation are parties to one or more of the Agreements; and

WHEREAS, Corporation desires to amend the Agreement(s) for the purpose of incorporating the provisions set forth below.

NOW THEREFORE, in consideration of the foregoing premises and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties agree as follows:

AMENDMENTS

1. The following subsection 9.12.1, "DISCLOSURE OF RATES TO MEMBERS", is hereby added to the Agreement.

   9.12.1 DISCLOSURE OF RATES TO MEMBERS. Notwithstanding any other provision of this Agreement to the contrary, either party may disclose to Members the Member's actual or estimated cost-sharing amount (e.g., copayment, deductible, and/or coinsurance) for a Covered Service, to explain claims payment and to facilitate informed decisions regarding health care services use and cost. The parties understand that in some cases the cost-sharing amount may be equal to the allowed amount for services under this Agreement.

2. This Amendment only amends current Agreements to which Provider and Corporation are already parties. It in no way means that a Provider is now a part of any Agreement listed above, unless that Agreement between Provider and Corporation is already in effect on the effective date of this Amendment.

3. As of the Effective Date above, this Amendment is incorporated into and becomes part of the Agreement.

4. Any term not defined herein shall have the meaning set forth in the Agreement.

5. To the extent that there is any conflict between the terms of the Agreement and the terms of this Amendment, the terms of this Amendment will prevail.

6. Except as stated in this Amendment, all provisions of the Agreement including Exhibits and Attachments will remain in full force and effect.

ADDENDUM

PREFERRED PROVIDER NETWORK
(Addendum to Regence BCBSU Participating Emergency Medical Services Agreement)

In signing this Preferred Provider Network Addendum to the Participating Emergency Medical Services (EMS) Agreement to which it is attached, EMS agrees to provide services to eligible Members covered under Preferred Provider plans, ValueCare and Federal Employee Health Benefits Program (FEP).

1. Definitions.

   A. "Preferred Provider" means any hospital, EMS or other health care professional or facility that has contracted with Corporation to participate in the Preferred Provider Network and to provide services to Members covered under PPO plans.

2. Direction of Members Corporation agrees to encourage PPO plan Members to use the services of EMS through health plan designs which include financial incentives for using preferred providers, through marketing and advertising activities and by providing provider lists to all PPO Members identifying EMS as a participating provider with Corporation's PPO network.

3. Referrals to PPO Network Providers EMS agrees that if the services of another health care facility or provider are required for a PPO plan Member, EMS shall use his/her best efforts to ensure that the health care facility and/or provider is a PPO network provider.

4. Compensation For services provided to PPO plan members, Corporation will pay EMS in accordance with the PPO fee schedule set forth in Exhibit A and incorporated by reference herein. When the Member's Policy or Certificate provides for payment of Copayment, Coinsurance or Deductibles by the Member, payment by Corporation for Covered Services shall be the fee schedule amount less the applicable Copayment, Coinsurance and/or Deductible.

5. Addendum to Regence BCBSU Participating EMS Agreement. This Addendum is in addition to, and does not replace, the Regence BCBSU Participating EMS Agreement between Corporation and EMS. All conditions and provisions of the Regence BCBSU Participating EMS Agreement shall remain in effect except as specifically otherwise provided in this Agreement.

IN WITNESS WHEREOF, the parties have caused this Preferred Provider Network Addendum to be signed on the date and year written below.

SPANISH FORK CITY	REGENCE BLUECROSS BLUESHIELD OF UTAH
By:_____	By: _____ Byron K. Clawson, Vice President Provider Services
Date:_____	Date:_____

ADDENDUM

HEALTHWISE HMO NETWORK
(Addendum to Regence BCBSU Participating Emergency Medical Services Agreement)

In signing this Addendum to the Participating Emergency Medical Services Agreement to which it is attached, EMS agrees to provide services to eligible Members covered under HealthWise HMO plans in accordance with the terms and conditions set forth below.

1. Referrals to HMO Network Providers. EMS agrees that if the services of another health care facility or provider are required by a HealthWise Member, EMS shall use his/her best efforts to ensure that the health care facility and/or provider is a HealthWise network provider.

2. Compensation. For services provided to HealthWise HMO plan Members, Corporation will pay EMS in accordance with the HMO fee schedule attached as Exhibit A and incorporated by reference herein. When the Member's Policy or Certificate provides for payment of Copayment, Coinsurance or Deductibles by the Member, payment by Corporation for Covered Services shall be the fee schedule amount less the applicable Copayment, Coinsurance and/or Deductible.

3. HMO Member Appeal Procedure. EMS agrees to participate in and cooperate with the HMO Member Appeal Procedure and comply with final determinations rendered in accordance with that procedure. A copy of the HMO Member Appeal Procedure is available from Corporation upon request.

4. Addendum to Regence BCBSU Participating EMS Agreement. This Addendum is in addition to, and does not replace, the Regence BCBSU Participating EMS Agreement between Corporation and EMS. All conditions and provisions of the Regence BCBSU Participating EMS Agreement shall remain in effect except as specifically otherwise provided in this Agreement.

IN WITNESS WHEREOF, the parties have caused this HealthWise HMO Network Addendum to be signed on the date and year written below.

SPANISH FORK CITY	REGENCE BLUECROSS BLUESHIELD OF UTAH
By:_____	By: _____ Byron K. Clawson, Vice President Provider Services
Date:_____	Date:_____

MEMO

To: Mayor and Council
From: S. Junior Baker
Date: 14 Dec. 2010
Re: Pre-disaster Mitigation Plan

On the agenda for December 21st is a consent item for a pre-disaster mitigation plan. In order to qualify for FEMA funds in the event of a disaster, a pre-disaster mitigation plan needs to be in place. We adopted a plan in 2004, but it should be updated every five years. Mountainland Association of Governments (MAG) is authorized by the Federal government to prepare the document. They have prepared a plan for the three counties they cover. Our resolution contains the plan for Utah County. It should be adopted by resolution, which is what the consent item authorizes.

As this is merely an update, it appears as a consent item.

RESOLUTION NO. 10-11

VOTING	YES	NO
G. WAYNE ANDERSEN Mayor, *(votes only in case of tie)*		
ROD DART *Council member*		
RICHARD M. DAVIS *Council member*		
STEVE LEIFSON *Council member*		
JENS P. NIELSEN *Council member*		
KEIR A. SCOUBES *Council member*		

I MOVE this resolution be adopted:
I SECOND the foregoing motion:

A RESOLUTION ADOPTING THE 2010 MOUNTAINLAND ASSOCIATION OF GOVERNMENTS PRE-DISASTER HAZARD MITIGATION PLAN AS REQUIRED BY THE FEDERAL DISASTER MITIGATION AND COST REDUCTION ACT OF 2000

WHEREAS, President William J. Clinton signed H.R. 707, the *Disaster Mitigation and Cost Reduction Act of 2000*, into law on October 30, 2000.

WHEREAS, the Disaster Mitigation Act of 2000 requires all jurisdictions to be covered by a Pre-Disaster Hazard Mitigation Plan to be eligible for Federal Emergency Management Agency pre-disaster funds,

WHEREAS, Mountainland Association of Governments (MAG) has been contracted by the State of Utah to prepare a Pre-Disaster Mitigation Plan covering all of the jurisdictions in the MAG Area, and

WHEREAS, the MAG Executive Council approved MAG Staff to write the plan, and

WHEREAS, Spanish Fork City is within the MAG Area, and

WHEREAS, the Spanish Fork City Council is concerned about mitigating potential losses from natural disasters before they occur, and

WHEREAS, the plan identifies potential hazards, potential loses and potential mitigation measures to limit loses, and

WHEREAS, the Spanish Fork City Council has determined that it would be in the best interest of the community as a whole to adopt the Pre-Disaster Hazard Mitigation Plan as it pertains to the City;

NOW THEREFORE, be it resolved by the Spanish Fork City Council as follows:

1. The attached "Mountainland Association of Governments Pre-Disaster Mitigation Plan" be adopted to meet the requirements of the Disaster Mitigation and Cost Reduction Act of 2000.

2. This Resolution shall be effective immediately upon adoption.

DATED this 21st day of December, 2010.

_____
G. WAYNE ANDERSEN, Mayor

Attest:

_____
KENT R. CLARK, City Recorder

Dear Brad,

FEMA Region VIII completed its review of the Mountainland Pre-Disaster Hazard Mitigation Plan Update and has determined that this plan meets the mitigation planning requirements established by 44 CFR Part 201 pending its adoption by the participating jurisdictions. Upon receipt of this documentation, the Region will sign and deliver the final FEMA approval letter and review crosswalk for this plan update.

The local jurisdictions and AOG prepared an excellent plan. Please pass on the following overall comments:

- Very well written and well organized plan given the number of jurisdictions participating, e.g. the separate risk assessments for each county include consistent tables for easy referencing.

- Great public involvement process through "piggybacking" on transportation open houses to reach greater numbers of people and using website with interactive hazard mapping application.

- Excellent vulnerability assessment including loss estimates for each jurisdiction for each hazard addressed and composite maps showing potential loss areas.

For FEMA to give approval to a multi-jurisdictional plan, at least one participating jurisdiction must formally adopt the plan within one calendar year of FEMA's designation of the plan as "approvable pending adoption." We recommend that all participating jurisdictions coordinate the adoption process as soon as the plan has received "approvable pending adoption" status to ensure that all participating jurisdictions are covered by this plan for the full five years and are eligible to apply for all the Hazard Mitigation Assistance (HMA) grant programs.

We congratulate the effort that went into this plan's update and now await the adoption resolutions from the participating jurisdictions.

Thank you,
Julie

Julie Baxter, CFM
Senior Community Planner
FEMA Region VIII/Mitigation Division
Denver Federal Center, Building 710A
Denver, CO 80225-0267
Office: 303.235.4739
Cell: 303.882.0413

Mountainland Pre-Disaster Hazard Mitigation Plan 2010

Prepared by

MOUNTAINLAND
ASSOCIATION OF GOVERNMENTS
Serving Summit, Utah and Wasatch Cities & Counties

Executive Summary

Purpose

To fulfill federal, state, and local hazard mitigation planning responsibilities; to promote pre and post disaster mitigation measures, short/long range strategies that minimize suffering, loss of life, and damage to property resulting from hazardous or potentially hazardous conditions to which citizens and institutions within the state are exposed; and to eliminate or minimize conditions which would have an undesirable impact on our citizens, the economy, environment, and the well-being of the state of Utah. This plan is an aid in enhancing city and state officials, agencies, and public awareness to the threat that hazards have on property and life and what can be done to help prevent or reduce the vulnerability and risk of each Utah jurisdiction.

Scope

Utah PDM Planning phase is statewide. The State of Utah will work with all local jurisdictions by means of the seven regional Association of Governments. The Mountainland Association of Governments area, which covers the counties of Summit, Utah and Wasatch, will have a plan completed by March 1, 2010 to give to the Utah Division of Emergency Services. Future monitoring, evaluating, updating and implementing will take place as new incidents occur and or every three to five years and will be included in the local mitigation plans as well.
Natural hazards addressed are: Flooding; Wildland Fire; Landslide; Earthquake; Drought; Severe Weather; and Infestation.

The Counties, Cities and Towns of the three-county Mountainland area are:

Summit County

Coalville, Francis, Henefer, Kamas, Oakley, and Park City.

Utah County

Alpine, American Fork, Cedar Fort, Cedar Hills, Eagle Mountain, Elk Ridge, Genola, Goshen, Highland, Lehi, Lindon, Mapelton, Orem, Payson, Pleasant Grove, Provo, Salem, Santaquin, Saratoga Springs, Spanish Fork, Springville, Vineyard, and Woodland Hills.

Wasatch County

Charleston, Daniel, Heber, Midway, and Wallsburg.

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Part I
Introduction
General Regional Data

Introduction

The State of Utah is vulnerable to natural, technological, and man-made hazards that have the possibility of causing serious threat to the health, welfare, and security of our citizens. The cost of response to and recovery from potential disasters can be lessened when attention is turned to mitigating their impacts and effects before they occur or re-occur.

What is Hazard Mitigation

Hazard mitigation is defined as any cost-effective action(s) that have the effect of reducing, limiting, or preventing vulnerability of people, property, and the environment to potentially damaging, harmful, or costly hazards. Hazard mitigation measures, which can be used to eliminate or minimize the risk to life and property, fall into three categories. First; those that keep the hazard away from people, property, and structures. Second; those that keep people, property, and structures away from the hazard. Third; those that do not address the hazard at all but rather reduce the impact of the hazard on the victims such as insurance or grants. This mitigation plan has strategies that fall into all three categories.

Hazard mitigation measures must be practical, cost effective, and environmentally and politically acceptable. Actions taken to limit the vulnerability of society to hazards must not in themselves be more costly than the value of anticipated damages.

The primary focus of hazard mitigation actions must be at the point at which capital investment decisions are made and based on vulnerability. Capital investments, whether for homes, roads public utilities, pipelines, power plants, chemical plants or warehouses, or public works, determine to a large extent the nature and degree of hazard vulnerability of a community. Once a capital facility is in place, very few opportunities will present themselves over the useful life of the facility to correct any errors in location or construction with respect to hazard vulnerability. It is for these reasons that zoning ordinances, which restrict development in high vulnerability areas, and building codes, which insure that new buildings are built to withstand the damaging forces of hazards, are the most useful mitigation approaches a city can implement.

Previously, mitigation measures have been the most neglected programs within emergency management. Since the priority to implement mitigation activities is generally low in comparison to the perceived threat, some important mitigation measures take time to implement. Mitigation success can be achieved, however, if accurate information is portrayed through complete hazard identification and impact studies, followed by effective mitigation management. Hazard mitigation is the key to eliminating long-term risk to people and property living in Utah from hazards and their effects. Preparedness for all hazards includes response and recovery plans, training, development, management of resources, and the need to mitigate each jurisdictional hazard.

The State Division of Emergency Services and Homeland Security (DESHS) have identified the following hazards to be analyzed by each county. These hazards include avalanche, dam failure, debris flow, drought, earthquake, flood, flash flooding, infestation, landslide, problem soils, summer storm, tornado, urban and rural fires, and winter storm.

This regional/multi-jurisdictional plan evaluates the impacts, risks and vulnerabilities of natural hazards in a jurisdictional area affected by a disaster. The plan supports, provides assistance, identifies and describes mitigation projects for each annex. The suggestive actions and plan implementation for local

and tribal governments could reduce the impact of future disasters. Only through the coordinated partnership with emergency managers, political entities, public works officials, community planners and other dedicated individuals working to implement this program was it accomplished.

Purpose

To fulfill federal, state, and local hazard mitigation planning responsibilities; to promote pre and post disaster mitigation measures, short/long range strategies that minimize suffering, loss of life, and damage to property resulting from hazardous or potentially hazardous conditions to which citizens and institutions within the state are exposed; and to eliminate or minimize conditions which would have an undesirable impact on our citizens, the economy, environment, and the well-being of the state of Utah. This plan is an aid in enhancing city and state officials, agencies, and public awareness to the threat that hazards have on property and life and what can be done to help prevent or reduce the vulnerability and risk of each Utah jurisdiction.

Scope

Mountainland Association of Governments, which covers the counties of Summit, Utah and Wasatch, will have a updated plan completed by August 1, 2010 to give to the Utah Division of Emergency Services. Future monitoring, evaluating, updating and implementing will take place as new incidents occur and or every three to five years and will be included in the local mitigation plans as well. Natural hazards addressed are: Flooding; Wildland Fire; Landslide; Earthquake; Drought; Severe Weather; and Infestation.

The Counties, Cities and Towns of the three county Mountainland area are:

Summit County

Coalville, Francis, Henefer, Kamas, Oakley, and Park City.

Utah County

Alpine, American Fork, Cedar Fort, Cedar Hills, Eagle Mountain, Elk Ridge, Genola, Goshen, Highland, Lehi, Lindon, Mapelton, Orem, Payson, Pleasant Grove, Provo, Salem, Santaquin, Saratoga Springs, Spanish Fork, Springville, Vineyard, and Woodland Hills.

Wasatch County

Charleston, Daniel, Heber, Midway, and Wallsburg.

Authority

Federal: Public Law 93-288 as amended, established the basis for federal hazard mitigation activity in 1974. A section of this Act requires the identification, evaluation, and mitigation of hazards as a prerequisite for state receipt of future disaster assistance outlays. Since 1974, many additional programs, regulations, and laws have expanded on the original legislation to establish hazard mitigation as a priority at all levels of government. When PL 93-288 was amended by the Stafford Act, several additional provisions were also added that provide for the availability of significant mitigation measures in the aftermath of Presidential declared disasters. Civil Preparedness Guide 1-3, Chapter 6- Hazard Mitigation

Assistance Programs places emphasis on hazard mitigation planning directed toward hazards with a high impact and threat potential.

President Clinton signed the Disaster Mitigation Act of 2000 into Law on October 30, 2000. Section 322, defines mitigation planning requirements for state, local, and tribal governments. Under Section 322 States are eligible for an increase in the Federal share of hazard mitigation (HMGP), if they submit for approval a mitigation plan, which is a summary of local and/or regional mitigation plans, that identifies natural hazards, risks, vulnerabilities, and describes actions to mitigate the hazards risks and vulnerabilities in that plan.

State: The Governor's Emergency Operation Directive, The Robert T. Stafford Disaster Relief and Emergency Assistance Act, amendments to Public Law 93-288, as amended, Title 44, CFR, Federal Emergency Management Agency Regulations, as amended, State Emergency Management Act of 1981, Utah Code 53-2, 63-5, Disaster Response Recovery Act, 63-5A, Executive Order of the Governor, Executive Order 11, Emergency Interim Succession Act, 63-5B.

Local: Local governments play an essential role in implementing effective mitigation, both before and after disaster events. Each local government will review all damages, losses and related impacts to determine the need or requirement for mitigation action and planning whenever seriously effected by a disaster, or when applying for state or federal recovery assistance. In the counties and cities making up the MAG Region, the local executive responsible for carrying out plans and policies are the County Commissioners/Council Members and City Mayors. Local Governments must be prepared to participate in the post disaster Hazard Mitigation Team process and the pre-mitigation planning as outlined in this document.

Association of Governments: The Association of Governments have been duly constituted under the authority of Title XI, Chapter13, Utah Code Annotated, 1953, as amended (The Inter-local Cooperation Act) and pursuant to Section 3 of the Executive Order of the Governor of the State of Utah, dated May 27, 1970, with the authority to conduct planning studies and to provide services to its constituent jurisdictions.

Introduction to Region

Geography

The area's geography is quite varied with desert to the far west and high mountains in the east. The bulk of the population is found in the fertile valleys lying between mountains. Agricultural land supports mainly fruit orchards, some cattle and sheep ranches, grain farms, dairies, hogs, chickens and smaller individual farms. Pine clad slopes and oak brush foothills characterize much of the undeveloped mountain landscape that exists in the area. Development encroaching on hillsides is of real concern to environmentalists, planners, wildlife managers and fire marshals. Only a small percentage of the area's unincorporated land has been developed; however, the potential for new growth is evident. The preservation of open space within urban settings is very crucial to quality of life and community well being.

Population

The Mountainland area is comprised of three counties located in north central Utah having an estimated combined population of 588,003 residents. Over the past few years each of these counties have experienced widespread growth equaling a 30% growth since the 2000 census. While most growth is infill development within urbanized areas, population is continuing to into areas with increase hazard potential.

According to the 2000 Census, the Mountainland area encompasses 5,050 square miles of geography but, as discussed earlier, the population is mostly confined to incorporated areas.

Mountainland Region Population 2000-2060

	Census		Short Range Projection			Long Range Projection		
	2000	2008	2010	2020	2030	2040	2050	2060
MOUNTAINLAND REGION	413,487	588,003	627,571	828,311	1,038,686	1,261,701	1,479,640	1,717,239
SUMMIT COUNTY	29,736	36,100	42,320	64,738	83,252	104,620	131,594	165,029
UTAH COUNTY	368,536	530,837	560,511	727,718	907,210	1,092,450	1,261,653	1,438,300
WASATCH COUNTY	15,215	21,066	24,740	35,855	48,224	64,631	86,393	113,910

Sources: http://www.governor.state.ut.us/projections/EDPT3.pdf;
U.S. Bureau of the Census; Utah Population Estimates Committee;
2002 Baseline Projections, Governor's Office of Planning and Budget, UPED Model System.
Notes: AARC is average annual rate of change. 1980 and 1990 populations are April 1 U.S. Census modified age, race and sex (MARS) populations; 2000 populations are April 1 U.S. Census summary file 1 (SF1) populations; all others are July 1 populations.

Population Origin

Population by Race and Hispanic Origin Mountainland Counties, 2000 (most recent available)						
	White	Black	Amer. Indian Aleut, Eskimo	Asian or Pac. Isle	Hispanic	% Minority Pop
Summit	27,299	72	91	298	2,406	10.5
Utah	340,388	1,096	2,206	6,039	25,791	10.3
Wasatch	14,549	33	65	60	775	6.4
Region	382,236	1,201	2,362	6,397	28,972	10.2

Source: US Census Bureau, Census 2000

The resident population of the Mountainland Area has increased steadily since the last census was taken. The region, in 2000, showed an overall population of 413,487 residents, nearly 90% of which live within the boundaries of Utah County. With an annual growth rate of over 2.5% projected through the year 2020 for the region, the area ranks high in population growth compared to almost anywhere else in the United States. An interesting statistic generated by the State of Utah suggests that annual employment growth for the region hovers right at 3% for the same time period, suggesting a possible decrease in the already low unemployment rate, or a significant increase of in-migrating workers to fill the jobs becoming available. A third scenario could be a change in the mix of those in the workforce to include a number from the ranks of those not currently seeking employment, like the elderly, or possibly spouses not now working. Chances are good that the actual reason for the change will be a combination of all three possibilities.

Economy

The economy of the area could be characterized as moderate in some sectors, but with several real concerns and challenges to be addressed. The first is the fact that the region has a very low per capita income level. Large families and low pay scales make for a somewhat unique situation which forces skilled labor out of the area, or in many cases, a second wage earner (usually the spouse) takes a low paying, low skill job to help make ends meet. There is a sense that underemployment is a related problem, although trying to measure underemployment is difficult and the usual data providers do not disseminate the numbers if they are tracked. The sense of home and community is strong in Utah and many seem willing to find alternate, less fulfilling employment rather than moving out of state for better positions.

Another challenge to the economy is the uneven distribution of businesses within the district. Utah County mostly drives the region's labor statistics, especially within the Provo-Orem geographical area; however, other parts of the district don't share much in this business boom. Smaller outlying communities in Summit and Wasatch County, and even southern Utah County, may be struggling to find new business growth and don't share in the prosperity of the sales activity and tax distribution of their neighbors. In other words, the district may experience a 4.9% unemployment rate, but a small rural town might struggle with a 10% or higher rate, taking little comfort in knowing the region is doing so well! With 57% of all labor force non-agricultural jobs showing up in the service and retail trade sectors, there is plenty of cause for concern in the future when the demand for such services could wane because personal spending is curtailed. The regional economy has moved forward in many important ways since district designation twenty-two years ago, but further diversification and balance in the types of jobs available within the region would certainly better stabilize the economy to some extent so that in a downturn, large layoffs and reductions in lower paying jobs would not affect so many workers.

The University of Utah's Bureau of Economic and Business Research publishes a report summarizing the economies of each of Utah's twenty-nine (29) counties. Excerpts of that study are shown in each county's section of the Plan to direct some focus on the economic growth that each Mountainland county has experienced in recent years. It shows a fairly substantial rise in income and sales in each case although there may be some signs of slowing, especially in Utah County, where new residential construction seems to be tapering off compared to preceding years. Some slowing of the region economy is likely to occur during the following decade, especially with the events of 9/11, the tech stock bust, corporate corruption and war with Iraq.

Part III
Planning Process

Introduction

The Pre-Disaster Mitigation Plan process was presented to the MAG Executive Council (with elected officials for every jurisdiction) in early 2002. The Executive Council unanimously approved the process, which designated MAG staff (Andrew K. Jackson, Andrew Wooley, Jill Stark) to prepare a multi-jurisdictional plan for adoption by each community. In 2008 the Executive Council was informed that MAG staff (Robert Allen, Andrew Wooley, Kori Iman) would be updating the current plan. A written invitation was sent to the Mayor of every community requesting participation in the planning process.

An Ad-Hoc Disaster Mitigation Plan Committee (Steering Committee) was created to review the current plan and make additions, corrections and updates, including hazard history, updated maps and projections, review and update mitigation strategies. The committee met several times over the course of the plan update. Letters were sent out to the mayors of each community requesting that they have someone attend the meetings. Officials from resource agencies, land managers and special service districts were also invited to attend and participate in the planning process.

Overall, each of the jurisdictions in the Mountainland Region participated in the creation of this plan. Additionally, individuals from multiple agencies and service districts were also involved in the creation of this plan such as: Utah Department of Transportation, Utah Transit Authority, Central Utah Water Conservancy District, BLM, USFS, Red Cross, BYU, UVU, University of Utah, Utah FFSL, and multiple service districts and emergency services agencies.

Plans and Reports Used

Throughout the plan update process the planning team consulted and coordinated with additional plans and reports that contain hazard information. Below is a list of the primary documents used.

- General Plans for each jurisdiction
- Capital Improvement Plans for each jurisdiction (if available)
- CUWCD Hazard Mitigation Plan
- Utah FFSL WUI Plan
- Utah Dept of Agriculture Insect Reports
- National Drought Policy Commission Reports
- FEMA Mitigation Guidelines
- Utah State Hazard Mitigation Plan
- Corps of Engineers FHIS
- Utah Mitigation Handbook
- A Plan to Reduce Losses from Geologic Hazards (Utah Geological Survey)

Ad-Hoc Disaster Mitigation Plan Participation

Jurisdiction	Date of a Meeting Attended (*many attended multiple meetings even though only one date is listed*)
Alpine	August 11,2008
American Fork	August 11,2008
Cedar Fort	Individual Participation
Cedar Hills	April 8, 2009
Charleston	August 11,2008
Coalville	January 29, 2010
Daniel	August 11,2008
Draper	August 11,2008
Eagle Mountain	April 8, 2009
Elk Ridge	January 29, 2010
Francis	August 11,2008
Genola	Individual Participation
Goshen	January 29, 2010
Heber	August 11,2008
Henefer	January 29, 2010
Hideout	January 29, 2010
Highland	August 11,2008
Independence	January 29, 2010
Kamas	August 11,2008
Lehi	April 8, 2009
Lindon	August 11,2008
Mapleton	January 29, 2010
Midway	January 29, 2010
Oakley	August 11,2008
Orem	October 19,2009
Park City	August 11,2008
Payson	August 11,2008
Pleasant Grove	August 11,2008
Provo	January 29, 2010
Salem	Individual Participation
Santaquin	October 19,2009
Saratoga Springs	August 11,2008
Spanish Fork	April 8, 2009
Springville	August 11,2008
Summit County	April 9, 2009
Utah County	August 11,2008
Vineyard	January 29, 2010
Wallsburg	January 29, 2010
Wasatch County	August 11,2008
Woodland Hills	August 11,2008

Notice given to smaller communities–Some smaller communities did not have staff available to attend the ad-hoc meetings. These communities were given opportunities to participate by reviewing the draft

plan on the web and making comments either in writing, e-mail or over the phone and in individual meetings with the planning staff. These communities are listed above as Individual Participation. Other small communities contract with either the Sheriff's Office or other larger communities for Emergency Services. Since these communities would not be responding to events themselves, they were represented by the agency that actually knows the hazard needs of the community the best.

Public Participation

Public participation is essential to the planning process. Through each step, information on the plan has been posted on the web, and been presented at annual open houses. Additionally, several presentations on this plan have been given to various school and political groups. Public comment was accepted at each of these functions.

Web Site–Information on the plan and the planning process was also available on MAG's web site including an interactive hazard mapping application. Interested parties could e-mail comments on the draft plan from the web site.

A concerned citizen identifies the location of her home as she reviews Dam Failure Map at Open House.

Open Houses–Open Houses were held on the following dates in conjunction with a Transportation Open House. Over 1000 people attended the Open Houses.
October 15th, 16th, and 22nd 2008
October 14th, 21st, and 28th 2009

Continued Participation

Most of the public participation elements listed above will continue throughout the lifespan of this plan. Open houses and presentations are annual events. Most importantly the plan will be readily available on the web along with much of the background information used to create it.

Identifying Hazards–Mountainland Association of Governments identified several hazards that are addressed in the Hazard Mitigation Plan. The hazards were identified through a process that included input from the Plan Steering Committee, public input, researching past disasters and Geographic Information System (GIS) data.

The original hazard mitigation plan identified several potential hazards for the region. The list was reviewed by the Plan Steering Committee to ensure no additional hazards should be included. Mountainland AOG also has a very sophisticated GIS that was used to overlay current and future development with hazard data. This data was used to identify which hazards had the greatest risk within the MAG area. These hazards were then presented in greater detail in the following county portions of this plan.

Regional Mitigation Goals

To coordinate with each participating local government to develop a regional planning process meeting each plan component identified in the FEMA Region VIII Crosswalk document and any additional State planning expectation, both regionally and specifically, as needed, by gathering local input. And to also meet the need of reducing risk from natural hazards in Utah, through the implementation of and updating of regional plans.

These goals form the basis for the development of the PDM Plan and are shown from highest priority, at the top of the list, to those of lesser importance nearer the bottom. The goals were approved early in the planning process by the Planning Committee.

Local Goals

- Protection of life before, during, and after the occurrence of a disaster.
- Preventing loss of life and reducing the impact of damage where problems cannot be eliminated.
- Protection of emergency response capabilities (critical infrastructure)
    - Communication and warning systems
    - Emergency medical services and medical facilities
    - Mobile resources
    - Critical facilities
    - Government continuity
- Protection of developed property, homes and businesses, industry, education opportunities and the cultural fabric of a community, by combining hazard loss reduction with the community's environmental, social and economic needs.
- Protection of natural resources and the environment, when considering mitigation measures.
- Promoting public awareness through education of community hazards and mitigation measures.
- Preserving and/or restoring natural features that provide mitigation such as floodplains.

Long Term Goals

- Eliminate or reduce the long-term risk to human life and property from identified natural and technologic hazards.
- Aid both the private and public sectors in understanding the risks they may be exposed to and finding mitigation strategies to reduce those risks.
- Avoid risk of exposure to identified hazards.
- Minimize the impacts of those risks when they cannot be avoided
- Mitigate the impacts of damage as a result of identified hazards.
- Accomplish mitigation strategies in such a way that negative environmental impacts are minimized.
- Provide a basis for funding of projects outlined as hazard mitigation strategies.
- Establish a regional platform to enable the community to take advantage of shared goals, resources, and the availability of outside resources. If an earthquake occurs outside of Utah County it will still affect Utah County Communities this is similar to many natural hazards.

Objectives

The following objectives are meant to serve as a measure upon which individual hazard mitigation projects can be evaluated. These criteria become especially important when two or more projects are competing for limited resources.

- Identification of persons, agencies or organizations responsible for implementation of the goals.
- Projecting a time frame for implementation.
- Explanation of how the project will be financed including the conditions for financing and implementing as information is available.
- Identifying alternative measures, should financing not be available.
- Be consistent with, support, and help implement the goals and objectives or hazard mitigation plans already in place for surrounding counties.
- Be based on the Utah Vulnerability Analysis.
- Have significant potential to reduce damages to public and/or private property and/or reduce the cost of, state, and federal recovery for future disasters.
- Be the most practical, cost-effective, and environmentally sound alternative after consideration of the options.
- Address a repetitive problem, or one that has the potential to have a major impact on an area, reducing the potential for loss of life, loss of essential services and personal property, damage to critical facilities, economic loss, and hardship or human suffering.
- Meet applicable permit requirements.
- Not encourage development in hazardous areas.
- Contribute to both the short and long term solutions to the hazard vulnerability risk problem.
- Assuring the benefits of a mitigation measure is equal to or exceeds the cost of implementation.
- Have manageable maintenance and modification costs.
- When possible, be designed to accomplish multiple objectives including improvement of life-safety risk, damage reduction, restoration of essential services, protection or critical facilities, security or economic development, recovery, and environmental enhancement.
- Whenever possible, use existing resources, agencies and programs to implement the project

Updating the 2004 Plan

The primary task for the planning committee was to update the existing Mountainlands Pre-Disaster Hazard Mitigation Plan. These updates are scattered throughout this plan and are focused in several key areas.

Background Information- The Mountainlands Region has grown and changed since the last plan and regional information has been updated to reflect it.

Hazard Data- All mapping, profiling data for each hazard was updated using the latest and best available sources.

Population and Housing Stock- Great effort was expended in compiling the most recent demographic and assessors data. A new aspect of the plan was to include future populations, buildings and growth into the plan. This is further discussed in the next chapter.

Mitigation Strategies- An increased emphasis was put on each community to increase their mitigation strategies included in the plan. Specifically, each jurisdiction has incorporated multiple strategies per hazard as required.

Plan Maintenance- A weakness of the previous plan was monitoring the progress of mitigation actions taken by individual jurisdictions. A significant change for this plan was to hold at minimum a yearly Plan Steering Committee meeting to review progress and address needed updates to this plan.

While many portions of the plan may seem to look similar to the 2004 plan, each portion has been reviewed and updated to reflect the most current information possible.

Part IV
Risk Assessment

Hazard Identification

Identifying Hazards–Mountainland Association of Governments identified several hazards that are addressed in the Hazard Mitigation Plan. The hazards were identified through an extensive process that included input from the Plan Steering Committee, public input, researching past disasters and Geographic Information System (GIS) data.

Identified Hazards

Hazard	How Identified	Why Identified
Flood	• Review of Past Disasters • Review of FIRMs • Analysis of NSFHA by Army Corps of Engineers • Steering Committee Input • State database • GIS • Public Input	• Most Frequent Hazard • Historically Highest Cost • Readily available data • Successful Mitigation
Wildland Fire	• Review of Past Disasters • Steering Committee Input • State database • GIS • Public Input	• Ever-present Danger • Current Development Patterns Increase likelihood • Historic Data • Potential Loss of Life • 90% Human Caused
Landslide	• Review of Past Disasters • Steering Committee Input • State database • GIS • Public Input	• Ever-present Danger • Current Development Patterns Increase likelihood • Historic Data • Recent Losses
Earthquake	• Review of Past Disasters • Steering Committee Input • State database • GIS • Public Input	• High Potential • Public Awareness • Need for Preparation • Possible High Cost • Potential Increases with Time
Drought	• Review of Past Disasters • Steering Committee Input • State database • GIS • Public Input	• High Potential • Public Awareness • Historic Data • Recent Losses
Severe Weather	• Review of Past Disasters • Steering Committee Input • State database • GIS • Public Input	• High Frequency • Public Awareness • Successful Mitigation • Historic Data • Recent Losses

Infestation	• Review of Past Disasters • Steering Committee Input • State database • GIS • Public Input	• Historic Data • Public Awareness • Recent Events with crickets and West Nile Virus

Profiling Hazard Events

To provide more specific detailed information, the plan has been broken down into separate sections by county. These separate sections deal with *Profiling Hazard Events,* and *Assessing Vulnerability* in greater detail.

Hazard Definitions and Analysis Methodologies

MAG collected data and compiled research on nine hazards: dam failure, earthquake, infestation, flooding, landslide, severe weather, drought, and wildfire. Research materials came from a variety of agencies including DES, AGRC, USGS, USACE, UGS, UFFSL, county GIS, city GIS, County Assessors, and County Emergency Managers. Historical data used to define historic disasters was researched through local newspapers, interviewing residents, local knowledge derived through committee meetings, historic state publications, Utah Museum of Natural History, and recent and historic scientific documents and studies.

Vulnerability Methodology

Geographic Information Systems (GIS) were used as the basic analysis tool to complete the hazard analysis for this plan. The goal of the vulnerability study is to estimate the number of structures and infrastructure vulnerable to each hazard and assign a dollar value to this built environment. For most hazards a comparison was made between digital hazard data and the Regional Inventory.

Regional Inventory

In order to determine the possible extent of damage caused by potential events, a regional inventory was developed. This regional inventory is a compilation of residential, commercial, and critical facilities, their locations and their values. In addition, future development was identified and included in the analysis using general plans and demographic projections.

Residential-Residential data provided with HAZUS (2000 census) was used as a basis for residential inventory. Parcel, assessor, and building permit data from each of the three counties were analyzed and added to determine current numbers, locations, and values of housing units.

Commercial – As with residential, HAZUS (2000 census) data was used as a basis for commercial inventory. Parcel, assessor, and building permit data from each of the three counties were analyzed and added to determine current numbers, locations, and values.

Critical Facilities* – GIS data, local knowledge and parcel data were used to identify Critical Facilities within the region. Critical Facilities for the purpose of this plan are defined as Schools, Fire, Police, and Ambulance stations, Hospitals, and Emergency Operation Centers.

Roads and Bridges – Local GIS Data was provided by the Utah Department of Transportation, counties, local communities and HAZUS to determine locations and replacement costs.

Costs

Item	Cost per Mile
Local Roads	2,000,000
State Highways	2,413,500
US Highways	2,413,500
US Interstates	3,600,000
Power Lines	48,280
Gas Lines	241,390

Future Development – An important aspect of this plan is the addition of future development into the risk analysis. For each of the above categories, general plans, development agreements and community master plans were used to identify the location, number and value (in 2007 dollars).Future jobs affected were determined using Department of Workforce Services Data in combination with plans cited above.

*It was determined by the planning committee that critical infrastructure facilities such as water sewer and power structures be left out of this plan in order to minimize their vulnerability to outside threats (terrorism). Most of the jurisdictions have been advised by security experts to limit the public exposure of these facilities. However, each jurisdiction has been given the option, if they so choose, to have a separate vulnerability assessment of these structures done. The results would not be made available for public consumption or included in this plan for security reasons. At the publication date of this document, no jurisdiction or entity has requested such an assessment.

All the analysis takes place within the spatial context of a GIS. With the information available in spatial form, it is a simple task to overlay the natural hazards with the regional inventory to extract the desired information. However some of the hazards identified are not isolated to specific locations within the region or spatial data is unavailable and are therefore discussed at a regional level. Each hazard and its' specific analysis methodology is defined below.

In terms of hazard mapping presentation in this document, simple, letter size maps were created to provide a graphical illustration of location. Larger maps can be plotted out upon request. A web based data manipulation and maps application was also created as a planning tool, to allow interested persons within Utah, Wasatch and Summit Counties in Utah select a certain jurisdiction and view the various hazards on maps as well as the assessment data. The application has been available on the Mountainland Website since the creation of the data.

This information should not take the place of accurate field verified mapping from which ordinances need to be based off of. Owners of critical facilities should, and in most cases do, have detailed pre-hazard mitigation plans for their specific facilities.

The following table identifies the recurrence and frequency of hazards in Utah. Hazard profiles for each of the counties are in each specific county annex.

Probability

Hazard	Number of Events	Years in Record	Recurrence Interval (years)	Hazard Frequency and Probability/Year
Droughts	17	103	6.06	0.17
Earthquakes	30	133	4.43	0.23
Landslides	1	26	26.00	0.04
Floods	275	53	0.19	5.19
Tornadoes (all)	529	120	0.23	4.41
High wind	50	30	0.60	1.67
Windstorms	839	53	0.06	15.83
Severe Winter Storms	40	41	1.03	0.98
Wildfires	1,102	10	0.01	110.20
Urban Interface Fires	Unknown	Unknown	Unknown	Unknown
Volcanoes	700	5,000,000	7142.86	0.00
Thunderstorms and Lightning (fatalities)	53	19	0.36	2.79

Earthquakes

An earthquake is the abrupt shaking of the earth caused by the sudden breaking of rocks when they can no longer withstand the stresses, which build up deep beneath the earth's surface. The rocks tend to rupture along weak zones referred to as faults. When rocks break they produce seismic waves that are transmitted through the rock outward producing ground shaking. Earthquakes are unique multi-hazard events, with the potential to cause huge amounts of damage and loss. Secondary effects of a sudden release of seismic energy (earthquake) include: ground shaking, surface fault rupture, liquefaction, tectonic subsidence, slope failure, and various types of flooding.

The Intermountain Seismic Belt

The Intermountain Seismic Belt (ISB), which Mountainland is part of, is a zone of pronounced earthquake activity up to 120 miles wide extending in a north south direction 800 miles from Montana to northern Arizona. The Utah portion of the ISB trends from the Tremonton Cache Valley area south through the center of the state, along the Wasatch Front, and the southwest through Richfield and Cedar City concluding in St. George. "The zone generally coincides with the boundary between the Basin and Range physiographic province to the west and the Middle Rocky Mountains and Colorado Plateau physiographic provinces to the east" (Eldredge 6).

Secondary Earthquake Threats

The major secondary effects of earthquakes include: ground shaking, surface fault rupture, liquefaction, tectonic subsidence, avalanches, rock fall, slope failure, and various types of flooding. Other sections discuss landslides, and flooding therefore they will not be discussed under secondary effects of earthquakes yet importance needs to be given to the fact that earthquakes can increase the likelihood of flooding and landslides.

Ground Shaking

Ground shaking causes the most impact during an earthquake because it affects large areas and is the origin of many secondary effects associated with earthquakes. Ground shaking, which generally lasts 10 to 30 seconds in large earthquakes, is caused by the passage of seismic waves generated by earthquakes. Earthquake waves vary in both frequency and amplitude. High frequency low amplitude waves cause more damage to short stiff structures, were as low frequency high amplitude waves have a greater effect on tall (high-rise) structures. Ground shaking is measured using Peak Ground Acceleration (PGA). The PGA measures the rate in change of motion relative to the established rate of acceleration due to gravity.

Local geologic conditions such as depth of sediment and sediment make up, affect earthquake waves. Deep valley sediments increase the frequency of seismic waves relative to bedrock. In general, ground shaking increases with increased thickness of sediments" (Eldredge 8). Findings in recent geologic research done by Ivan Wong indicate and earthquake in Salt Lake County would produce higher PGA values than previously expected near faults and areas of near surface bedrock.

Surface Fault Rupture

During a large earthquake fault movement may propagate along a fault plain to the surface, resulting in surface rupture along the fault plain. The Wasatch fault is a normal (mountain building) fault with regards to movement, meaning the footwall of the fault moves upward and the hanging wall moves in a down direction. Thus faulting is on a vertical plain, which results in the formation of large fault scarps. Surface fault rupture along the Wasatch fault is expected for earthquakes with magnitudes of 6.5 or larger.

The largest probable earthquake that could strike the Mountainland region is an earthquake with an estimated magnitude between 7.0 and 7.5; an earthquake of this magnitude, based on current research, would create "surface fault rupture with a displacement of between 16 to 20 feet in height with break segments 12 to 44 miles long" (Eldredge 10). In historic time surface fault rupture has only occurred once in Utah; the 1934 Hansel Valley earthquake with a magnitude 6.6 produced 1.6 feet of vertical offset.

Surface fault rupture presents several hazards, anything built on top of the fault or crossing the fault has a high potential to be destroyed in the event of displacement. Foundations will be cracked, building torn apart, damage to roads, utility lines, pipelines, or any other utility line crossing the fault. It is almost impossible to design anything within reasonable cost parameters to withstand an estimated displacement of 16 to 20 feet.

Picture 4.1 Displacement in excavation near Downtown Salt Lake.

Various Flooding Issues Related to Earthquakes

Earthquakes could cause flooding due to the tilting of the valley floor, dam failure and seiches in lakes and reservoirs. Flooding can also result from the disruption of rivers and streams. Water tanks, pipelines, and aqueducts may be ruptured, or canals and streams altered by ground shaking, surface faulting, ground tilting, and landsliding.

Seiches

Standing bodies of water are susceptible to earthquake ground motion. Water in lakes and reservoirs may be set in motion and slosh from one end to the other, much like in a bathtub. This motion is called a seiche (pronounced “saysh”). A seiche may lead to dam failure or damage along shorelines.

Analysis - HAZUS

HAZUS MH shorthand for Hazards United States Multi-Hazard was used to determine vulnerability as it relates to seismic hazards for the study area. The HAZUS-MH Earthquake Model is designed to produce loss estimates for use by federal, state, regional and local governments in planning for earthquake risk mitigation, emergency preparedness, response and recovery. The methodology deals with nearly all aspects of the built environment, and a wide range of different types of losses. Extensive national databases are embedded within HAZUS-MH, containing information such as demographic aspects of the population in a study region, square footage for different occupancies of buildings, and numbers and locations of bridges. Embedded parameters have been included as needed. Using this information, users

can carry out general loss estimates for a region. The HAZUS-MH methodology and software are flexible enough so that locally developed inventories and other data that more accurately reflect the local environment can be substituted, resulting in increased accuracy.

For this plan, the software flexibility was extensively utilized to augment the analysis results. As discussed in the regional inventory section above, local, up to date data was added to the embedded inventory data including residential, commercial and critical facilities data. Future development data was also added to reflect potential growth and development patterns within the analysis. For earthquakes, seismologists from the University of Utah Seismology Department provided a shake map and expert advice on probable locations and magnitudes for each of the three counties. The HAZUS model was then run for each individual county to simulate a likely seismic even. This analysis was used to formulate loss estimates.

As a function of the HAZUS model, all of the damaging effects of a potential earthquake are analyzed and incorporated into the loss estimates. This is especially important to the Mountainland Region considering the large areas of potential liquefaction in the valley floors. The addition of local liquefaction potential areas to the model is another example augmenting the existing data in the model to increase the accuracy of the results.

Accuracy

Uncertainties are inherent in any loss estimation methodology. They arise in part from incomplete scientific knowledge concerning earthquakes and their effects upon buildings and facilities. They also result from the approximations and simplifications that are necessary for comprehensive analyses. Incomplete or inaccurate inventories of the built environment, demographics and economic parameters add to the uncertainty. These factors can result in a range of uncertainty in loss estimates produced by the HAZUS-MH Earthquake Model, possibly *at best* a factor of two or more.

The methodology has been tested against the judgment of experts and, to the extent possible, against records from several past earthquakes. However, limited and incomplete data about actual earthquake damage precludes complete calibration of the methodology. Nevertheless, when used with embedded inventories, and parameters and augmented data, the HAZUS-MH Earthquake Model has provided a credible estimate of such aggregated losses as the total cost of damage and numbers of casualties. The Earthquake Model has done less well in estimating more detailed results - such as the number of buildings or bridges experiencing different degrees of damage.

The Earthquake Model assumes the same soil condition for all locations, and this has proved satisfactory for estimating regional losses. Of course, the geographic distribution of damage may be influenced markedly by local soil conditions. In the few instances where the Earthquake Model has been partially tested using actual inventories of structures plus correct soils maps, it has performed reasonably well.

Limited availability of digital data represented a problem in completing the vulnerability assessment. Additional limitations to the above described analysis method includes:

Limited data sets.
Lack of digital parcels data from the Wasatch County Assessor's offices.
HASUZ MH is not designed for small population counties.
Data was not field checked, resulting in an analysis wholly dependent on accuracy of data.
Meta data was lacking on some of the used data sets.

Potential Mitigation Strategies

The following mitigation strategies are provided so that communities may be aware of measures that could be used to limit the exposure to earthquake related damage.

Prevention

- Planning and Zoning
- Building construction regulation
- Regulation of other facilities (critical)

Property Protection

- Non-structural methods
- Retrofit upgrades
- Earthquake Insurance

Natural Resource Protection

- Identify Fault Rupture zones
- Identify secondary impact

Emergency Services

- Earthquake threat recognition
- Emergency Planning for Secondary Impact
- Emergency response (Mutual Aid, CERT)
- Critical Facilities Protection
- Health and safety maintenance
- Post-Disaster recovery and mitigation

Structural Projects

- Rebuild or retrofit critical facilities to higher seismic code
- Rebuild or retrofit infrastructure to higher seismic code

Public information

- Seismic maps; liquefaction, fault zones
- Map Information
- Outreach projects
- Real estate disclosures
- Library
- Technical Assistance
- Education

Flooding

Flooding is a temporary overflow of water onto lands not normally inundated by water producing measurable property damage or forcing evacuation of people and vital resources. Floods frequently cause loss of life; property damage and destruction; damage and disruption of communications, transportation, electric service, and community services; crop and livestock damage and loss, and interruption of business. Floods also increase the likelihood of hazard such as transportation accidents, contamination of water supplies, and health risk increase after a flooding event.

Several factors determine the severity of floods including rainfall intensity, duration and rapid snow melt. A large amount of rainfall over a short time span can result in flash flood conditions. Small amounts of rain can also result in flooding at locations where the soil has been previously saturated or if rain concentrates in an area having, impermeable surfaces such as large parking lots, paved roadways, or post burned areas with hydrophobic soils. Topography and ground cover are also contributing factors for floods. Water runoff is greater in areas with steep slopes and little or no vegetative ground cover.

Frequency of inundation depends on the climate, soil, and channel slope. In regions where substantial precipitation occurs during a particular season or in regions where annual flooding is due to spring melting of winter snow pack, areas at risk may be inundated nearly every year.

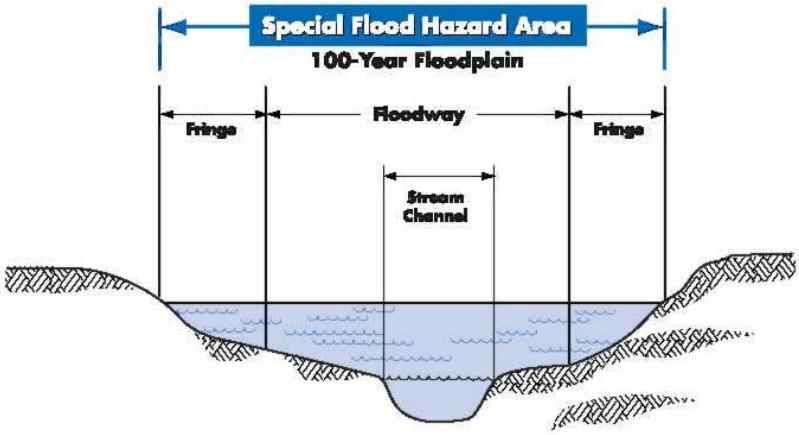
Conditions which may exacerbate floods:

Impermeable surfaces
Steeply sloped watersheds
Constrictions
Obstructions
Debris
Contamination
Soil saturation
Velocity

Explanation of Common Flood Terms

FIRM: Flood Insurance Rate Map

100-year flood: Applies to an area that has a 1 percent chance, on average, of flooding in any given year. However, a 100-year flood could occur two years in a row, or once every 10 years. The 100 year-flood is also referred to as the base flood.



Base Flood: Is the standard that has been adopted for the NFIP. It is a national standard that represents a compromise between minor floods and the greatest flood likely to occur in a given area and provides a useful benchmark.

Base Flood Elevation (BFE): As shown on the FIRM, is the elevation of the water surface resulting from a flood that has a 1% chance of occurring in any given year. The BFE is the height of the base flood, usually in feet, in relation to the National Geodetic Vertical Datum (NGVD) or 1929, the North American Vertical Datum (NAVD) of 1988, or other datum referenced in the FIS report.

National Flood Insurance Program (NFIP): The NFIP is a Federal program enabling property owners in participating communities to purchase insurance as a protection against flood losses in exchange for State and community floodplain management regulations that reduce future flood damages. Participation in the VFIP is based on an agreement between communities and the Federal Government. If a community adopts and enforces a floodplain management ordinance to reduce future flood risk to new construction in floodplains, the Federal Government will make flood insurance available within the community as a financial protection against flood losses. This insurance is designed to provide an insurance alternative to disaster assistance to reduce the escalating costs of repairing damage to buildings and their contents caused by floods.

Special Flood Hazard Area (SFHA): Is the shaded area on a FIRM that identifies an area that has a 1% chance of being flooded in any given year (100-year floodplain).

Floodway: Is the stream channel and that portion of the adjacent floodplain that must remain open to permit passage of the base flood without raising that water surface elevation by more than one foot.

Method of Analysis

The flooding analysis methodology is a hybrid of both HAZUS and spatial forms. HAZUS software has the capability of creating its own potential flood areas separate from the local flood plain data. These new flood areas were combined with the most accurate and current flood plain data to form the hazard spatial data which was overlaid with the regional inventory data to produce loss estimates.

Potential Mitigation Strategies

The following mitigation strategies are provided so that communities may be aware of measures that could be used to limit the exposure to flood related damage.

Prevention

- Planning and Zoning
- Floodplain open space preservation
- Building construction regulation
- Regulation of other facilities (critical)
- Stormwater management

Property Protection

- Relocation
- Acquisition
- Building elevation
- Flood proofing
- Lifeline protection
- Flood Insurance

Natural Resource Protection

- Wetlands protection
- Erosion and sediment control

Emergency Services

- Flood threat recognition
- Warning dissemination
- Flood response
- Critical Facilities Protection
- Health and safety maintenance
- Post-Disaster recovery and mitigation

Structural Projects
- Reservoirs/impounds
- Levees
- Diversions
- Channel and drainage modifications
- Channel and basin maintenance

Public information

- Flood Hazard maps
- Map Information
- Outreach projects
- Real estate disclosures
- Library
- Technical Assistance
- Environmental education

Dam Failure

Dam failures result from the failure of a man made water impoundment structure, which often results in catastrophic down grade flooding. Dam failures are caused by one or a combination of the following: "breach from flooding or overtopping, ground shaking from earthquakes, settlement from liquefaction, slope failure, internal erosion from piping, failure of foundations and abutments, outlet leaks or failures, vegetation and rodents, poor construction, lack of maintenance and repair, misuse, improper operation, terrorism, or a combination of any of these" (Eldredge 46). The Utah State Engineer has been charged with regulating non-federal dams in the State since 1919. "In the late 1970's Utah started its own Dam Safety Section within the State of Utah Engineers Office to administer all non-federal dams in response to the Federal Dam Safety Act (PL-92-367)" (Eldredge 46).

The State Dam Safety Section has developed a hazard rating system for all non-federal dams in Utah. Downstream uses, the size, height, volume, and incremental risk/damage assessments of dams are all variables used to assign dam hazard ratings in the Dam Safety classification system. Using the hazard ratings systems developed by the Dam Safety Section, dams are placed into one of three classifications high, moderate, and low. Dams receiving a low rating would have insignificant property loss do to dam failure. Moderate hazard dams would cause significant property loss in the event of a breach. High hazard dams would cause a possible loss of life in the event of a rupture. The frequency of dam inspection is designated based on hazard rating with the Division of Water Rights inspecting high-hazard dams annually, moderate hazard dams biannually and low-hazard dams every five years. There are 151 dams within the Mountainland Region of those 43 have received a high hazard rating by Dam Safety.

The following information regarding a failure of both Jordenelle and Deer Creek Dams and resulting loss was prepared by the United States Department of the Interior Bureau of Reclamation entitled "Dam Failure and Maximum Operational Release, Inundation Study: Deer Creek Dam" completed, February 2002.

Introduction and Purpose

On February 27, 1995, the Commissioner of the Bureau of Reclamation (Reclamation) issued a policy statement regarding establishing an Emergency Management Program at Reclamation dams. This policy stated that Reclamation would offer technical support and assistance to communities and jurisdictions downstream of Reclamation dams to ensure that adequate dam-specific emergency operation plans are in place. Directives for the emergency management program state that Emergency Actions Plans (EAP) shall be developed and are to contain descriptions of potentially affected areas in the flood plain with inundation maps wherever appropriate. This dam failure study was prepared to meet the goals and objectives of the Commissioner's directives.

The purpose of this study is to identify potential flood hazard areas resulting from the unlikely events of "sunny day" failure of Deer Creek Dam, the maximum operational release of Deer Creek Dam and the "sunny day" failure of Jordanelle Dam resulting in the failure of Deer Creek Dam due to overtopping.

These studies are standard practice within Reclamation and therefore do not reflect in any way upon the integrity of either Jordanelle or Deer Creek Dams.

Previous Studies

The Denver Office completed a previous Flood Inundation Study in June of 1990. It addressed two conditions, 1) a PMF (Probable Maximum Flood) causing the failure of Deer Creek Dam; and 2) a PMF (Probable Maximum Flood) causing the failure of Jordanelle Dam, which then results in the failure of Deer Creek Dam. Both scenarios were accomplished using the National Weather Service (NWS) DAMBRK model. Cross sections and some dam breach parameters were obtained from these studies for use in this report.

Description of Jordanelle Dam

Jordanelle Dam and reservoir is located on the Provo River in Wasatch County in north central Utah about 5 miles north of Heber City, Utah. Jordanelle Dam is a rolled earthfill structure with a fuse plug emergency spillway and outlet works. The reservoir has a storage capacity of 311,000 acre-feet at active conservation, which is elevation 6,166.4 feet. The total reservoir storage capacity is 361,500 acre-feet at elevation 6,182.0.

The rolled earth embankment section of Jordanelle Dam has a structural height of 300 feet and a crest length of 3820 feet at elevation 6185.0 feet.

The emergency fuse plug spillway is located near the left abutment and consists of an unlined inlet channel, a concrete lined trapezoidal channel, an earthen plug section, a concrete chute, and a 9.5-foot by 10-foot concrete double box conduit. The design flow of the spillway is 5,510 cfs at elevation 6182.0 feet.

The outlet works is located within the left abutment and consists of two primary outlet works intake structures one (LLOW) Low level outlet works and one (SLOW) selective level outlet works merging into a common outlet pipe and a bypass system. The capacities for the outlet works are 3,269 cfs and 2,153 cfs respectively at elevation 6,086.7. The bypass system taps into both the SLOW and LLOW upstream of the emergency gates with a capacity of 300 cfs at elevation 6,166.0 feet.

The primary purpose of the reservoir is to provide M&I water for use in Salt Lake City and northern Utah County. Additional project purposes include flood control, recreation, Heber Valley irrigation water, and fish and wildlife enhancement.

Description of Deer Creek Dam

Deer Creek Dam and reservoir are located on the Provo River about 16 miles northeast of Provo, Utah and about 10 miles southwest of Heber City, Utah. Deer Creek Dam consists of a zoned earthfill structure, spillway and outlet works. The reservoir has a storage capacity of 152,570 acre-feet at the top of the gates, which is elevation 5,417 feet.

Deer Creek Dam has a structural height of 235 feet and a crest length of 1,304 feet at elevation 5,425 feet. There is a parapet wall, which extends 3.5 feet above the crest to elevation 5,428.5 feet.

The concrete chute spillway, located on the right abutment of the dam, is controlled by two 21- by 20-foot high radial gates. The spillway crest elevation is 5,397.0 feet and has a capacity of 12,000 cfs at elevation 5,420.1 feet.

The outlet works, located in the left abutment of the dam consists of: a drop type trashrack structure, a 12-foot-diameter circular tunnel, a gate chamber with two 5-foot by 6-foot high-pressure emergency gates side by side, an 11-foot 6-inch by 17-foot access tunnel which holds two 72-inch-diameter steel penstocks that carry water into the power plant. The capacity of the outlet works is 1,500 cfs at elevation 5,420 feet.

Deer Creek Reservoir is part of a collection system, which stores and releases water from the Duchesne River, Weber River, and also the Provo River drainage. The primary recipients of the water are cities and farms along the Wasatch Front. It also provides year-round power generation and is used heavily for recreational purposes.

Method of Analysis

The primary purpose of the inundation maps is for warning and evacuation in the event of a dam failure or a large reservoir release. Values chosen to approximate physical characteristics such as dam failure breach parameters, channel roughness coefficients, etc., are based on assumptions and are used to produce best estimates of the downstream inundation. Thus, actual inundation were it to occur, could be greater or less than that indicated on the inundation maps.

For this study, the results of the one dimensional National Weather Service (NWS) DAMBRK model performed by the Denver Office was used to obtain the dam break flows from both Jordanelle Dam to Deer Creek Dam and from Deer Creek Dam to the mouth of Provo Canyon. However, the terrain beyond the mouth of Provo canyon is an alluvial fan, which unlike the narrow confined canyon, is a broad, flat plain. A two dimensional model is more appropriate for this type of terrain. It provides a more accurate depiction of the topography and allows for the water to spread and follow multiple drainage paths. The modeling tools used for the Orem/Provo areas utilized the Danish Hydraulic Institute's MIKE 21 two-dimensional hydrodynamic flow model. MIKE 21 is a 2-D finite difference model that simulates unsteady 2-D flows in (vertically homogeneous) fluids using the Saint Venant equations. ARCINFO GIS software is used as both a pre and post processor for the MIKE 21 model. Data used for the Deer Creek Dam models came from 7.5 minute, 10-meter resolution, digital elevation models (DEM) prepared by Land Info Inc., of Aurora, Colorado. The 10-meter data was then resampled at 30-meter cell size for use in the MIKE 21 models. The 10-meter elevation data appeared to be satisfactory for this study however for a more detailed study of the metropolitan area a better resolution of elevation data is recommended.

Study Details

Sunny Day Failure of Jordanelle Dam resulting in the failure of Deer Creek Dam due to overtopping.

The model using the National Weather Service DAMBRK program, with BOSS Corporation software enhancements, was used in the routing from Jordanelle Dam thru Deer Creek Reservoir and then to the mouth of the Provo canyon. The MIKE 21 two-dimensional (2-D) computer model was used in routing the releases from the mouth Provo canyon to Utah Lake.

Cross sections of the downstream areas of both Jordanelle and Deer Creek Dams that were used in the DAMBRK model were obtained from the 1990 study performed by the Denver Office.

The storage capacity for Jordanelle Reservoir was taken from the 1993 area capacity tables. Jordanelle reservoir water surface is assumed to be at active conservation, elevation 6166.4 feet, at the beginning of the piping failure simulation. The failure of Jordanelle Dam was assumed to develop in 2.0 hours, with piping beginning at elevation 6,000 feet. A bottom breach width of 500 feet was assumed, with side slopes of 1: 0.50, which resulted in a peak flow of 3,542,000 cfs.

Table 4.5 indicates the sensitivity of breach parameters by varying the time of dam breach formation and leaving the other parameters the same. The 2-hour breach time was assumed conservative considering the design and construction criteria of the dam.

Breach Parameters of Jordanelle Dam

Time of Breach Formation (hours)	Bottom Breach Width (feet)	Breach Side Slopes	Maximum Flow at Jordanelle Dam (CFS)
1.0	500	1: 0.50	5,020,000
*2.0	500	1: 0.50	3,542,000
3.0	500	1: 0.50	2,806,000

The storage capacity for Deer Creek Reservoir was taken from the 1962 area capacity tables. Deer Creek reservoir water surface is assumed to be at top of conservation, elevation 5417 feet at the beginning of Jordanelle Dam Failure. Deer Creek Dam is assumed to fail when the water surface reaches 1 foot over the top of the parapet wall at elevation 5428.5 feet. The breach develops in 1 hour and achieves a bottom breach width of 300 feet. A DAMBRK hydrograph, was taken at the mouth of Provo Canyon at river mile 10.0, and used as input data for the MIKE 21 model. The MIKE 21 input parameters used in this routing are listed in Table 4.6.

MIKE 21 input parameters

Flooding parameter*	0.15 meters
Drying parameter*	0.1 meters
Time step interval	1 second
Mannings "n" value	0.04

* The flooding parameter sets the minimum water depth required in a given cell in order for water to begin flowing into adjacent model cells. Conversely, the drying parameter sets a depth requirement below which the cell begins to dry out.

Sunny Day Failure of Deer Creek Dam due to piping

The model using the National Weather Service DAMBRK program, with BOSS Corporation software enhancements were used in the routing to the mouth of Provo canyon. The MIKE 21 two-dimensional (2-D) computer model was used in routing the releases from the mouth Provo canyon to Utah Lake. Cross sections of the downstream areas of both Jordanelle and Deer Creek Dams used in the DAMBRK model were obtained from the 1990 study performed by the Denver Office.

Deer Creek reservoir water surface is assumed to be at top of conservation, elevation 5417 feet at the beginning of the piping failure. The breach is assumed to develop in 1 hour and achieve a bottom breach width of 500 feet, which resulted in a peak flow of 1,550,000 cfs. Table 4.7 indicates the sensitivity of breach parameters by varying the time of dam breach formation and leaving the other parameters the same. The 1-hour breach time was assumed conservative considering the design and construction criteria of the dam.

Breach Parameters of Deer Creek Dam

Time of Breach Formation (hours)	Bottom Breach Width (feet)	Breach Side Slopes	Maximum Flow at Deer Creek Dam (CFS)
0.5	500	1: 0.50	1,826,000
1.0	500	1: 0.50	1,550,000
2.0	500	1: 0.50	1,275,000

A DAMBRK hydrograph, was taken at the mouth of Provo Canyon at river mile 10.0, and used as input data for the MIKE 21 model. The MIKE 21 input parameters used in this routing are listed in Table 4.8.

MIKE 21 input parameters

Flooding parameter*	0.3 meters
Drying parameter*	0.2 meters
Time step interval	1 second
Mannings "n" value	0.04

* The flooding parameter sets the minimum water depth required in a given cell in order for water to begin flowing into adjacent model cells. Conversely, the drying parameter sets a depth requirement below which the cell begins to dry out.

Deer Creek Dam Maximum Operational Release

The maximum operational release from Deer Creek Dam was modeled using a constant outflow of 13,500 cfs. The 13,500 cfs release was based on the maximum release from the dam and was used to indicate maximum water depths at each cross section using a constant flow. This was considered a conservative estimate based on the assumption that the flow would not generally maintain this volume at each cross section, but instead would decrease in depth as the reservoir emptied. The same constant flow of 13,500 cfs was used as input data for the MIKE 21 model, which begins at the mouth of Provo Canyon. MIKE 21 input parameters are listed in Table 4.9.

MIKE 21 input parameters

Flooding parameter*	0.3 meters
Drying parameter*	0.2 meters
Time step interval	1 second
Mannings "n" value	0.04

* The flooding parameter sets the minimum water depth required in a given cell in order for water to begin flowing into adjacent model cells. Conversely, the drying parameter sets a depth requirement below which the cell begins to dry out.

Downstream routing and description

The study begins at Jordanelle Dam located on the Provo River about 5 miles north of Heber City, Utah, and extends through Deer Creek Reservoir and Dam to Utah Lake near Provo, Utah. Seven cross sections from the study performed in 1991 were used to identify the area below Jordanelle Dam. The cross sections extended along the Provo River approximately 9.0 river miles to Deer Creek Reservoir. Six cross sections from the study performed in 1991 were used to identify the area below Deer Creek Dam. The cross sections extended along the Provo River approximately 10 river miles to the mouth of Provo Canyon. The cross sections were obtained using U.S. Geological Survey Quadrangle maps (Scale 1:24000) consisting of 40-foot contours. The Manning's n value used to represent the roughness coefficient of the downstream channel to the mouth of the canyon was 0.04. Some minor adjustments were made to some of the cross sections in order to obtain numerical stability in the DAMBRK model. Beyond the mouth of the canyon, it flows through some of Orem and Provo, Utah and then into Utah Lake.

Study Results

The results indicate that flooding resulting from the sunny day failures of either Jordanelle or Deer Creek Dams will inundate the residential areas along the Provo Canyon corridor and in Orem and Provo, which could result in the loss of life. In addition, parts of Springville located within the flood plain south of Provo, Utah as well as major highways and road crossings would be heavily impacted by the floodwaters.

The routings of the floods were terminated at approximately 10 hours for the sunny day failure of Jordanelle and Deer Creek Dams. About 10 hours after flooding begins, most of the floodwaters are safely contained by Utah Lake. The results of the flood routing are listed in the attached tables.

Sunny day failure of Jordanelle Dam resulting in the failure of Deer Creek Dam due to overtopping, identifies results obtained from the sunny day failure of Jordanelle Dam modeled as a piping failure. The table includes the maximum water surface, peak flows, and flood arrival times from the beginning of the failure of Jordanelle Dam to the flood arrival at the mouth of Provo Canyon.

Sunny day failure of Jordanelle Dam

River Miles Downstream of Deer Creek Dam	Maximum Water Surface Elev (Feet)	Depth Above Streambed (Feet)	Arrival Time of Leading Edge (Hrs)	Arrival Time of Peak Flow (Hrs)	Maximum Flow (CFS)	Location
0.0	5439	165	River Miles Downstream of Deer Creek Dam	2.5	3,573,000	Deer Creek Dam
10.0	4926	104	2.0	2.9	3,124,000	Mouth of Provo Canyon

*Arrival times are from the beginning of Jordanelle Dam failure
*Mile 0.0 is at the downstream toe of Deer Creek Dam

Sunny day failure of Jordanelle Dam resulting in the failure of Deer Creek Dam identifies results obtained from the sunny day failure of Jordanelle Dam. The table covers the area from the mouth of Provo Canyon to Utah Lake. Maximum discharge and times, at Provo City, were extracted from the MIKE21 model output file for use in the table.

Sunny day failure of Jordanelle Dam

River Miles Downstream of Deer Creek Dam	Estimated Time to Leading Edge (Hrs)	Time to Maximum Discharge (Hrs)	Calculated Maximum Discharge (CFS)	Location
14.5	2.5	3.0	3,085,000	Provo City

*Times to discharges are from the beginning of Jordanelle Dam failure

Sunny day failure of failure of Deer Creek Dam identifies results obtained from the sunny day failure of Deer Creek Dam modeled as a piping failure. The table includes the maximum water surface, peak flows, and flood arrival times from the beginning of the failure of Deer Creek Dam to the flood arrival at the mouth of Provo Canyon.

Sunny day failure of Deer Creek Dam

River Miles Downstream of Deer Creek Dam	Maximum Water Surface Elev (Feet)	Depth Above Streambed (Feet)	Arrival Time of Leading Edge (Hrs)	Arrival Time of Peak Flow (Hrs)	Maximum Flow (CFS)	Location
0.0	5381	107	0.1	0.7	1,550,000	Deer Creek Dam
10.0	4915	93	0.8	1.1	1,397,000	Mouth of Provo Canyon

*Arrival times are from the beginning of Deer Creek Dam failure
*Mile 0.0 is at the downstream toe of Deer Creek Dam

Sunny day failure of Deer Creek Dam, identifies results obtained from the sunny day failure of Deer Creek Dam. The table covers the area from the mouth of Provo Canyon to Utah Lake. Maximum discharge and times, at Provo City, were extracted from the MIKE21 model output file for use in the table.

Sunny day failure of Deer Creek Dam

River Miles Downstream of Deer Creek Dam	Estimated Time to Leading Edge (Hrs)	Time to Maximum Discharge (Hrs)	Calculated Maximum Discharge (CFS)	Location
14.5	0.9	1.2	1,386,000	Provo City

*Times to Maximum discharge are from the beginning of Deer Creek Dam failure

Maximum operational release of Deer Creek Dam identifies the results of the maximum operational release from Deer Creek Dam to the mouth of Provo Canyon, based on the maximum release of 13,500 cfs. The table includes the maximum water surface, depth above streambed, and peak flows obtained at the cross sections modeled.

Maximum operational releases of Deer Creek Dam (Releases are based on continuous flow of 13,500 cfs)

River Miles Downstream of Deer Creek Dam	Maximum Water Surface (Elev)	Depth Above Streambed (Feet)	Maximum Flow (CFS)
0.0	5289	15	13,500
10.0	4836	14	13,500

*Mile 0.0 is at the downstream toe of Deer Creek Dam

Inundation Maps

Inundation maps produced from this study are shown on U.S. Geological Survey Quadrangle maps (Scale 1:24,000). They combine flood inundation boundaries from both the National Weather Service's (NWS) DAMBRK one dimensional model, which was used to route flows between Deer Creek Dam and the mouth of Provo Canyon, and MIKE 21, the two dimensional model which terminates at Utah Lake. The flood inundation boundaries shown on the maps for each scenario were taken from the 1993 study and are depicted in red from the dam to the mouth of Provo Canyon. The flood boundaries from the mouth of Provo Canyon to Utah Lake are color coded according to water depth. The water depths shown on the map represent an estimate of the maximum water depth that could occur at various locations within the inundated area. Also shown are colored lines that indicate the progression of the leading edge of the flooding at various time intervals. These time-sequenced flood-progression lines do not correlate directly to the water depths of the maximum inundation boundary. The inundation boundary for the 1-D operational release from Deer Creek Dam to the mouth of Provo canyon was not included on the maps due to the coarse topography indicated on the 1:24000 scale quadrangles.

The maps are located in the county annexes.

General Methodology

In addition to the above study and inundation maps, the Utah Dam Safety Section provided inundation maps for other dams in the Mountainland Region. This spatial data was again overlaid with the regional inventory to create loss estimates.

Wildland Fire

Identifying Hazards

A wildfire is an uncontrolled fire spreading through vegetative fuel often exposing or consuming structures. Wildfires often begin unnoticed and spread quickly and are usually sighted by dense smoke. Wildfires are placed into two classifications Wildland and Urban-Wildland Interface. Wildland fires are those occurring in an area where development is essentially nonexistent, except for roads, railroads, or power lines. Urban-Wildland Interface fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels. URWIN areas are divided into three subclasses, each evident in counties within Mountainland:

Occluded

Occluded interface, are areas of wildlands within an urban area for example a park bordered by urban development such as homes.

Intermixed

Mixed or intermixed interface areas contain structures scattered throughout rural areas covered predominately by native flammable vegetation.

Classic

Classic interface areas are those areas where homes press against wildland vegetation along a broad front.

When discussing wildfires it is important to remember that fires are part of a natural process and are needed to maintain a healthy ecosystem. Three basic elements are needed for a fire to occur (1) a heat source (2) oxygen and (3) fuel. Two of the three sources are readily available in the counties making up the Mountainland region. Major ignition sources for wildfire are lightning and human causes such as arson, prescribed burns, recreational activities, burning debris, and carelessness with fireworks. On average, 65 percent of all wild fires started in Utah can be attributed to human activities. Once a wildfire has started, vegetation, topography and weather are all conditions having an affect wildfire behavior.

Methodology

Spatial data for potential wildfire areas were obtained from the Utah Department of Forestry, Fires and State Lands and the National Forest Service. As with other hazards, the simple and effective spatial methodology was to overlay these data sets with the regional inventory within GIS to produce loss estimates.

Potential Mitigation Strategies

The following mitigation strategies have been provided so that communities may be aware of measures that could be used to limit the exposure to Wildland Fire related damage.

Prevention

- Zoning ordinances to reflect fire risk zones

- Regulate development areas near fire protection and water resources
- Planning to include: spacing of buildings, firebreaks, on-site water storage, wide roads, multiple access
- Code standards for roof materials and fire protection systems
- Maintenance programs to clear dead and dry brush
- Regulations on open fires
- Open space around structures

Property Protection

- Retrofitting roofs, add spark arrestors
- Create and maintain defensible space
- Insurance
- Eliminate ladder fuels
- Install sprinkler systems
- Develop fire resistant plans
- Have home addresses clearly displayed
- Clean out rain gutters

Natural Resource Protection

- Require mitigation of development in high-risk areas
- Understand impact of non-native vegetation
- Promote tread soft ATV use
- Develop watershed management plans
- Maintain watersheds
- Establish and promote fuel reduction

Emergency Services

- Mutual aid agreement for fire fighting
- Participate in State Wildfire Suppression Fund
- Develop and exercise local wildfire response plan and evacuation plans

Structural Projects

- Construct wildfire fuel breaks
- Install Heliport water stations
- Tree and underbrush thinning in critical areas
- Increase the number of fire hydrants
- Install water tanks

Public information

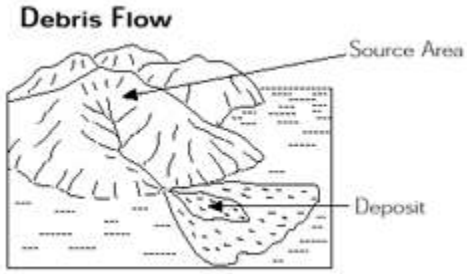
- Develop maps for wildfire hazard areas
- Mail wildfire information to owners high-risk structures
- Develop urban wildfire “How to protect your home from Wildfires” book
- Publish newspaper articles on wildfires

- Presentations on wildfires at community meetings
- Develop displays for public buildings and events
- Real estate disclosure of high hazard wildland fire area

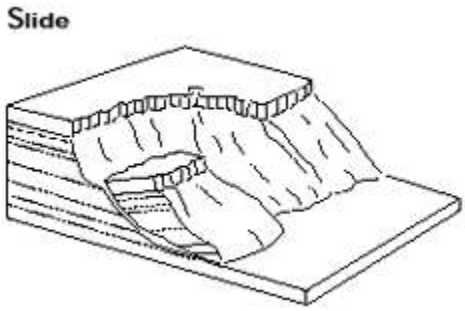
Landslides

Landslides are a "down slope movement of a mass of rock, earth, or debris". Landslides, often referred to as mass wasting or slope failures, are one of the most common natural disasters (Cruden 36). Slope failures can vary considerably in shape, rate of movement, extent, and effect on surrounding areas. Slope failures are classified by their type of movement, and type of material. The types of movement are classified as falls, slides, topples, and flows. "The types of material include rock, debris (coarse grained soil) and earth (fine grained soil)" (Eldredge 17). "Types of slope failures then are identified as rock falls, rock slides, debris flows, debris slides, and so on" (Eldredge 17). Slope failures occur because of either an increases in the driving forces (weight of slope and slope gradient) or a decrease in the resisting forces (friction, or the strength of the material making up a slope). "Geology (rock type and structure), topography (slope gradient), water content, vegetative cover, and slope aspect are important factors of slope stability" (Eldredge 18).

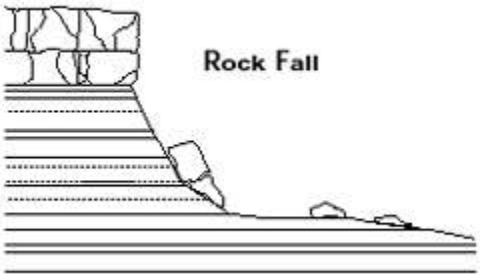
Three Common Types of Landslides in Utah



Debris flows consist of sediment-water mixtures that flow down a streambed or hillside, commonly depositing sediment at canyon mouths in fan like deposits know as alluvial fans.



Slides are down slope movements of soil or rock on slopes.



Rock falls consist of rock(s) falling from a cliff or cut slope and are very common in the canyon country of southern Utah.

Conditions That Make Slopes More Susceptible to Landslides

- Discontinuities: faults, joints, bedding surfaces.
- Massive Materials over soft materials.
- Orientations of dip slope: bedding plans that dip out of slope.
- Loose structure and roundness.
- Adding weight to the head of a slide area: rain, snow, landslides, mine waste piles, buildings, leaks from pipes, sewers, and canals, construction materials fill materials.
- Ground shaking: earthquakes or vibrations.
- Increase in lateral spread caused by mechanical weathering.
- Removal of lateral support.
- Human activities: cut and fill practices, quarries, mine pits, road cuts, lowering of reservoirs.
- Removing underlying support: under cutting of banks in a river.
- Increase in pore water pressure: snow melt, rain, and irrigation.
- Loss of cohesion.

Methodology

Spatial data for potential landslide areas were obtained from the Utah Geological Survey. Unfortunately, such data does not exist for Summit County. Therefore topographical data was analyzed within GIS software to create areas of potential landslides. While this may be a simple method of producing such data, ignoring the potential within this study is ineffective. As with all hazard data and analyses within this plan, additional study by experienced professionals should be done to determine definitive information on the location of hazards and the extent of potential damages. As with other hazard methodologies, the simple and effective spatial methodology was to overlay these data sets with the regional inventory within GIS to produce loss estimates.

Potential Mitigation Strategies

The following mitigation strategies are provided so that communities may be aware of methods that could be used to limit the exposure to landslide/Problem Soils related damage.

Prevention

- Planning and zoning restrictions and regulations
- Open Space
- Building Codes
- Drainage system maintenance
- Monitor and evaluate areas after wildfire
- Install ground monitoring instruments on landslide-prone areas
- Establish codes (grading, construction, excavation) in landslide prone areas

Property Protection

- Insurance
- Remove soil
- Ensure rain gutters and sprinklers are directed away from structures
- Control and monitor surface and ground water drainage
- Control building in areas of landslides
- Evaluate property maintenance in areas of landslides (over watering)
- Plan proper valving of waterlines to ensure quick turn off in the event of a waterline break

Natural Resource Protection

- Leave area as open space
- Identify structures impacted by problem soils
- Complete a watershed management plan
- Limit use of ATVs in areas off landslides to manage erosion
- Evaluate impact of wildfire in areas of landslides
- Mitigate development in landslide-prone areas
- Maintain natural vegetation

Emergency Services

- Identify structures impacted by problem soils
- Monitor and warning systems
- Evacuation plans and exercises
- Critical Facilities Protection
- Equip emergency crews with water valve shut-off keys

Structural Projects

- Pre-soak and/or compact soils
- Install drain fields
- Bring in structural fill
- Build buttress, retaining walls and other engineered structures
- Install subsurface drainage materials
- Remove potential landslide debris

Public information

- Develop information on problem soils
- Outreach information on problem soil mitigation
- Map soils and landslide areas
- Real estate disclosure
- Notice to homeowners in landslide areas detailing hazard
- Library
- Technical Assistance
- Education

Part V
Regional Hazards

Introduction

Hazards such as severe weather, infestations, and drought have been recognized as regional hazards for this plan. Mountainlands is such a small area that identifying one portion of the region being more prone to these hazards than another is impossible due to the lack of data and their widespread nature. Each individual jurisdiction has the opportunity to address these hazards on an individual mitigation level however limited data dictates that the risk assessment and profile data be at a regional level.

Severe Weather

For the purpose of this mitigation plan the term "severe weather" is used to represent downbursts, lightening, heavy snowstorms, blizzards, avalanches, hail, and tornados.

Downbursts

A downburst is a severe localized wind, blasting from a thunderstorm. Depending on the size and location of these events, the destruction to property may be devastating. Downbursts fall into two categories by size: microbursts, which cover an area less than 2.5 miles in diameter, and macrobursts, which cover an area with a diameter larger 2.5 miles.

Lightening

During the development of a thunderstorm, the rapidly rising air within the cloud, combined with the movement of the precipitation within the cloud, causes electrical charges to build. Generally, positive charges build up near the top of the cloud, while negative charges build up near the bottom. Normally, the earth's surface has a slight negative charge. However, as the negative charges build up near the base of the cloud, the ground beneath the cloud and the area surrounding the cloud becomes positively charged. As the cloud moves, these induced positive charges on the ground follow the cloud like a shadow. Lightening is a giant spark of electricity that occurs between the positive and negative charges within the atmosphere or between the atmosphere and the ground. In the initial stages of development, air acts as an insulator between the positive and negative charges. When the potential between the positive and negative charges becomes to great, there is a discharge of electricity that we know as lightning.

Heavy Snowstorms

A severe winter storm deposits four or more inches of snow during a 12-hour period or six inches of snow during a 24-hour period. According to the official definition given by the U.S. Weather Service, the winds must exceed 35 miles per hour and the temperature must drop to twenty degrees Fahrenheit 20° F or lower. All winter storms make driving extremely dangerous.

Blizzards

A blizzard is a snowstorm with sustained winds of 40 miles per hour (mph) or more or gusting winds up to at least 50 mph with heavy falling or blowing snow, persisting for one hour or more, temperatures of ten degrees Fahrenheit (10° F) or colder and potentially life-threatening travel conditions. The definition includes the conditions under which dry snow, which has previously fallen, is whipped into the air and creates a diminution of visual range.

Avalanches

Avalanches are a rapid down-slope movement of snow, ice, and debris. Snow avalanches are a significant mountain hazard in Utah, and nationally account for more deaths each year than earthquakes. Avalanches are the result of snow accumulation on a step slope and can be triggered by ground shaking, sound, or a person. Avalanches consist of a starting zone, a track, and a run-out zone. The starting zone is where the ice or snow breaks loose and starts to slide. The Track is the grade or channel down which an avalanche travels. The run-out zone is where an avalanche stops and deposits the snow.

The two main factors affecting avalanche activity include weather and terrain, large frequent storms combined with steep slopes result in avalanche danger. Additional factors that contributing to slope stability are amount of snow, rate of accumulation, moisture content, snow crystal types and the wind speed and direction. In Utah, the months of January through April have the highest avalanche risk.

Topography plays a vital role avalanche dynamics. Slope angles between 30 to 45 degrees are optimum for avalanches with 38 degrees being the bulls-eye. Slopes with an angle above 45 degrees continually slough eliminating large accumulation. The risk of avalanches decreases on slope angles below 30 degrees.

Types of Avalanches Common in Utah:

Dry or slab avalanches: occur when a cohesive slab of snow fractures as a unit and slides on top of weaker snow, breaking apart as it slides. Slab avalanches occur when additional weight is added quickly to the snow pack, overloading a buried weaker layer. Dry snow avalanches usually travel between 60-80 miles per hour, reaching this speed within 5 seconds of the fracture, resulting in the deadliest form of snow avalanche.

Wet avalanches: occur when percolating water dissolves the bonds between the snow grains in a pre-existing snow pack, this decrease the strength of the buried weak layer. Strong sun or warm temperatures can melt the snow and create wet avalanches. Wet avalanches usually travel about 20 miles per hour.

Hail Storms

Hailstones are large pieces of ice that fall from powerful thunderstorms. Hail forms when strong updrafts within the convection cell of a cumulonimbus cloud carry water droplets upward causing them to freeze. Once the droplet freezes, it collides with other liquid droplets that freeze on contact. These rise and fall cycles continue until the hailstone becomes too heavy and falls from the cloud.

Tornados

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. Tornados often occur at the edge of an updraft or within the air coming down from a thunderstorm. Tornadoes can have wind speeds of 250 miles per hour or more, causing a damage zone of 50 miles in length and 1 mile wide. Most tornados have winds less than 112 miles per hour and zones of damage less than 100 feet wide.

Waterspout

Waterspouts are simply tornadoes that form over warm water. This typically occurs in Utah during a cold fall or late winter storm.

Scale

Tornadoes are classified by wind damage using the Fujita Scale. The National Weather Service has used the Fujita Scale since 1973. This scale uses numbers from 0 through 5 with higher numbers assigned based on the amount and type of wind damage.

Fujita Scale

Category F0	Gale tornado (40-72 mph)	Light damage. Some damage to chimneys; break branches off trees; push over shallow-rooted trees; damage to sign boards.
Category F1	Moderate tornado (73-112 mph)	Moderate damage. The lowers limit is the beginning of hurricane wind speed; peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off roads.
Category F2	Significant tornado (113-157 mph)	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
Category F3	Severe tornado (158-206 mph)	Severe damage. Roofs and some walls torn off well constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
Category F4	Devastating tornado (207-260 mph)	Devastating damage. Well-constructed houses leveled; structure with weak foundation blown off some distance; cars thrown and large missiles generated.
Category F5	Incredible tornado (261-318 mph)	Incredible damage. Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobiles-size missiles fly through the air in excess of 100 yards; trees debarked; incredible phenomena will occur.

Methodology

Due to the random nature of severe weather events, designating areas that are more susceptible verses the rest of the region is nearly impossible. With the exception of avalanches, it is impossible to spatially designate areas of potential events without either covering the entire map. To that end only hazard profiles have been done and are discussed further in the county annexes portion of this plan. Great effort was made to obtain both historical and spatial data for avalanches. Unfortunately, none was made available for this plan and is therefore also dealt with on a regional level.

Potential Mitigation Strategies

The following mitigation strategies are provided so that communities may be aware of methods that could be used to limit the exposure to Severe Weather/Avalanche related damage.

Prevention

- Early warning and notification systems
- Building codes to address wind shear and snow load
- Properly ground structures for lightning
- Public education for severe weather conditions
- Restrict development in avalanche prone areas

Property Protection

- Structural tie downs of roofs in high wind areas
- Mitigate development in areas of avalanche potential
- Monitor NWS weather warnings and watches

Natural Resource Protection

- Evaluate the impacts of severe weather
- Mitigate development in areas of avalanche

Emergency Services

- Monitor NWS weather warnings and watches
- Develop plans and exercises for severe weather

Structural Projects

- Install sheds over roads below avalanche terrain
- Install drift fences along snow drift areas
- Install avalanche fencing along ridgelines for wind blown snow
- Promote Weatherization programs

Public information

- Develop outreach document on avalanche safety
- Become a NWS Storm Ready Community
- Promote Lighting Safety Week

- Develop cold weather safety materials
- Ensure that at risk groups, such as the elderly, are checked on during severe weather

Assessing Vulnerability

Severe weather can be a regular part of living in the Mountainland Region. Fortunately the intensity of severe weather in the region has been limited to moderate levels.

Development Trends

In some instances, growth in certain areas such as mountainsides and canyons can increase the possibility of microclimates and avalanche danger. Development higher on mountainsides in some instances can lead to greater susceptibility. Communities should develop education requirements as part of the development process.

Profile

Frequency	Frequent Multiple events happen each year.
Severity	Moderate
Location	Region wide with some locations more frequent due to geography.
Seasonal Pattern	All year depending upon the type of event.
Duration	Seconds to Days
Speed of Onset	Immediate
Probability of Future Occurrences	11 (average) events per year. There have been 507 recorded events since 1960.

History

Due to the large number of incidents that have been recorded the history table was omitted from this section of the plan and inserted into the annex section.

Drought

Drought is a normal recurrent feature of climate, although many people in Utah erroneously consider it a rare and random event. It occurs in virtually all-climatic zones, while its characteristics vary significantly from one region to another. Droughts, simply put, are cumulative hazards, which result from long periods of below normal precipitation. Drought is a temporary aberration and differs from aridity since the latter is restricted to low rainfall regions and is a permanent feature of climate.

The State or Utah, uses the Palmer Drought Severity Index or (PDSI) to quantify the existence of a drought. Using the PDSI, drought is expressed as a negative number. Much of the basis, used by the State, to determine drought years, or drought periods, comes from the PDSI. In addition, the State Climatologist, the National Geophysical Data Center of NOAA, and the National Drought Mitigation Center use the PDSI.

For the most part droughts no longer affect the availability of drinking water, thus they no longer place peoples' lives at risk, the same cannot be said for a person's livelihood. Numerous water projects throughout the state have placed enough water in storage to insure drinking water. Prolonged droughts have a significant effect on agricultural and agribusinesses, within the states dependent on irrigation water. Droughts also stress wildlife, and heighten the risk of wildfire.

Potential Mitigation Strategies

The following mitigation strategies are provided so that communities may be aware of measures that could be used to limit the exposure to drought related damage.

Prevention

- Establish economic incentives for water conservation
- Encourage water conservation
- Develop early warning system, monitoring programs
- Implement water metering and leak detection programs

Property Protection

- Identify potential for wildfire due to drought
- Identify secondary effects from drought
- Drought Insurance

Natural Resource Protection

- Legislation to protect stream flows
- Protect water aquifers
- Alert procedures for water quality issues
- Create inventory of pumps, filters and other equipment

Emergency Services

- Establish water hauling programs
- List livestock watering locations
- Establish hay hotline
- Fund water system improvements (wells, systems, reservoir)
- Lower well intakes
- Develop drought contingency plans
- Issue emergency permits for water use

Structural Projects

- Redesign or create new reservoir storage
- Provide pumps and piping for distribution

Public information

- Develop drought education material
- Water conservation outreach material
- Other outreach for awareness

Assessing Vulnerability

Drought is a condition that affects every corner of the Mountainland Region. As most of the agriculture in the region is irrigated, low water levels can have the greatest effect on rural communities where farming is still prominent. As growth occurs, water will continue to be converted to non agricultural uses and therefore increasing remaining farmer's vulnerability to drought. Each of the three counties have rural communities that could be effected.

Development Trends

As the state and region continue to grow, drought will become a more pronounced threat. Existing water storage such as reservoirs has been able to minimize the effects of drought on people and agriculture to this point. Both future and current water users will need to develop more sustainable practices to ensure the will continue to have only moderate effects on the region.

Profile

Frequency	Frequent
Severity	Severe primarily to agriculture
Location	Region wide
Seasonal Pattern	Summer.
Duration	Up to 10 years.
Speed of Onset	Incremental with impact increasing.
Probability of Future Occurrences	Mild - .1 Moderate – .064 Severe - .027

History

Palmer Drought Index Periods of drought for Region 3 (Utah County)	Palmer Drought Index Periods of drought for Region 5 (Wasatch and Summit Counties)
2000 to 2003	2000 to 2002
1987 to 1990	1992 to 1994
1976 to 1977	1987 to 1990
1959 to 1961	1976 to 1979
1952 to 1954	1931 to 1935
1939 to 1940	1900 to 1905
1933 to 1935	
1900 to 1905	

Infestation

Infestation normally deals with insect infestations; however; infestations may also include rodent or other animal invasion. To infest means to spread or swarm over in a troublesome manner. The Mountainland Region has had two recent infestations. The most devastating invasion, in relation to cost, has been the Mormon Cricket. In June of 2003, Utah Governor Mike Leavitt declared a State of Emergency in 18 of Utah's 29 counties, where crickets and grasshoppers had eaten 1.5 million acres. Problems associated with cricket infestations usually deal with crop loss as well as loss of rangeland for cattle and sheep. Consumption of residential landscaping is also a problem and more homes are built in western Utah County in which is in the path of crickets. The crickets usually travel from west to east, starting in Nevada. In some instances the cricket mass is so large and dense that cars and trucks lose traction on roads. Vehicles sliding off of roads can cause property damage and personal injury.

The Mormon cricket has reached legendary status in the State of Utah. This devastating insect plagued the early pioneers. Today, 150 years later, the Mormon cricket still economically devastates some parts of Utah.

Economic Damage

The Mormon cricket is not a true cricket. The insect resembles more a lifestyle of a grasshopper. Mormon crickets are of economic importance in the fact that they destroy plants on rangeland, cropland, and vegetable gardens. Male and female Mormon crickets are large insects and can reach lengths of two and one-half inches during the adult stage. The female Mormon cricket is distinguished by the long ovipositor that also looks like a type of "stinger" located at the end of the abdomen. The male lacks this ovipositor. The Mormon cricket can be economically devastating. It has been calculated that a Mormon cricket at a density of one per square yard can consume 38 pounds of dry weight rangeland forage per acre. In Utah, the Mormon cricket destroys sagebrush, alfalfa, small grains, seeds, grasses, and vegetable crops.

Life Cycle and Characteristics

Mormon crickets hatch during the spring, and depending on elevation usually around the first few weeks of April. Young Mormon crickets are called nymphs. These nymphs develop during the spring months. They undergo seven stages of development called in-stars. It takes 60 to 90 days for the Mormon cricket to pass through these seven stages and obtain the adult stage. The female Mormon cricket lays its eggs during the summer months. The incubation of the eggs occurs during the fall and winter months. The eggs start hatching when soil temperatures reach 40 degrees Fahrenheit. The Mormon cricket cannot fly, but is still an extremely mobile insect. When the crickets are young, they do not migrate long distances. After about the fourth in-star and during the adult stage the Mormon crickets become ravenous and start banding together. Once the crickets have banded together, they begin migrating. During their migrations

they destroy everything in their path. Mormon crickets are usually found migrating when skies are clear and temperatures are around 60 to 90 degrees Fahrenheit. In Utah, the crickets migrate under favorable conditions around 10:00 a.m. until about 2:00 p.m. Mormon crickets in the adult stage can cover a mile a day and up to 50 miles in a single season. During the night and during cold, wet weather, Mormon crickets clump together and can be seen clinging together on grasses and brush. They will also burrow underneath grass and brush to keep warm. The Mormon cricket is a hearty insect. They have been seen feeding when temperatures were less than 35 degrees Fahrenheit.

Potential Mitigation Strategies

The most effective way to reduce Mormon cricket populations is to use carbaryl bait. The trade name is Sevin bait. This is usually oatmeal coated with the chemical insecticide carbaryl. The recommended application rate is 10 pounds to the acre. Using hand-held fertilizer spreaders can spread the bait or large machines that blow the poisoned grain a long distance. The idea is to apply a barrier of bait around or in front of a band of migrating crickets. Once the first wave consumes the bait they will die within a few minutes. The crickets coming from behind will eat the dead crickets causing a chain reaction of crickets being killed by the bait. Mormon crickets do not fly so they will almost always hit the barrier of poisoned bait. Many ranchers and farmers will apply the bait around the perimeter of their fields to reduce the number of crickets invading. Bait is also applied along roadsides to reduce the risk of car accidents from large numbers of crickets crossing highways. It is best to apply the bait when the crickets are still young or in the developing stages. Insecticide sprays such as Malathion could be effective against the Mormon cricket if they were sprayed during the nymphal stage. These insecticide sprays usually aren't recommended. Sevin bait is the preferred control method at this time in Utah.

Costs vary but usually average about $5 an acre for a minimum of 5,000 acres being sprayed. Some years there are government cost share programs to help spray large acres of rangeland. Usually, the land needs to border Federal or State lands to qualify for government aid. The insecticide most commonly used on rangelands is Malathion ULV applied at 8 oz. to the acre. It is important that spraying takes place early in the grasshopper's life. The younger the grasshoppers are the better the kill rate. The best time to usually spray rangeland is the first three weeks in June. This is referred to as the "window of opportunity."

Cropland

The most profitable crops in Utah are alfalfa, corn, oats, wheat, rye, and barley. Grasshoppers concentrate in these croplands and destroy all vegetation present. This can be economically devastating for a farmer. Control on agricultural croplands is essential. As with rangelands you must determine whether there is an infestation of eight or more grasshoppers per square yard. If there is, then the two most effective control methods are ground spraying or aerial spraying. Ground spraying is usually more expensive per acre, but there is less chance of killing non-target insects (bees). Aerial spraying is quick, usually less expensive, and has a high kill rate. The disadvantage is the potential damage to non-target insects. Usually, aerial spray applications are used when there are a higher number of acres to be sprayed. Malathion ULV and Dursban are two common insecticides used for grasshopper control on agricultural croplands. Justification for control depends on the crop, the crop's stage of growth, additional migration, and the type of damages being done to the crop. Grasshoppers hatch and migrate off bordering lands, and at times this is extremely frustrating to an agriculture grower trying to control grasshopper infestation. This is where the importance of communities pulling together to do a countywide spray program comes into play. The importance of government spraying of public lands bordering cropland cannot be stressed enough.

Lawns, Gardens, and Landscaping

Homes are being built on lands that have produced grasshopper populations for many years. This causes problems for the homeowner. Grasshoppers are hatching and laying eggs in the lawns and gardens. This makes it possible for the grasshoppers to hatch on the same lawn year after year. Grasshoppers are migrating out of vacant fields and low hills into the green, lawns and gardens. This results in thousands of dollars in damage to newly planted landscapes. It is very important that communities work together in controlling grasshopper outbreaks. If one person is spraying, and neighbors are not, then the grasshoppers will just continue migrating from adjacent property. Vacant lots and fields need to be tilled in late fall to expose the eggs. Eggs are destroyed when they are exposed to the cold environment. Lawns need to be raked to also expose the eggs. Flower gardens usually have a population of eggs, so the soil should be turned over to expose the eggs. If there is an outbreak of grasshoppers on your landscape during the summer, start spraying early. Once you see that grasshoppers have invaded, even the little ones, start spraying with Dursban (chlorpyrifos) for use on turf and ornamentals, Malathion for use on turf, ornamentals and vegetables, or liquid Sevin (carbaryl) for use on turf, vegetables, and ornamentals.

Insecticide baits that use insecticide such as Sevin have not been an effective barrier against the grasshoppers in Utah. Grasshoppers fly and jump great distances and more than likely will miss the barrier of bait completely. This bait is very effective for the Mormon crickets, common to the southern end of the county. READ AND FOLLOW THE INSTRUCTIONS ON PESTICIDE LABELS FOR REGISTERED USES, RATES, RESTRICTIONS, AND SAFETY PRECAUTIONS.
Conclusions

Grasshoppers are a recognized problem for Utah. The extreme infestations do not occur every year, but there are grasshoppers to some extent each year. Extreme infestations seem to come in cycles of seven years and last approximately three years. Everyone needs to recognize there is a problem, and take the steps each year to combat the insects. Expose the eggs as often as possible, start spraying late spring and early summer to kill the immature grasshoppers, make your spraying programs a community effort, and keep informed on government spray programs for your area. If everyone does their part we can greatly reduce the grasshopper populations, and strive for a county free of these devastating insects.

WEST NILE VIRUS

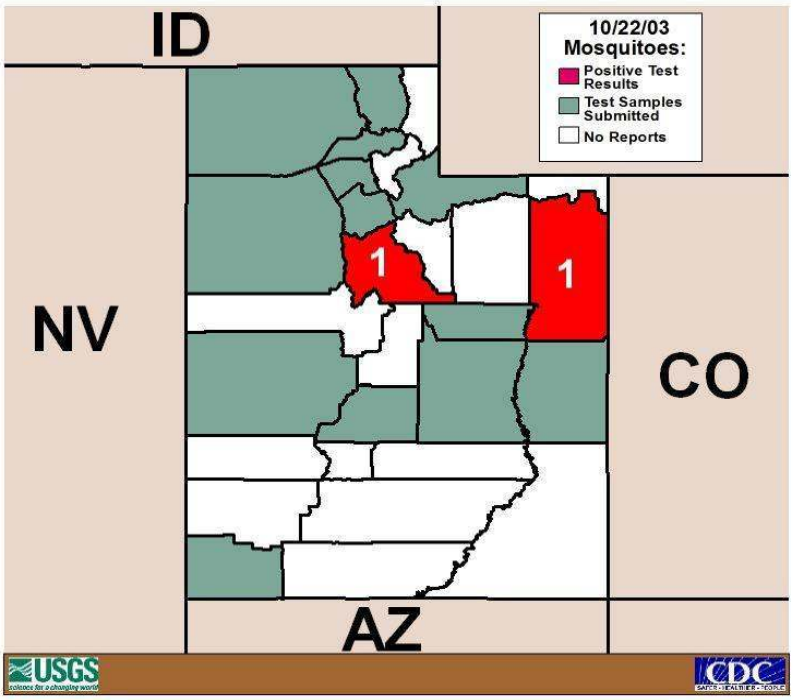
A second type of insect infestation is mosquito borne diseases. Most recently there has been significant news coverage of the West Nile Virus, although mosquitoes also carry other diseases. Other diseases carried by mosquitoes include various forms of encephalitis and dengue fever. The West Nile Virus and various forms of encephalitis may affect humans and animals.

Since West Nile virus (WNV) was first isolated in 1937, it has been known to cause asymptomatic infection and fevers in humans in Africa, West Asia, and the Middle East. Human and animal infections were not documented in the Western Hemisphere until 1999. In 1999 and 2000, outbreaks of WNV encephalitis (inflammation of the brain) were reported in persons living in the New York City metropolitan area, New Jersey, and Connecticut. In these two years, 83 human cases of West Nile illness were reported; 9 died. In 2001, human infection with WNV occurred in 10 states with 66 cases and 9 deaths. In 2002, WNV activity spread to 44 states, with 4,156 human cases and 284 deaths.

WNV is transmitted to humans through mosquito bites. Mosquitoes become infected when they feed on infected birds that have high levels of WNV in their blood. Infected mosquitoes can then transmit WNV when they feed on humans or other animals.

WNV is not transmitted from person to person and there is no evidence that handling live or dead infected birds can infect a person. But, to add a further level of safety, if birds or other potentially infected animals must be handled, a protective barrier (e.g., gloves, inverted plastic bags) should be used.

Most WNV infected humans have no symptoms. A small proportion develops mild symptoms that include fever, headache, body aches, skin rash and swollen lymph glands. Less than 1% of infected people develop more severe illness that includes meningitis (inflammation of one of the membranes covering the brain and spinal cord) or encephalitis. The symptoms of these illnesses can include headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, and paralysis. Of the few people that develop encephalitis, a small proportion die but, overall, this is estimated to occur in less than 1 out of 1000 infections.



There is no specific treatment for WNV infection or vaccine to prevent it. Treatment of severe illnesses includes hospitalization, use of intravenous fluids and nutrition, respiratory support, prevention of secondary infections, and good nursing care. Medical care should be sought as soon as possible for persons who have symptoms suggesting severe illness.

Individuals can reduce their contacts with mosquitoes by taking these actions:

When outdoors, wear clothing that covers the skin such as long sleeve shirts and pants, apply effective insect repellent to clothing and exposed skin, and curb outside activity during the hours that mosquitoes are feeding which often includes dawn and dusk. In addition, screens should be applied to doors and windows and regularly maintained to keep mosquitoes from entering the home.

Assessing Vulnerability

As with drought, rural areas of all three counties remain the most vulnerable to infestation. Additionally, new growth and the demand for landscaping can lead to the transference of invasive species such as the Japanese Beetle.

Profile

Frequency	Frequent
Severity	Severe primarily to agriculture.
Location	Region Wide - especially agricultural areas and around lakes and reservoirs.
Seasonal Pattern	Spring and Summer
Duration	Days to Years
Speed of Onset	Incremental.
Probability of Future Occurrences	Very High – Crop damage due to infestations is reported nearly every year. Multiple West Nile Virus cases are reported every year.

Hisory

Mormon Cricket Infested Acreage By Year							
County	2001	2002	2003	2004	2005	2006	2007
Utah	5,650	74,600	116,200	123,800	3,780	1,280	
Summit				2,530			

Utah Department of Agriculture 2007Insect Report

Grasshopper Infested Acreage By Year							
County	2001	2002	2003	2004	2005	2006	2007
Utah	56,400	8,500	15,150	16,440		1,289	2,558
Summit	3,600	2,550	12,630	33,870		1,280	2,136
Wasatch	65,600	7,000	17,540	25,250			1,279

Utah Department of Agriculture 2007Insect Report

Utah West Nile Virus Positives by Year						
	2008	2007	2006	2005	2004	2003
Human	27	70	158	52	11	1
Horse	8	18	59	68	5	35
Bird	3	19	76	22	8	2
Mosquito	140	225	466	80	181	3
Chicken	16	74	107	19	38	9

WEST NILE VIRUS SUMMARY REPORT 2008 SEASON
UTAH DEPARTMENT OF HEALTH

Mitigation Strategies

The following table is a list of mitigation strategies that the planning committee determined to be appropriate for the regional hazards described above. The committee reviewed several possibilities for these hazards and determined theses to be the highest priority. Each jurisdiction was also given the opportunity to identify additional strategies for these hazards within their own communities. They will be listed in the county sections of this plan with the individual mitigation strategies.

These strategies were assigned a priority of high, medium, or low by communities according to the following criteria:

- Number of people affected by the project
- Technical feasibility
- Political support
- Available funding and priorities
- Environmental impact

Regional Hazards Mitigation Strategies

	Protecting Current Residents and Structures					
Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Drought	Promote water conservation programs "Slow the Flow".	Medium	Ongoing	Minimal	Local cash, Grants, UDWR, CUWCU	Local Government, UDWR
Severe Weather	Public preparedness campaign.	Medium	Ongoing	Minimal	Local Cash, Grants	Local Government, UDPS
Infestation	Public education on eradication programs.	Medium	Ongoing	Minimal	Local Cash, Grants, UDAF	Local Government, USDA

	Protecting Future Residents and Structures					
Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Drought	Consider the enactment of water wise landscaping ordinances.	High	1 year	Minimal	Local Cash, Grants	City, County, DEQ, ULCT
Severe Weather	Increase the number of weather stations.	Medium	5 years	TBD	Grants, FEMA, NOAA, UDOT	Local Government, NOAA, UDOT
Infestation	Public education on eradication programs.	Medium	Ongoing	Minimal	Local Cash, Grants, UDAF	Local Government, USDA

Part VII
Utah County
Profiles and Mitigation

Background

Area: 2,014 square miles; *county seat*: Provo; *origin of county name*: after the Ute Indians; *economy*: technology industry, light manufacturing, agriculture; *points of interest*: Fairfield Stagecoach Inn, historic downtown Provo, Brigham Young University (Monte L. Bean Life Sciences Museum, Museum of People and Culture, Harris Fine Arts Center), Utah Lake, Timpanogos Cave National Monument, Springville Museum of Art, Hutchings Museum of Natural History in Lehi, McCurdy Historical Doll Museum in Provo, Bridal Veil Falls, Sundance ski resort.

The most striking geographical features of Utah County are the Wasatch Mountains along the eastern boundary, and Utah Lake, the state's largest fresh-water lake. The high mountains, rising over 11,000 feet, receive heavy snowfall which feeds the numerous rivers and creeks that flow into the lake. Though large in surface area, Utah Lake is very shallow--18 feet at its deepest point.

Before the valley was settled by Mormon pioneers in the 1840s and 1850s it was the home of the Ute Indians. They lived along the eastern shore of the lake and used fish from the lake as their main food source. The Spanish Catholic priests Dominguez and Escalante, who observed them in 1776, described these Indians as peaceful and kind. Dominguez and Escalante were trying to find a route between Santa Fe, New Mexico, and what is now southern California. When they came down Spanish Fork Canyon in the summer of 1776 they were the first non-Indians to enter Utah Valley.

Mormon pioneers began settling Utah Valley in 1849. Like the Indians before them, they chose to settle on the fertile, well-watered strip of land between the mountains and Utah Lake. More than a dozen towns were established between Lehi on the north and Santaquin on the south. Provo, named for the French fur trapper Etienne Provost, has always been the largest town and the county seat.

In March 1849 thirty-three families, composed of about 150 people, were called to go to Utah Valley under the leadership of John S. Higbee to fish, farm, and teach the Indians. During the next two years - 1850 and 1851 - communities were established at Lehi, Alpine, American Fork, Pleasant Grove, Springville, Spanish Fork, Salem, and Payson.

Farming was the most important early industry in the county, with fruit growing and the processing of sugar beets being especially important. The first large-scale sugar beet factory in Utah was built in Lehi in 1890. In recent years, the center of the fruit industry in the county has shifted from Orem to the south end of the valley, where orchards are not threatened by housing developments.

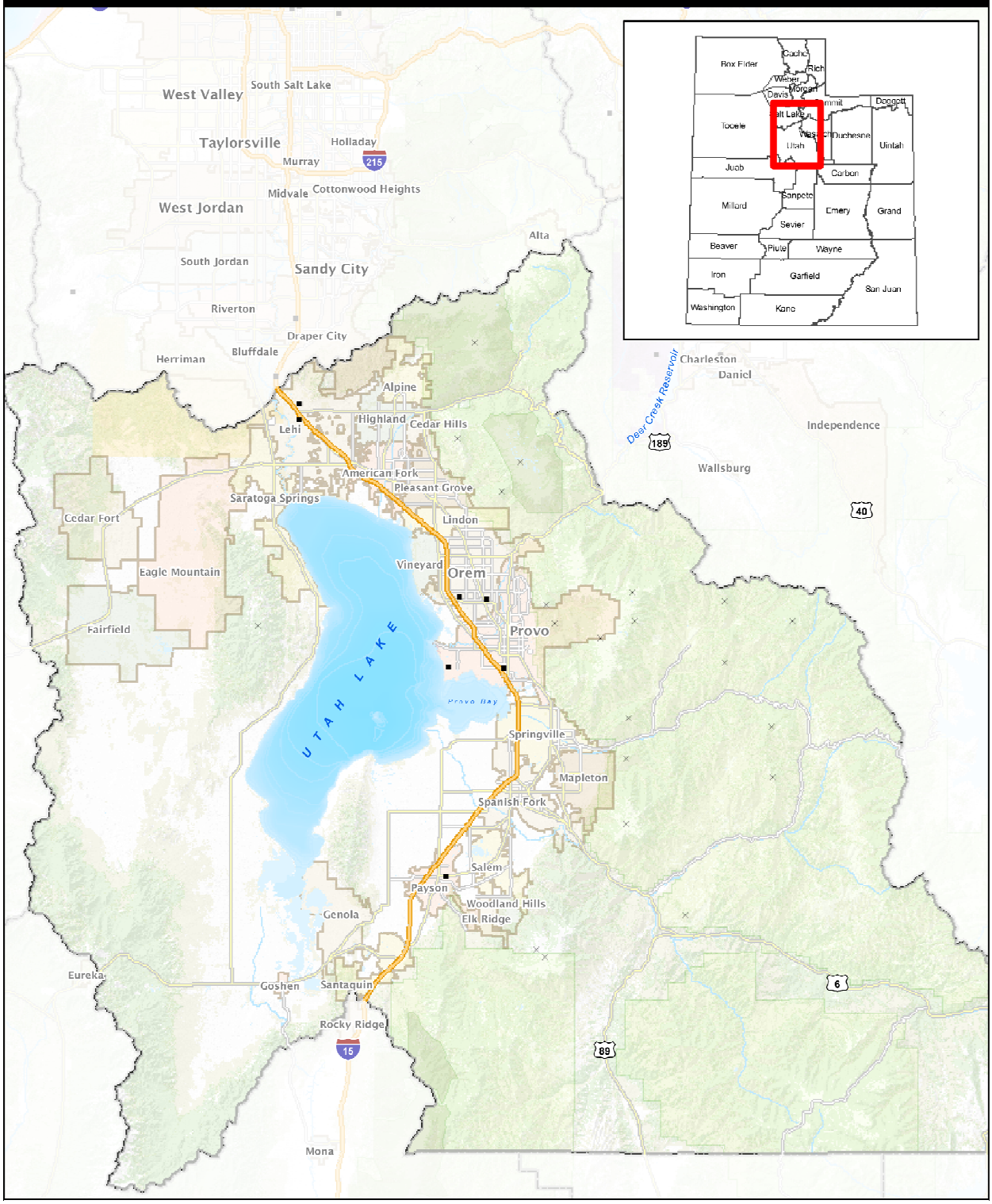
Mining was also an important industry in Utah County. In the late 1800s and early 1900s there were many successful mines in American Fork Canyon and in the Tintic mining district centered near Eureka, Juab County but included part of western Utah County. Many of the fine homes and business buildings in Provo were constructed with mining money.

Today, Utah County is best known as the home of Brigham Young University. BYU was established in 1875 as a small high-school level "academy," but it has grown to become a major university with 27,000 students. The Utah Valley University at Orem has grown rapidly to nearly 27,000 students as well. Other major Utah County employers include Omniture Corporation and Novell, two companies that began in Utah County and have become international leaders in the computer software industry.

Each of the major communities in the county have high schools and libraries. A culturally active area, the county has its own symphony--the Utah Valley Symphony, and one of the state's finest art museums: the

Springville Art Museum. Provo's Fourth of July Celebration is the largest in the state and other special community celebrations include Pleasant Grove Strawberry Days, the Lehi Round-up, Steel Days in American Fork, Fiesta Days in Spanish Fork, Golden Onion Days in Payson, Pony Express Days in Eagle Mountain and the World Folkfest in Springville.

UTAH COUNTY


West Valley
South Salt Lake
Taylorsville
Holladay
Murray
215
Midvale
Cottonwood Heights
West Jordan
Alta
South Jordan
Sandy City
Riverton
Draper City
Bluffdale
Herriman
Alpine
Highland
Cedar Hills
Lehi
American Fork
Pleasant Grove
Saratoga Springs
Cedar Fort
Lindon
Vineyard
Orem
Eagle Mountain
Provo
Fairfield
UTAH LAKE
Provo Bay
Springville
Mapleton
Spanish Fork
Salem
Payson
Woodland Hills
Elk Ridge
Genola
Eureka
Goshen
Santaquin
Rocky Ridge
15
Mona
Charleston
Daniel
Deer Creek Reservoir
189
Independence
Wallsburg
40
6
89
Box Elder
Cache
Rich
Weber
Morgan
Davis
Summit
Daggett
Tooele
Salt Lake
Wasatch
Duchesne
Uintah
Utah
Juab
Carbon
Sanpete
Millard
Emery
Grand
Sevier
Beaver
Piute
Wayne
Iron
Garfield
San Juan
Washington
Kane

Population

Table U-1

	1930	1940	1950	1960	1970	1980	1990	2000	2007
Utah	49,021	57,382	81,912	106,991	137,776	218,106	263,590	368,536	495,205

Economy

Table U-2

						% Change
Utah County	2002	2003	2004	2005	2006	2005-06
Population	405,977	423,286	437,627	456,073	475,425	4.2
Employment:						
Average civilian labor force	185,637	188,853	196,983	203,741	212,422	4.3
Average employment	140,704	141,961	149,311	156,990	165,687	5.5
Income:						
Average annual wage ($)	28,416	29,078	29,601	30,474	32,346	6.1
Total payroll wages ($ thousands)	3,998,216	4,127,922	4,419,724	4,784,093	5,359,318	12.0
Total personal income ($ thousands)	7,910,414	8,136,649	8,703,328	9,365,270	10,208,200	9.0
Per capita personal income ($)	20,178	20,377	20,048	20,726	21,964	6.0
Taxes:						
Total assessed valuation ($ thousands)	17,242,353	17,494,368	18,046,928	19,035,934	21,805,279	14.5
Property taxes charged, by all taxing units ($ thousands)	193,769	204,929	218,789	231,465	245,760	6.2
Gross taxable sales ($ thousands)	4,394,333	4,433,228	4,791,033	5,341,570	6,316,735	18.3
Net local sales tax allocations ($ thousands)	46,609	46,255	48,553	53,486	62,435	16.7
Construction (permit-authorized):						
New dwelling units (number)	4,326	4,677	4,728	5,819	6,902	18.6
Value of new residential construction ($ thousands)	623,777	706,068	770,583	1,074,621	1,420,653	32.2
Value of new nonresidential construction ($ thousands)	237,069	118,168	196,739	186,287	286,489	53.8
Value of total construction ($ thousands)	925,347	889,518	1,042,802	1,369,824	1,854,104	35.4
Miscellaneous:						
Payment in Lieu of Taxes Act ($ thousands)	787	916	935	929	944	1.6
New car and truck registrations by owners county (number)	8,916	8,427	9,209	9,849	10829	10.0

Source: Bureau of Economic and Business Research, University of Utah.

Population Characteristics

Social Characteristics	Estimate	Percent	U.S.
Average household size	3.63	(X)	2.6
Average family size	3.95	(X)	3.19
Population 25 years and over	225,309		
High school graduate or higher	(X)	92.8	84.00%
Bachelor's degree or higher	(X)	35.1	27.00%
Disability status (population 5 years and over)	40,384	9.8	15.10%
Foreign born	31,615	6.7	12.50%
Speak a language other than English at home (population 5 years and over)	50,943	12.3	19.50%
Household population	457,089		
Economic Characteristics	Estimate	Percent	U.S.
In labor force (population 16 years and over)	218,300	67.5	64.70%
Mean travel time to work in minutes (workers 16 years and over)	19.8	(X)	25.1
Median household income	53,692	(X)	50,007
Median family income	59,415	(X)	60,374
Per capita income	18,567	(X)	26,178
Families below poverty level	(X)	8.2	9.80%
Individuals below poverty level	(X)	12.5	13.30%
Housing Characteristics	Estimate	Percent	U.S.
Total housing units	132,344		
Occupied housing units	125,843	95.1	88.40%
Owner-occupied housing units	87,004	69.1	67.30%
Renter-occupied housing units	38,839	30.9	32.70%
Vacant housing units	6,501	4.9	11.60%
Owner-occupied homes	87,004		
Median value (dollars)	209,400	(X)	181,800
Median of selected monthly owner costs			
With a mortgage (dollars)	1,372	(X)	1,427
Not mortgaged (dollars)	357	(X)	402

Demographic Estimates	Estimate	Percent	U.S.
Total population	470,154		
Male	234,413	49.9	49.20%
Female	235,741	50.1	50.80%
Median age (years)	24.2	(X)	36.4
Under 5 years	54,905	11.7	6.90%
18 years and over	309,039	65.7	75.30%
65 years and over	29,732	6.3	12.50%
One race	461,439	98.1	97.90%
White	431,184	91.7	74.10%
Black or African American	2,367	0.5	12.40%
American Indian and Alaska Native	2,587	0.6	0.80%
Asian	6,442	1.4	4.30%
Native Hawaiian and Other Pacific Islander	2,484	0.5	0.10%
Some other race	16,375	3.5	6.20%
Two or more races	8,715	1.9	2.10%
Hispanic or Latino (of any race)	41,365	8.8	14.70%

Source: U.S. Census Bureau, 2005-2007 American Community Survey

Flooding/Dam Failure

Overview

Although Utah is considered a dry desert state, flooding does occur. Ranging from Most floods are occurring either from snow melt or severe thunderstorms. Often times flooding is increased by soils that are more impervious due to either wildfire or drying out. Floods occur on a regular basis in Utah County.

Development Trends

As development occurs on the bench areas of Utah Valley, along the shore of Utah Lake, or along river and stream corridors, more homes will be in danger of floods. Communities need to make developers and homeowners aware of the danger as well as contribute to mitigation actions. Cities should review every development that it is in compliance with NFIP guidelines.

The following table identifies the communities in Utah County with their NFIP Status.

COUNTY	CITY/TOWN	POPULATION	STATE MAP LOCATION	NFIP STATUS*	THREAT (or NSFHA-eligible)
Utah	Unincorporated	17638		490517 - 12/15/94	Utah Lake & Tributaries
Utah	Alpine	7146	E5	490228 - 4/4/83	
Utah	American Fork	21941	E5	490152 - 11/25/80(M)	
Utah	Cedar Fort	341	E4	490153 - (NSFHA)	
Utah	Cedar Hills	3094	D5	Not Participating	Heisett's Hollow & Other drainages
Utah	Eagle Mountain	2157	D4	Not Participating	Tickville Gulch &Tributaries
Utah	Elk Ridge	1838	E5	Not Participating	Loafer Canyon & Others drainages
Utah	Genola	965	E5	490154 - (NSFHA)	
Utah	Goshen	874	F4	Not Participating	City Ditch (minor)
Utah	Highland	8172	D5	490254 - 2/4/02	
Utah	Lehi	19028	E5	490209 - 3/1/83	
Utah	Lindon	8363	E5	490210 - 2/19/86(M)	
Utah	Mapleton	5809	E5	490156 - 12/16/80(M)	
Utah	Orem	84324	E5	490216 - 9/24/84(M)	
Utah	Payson	12716	E5	490157 - 1/6/81	

COUNTY	CITY/TOWN	POPULATION	STATE MAP LOCATION	NFIP STATUS*	THREAT (or NSFHA-eligible)
Utah	Pleasant Grove	23468	E5	490235 - (NSFHA)	
Utah	Provo	105166	E5	490159 - 9/30/88	
Utah	Salem	4372	E5	490160 - 7/16/79	
Utah	Santaquin	4834	E5	490250 - **(NSFHA)**	Tributaries 4, 5, & 6
Utah	Saratoga Springs	1003	D4	490227 - **(NSFHA)**	
Utah	Spanish Fork	20246	E5	490241 - 2/19/86(M)	
Utah	Springville	13950	E5	490163 - 2/15/85	
Utah	Vineyard	150	E5	Not Participating	Utah Lake
Utah	Woodland Hills	941	E5	Not Participating	Broad and Snell Hollows

Source: FEMA Utah State Department of Homeland Security

The primary goal for non participating communities is to become a participating member of the NFIP.

Profile

Frequency	Some flooding happens within Utah County on almost a yearly basis.
Severity	Moderate
Location	Primarily along streams, rivers and along the shores of Utah Lake
Seasonal Pattern	Spring time due to snow melt. Isolated events throughout the year due to severe weather (microburst).
Duration	A few hours to a few weeks depending upon conditions
Speed of Onset	1 to 12 hours
Probability of Future Occurrences	High - for delineated floodplains there is a 1% chance of flooding in any given year.

Assessing Vulnerability: Addressing Repetitive Loss Properties

There are no repetitive loss properties in Utah County (FEMA, 2008).

Utah County Flood and Dam Failure History

Hazards	Date	Location	Critical Facility or Area Impacted	Comments
Flood Utah	May 30, 1939	Thistle	Damage to homes, farmlands, and crops. Highways 50 and 89 received considerable damage	
Flood Utah	July 22, 1943	American Fork	Damage to crops and poultry	
Flood Utah	August 3, 1951	Lehi/Alpine/ American Fork	Damage to homes, farmlands, and crops. Utah Power generator plant damaged as well as 75 feet of pipeline. Dam in	Source Box Elder and American Fork Canyons

			upper American Fork Canyon washed out causing debris flow.	
Flood Utah	August 26, 1952	Lehi	City water lines flooded with mud, National Guard Headquarters flooded	
Flood Utah	July 30, 1953	American Fork	Bridges and roads damaged. Utah Power and Light stations and substations received $10,000 in damage.	Source American Fork Canyon
Flood Utah	September 27, 1962	Provo	Buildings and business establishments in downtown business district flooded	
Flood Utah	May 21, 1973	Payson	Payson Dam washed out causing several hundred thousand dollars in damage to city and roads	
Flood Utah Presidential	Spring 1983	County wide	Damage to county, state, and federal roads, rail lines, homes, and businesses. Damage by municipality below.	Creek Thistle landslide movement Utah Lake elevation reached 4,494.34 causing substantial flooding.
		Alpine	Alpine flooded,	Source Dry Creek Fort Creek
		American Fork	Extensive damage	Source American Fork Canyon
		Covered Bridge Property Owners Association	Bridge washed out forcing use of a swinging footbridge. Without phones for two weeks	
		Elk Ridge	Road damage	Source Loafer Creek
		Genola	Damage to state roads, and public right-of-ways.	
		Goshen	Several thousand dollars in damage.	Culinary water supply contaminated
		Highland	Public park and few road were damaged	Source American Fork Canyon
		Lehi	Damage to roads, bridges, channels, stream banks, and private property	Three families relocated.
		Lindon	Lindon roads damaged	
		Mapleton	$200,000 in damage to all sectors. Five culvert bridges washed out, loss of city culinary water supply.	Source Maple Canyon

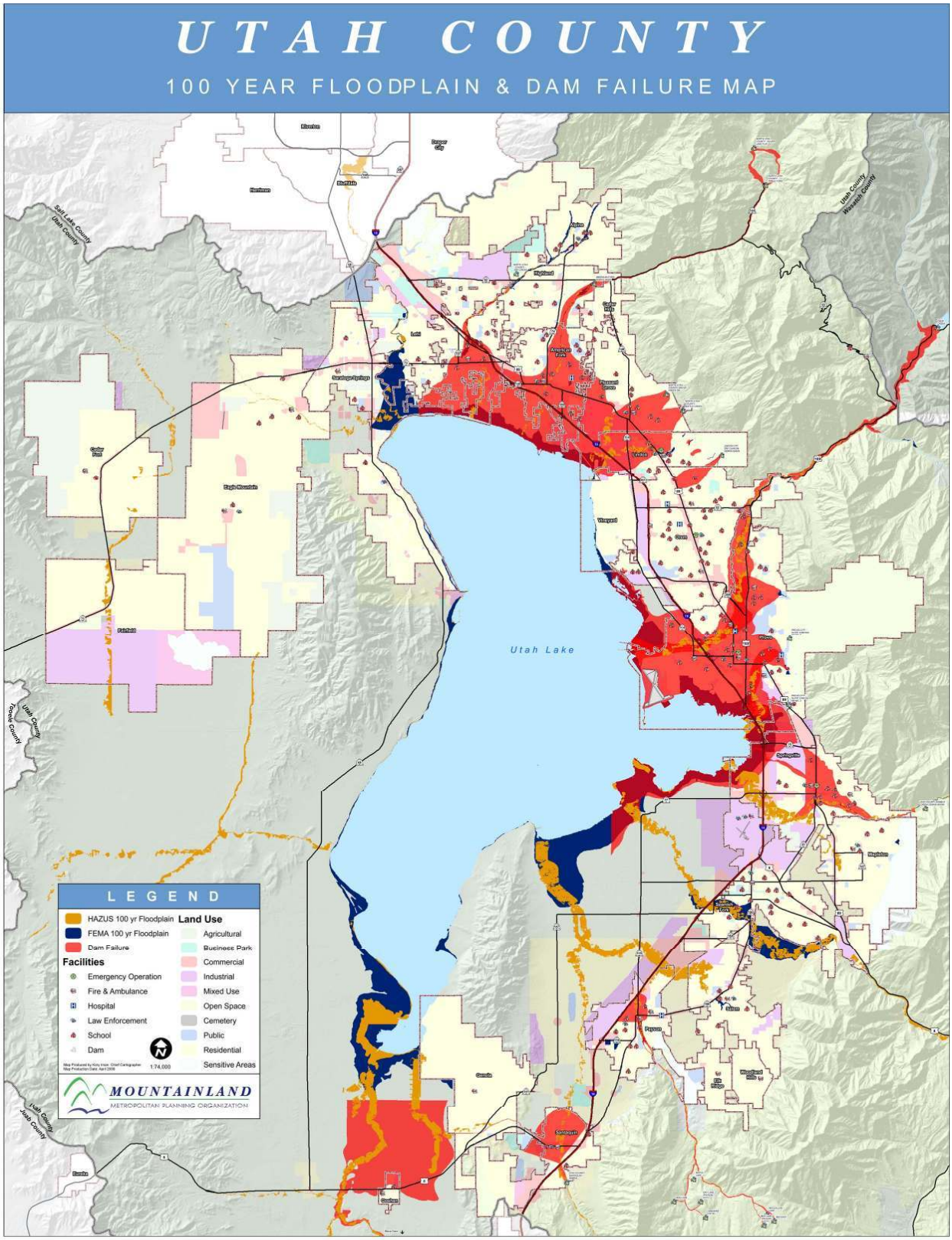
		Orem	Minor damage to city other than along Provo River	
		Payson	Damage to water diversion structures in the canyon	Source Payson Canyon
		Pleasant Grove	Damage to streets and homes.	Source Battle Creek Grove Creek
		Provo	Damage to culverts, streets, public property, farmlands, and homes.	Minor landsliding along foothills. High groundwater
		Salem	Damage to streets, private yards, and city park	Not eligible for federal funding because damage occurred after the incident period was closed. Sinkholes appeared.
		Santaquin	Damage to roads and loss of culinary water source for six weeks.	
		Spanish Fork	Damage to all sectors	Source Spanish Fork River
		Springville	Damage to riverbanks, bridges, public property, private property, and farmland.	Source Hobble Creek $400,000 in damages
		Strawberry Water Users Association	$216, 777 in damage to improvements owned by the Water Assoc.	Rock diversion dam washed out 2,100 feet of canals, roads, and culverts damaged.
Flooding Utah Presidential	Spring 1984	County Wide	Estate of damage $5, 467,000	

SHELDUS Data for Utah County

DATE	HAZARD	INJURIES	FATALITIES	PROPERTY DAMAGE (Adjusted to 2008)	CROP DAMAGE (Adjusted to 2008)
7/18/1965	Flooding	0	0	333333.33	3333.33
9/5/1965	Flooding	0.71	0	22222.2	2222.2
8/28/1971	Flooding	0	1	31250	312.5
5/1/1983	Flooding	0	0	4960317.46	4960317.46
8/18/1983	Flooding	0	0	26041.67	0
5/14/1984	Flooding	0	0	33333.4	0
2/17/1986	Flooding	0	0.09	85763.21	0
2/19/1986	Flooding	0	0	55493.96	0
8/20/1986	Flooding	0	0	18867.92	0

8/26/2000	Flooding	0	0	12048.19	0
9/6/2002	Flooding	0	0	229885.06	0
9/12/2002	Flooding	0	0	3448275.86	114942.53
7/16/2004	Flooding	0	0	439560.44	0
7/17/2004	Flooding	0	0	384615.38	0
5/21/2005	Flooding	0	0	2659.57	0
4/15/2006	Flooding	0	0	25773.2	0

SHELDUS University of South Carolina 2009


UTAH COUNTY
100 YEAR FLOODPLAIN & DAM FAILURE MAP
Utah Lake
LEGEND
HAZUS 100 yr Floodplain
FEMA 100 yr Floodplain
Dam Failure
Facilities
Emergency Operation
Fire & Ambulance
Hospital
Law Enforcement
School
Dam
Land Use
Agricultural
Business Park
Commercial
Industrial
Mixed Use
Open Space
Cemetery
Public
Residential
Sensitive Areas
1:74,000
MOUNTAINLAND
METROPOLITAN PLANNING ORGANIZATION

Wildfire

Overview

Wildfires occur on a regular basis in Utah County. Most fires occur in the late summer to early fall. Although many fires occur from natural causes such as lightning, humans cause most fires. Sparks from trains traveling on the railroad cause many small fires in south Utah County. People riding ATV's, using fireworks and campfires also start a number of fires in the area.

Development Trends

As development occurs on the bench areas of Utah Valley more homes will be in danger of wildfire. Communities need to make developers and homeowners aware of the danger. Cities should also require firebreaks and access roads along urban/wildland interfaces. Although development brings homes closer to areas of potential wildfire, it also brings water and access for firefighters closer to the urban fringe. Firewise community development principles, such as not storing firewood near homes, installing fire resistant roofing and cleaning debris from rain gutters will reduce potential loses.

Profile

Frequency	Multiple wildland fires occur in Utah County Every year.
Severity	Moderate
Location	Hillsides and mountainous areas, open grass and range lands.
Seasonal Pattern	Summer and fall depending on weather conditions.
Duration	A few hours to a few weeks depending upon conditions
Speed of Onset	1 to 48 hours
Probability of Future Occurrences	High Major Fires – 1.43 fires per year (FFSL) All Fires – 152 per year (USFM)

History

Forestry Fires and State Lands

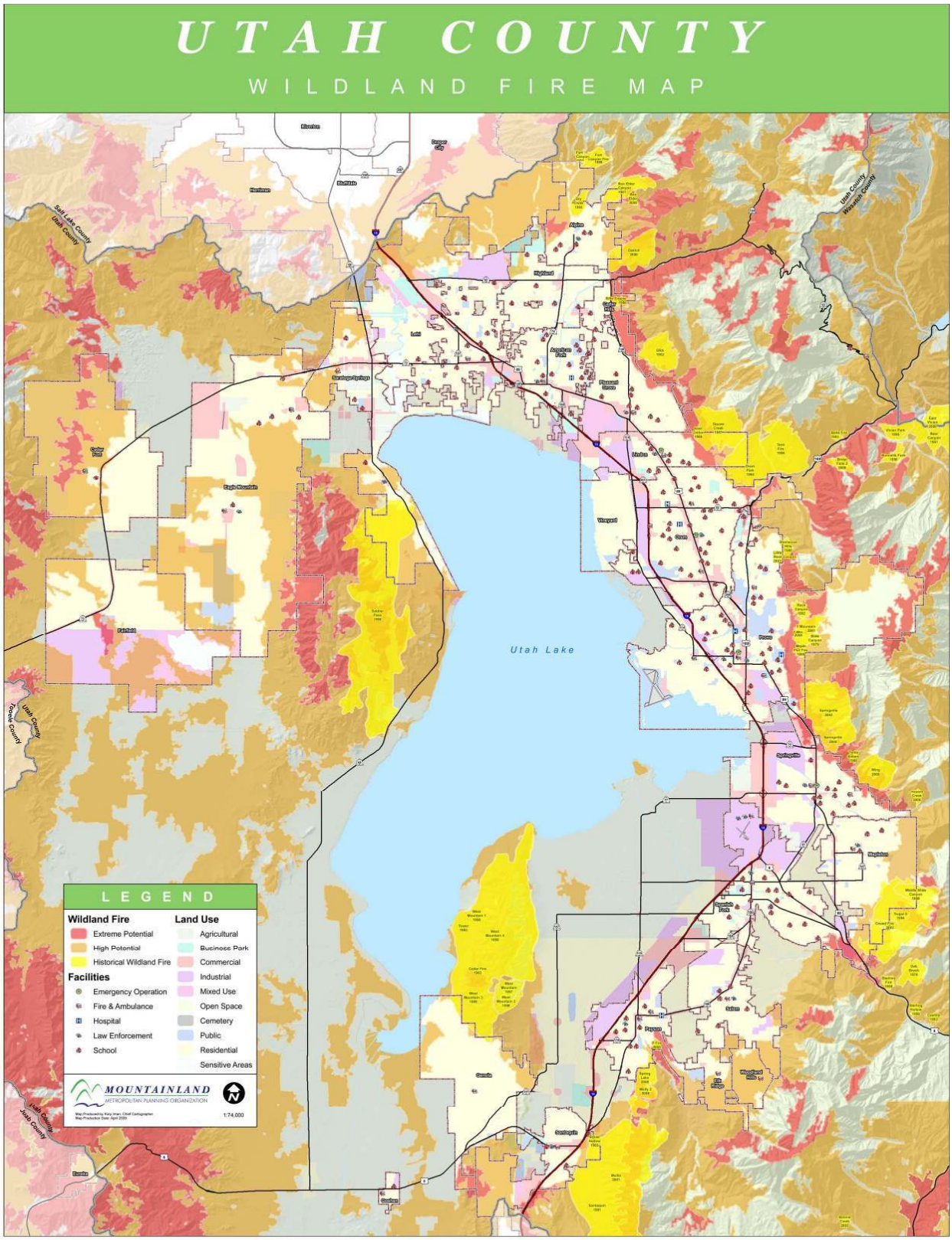
NIFMID	NAME	DAY	MONTH	YEAR	ACRES
	Orem Park	20	7	1960	505
	Box Elder Canyon	2	7	1961	491
	Bear Canyon	20	7	1961	80
81649	Sagehen Spring	18	10	1970	53
81803	Whitmore	2	8	1973	105
81995	Oak Brush	30	9	1976	442
81961	Brimhall	6	8	1976	175
82079	Slide Canyon	7	7	1979	50
82113	Sherwood Hills	20	7	1980	15

82114	East Lindon	23	7	1980	40
	Santaquin	4	8	1981	211
	Left Fork	27	8	1981	50
82207	Long Hollow	13	7	1982	20
82245	Broad Hollow	15	7	1983	80
82238	Cedar Fire	5	7	1983	80
82239	Tower	5	7	1983	400
	Castilla	26	10	1983	18
	Diamond Fork	19	8	1985	120
217068	Rifle Engine	1	7	1986	40
217069	Three Sisters	3	7	1986	20
217117	Squaw Creek	5	8	1987	1272
217128	Big Jane	30	6	1987	356
217178	Fort Canyon Fire	31	8	1988	389
217211	Maple Flat Fire	3	8	1989	60
217245	Middle Slide Canyon	2	9	1989	700
264607	Fort Canyon	16	9	1992	30
264579	Dry Creek	29	6	1992	355
264580	Rock Canyon	5	7	1992	155
264587	GRA	24	7	1992	790
281754	Betts Fire	28	6	1993	39.75
294505	Trojan II	10	9	1994	2950
314100	Sterling Hollow	4	8	1996	148.3
319599	Bunnells Fork	27	4	1996	131
311768	Wanrhoades	1	8	1996	70
314625	Vivian Park	11	8	1996	350
314099	Tank Fire	5	8	1996	3000
	Soldier Pass	20	6	1996	7620
327886	West Mountain	28	8	1997	640
334885	Beehive Fire	18	7	1998	52
330529	West Mountain 1	14	6	1998	129
334311	West Mountain 2	18	9	1998	1316
346560	West Mountain 3	25	6	1999	2059
346551	West Mountain 4	2	7	1999	7076
354431	East Vivian	26	7	2000	1753
354348	Wing	10	6	2000	813
354367	Oakhill	30	7	2000	1028
354368	Box Elder	21	7	2000	125
371237	Mollie	18	8	2001	8021
371164	Y Mountain	21	7	2001	461
371165	Nebo Creek	2	7	2001	4378

379680	Springville	30	6	2002	2259
379665	Bennie Creek	21	8	2002	11.5
379690	Brimhall	17	7	2002	50.9
391802	Cherry Creek 2	25	10	2003	5720
391760	Lavanger	3	8	2003	14.7
391801	Crowd Fire	10	8	2003	140
391815	Diamond Fire	1	8	2003	38.6
391803	Little Rock Canyon	15	8	2003	102
397916	Red Bull	29	7	2004	1836
397541	Ether	27	7	2004	32
397545	Red Hollow	1	8	2004	13.9
	P Fire	21	7	2005	51.4
1420728	Explosion	10	8	2005	58
1426830	Springville	2	10	2005	158
1435968	Hobble Creek	5	6	2006	113.7
	Spring Lake		7	2008	0
1470109	Molly 2	28	6	2008	20
1469848	Y Mtn.	25	7	2008	5
1471944	Bridal Falls 2	24	7	2008	220

Utah Division of Forestry Fires and State Lands 2009

State Fire Marshal's Office
Due to the high number of events, yearly reports for the previous 5 years are included in the annexes portion of the is plan.


UTAH COUNTY
WILDLAND FIRE MAP
Utah Lake
LEGEND
Wildland Fire
Extreme Potential
High Potential
Historical Wildland Fire
Facilities
Emergency Operation
Fire & Ambulance
Hospital
Law Enforcement
School
Land Use
Agricultural
Business Park
Commercial
Industrial
Mixed Use
Open Space
Cemetery
Public
Residential
Sensitive Areas
MOUNTAINLAND
METROPOLITAN PLANNING ORGANIZATION
1:74,000

Earthquake

Overview

Please see the HAZUS-MH Earthquake event report for Utah County. HAZUS is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake losses at a regional scale. For this plan a Utah County earthquake was simulated. The complete results are within the event report.

Development Trends

As development occurs in Utah County, more buildings and people will be in danger from earthquakes. However, newer buildings will be built to better standards, which will actually decrease the risk of damage. It is interesting to note that when most residential structures are engineered, out the three categories of design criteria; seismic zone, wind shear and snow load; the design criteria for wind shear over-rules the other criteria.

Profile

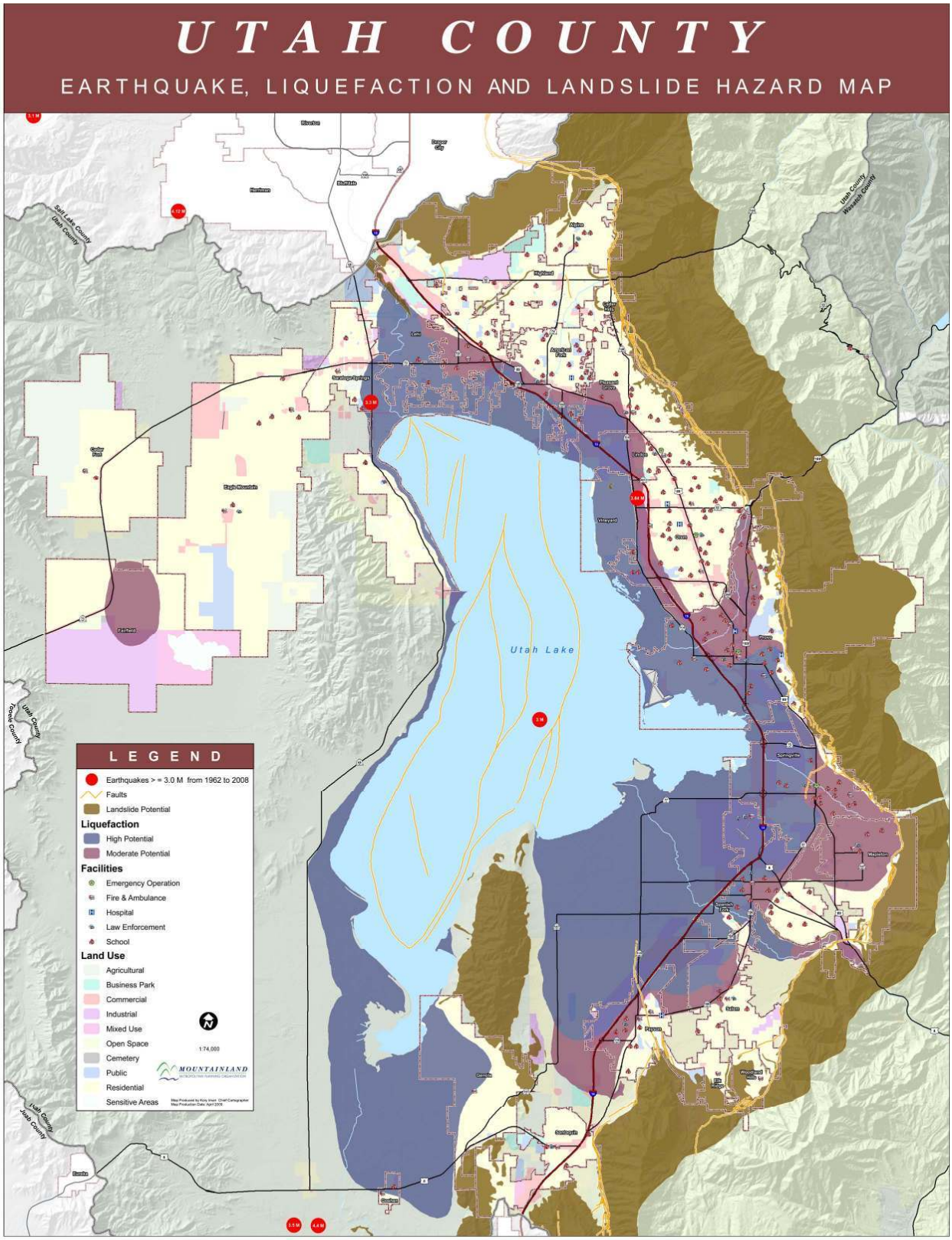
Frequency	Low -Events above 3.0 on the Richter scale are rare. Minor events (below 3.0) occur every month.
Severity	High (up to 7.0)
Location	Multiple faults throughout the county with the primary Wasatch Fault along the mountain benches.
Seasonal Pattern	None
Duration	1 to 6 minutes excluding aftershocks.
Speed of Onset	Seconds
Probability of Future Occurrences	Low- .13 (events above 3.0)

History

Recorded Earthquakes magnitude 3.0 or greater since 1950: Utah County		
Date	Richter Magnitude	Epicenter
February 20, 1950	3.7	Payson
May 8, 1950	4.3	Payson
August 12, 1951	4.3	Provo
July 21, 1952	3.7	Santaquin
September 28, 1952	4.3	Lehi
July 27, 1971	3.0	Near Lehi
August 5, 1973	3.2	Northeast of Orem

May 24, 1980	4.4	Elberta

University of Utah Seismology Department 2009


UTAH COUNTY
EARTHQUAKE, LIQUEFACTION AND LANDSLIDE HAZARD MAP
Utah Lake
LEGEND
Earthquakes > = 3.0 M from 1962 to 2008
Faults
Landslide Potential
Liquefaction
High Potential
Moderate Potential
Facilities
Emergency Operation
Fire & Ambulance
Hospital
Law Enforcement
School
Land Use
Agricultural
Business Park
Commercial
Industrial
Mixed Use
Open Space
Cemetery
Public
Residential
Sensitive Areas
1:74,000
MOUNTAINLAND

Landslide

Overview

Due to the topography of Utah County, landslides are an issue. The foothills and alluvial fans on the bench areas are desirable for home locations. Landslides and debris flows often occur after a wildfire event. The following table illustrates the vulnerability assessment for landslides in Utah County. Problem soils are also an issue in the county. Most of the problem soils deal with expansive and collapsible soils. Damage is usually caused by homeowners directing either sprinklers or gutter down pipes toward the foundations of homes or water main breaks. Cities should require site-specific soils reports when the community approves subdivisions.

Development Trends

Development along the foothills and bench areas is very desirable as more development occurs, more homes will be at risk for landslide damage. As more of the county land is developed, more marginal areas with problems soils will be developed. Increased analysis and geotechnical reports should become an integral part of the development and building process. Careful consideration should be given to ensure cutting and filling for any project is minimized.

Profile

Frequency	Movement occurs nearly every year.
Severity	Moderate several structures have been condemned.
Location	Along most benches and hillsides.
Seasonal Pattern	Spring when ground saturation is at its peak.
Duration	Minutes to years.
Speed of Onset	Seconds to days.
Probability of Future Occurrences	High - .75

History

Date	Type	Name
4/12/1983	Landslide	Landslide/ Thistle
9/12/2002	Landslide	Santaquin Debris Flow
9/10/2003	Landslide	Provo-Debris Flow (fire related)
7/26/2004	Landslide	Spring Lake, Santaquin Debris Flow (fire related)
4/28/2005	Landslide	Cedar Hills/ Sage Vista Lane
5/12/2005	Landslide	Provo Rock Fall
6/28/2005	Landslide	Provo Sherwood Hills Slide

SHELDUS University of South Carolina 2009

Thistle Slide

In 1983 the town of Thistle, Utah, known to many highway travelers as the small community where both the Spanish Fork River and nearby U.S. highways branch, was eliminated by the most costly landslide on record in the United States.

Thistle was located at the triple junction of transportation systems leading south to Sanpete County, east to the coal counties of Carbon and Emery and points beyond, and northwest to the Wasatch Front and Salt Lake City. Two major highways converged at Thistle (U.S. Highways 89 and 6). Until the landslide, two rail lines also converged at Thistle--the main line of the Denver and Rio Grande Western Railroad (D&RGW) joining Denver and Salt Lake City, and a branch line to Marysvale.

Ironically, the main line of the D&RGW railway from Denver to Salt Lake City follows the Soldier Creek and Spanish Fork drainages because of, rather than in spite of, landslides. Few corridors through the Rocky Mountains accommodate the gentle gradients required by railroads. Less stable landforms susceptible to landslides have eroded and formed the gentler terrain that allows modern rail passage. The advantages of this route had long been known. Undoubtedly the local Native Americans who guided the Spanish explorers traveled this route. Later trappers and pioneers used this natural corridor for their trade and transportation needs. The name "Spanish Fork" refers to the early exploration of the area by the Spanish, specifically Dominguez and Escalante in 1776 as they sought a trading route from Mexico to California. Soldier Creek is named for the route taken by federal troops as they moved through the area in the mid-1800s.

Storms heralding the 1982 to 1986 wet cycle kicked off the wettest month ever recorded at the Salt Lake City International Airport in September 1982, and saturated the ground before the winter snows. The winter was neither exceptionally wet nor cold. However, snows and cold nights continued late into April and May 1983, and resulted in an unusually late and sudden snowmelt when temperatures did warm up. May snowpacks of northern Utah averaged two to three times their normal. Utah's landslide problems correlate with precipitation and snowmelt. Two large landslides in the early spring alerted geologic experts to the situation. The National Weather Service briefed local and national officials about the unusual conditions. Yet even with the geologic and climatic indicators, the events of April, May, and June caught the state by surprise.

Starting in January, the D&RGW watched the Thistle area as well as several other landslide-prone areas near Soldier Summit. Their geotechnical experts visited the area on April 12. Days later, when the Thistle landslide began to move visibly, no one recognized it as a major hazard. The railroad tracks went out of alignment on Wednesday, 13 April. The highway became bumpy, fractured, and became impassible on Friday, 15 April. The streambed and deposits on the canyon floor rose approximately one foot an hour as a huge tongue of earth piled up against the bedrock buttress of Billies Mountain, filled the canyon, and dammed the river. The waters of the Spanish Fork River rapidly created Thistle Lake upstream of the landslide dam.

The railroad company and the Utah Department of Transportation (UDOT) initially tried to keep the railroad tracks, highway, and river open. Sunday, 17 April the landslide defeated efforts to cut down through the rising toe of the landslide and allow passage of the river water. Efforts to siphon waters rising behind the landslide dam also failed. Rising lake waters drowned the community of Thistle. That very day, the president of the D&RGW announced at Thistle that the railroad would tunnel a new railroad course through Billies Mountain. To be successful, the tunnel had to be above Thistle Lake's eventual

highest water line. Railroad experts in consultation with the state decided to form the landslide into a dam and to construct an overflow spillway tunnel to control the uppermost rise of the lake. Having calculated how fast an overflow tunnel could be constructed, and how fast the lake would rise, they began drilling. The state took charge of public safety priorities. Armies of workers and heavy equipment shaped the landslide dam while it moved by transferring 500,000 cubic yards of earth from the middle area of the landslide onto its toe. This also provided a platform from which to construct the tunnels. The state constructed a third tunnel to drain the impounded water. UDOT decided to relocate the highway over Billies Mountain. The Army Corps of Engineers constructed a pumping system to keep Thistle Lake from rising to dangerously high levels.

The impounded water rose at approximately the rate predicted and the D&RGW contractors completed the overflow tunnel system with two days to spare. Trains passed through the new tunnel on 4 July, eighty-one days after the initiation of the project and eleven days before the contracted completion date. The new tunnel provided a permanent bypass for the Spanish Fork River around the landslide. The relocated highway encountered difficult geotechnical problems. The highway opened at the end of the year but was often closed due to major rockfalls and slope stability problems.

The town of Thistle was destroyed. The Marysvale branch line of the railroad was never reopened, leaving a large area of central Utah without rail service. Thistle resulted in Utah's first presidential disaster declaration and became the most costly landslide the United States had experienced. The Utah Business and Economic and Research Bureau reported the following dramatic impacts of the landslide. The D&RGW and Utah Railway embargoed all shipment that normally went through Thistle. The rerouting surcharge of $10 per ton virtually stopped coal shipments. Two trucking companies laid off workers, cancelled contracts, and even suspended operations. Most of the area's coal mines laid off miners, cancelled contracts, and experienced shut downs. Some miners' commutes suddenly exceeded 100 miles. Some coal haulage commutes trebled. Due to market conditions and the Thistle landslide, coal production dropped nearly 30 percent in 1983. Uranium producers paid substantially more for supplies in an already soft market. At least one oil company became non-competitive due to increased travel costs. Tourism in the area, particularly in-state tourism, sagged in response to negative publicity and difficult access. To the south, the blockage of route 89 and the Marysvale line hurt coal companies, turkey and feed operations, and gypsum, cement, and clay shipments.

The Thistle landslide caused total estimated capital losses of $48 million and revenue losses of $87 million, plus associated losses in tax revenues. Direct costs of Thistle tally over $200 million, including relocating the railroad at a cost of $45 million, relocating the highway at a cost of $75 million, and lost revenue to the railroad of $1 million per day (which totaled $80 million, including $19 million in charges that the D&RGW paid the Union Pacific to use their rail lines).
See: O.B. Sumsion, Thistle . . . Focus on Disaster (1983).

Santaquin Mollie Fire Debris Flow

In August of 2001, the 8,000+ acre Mollie Fire burned Dry Mountain above Santaquin. The bench development area of Santaquin City is located not more than 50 yards from the edge of the fire perimeter. This enormous wild fire left a devastated hillside, and the city below, vulnerable to the slipping of loosened earth with the onset of late summer monsoon rains.

At approximately 6:45 p.m. on Thursday, September 12, 2002, after nearly a week of steady rain, the charred earth of the ironically named Dry Mountain gave way and mud flowed out of five separate canyons. Of the five flows, two caused extensive property damage, one to residents of Santaquin and one to the residents of unincorporated Spring Lake. Furthermore, one flow of nearly equal volume flowed through a principally undeveloped area of Santaquin. According to USGS statistics, the highest

possibility of ground slippage will occur within the first year after the fire. Although chronologically the mudslide occurred more than 365 days from the wild fire, it was still in the first monsoon season following the fire.

Following the fire, Santaquin City and the US Forest Service participated in a massive re-seeding effort on the mountain in an attempt to prevent or minimize the potential for a mudslide. Furthermore, the City took steps to prevent the potential mudslide from impacting the citizens of the community. Jersey barriers were placed along the upper boundaries of the developed community. In addition, walls of straw bails were constructed in areas analyzed to be the highest possibility of water flows. Both the City and the Forest Service, with the help of the National Weather Service, maintain constant monitoring of the mountainside.

Over the course of the 12+ months that followed the Mollie fire, the City collaborate with numerous governmental divisions, private firms and private property owners to develop and design a plan to handle whatever may come out of the canyons. Even before the mudslide event, the City initiated efforts to record easements for the construction of debris flow channels. Although they found it hard skating, the mudslide event showed that the efforts of the parties involved was in fact necessary.

In the time since September 2002, a formal diversion channel has been constructed to lead any further debris that comes out of the canyons into a natural ravine. Within the ravine, silt fencing and flow breaks have been installed to slow the flow of debris in the ravine and thereby minimizing its potential impact. This ravine travels between developed areas and down the hill to the location of US highway 198. Here UDOT has approved and is constructing culverts under the highway that will allow the debris pass under the highway and be disposed of without endangering private property.

The developed area within Santaquin City, which was hardest hit by the mudslide is as yet to be protected from future slide events. Due to the unwillingness of private property owners, no effort other than re-seeding the mountainside, have taken place to protect those residences.

Recommendations related to the Mollie Flow

- Coordinate with the Uinta National Forest Burned Area Emergency Rehabilitation (BAER) Team on post-wildfire watershed improvements.
- Consult with the USDA's Natural Resources Conservation Service (NRCS) concerning eligibility for the Emergency Watershed Protection (EWP) program.
- Note: This program is still available to the City of Santaquin.
- Promote purchasing of flood insurance through the National Flood Insurance Program (NFIP) for those individuals building or purchasing homes on alluvial fans.
- Construction of detention basins, deflectors, or other engineered structures.
- Note: Detention basins at the mouths of canyons catch all incoming debris flows, thus there is less chance for failure.
- Note: Possible funding mechanisms include special projects fees as part of a storm water collection fee, for homeowners living on alluvial fans.
- Adopt and enforce ordinances requiring geotechnical reports addressing debris flow, flooding, earthquakes, rock falls, and landslides for all proposed developments in areas susceptible to natural hazards. Maps illustrating the location of most of the above mentioned natural hazards are available through Utah County.

- Note: Utah Geological Survey (UGS) provides no cost independent review and recommendations of geotechnical reports to determine their accuracy and completeness. In addition, the Division of Emergency Services and UGS will aid in the design and implementation of ordinances concerning natural hazards.
- Register any structure pertaining to water impoundment with Division of Water Rights, Dam Safety Section.
- Note: The retention basin located within the impacted subdivision was not registered with Dam Safety.

Buckley Draw—Springville Fire

The Springville fire started on June 30, 2002 at 7:19 p.m. The fire burned a total of 2,207 acres above dozens of homes. The immediate post fire impacts for Provo City were: loose surface rock, silty and sandy soils, and blackened steep (40% grade) hillsides. Steep terrain and impervious soils cause rapid run off with rocks. Post fire conditions increased sediment expectations to 13 tons per acre. Brian McInerney of the NWS stated our risk level was the highest in the state.

Recommendations for mitigation offered to Provo City included the Uinta National Forest rehabilitating the burn area with vegetation (seed and mulch) and installing wire fences in the upper channel. The Natural Resource Conservation Service (NRCS) and the Emergency Watershed Program (EWP) implemented temporary measures to reduce the transport of sediment. Additionally, a Rain Activated Weather Station (RAWS) unit was relocated to the Buckley Draw area (elevation of 9,143 feet) to monitor site conditions on Sunday, July 13, 2002.

Provo City held public meetings on Sunday, July 13, and Monday, July 14, 2002 to present information and resources for the residents. National Flood Insurance Program (NFIP) information distributed. Sandbags and sand drops were scheduled and delivered.

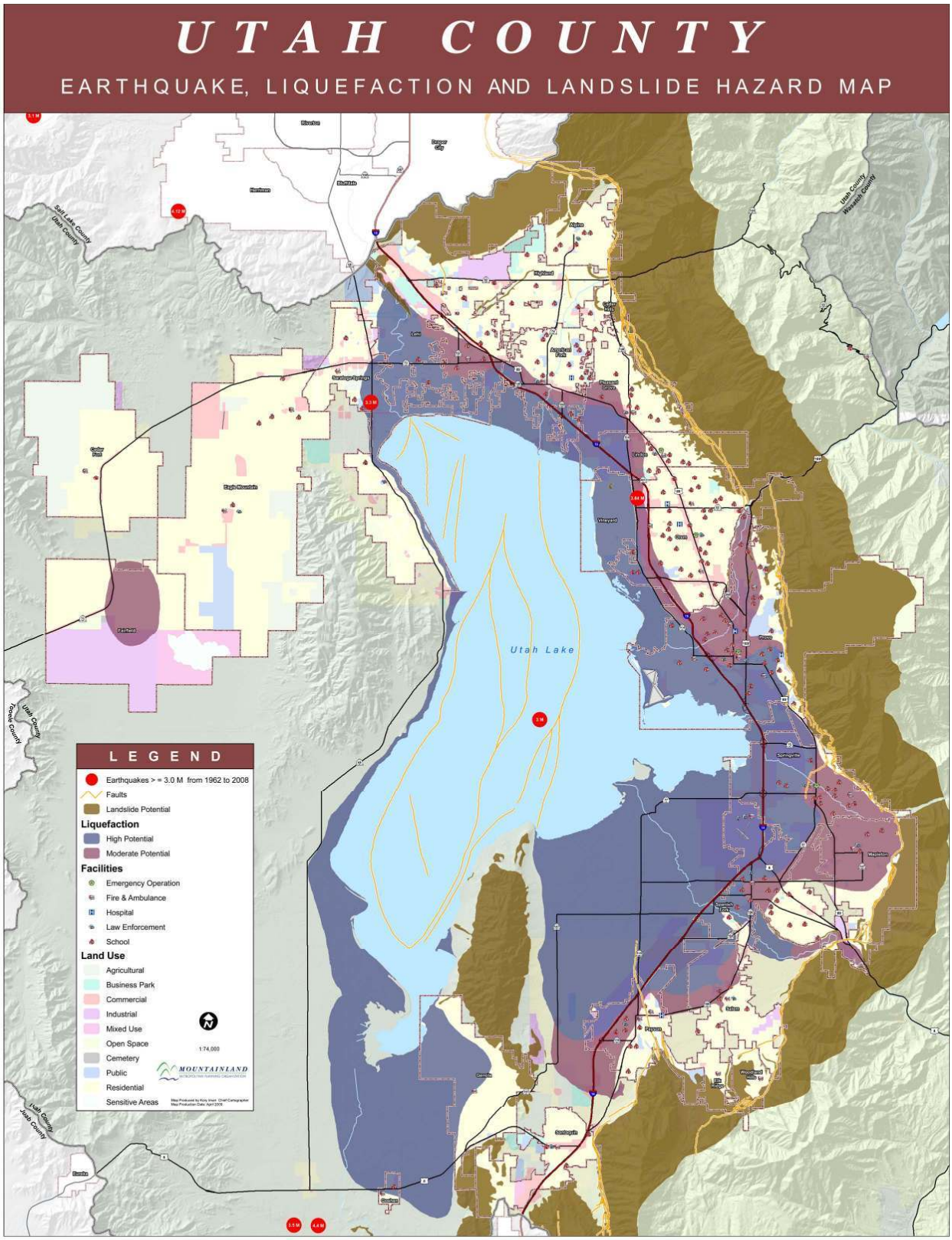
On July 15, 2002, information was distributed to the Neighborhood regarding the increase in risk of post fire debris flow, with information about the NFIP program. Communication links to relay current hazard information to the residents were established. The evacuation plan was updated.

On July 16, 2002 a helicopter overview of the burn area was taken. Provo Public Safety responders had a Post Fire Debris Flow Risks in Utah class on July 31, 2002. NRCS and the EWP engineered of a trench to redirect potential debris flow. Provo City obtained the necessary property agreements. Two debris flow events just to the north and just to the south of Provo in September, 2002 provided motivation to secure agreements and build the trench.
A SNOTEL was installed above the Little Rock Canyon drainage to monitor soil moisture and snow pack conditions on 22 October, 2002.

At the April 29, 2003 neighborhood meeting, the debris flow in Santaquin was contrasted with the conditions at the Buckley Draw. Plans for trench construction were discussed. A flag notification system and evacuation plan for the residents for the risk level was proposed and accepted. A web link with updated hazard information, a phone 'hot line' with an updated message, and a notification procedure alerting the Neighborhood Chair of any changes in the hazard level were implemented. A practice evacuation drill was held on Saturday, May 10, 2003.

The 1500 feet long trench was essentially complete on July 28, 2003. Weather conditions continued to be monitored on a daily basis.

At approximately 3:00 a.m. on September 10, 2003, four separate debris flows were triggered. The second largest flow came down the newly finished trench. There was little or no warning. This flow would have been life threatening and would have caused significant property damage without the debris trench in place. The spreader fences in the debris field distributed the runoff materials and completely contained this debris flow.


UTAH COUNTY
EARTHQUAKE, LIQUEFACTION AND LANDSLIDE HAZARD MAP
Utah Lake
LEGEND
Earthquakes > = 3.0 M from 1962 to 2008
Faults
Landslide Potential
Liquefaction
High Potential
Moderate Potential
Facilities
Emergency Operation
Fire & Ambulance
Hospital
Law Enforcement
School
Land Use
Agricultural
Business Park
Commercial
Industrial
Mixed Use
Open Space
Cemetery
Public
Residential
Sensitive Areas
1:74,000
MOUNTAINLAND

Review of 2004 Plan Mitigation Strategies

For the previous (2004) Mountainland Hazard Mitigation Plan, each participating jurisdiction prioritized there mitigation efforts and identified a single project. Below is a list of those projects and an update on the status of each project.

Utah County Communities
PRIORITIZATION OF INDIVIDUAL COMMUNITY
MITIGATION STRATEGIES
Table U-24

Community	Hazard	Mitigation	Status	Comments
Alpine	Wildfire	Educate Homeowners on Firewise practices	Ongoing	Community is partnering with various fire prevention agencies to educate. New standards in International Building Code.
American Fork	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Cedar Fort	Wildfire	Educate Homeowners on Firewise practices	Ongoing	Community is partnering with various fire prevention agencies to educate. New standards in International Building Code.
Cedar Hills	Landslides/ Flood	Participate in the NFIP/Require site-specific soils reports	Ongoing	Geotechnical reports are required for development.
Eagle Mountain	Wildfire	Educate Homeowners on Firewise practices	Ongoing	Community is partnering with various fire prevention agencies to educate. New standards in International Building Code.
Elk Ridge	Wildfire/ Flood	Educate Homeowners on Firewise practices Join NFIP Flood Map Community	Ongoing	Community is partnering with various fire prevention agencies to educate. New standards in International Building Code.
Genola	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Goshen	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Highland	Flood	Encourage Homeowner Participation in NFIP	Ongoing	The City is encouraging participation in the NFIP.
Lehi	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.

Lindon	Landslide	Prohibit development in Landslide areas	Ongoing	Geotechnical reports are required for development.
Mapleton	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Orem	Dam Failure	Establish Early Warning System	Completed	Early warning system is in place.
Payson	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Pleasant Grove	Flood	Encourage Homeowner Participation in NFIP	Ongoing	The City is encouraging participation in the NFIP.
Provo	Dam Failure	Establish Early Warning System	Completed	Early system is in place.
Salem	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Santaquin	Flood	Map flood and debris flow areas in newly annexed areas	Ongoing	New information has been developed and will continue as growth occurs
Saratoga Springs	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Spanish Fork	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Springville	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Utah County	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Vineyard	Liquefaction	Educate Homeowners/Require mitigation on new development	Ongoing	Community is working to ensure structures are build to proper standards.
Woodland Hills	Landslide	Prohibit development in Landslide areas	Ongoing	Geotechnical reports are required for development.

Damage Assessment and Mitigation

Overview

Each jurisdiction represented by this plan has participated in the creation of its contents and given local input into their individual mitigation goals and priorities. Early in the process the planning team determined that creating a list of basic mitigation strategies would stimulate each jurisdiction by acting as a beginning point for additional mitigation planning as well as helping to fulfill the requirements of this plan. Each jurisdiction has accepted and or made changes to the mitigation table to reflect their needs.

Listed below are the damage assessments for each of the participating jurisdiction followed by that community's mitigation strategies. Damage assessments were calculated using the methodologies mentioned earlier in this plan. Strategies were developed by the planning committee and then modified, if desired, by the individual community.

These strategies were assigned a priority of high, medium, or low by communities according to the following criteria:

- Number of people affected by the project
- Technical feasibility
- Political support
- Available funding and priorities
- Environmental impact
- Cost to benefit ratio

Earthquake -county wide

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Earthquake	58,449	$ 9,445,163,027.85		1935	$ 1,506,695,508.93		0	0	339	$ 1,818,707,536.71	106

Alpine

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
FEMA Flood Plain	124	$17,385,800	137	21	$6,058,300	50	-	-	2	$6,968,100	-
HAZUS Flood	25	$3,504,000	25	3	$713,500	0	-	-	0	0	-
Debris	391	$55,174,400	323	36	$12,071,400	0	-	-	6	$27,043,300	-
Wild Fire	696	$99,339,200	587	72	$20,694,900	0	-	-	16	$71,520,400	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

American Fork

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	4,177	$527,699,300	5716	675	$254,513,900	10640	17	$6,663,000	86	$480,791,100	10
FEMA Flood Plain	59	$8,561,500	59	5	$733,500	770	-	-	1	$7,494,600	1
HAZUS Flood	44	$5,328,500	110	8	$3,038,500	20	1	$398,000	1	$4,087,400	-
Debris	3	$456,500	8	1	$48,300	0	-	-	0	0	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam	Update Flood and Inundation mapping and	High	2 years	TBD	Local Cash,	Local Government,

Failure	incorporate them into general plans and ordinances.				Grants	FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Cedar Fort

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Steep Slopes	16	$2,046,900	0	2	$275,900	0	-	-	-	-	-
Wild Fire	59	$6,689,900	250	3	$415,200	510	-	-	3	$15,332,900	1

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within	High	1 year	Minimal	Local Cash, Grants	Local Government

	areas at risk.					
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Cedar Hills

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	4	$0	11	4	$349,000	0	1	-	-	-	-
Debris	443	$32,644,500	269	17	$4,817,000	0	3	-	5	$22,070,300	-
Wild Fire	455	$36,144,400	296	16	$2,499,000	10	3	-	9	$39,884,400	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
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Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and	High	1 year	Minimal	Local Cash,	Local Government,

	preparation.				Grants	UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Draper

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Debris	506	$0	0	3	$439,300	0	-	-	-	-	-
Wild Fire	484	$0	0	3	$419,700	0	-	-	-	-	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS

	ordinances.					
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Eagle Mountain

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
HAZUS Flood	8	$1,044,800	18	1	$44,300	0	-	-	0	0	-
Steep Slopes	54	$7,216,000	0	2	$251,400	0	-	-	-	-	-
Wild Fire	442	$58,546,800	53	9	$1,552,600	4580	-	-	18	$76,705,400	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding	Join NFIP community/participation.	Medium	1 year	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding	Join NFIP community/participation.	Medium	1 year	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Elk Ridge

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
HAZUS Flood	0	$0	0	1	$7,100	0	-	-	-	-	-
Debris	190	$30,299,200	259	10	$3,551,900	0	-	-	5	$21,302,900	-
Wild Fire	258	$40,832,000	506	20	$6,932,800	0	-	-	7	$33,622,900	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Fairfield

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
HAZUS Flood	1	$78,100	11	1	$6,100	1100	-	-	2	$11,212,900	-
Wild Fire	5	$634,900	202	1	$50,800	20190	-	-	19	$87,189,200	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government

Genola

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	2	$190,800	26	1	$67,000	0	-	-	1	$4,596,400	-
HAZUS Flood	3	$292,900	99	1	$106,200	0	-	-	0	0	-
Debris	23	$2,185,700	806	3	$244,200	30	-	-	4	$12,308,700	-
Wild Fire	13	$1,003,800	1186	1	$105,200	0	-	-	2	$4,003,500	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

	susceptible areas.					

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Goshen

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	70	$7,442,900	173	2	$210,400	390	-	-	3	$14,789,100	-
Wild Fire	1	$68,000	3	0	$0	0	-	-	0	0	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government

Highland

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	177	$23,425,600	81	13	$3,368,900	20	1	$147,000	5	$22,406,900	-
FEMA Flood Plain	59	$7,927,800	17	6	$1,459,400	0	-	-	1	$6,226,300	-
HAZUS Flood	18	$2,854,900	7	2	$548,700	0	-	-	0	0	-
Debris	53	$8,336,300	15	5	$782,300	0	1	$147,000	1	$6,857,000	-
Wild Fire	160	$30,962,600	65	10	$1,543,200	0	1	$147,000	6	$29,306,100	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE	High	Ongoing	Minimal	Local Cash,	Local Government

	practices.				Grants	
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Lehi

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	2,652	$316,012,300	3549	290	$84,870,900	3730	8	$7,930,000	56	$293,779,500	5
FEMA Flood Plain	557	$67,353,300	342	38	$9,885,700	330	3	$1,647,000	10	$52,434,100	2
HAZUS Flood	52	$5,469,400	92	11	$2,668,600	210	2	$1,259,000	2	$10,859,900	-
Debris	927	$52,700,100	1441	13	$4,508,400	690	-	-	7	$34,040,900	-
Wild Fire	710	$24,241,100	2206	13	$5,883,500	3770	-	-	28	$160,751,600	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding	Responsible Party

					Sources	
Flooding/Dam Failure	Promote NFIP participation/Clean dam drainage and remove debris from water ways	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Implement a power line inspection and maintenance program in the wild land areas.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Create a vegetation placement and management plan	High	1 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Lindon

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	866	$123,640,900	851	223	$139,675,900	9760	2	$1,555,000	44	$288,044,000	2
FEMA Flood Plain	49	$7,985,100	45	19	$8,645,800	760	-	-	2	$8,129,500	1
HAZUS Flood	41	$5,190,600	75	20	$17,381,100	1080	-	-	3	$18,023,600	-

Debris	479	$76,438,200	478	59	$14,710,900	0	1	-	8	$34,303,200	-
Wild Fire	558	$89,905,200	522	65	$16,740,600	0	1	-	8	$34,868,400	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation. Ditch improvements. Annual dam inspections (Dry Canyon, Squaw Hollow)	High	Ongoing	Moderate	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Follow and apply current building codes adopted by City.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices. Fire supression required in homes on steep slopes.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Debris Flow	Construct / Install debris flow basins in inventoried hazard areas.	Medium	5 years	High	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Restrict development in hazard areas, maintain storm drainage facilities, update ordinances.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation. Avoid hazard areas (faults), Canberra tank fault study.	High	3 years	Moderate	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	2 years	Minimal	Local Cash, Grants	Local Government
Debris Flow	Maintain debris flow basins. Monitor wildfire and landslide areas.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Mapleton

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	11	$1,632,600	30	3	$649,700	0	-	-	0	0	-
FEMA Flood Plain	8	$1,244,100	26	2	$394,700	0	-	-	0	0	-
HAZUS Flood	16	$2,043,700	46	3	$412,500	180	-	-	1	$3,765,800	-
Debris	55	$8,031,800	189	10	$1,976,500	30	-	-	5	$10,719,600	-
Wild Fire	67	$9,366,600	338	12	$2,196,400	90	-	-	6	$18,065,000	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping	High	1 year	Minimal	Local Cash,	Local Government

	requirements into local ordinances within areas at risk.				Grants	
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Orem

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	1,369	$213,985,700	1552	156	$58,086,700	440	6	$2,266,000	18	$82,448,900	1
FEMA Flood Plain	18	$2,447,900	59	3	$3,376,800	40	1	$227,000	0	0	-
HAZUS Flood	6	$755,500	16	1	$242,800	50	2	$448,000	0	0	-
Debris	414	$63,634,600	637	56	$27,583,000	120	-	-	8	$28,626,700	-
Wild Fire	163	$23,845,400	246	27	$8,944,300	170	4	$1,255,000	5	$12,201,300	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party

Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Payson

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	1,146	$113,309,500	996	138	$44,842,300	910	-	-	16	$76,694,100	6
FEMA Flood Plain	201	$20,161,900	130	34	$13,073,600	230	-	-	3	$16,662,500	1
HAZUS Flood	121	$11,978,100	510	20	$7,358,200	1860	-	-	4	$22,280,700	-
Debris	29	$3,758,300	629	1	$55,600	1300	-	-	4	$18,877,500	-
Wild Fire	110	$8,771,600	822	5	$491,900	2830	-	-	5	$25,859,300	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering	Medium	1 year	TBD	Local Cash,	Local Government,

	practices and retaining measures in susceptible areas.				Grants	UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Pleasant Grove

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	3,771	$511,907,700	4522	469	$126,662,200	3720	2	$136,000	63	$298,569,000	8
HAZUS Flood	7	$755,600	0	4	$1,465,300	260	-	-	1	$4,153,800	-
Debris	1,408	$220,701,600	1779	146	$30,348,700	20	1	$136,000	22	$96,897,200	-
Wild Fire	271	$41,858,100	297	29	$4,053,100	0	1	$241,000	4	$17,383,300	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS

Flooding/Dam Failure	Pipe water from flood basin 200 S. and 500 N. to canal. Approx. 8000 ft. high pressure pipe	High	Ongoing	2 million	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
	Pipe water from flood basin 200 S. and 500 N. to canal. Approx. 8000 ft. high pressure pipe	High	Ongoing	2 million	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Provo

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	14,403	$2,469,658,300	14369	1,873	$978,723,000	20020	34	$30,378,000	224	$1,184,401,900	34
FEMA Flood	180	$27,949,000	174	34	$19,556,700	1270	12	$5,643,000	8	$47,941,100	-

Plain											
HAZUS Flood	976	$126,931,800	972	146	$87,894,500	1570	3	$840,000	17	$86,942,000	1
Debris	2,250	$339,294,700	2367	256	$96,068,400	1060	2	$819,000	49	$164,348,200	2
Wild Fire	652	$89,960,400	814	96	$56,744,600	1900	3	$1,367,000	22	$72,913,900	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Salem

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
FEMA Flood Plain	34	$4,269,900	48	3	$647,500	30	-	-	0	0	-
HAZUS Flood	4	$399,700	182	2	$784,500	260	-	-	1	$2,464,500	-
Debris	307	$43,168,500	1344	31	$10,017,600	470	1	$113,000	15	$63,618,500	1
Wild Fire	37	$5,489,600	781	6	$872,300	640	-	-	6	$27,069,000	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within	High	1 year	Minimal	Local Cash, Grants	Local Government

	areas at risk.					
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Santaquin

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	1,527	$133,504,200	5147	96	$17,481,700	1640	4	$1,158,000	29	$132,326,400	3
HAZUS Flood	165	$13,122,300	456	12	$2,305,700	90	1	$92,000	4	$18,274,900	-
Debris	180	$12,133,500	1287	4	$215,000	480	-	-	7	$31,278,000	1
Wild Fire	376	$33,284,700	4160	14	$1,361,200	2490	2	$938,000	21	$97,689,300	1

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS

Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Saratoga Springs

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	170	$14,621,900	494	0	$0	0	-	-	3	$11,291,100	-
FEMA Flood Plain	242	$24,221,600	373	14	$7,902,300	170	1	$251,000	4	$20,592,600	-
HAZUS Flood	3	$417,400	5	1	$800	70	-	-	0	0	-
Steep Slopes	8	$727,200	0	1	$51,300	0	-	-	-	-	-
Wild Fire	1,282	$24,637,000	12866	12	$1,563,200	3870	-	-	40	$179,729,100	2

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Spanish Fork

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
FEMA Flood Plain	338	$15,160,300	685	10	$2,577,800	770	6	$1,374,000	7	$38,445,000	1
HAZUS Flood	217	$9,005,100	453	4	$916,600	210	2	$488,000	4	$16,684,700	-
Debris	251	$36,664,700	589	25	$7,673,400	80	1	-	4	$20,572,800	-
Steep Slopes	33	$4,846,100	0	7	$2,338,700	0	-	-	-	-	-
Wild Fire	98	$13,413,100	572	25	$8,405,500	1370	3	$1,008,000	4	$24,261,000	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS

Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Springville

	Residential			Commercial			Bridges		Roads		Critical Facilities
Hazard	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	3,345	$377,420,300	4254	409	$123,661,300	7330	24	$5,182,000	57	$294,865,800	11
FEMA Flood Plain	40	$4,741,300	87	8	$2,020,100	2530	5	$1,396,000	8	$54,580,700	-
HAZUS Flood	450	$28,294,100	1036	45	$11,147,100	2340	1	$153,000	14	$71,720,400	-
Debris	647	$84,459,000	889	48	$10,097,900	70	-	-	12	$51,180,700	-
Wild Fire	580	$72,567,500	672	54	$10,787,200	130	-	-	11	$44,515,100	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Utah County (unincorporated)

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count

Dam Failure	456	$49,072,100	1337	62	$24,992,700	2270	9	$6,542,000	-	-	-
FEMA Flood Plain	141	$13,722,100	326	22	$3,279,200	990	6	$2,343,000	-	-	-
HAZUS Flood	116	$10,967,300	138	16	$2,758,500	110	4	$777,000	-	-	-
Debris	432	$45,346,800	85	57	$15,304,400	60	3	$1,824,000	-	-	-
Wild Fire	952	$123,460,700	1506	86	$46,623,800	910	23	$8,216,000	-	-	2

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Canyon Debris Basins	High	Ongoing	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Vineyard

Hazard	Residential			Commercial			Bridges		Roads		Critical Facilities
	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Dam Failure	0	$0	2	1	$156,000	510	-	-	1	$2,887,300	-
FEMA Flood Plain	1	$76,800	0	1	$11,100	20	-	-	0	0	-
HAZUS Flood	0	$0	0	0	$0	70	-	-	0	0	-

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Promote NFIP participation.	High	Ongoing	Minimal	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Flooding/Dam Failure	Update Flood and Inundation mapping and incorporate them into general plans and ordinances.	High	2 years	TBD	Local Cash, Grants	Local Government, FEMA, UDHS
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Woodland Hills

Hazard	Residential	Commercial	Bridges	Roads	Critical Facilities

	Count	Cost	Planned Units	Count	Cost	Planned Jobs	Count	Cost	Length (mi)	Cost	Count
Debris	130	$19,385,600	209	13	$1,735,700	10	-	-	9	$41,464,500	1
Wild Fire	206	$30,626,200	337	22	$3,244,000	10	-	-	15	$66,630,200	1

Protecting Current Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Earthquake	Inventory current critical facilities for seismic standards.	High	3 years	TBD	Local Cash, Grants	Local Government
Wildfire	Educate homeowners on FIREWISE practices.	High	Ongoing	Minimal	Local Cash, Grants	Local Government
Landslide	Public education on and correct watering practices and retaining measures in susceptible areas.	Medium	1 year	TBD	Local Cash, Grants	Local Government, UGS

Protecting Future Residents and Structures

Hazard	Action	Priority	Timeline	Estimated Cost	Potential Funding Sources	Responsible Party
Earthquake	Promote earthquake awareness and preparation.	High	1 year	Minimal	Local Cash, Grants	Local Government, UGS, USGS
Wildfire	Incorporate FIREWISE landscaping requirements into local ordinances within areas at risk.	High	1 year	Minimal	Local Cash, Grants	Local Government
Landslide	Coordinate and update landslide mapping within the area with UGS and USGS.	High	3 years	Minimal	Local Cash, Grants	Local Government, UGS, USGS

Part IX
Plan Maintenance

Plan Update

Over the past five years, the previous Mountianland Hazard Mitigation Plan was amended using the most of the procedures listed below. While there were no major amendments, minor changes were initiated by jurisdictions to better reflect changing priorities and needs. As communities identified new mitigation projects, the mitigation strategy portion of the plan was updated. This has led to success in procuring grant funding to accomplish some mitigation strategies such as seismic retrofitting of public buildings and increased public awareness of hazards.

Unfortunately, a weakness of the previous plan was the documentation of these minor changes and the documentation of mitigation projects performed. During the updating process, it was determined that the plan maintenance procedures from the previous plan, should be adjusted to change this trend. Those adjustments have been incorporated in the new procedures listed below.

As this plan moves forward, a heightened awareness for this program and hazard mitigation in general will increase. Making the data available to each community and updating changes to that data will help ensure the plan stays as accurate as possible. This will be accomplished through the annual report and evaluation procedure. A new addition will be an annual plan review meeting where the Plan Steering Committee, which consists of staff engineers, planners and emergency officials, can review the plan and mitigation activities can be documented. This will ensure more accurate documentation of progress and changes as well as motivation for each responsible party to move forward with their mitigation projects.

Monitoring, Evaluating and Updating the Plan

Periodic monitoring and reporting of the Plan is required to ensure that the goals and objectives for the Mountainland Region are kept current and that local mitigation efforts are being carried out. The Plan has therefore been designed to be user-friendly in terms of monitoring implementation and preparing regular progress reports.

Annual Reporting Procedures

The Plan shall be reviewed annually, as required by the Executive Council, or as situations dictate such as following a disaster declaration. Each year the MAG Community Development Department Staff will conduct a Steering Committee meeting to review the plan and ensure the following:

1. The Executive Director and the Executive Council will receive an annual report and/or presentation on the implementation status of the Plan at an Executive Council Meeting.

2. The report will include an evaluation of the effectiveness and appropriateness of the mitigation actions proposed in the Plan.

3. The report will recommend, as appropriate, any required changes or amendments to the Plan.

If the MAG Executive Council determines that a modification of the Plan is warranted, the Council may initiate a Plan amendment.

Revisions and Updates

Periodic revisions and updates of the Plan are required to ensure that the goals and objectives for the Mountainland Region are kept current. More importantly, revisions may be necessary to ensure the Plan is in full compliance with Federal regulations and State statutes. This portion of the Plan outlines the procedures for completing such revisions and updates.

Five (5) Year Plan Review

The entire plan including any background studies and analysis should be reviewed every five (5) years to determine if there have been any significant changes in the Mountainland Region that would affect the Plan. Increased development, increased exposure to certain hazards, the development of new mitigation capabilities or techniques and changes to Federal or State legislation are examples of changes that may affect the condition of the Plan.
The Pre-Disaster Hazard Mitigation Plan Steering Committe, with a potential membership representing every jurisdiction in the MAG area, will be reconstituted for the five (5) year review/update process. Typically, the same process that was used to create the original plan will be used to prepare the update.

Further, following a disaster declaration, the Plan will need to be revised to reflect on lessons learned or to address specific circumstances arising out of the disaster.

The results of this five (5) year review should become summarized in the annual report prepared for this Plan under the direction of the Community Development Director. The annual report will include an evaluation of the effectiveness and appropriateness of the Plan, and will recommend, as appropriate, any required changes or amendments to the Plan.

If the Executive Council determines that the recommendations warrant modification to the Plan, the Council may either initiate a Plan amendment as described below, or, if conditions justify, may direct the MAG Community Development Department to undertake a complete update of the Plan.

Plan Amendments

An amendment to the Plan should be initiated only by the Executive Council, either at its own initiative or upon the recommendation of the Executive Director, Community Development Director, Mayor of an affected community or the State Department of Emergency Services and Homeland Security.

Upon initiation of an amendment to the Plan, Mountainland will forward information on the proposed amendment to all interested parties including, but not limited to, all affected city or county departments, residents and businesses. Depending on the magnitude of the amendment, the full Ad-Hoc committee may be reconstituted or the MAG Regional Growth Committee may review the amendment. At a minimum, the information will be made available through public notice in a newspaper of general circulation and on the Mountainland Website at www.mountainland.org. Information will also be forwarded to the Utah Department of Public Safety, Division of Emergency Services and Homeland Security. This information will be sent out in order to seek input on the proposed Plan amendment for not less than a forty-five (45) day review and comment period.

At the end of the comment period, the proposed amendment and all review comments will be forwarded to the Executive Director (or his/her designee) for consideration. If no comments are received from the reviewing parties within the specified review period, such will be noted accordingly. The Executive Director (or his/her designee) will review the proposed amendment along with comments received from other parties and submit a recommendation to the Executive Council within sixty (60) days.

In determining whether to recommend approval or denial of a Plan amendment request, the following factors will be considered:

There are errors or omissions made in the identification of issues or needs during the preparation of the Plan; and/or

New issues or needs have been identified which were not adequately addressed in the Plan; and/or

There has been a change in information, data or assumptions from those on which the Plan was based.

The nature or magnitude of risks has changed.

There are implementation problems, such as technical, political, legal or coordination issues with other agencies.

Upon receiving the recommendation of the Executive Director or his/her designee, the Executive Council will hold a public hearing. The Executive Council will review the recommendation (including the factors listed above) and any oral or written comments received at the public hearing. Following that review, the Executive Council will take one of the following actions:

1. Adopt the proposed amendment as presented.

2. Adopt the proposed amendment with modifications.

3. Refer the amendment request back to the Executive Director for further consideration.

4. Defer the amendment request for further consideration and/or hearing.

5. Reject the amendment request.

Implementation through Existing Programs

Process

The Mountainland Association of Governments Pre-Disaster Hazard Mitigation Plan will be implemented through the General Plans and Capital Improvement Plans (CIP) of each local jurisdiction. It will be the responsibility of Mayor/Council/Commissioner(s) of each jurisdiction, as he/she/they see fit, to ensure these actions are carried out no later than the target dates unless reasonable circumstances prevent their implementation (i.e. lack of funding availability).

Administrative

Project administration is purely a function of project size and complexity, for given jurisdictions within the planning area. Jurisdictions have self-funded or received state and federal funding for numerous projects in the past. The larger the project the more administration resources are needed. Local

jurisdictions with current staff could administer small projects or request county or state assistance. Larger projects would most likely still by managed "in-house" but would require additional staff be hired and may request state technical assistance.

Funding Sources

Although all mitigation techniques will likely save money by avoiding losses, many projects are costly to implement. The Mountainland jurisdictions will continue to seek outside funding assistance for mitigation projects in both the pre- and post-disaster environment. This portion of the Plan identifies the primary Federal and State grant programs for Mountainland jurisdictions to consider, and also briefly discusses local and non-governmental funding sources.

Federal

The following federal grant programs have been identified as funding sources which specifically target hazard mitigation projects:

Title: Pre-Disaster Mitigation Program
Agency: Federal Emergency Management Agency

Through the Disaster Mitigation Act of 2000, Congress approved the creation of a national program to provide a funding mechanism that is not dependent on a Presidential Disaster Declaration. The Pre-Disaster Mitigation (PDM) program provides funding to states and communities for cost-effective hazard mitigation activities that complement a comprehensive mitigation program and reduce injuries, loss of life, and damage and destruction of property.

The funding is based upon a 75% Federal share and 25% non-Federal share. The non-Federal match can be fully in-kind or cash, or a combination. Special accommodations will be made for "small and impoverished communities", who will be eligible for 90% Federal share/10% non-Federal.
FEMA provides PDM grants to states that, in turn, can provide sub-grants to local governments for accomplishing the following eligible mitigation activities:

- State and local hazard mitigation planning
- Technical assistance (e.g. risk assessments, project development)
- Mitigation Projects
- Acquisition or relocation of vulnerable properties
- Hazard retrofits
- Minor structural hazard control or protection projects
- Community outreach and education (up to 10% of State allocation)

Title: Flood Mitigation Assistance Program
Agency: Federal Emergency Management Agency

FEMA's Flood Mitigation Assistance program (FMA) provides funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes and other structures insurable under the National Flood Insurance Program (NFIP). FMA was created as part of the National Flood Insurance Reform Act of 1994 (42 USC 4101) with the goal of reducing or eliminating claims under the NFIP.

FMA is a pre-disaster grant program, and is available to states on an annual basis. This funding is available for mitigation planning and implementation of mitigation measures only, and is based upon a 75% Federal share/25% non-Federal share. States administer the FMA program and are responsible for selecting projects for funding from the applications submitted by all communities within the state. The state then forwards selected applications to FEMA for an eligibility determination. Although individuals cannot apply directly for FMA funds, their local government may submit an application on their behalf.
Title: Hazard Mitigation Grant Program
Agency: Federal Emergency Management Agency

The Hazard Mitigation Grant Program (HMGP) was created in November 1988 through Section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistant Act. The HMGP assists states and local communities in implementing long-term mitigation measures following a Presidential disaster declaration.

To meet these objectives, FEMA can fund up to 75% of the eligible costs of each project. The state or local cost-share match does not need to be cash; in-kind services or materials may also be used. With the passage of the Hazard Mitigation and Relocation Assistance Act of 1993, federal funding under the HMGP is now based on 15% of the federal funds spent on the Public and Individual Assistance programs (minus administrative expenses) for each disaster.

The HMGP can be used to fund projects to protect either public or private property, so long as the projects in question fit within the state and local governments overall mitigation strategy for the disaster area, and comply with program guidelines. Examples of projects that may be funded include the acquisition or relocation of structures from hazard-prone areas, the retrofitting of existing structures to protect them from future damages; and the development of state or local standards designed to protect buildings from future damages.

Eligibility for funding under the HMGP is limited to state and local governments, certain private nonprofit organizations or institutions that serve a public function, Indian tribes and authorized tribal organizations. These organizations must apply for HMPG project funding on behalf of their citizens. In turn, applicants must work through their state, since the state is responsible for setting priorities for funding and administering the program.

Title: Public Assistance (Infrastructure) Program, Section 406
Agency: Federal Emergency Management Agency

FEMA's Public Assistance Program, through Section 406 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, provides funding to local governments following a Presidential Disaster Declaration for mitigation measures in conjunction with the repair of damaged public facilities and infrastructure. The mitigation measures must be related to eligible disaster related damages and must directly reduce the potential for future, similar disaster damages to the eligible facility. These opportunities usually present themselves during the repair/replacement efforts.

Proposed projects must be approved by FEMA prior to funding. They will be evaluated for cost effectiveness, technical feasibility and compliance with statutory, regulatory and executive order requirements. In addition, the evaluation must ensure that the mitigation measures do not negatively impact a facility's operation or risk from another hazard.

Public facilities are operated by state and local governments, Indian tribes or authorized tribal organizations and include:

- Roads, bridges & culverts
- Draining & irrigation channels
- Schools, city halls & other buildings
- Water, power & sanitary systems
- Airports & parks

Private nonprofit organizations are groups that own or operate facilities that provide services otherwise performed by a government agency and include, but are not limited to the following:

- Universities and other schools
- Hospitals & clinics
- Volunteer fire & ambulance
- Power cooperatives & other utilities
- Custodial care & retirement facilities
- Museums & community centers

Title: SBA Disaster Assistance Program
Agency: US Small Business Administration

The SBA Disaster Assistance Program provides low-interest loans to businesses following a Presidential disaster declaration. The loans target businesses to repair or replace uninsured disaster damages to property owned by the business, including real estate, machinery and equipment, inventory and supplies. Businesses of any size are eligible, along with non-profit organizations.

SBA loans can be utilized by their recipients to incorporate mitigation techniques into the repair and restoration of their business.
Title: Community Development Block Grants
Agency: US Department of Housing and Urban Development

The community Development Block Grant (CDBG) program provides grants to local governments for community and economic development projects that primarily benefit low- and moderate-income people. The CDBG program also provides grants fro post-disaster hazard mitigation and recovery following a Presidential disaster declaration. Funds can be used for activities such as acquisition, rehabilitation or reconstruction of damaged properties and facilities and for the redevelopment of disaster areas.

STATE PROGRAMS

See the Capabilities Assessment Annex of this document for a full description of the State Programs available.

LOCAL

Local governments depend upon local property taxes as their primary source of revenue. These taxes are typically used to finance services that must be available and delivered on a routine and regular basis to the general public. If local budgets allow, these funds are used to match Federal or State grant programs when required for large-scale projects.

NON-GOVERNMENTAL

Another potential source of revenue for implementing local mitigation projects are monetary contributions from non-governmental organizations, such as private sector companies, churches, charities, community relief funds, the Red Cross, hospitals, Land Trusts and other non-profit organizations.

Paramount to having a plan deemed to be valid is its implementation. There is currently no new fiscal note attached to the implementation of this Plan.

Continued Public Involvement

Throughout the planning process, public involvement has been and will be critical to the development of the Plan and its updates. On a yearly basis the plan will be profiled at Mountainland's Annual Open Houses, which are held in the fall of every year. There are typically 400 to 500 local citizens who attend the Open Houses. The plan will also be available on the MAG website to provide additional opportunities for public participation and comment.

Mountainland Association of Governments staff has been designated by its Executive Council as the lead agency in preparing and submitting the Mountainland Pre-Disaster Hazard Mitigation Plan, which includes coverage for all incorporated cities and counties within the three county region, i.e. Summit, Utah and Wasatch Counties. The strategy of the Association of Governments in preparing the plan is to use available resources and manpower in the most efficient and cost effective manner to allow our cities and counties continued access to data, technical planning assistance and FEMA eligibility. In addition, the AOG will reach out to non-profits, public agencies, special needs organizations, groups and individuals in allowing them input and access to the plan. With limited resources, however, it becomes difficult to both identify and to individually contact the broad range of potential clients that may stand to benefit from the plan. This being the case, we have established the following course of action:

STEP 1. The AOG will publicly advertise all hearings, requests for input and meetings directly related to the Pre-Disaster Hazard Mitigation Plan process. Executive Council meetings where plan items are discussed and where actions are taken will not receive special notifications as they are already advertised according to set standards. All interested parties are welcome and invited to attend such meetings and hearings as they are public and open to all. Advertisement will be done according to the pattern set in previous years, i.e. the AOG will advertise each hearing and request for input at least seven days (7) in advance of the activity and will publish notices of the event in the Provo Herald, the Wasatch Wave and the Summit County Bee. The notices will advertise both the hearing and the means of providing input outside the hearing if an interested person is unable to attend.

STEP 2. The AOG has established a mailing list of many local agencies and individuals that may have an interest in the Pre-Disaster Hazard Mitigation Plan. Each identified agency or person will be mailed a notice of the hearings and open houses.

STEP 3. Comments, both oral and written, will be solicited and accepted from any interested party. Comments, as far as possible, will be included in the final draft of the Hazard Mitigation Plan; however, the AOG reserves the right to limit comments that are excessively long due to the size of the Plan.

STEP 4. Specific to risk assessment and hazard mitigation, needs analysis, and capital investment strategies, the AOG will make initial contact and solicitation for input from each incorporated jurisdiction

within the region. All input is voluntary. Staff time and resources do not allow personal contact with other agencies or groups, however, comments and strategies are welcomed as input to the planning process from any party via regular mail, FAX, e-mail, phone call, etc. In addition, every public jurisdiction advertises and conducts public hearings on their planning, budget, etc. where most of these mitigation projects are initiated. Input can be received from these prime sources by the region as well.

STEP 5. The final draft of the Hazard Mitigation Plan will be presented to the Mountainland Executive Council at its regularly scheduled monthly meeting for adoption and approval. Executive Council policies on adoption or approval of items will be in force and adhered to. This document is intended to be flexible and in constant change so comments can be taken at any time of the year for consideration and inclusion in the next update. Additionally, after FEMA approval of the Plan, the Plan will be promulgated for each local jurisdiction for adoption by resolution.

STEP 6. The following policies will guide AOG staff in making access and input to the Hazard Mitigation Plan as open and convenient as possible:

A. Participation: All citizens of the region are encouraged to participate in the planning process, especially those who may reside within identified hazard areas. The AOG will take whatever actions possible to accommodate special needs of individuals including the impaired, non-English speaking, persons of limited mobility, etc.

B. Access to Meetings: Adequate and timely notification to all area residents will be given as outlined above to all hearings, forums, and meetings.

C. Access to Information: Citizens, public jurisdictions, agencies and other interested parties will have the opportunity to receive information and submit comments on any aspect of the Hazard Mitigation Plan, and/or any other documents prepared for distribution by the Association of Governments that may be adopted as part of the plan by reference. The AOG may charge a nominal fee for printing of documents that are longer than three pages.

D. Technical Assistance: Residents as well as local jurisdictions may request assistance in accessing the program and interpretation of mitigation projects. AOG staff will assist to the extent practical, however, limited staff time and resources may prohibit staff from giving all the assistance requested. The AOG will be the sole determiner of the amount of assistance given all requests.

E. Public Hearings: The AOG will plan and hold public hearings according to the following priorities: 1- Hearings will be conveniently timed for people who might benefit most from Mitigation programs, 2- Hearings will be accessible to people with disabilities (accommodations must be requested in advance according to previously established policy), and 3- Hearings will be adequately publicized. Hearings may be held for a number of purposes or functions including to: a-identify and profile hazards, b-develop mitigation strategies, and c-review plan goals, performance, and future plans.

F. Comment Period: The AOG will sponsor a 30-day public comment period prior to final plan adoption. The comment period will begin with a public hearing to open the 30-day solicitation of input. Comments may be made orally, or in writing, and as far as possible, will be included in the final Pre-Disaster Hazard Mitigation Plan according to the outlined participation rules.

Annex

Severe Weather History

The following table is a list a damaging severe weather since 1960.

DATE	HAZARD	County	INJURIES	FATALITIES	PROPERTY DAMAGE (Adjusted to 2008)	CROP DAMAGE (Adjusted to 2008)
2/9/1960	Wind	Utah	0	0	21848.02	0
4/22/1960	Wind	Utah	0	0	0	2184.82
6/21/1960	Winter Weather	Summit	0	0	0	15475.64
6/21/1960	Winter Weather	Utah	0	0	0	15475.64
6/21/1960	Winter Weather	Wasatch	0	0	0	15475.64
8/22/1960	Wind	Summit	0	0	14856.63	0
8/22/1960	Wind	Utah	0	0	14856.63	0
8/22/1960	Wind	Wasatch	0	0	14856.63	0
4/22/1961	Wind	Utah	0.41	0	2184.82	0
5/15/1961	Lightning	Summit	0	0	371415.84	0
9/1/1961	Wind	Summit	0	0	3095.16	309.54
9/1/1961	Wind	Utah	0	0	3095.16	309.54
9/1/1961	Wind	Wasatch	0	0	3095.16	309.54
10/21/1961	Wind - Winter Weather	Summit	0	0.06	2184.82	218.47
10/21/1961	Wind - Winter Weather	Utah	0	0.06	2184.82	218.47
10/21/1961	Wind - Winter Weather	Wasatch	0	0.06	2184.82	218.47
1/20/1962	Wind - Winter Weather	Utah	0	0.09	3151.56	0
1/20/1962	Wind - Winter Weather	Wasatch	0	0.09	3151.56	0
4/23/1962	Wind	Summit	0	0	11954.1	0
4/23/1962	Wind	Utah	0	0	11954.1	0
4/23/1962	Wind	Wasatch	0	0	11954.1	0
8/22/1962	Lightning	Utah	0	1	0	0

1/29/1963	Severe Storm/Thunder Storm	Summit	0	0	11555.64	1155.58
1/29/1963	Severe Storm/Thunder Storm	Utah	0	0	11555.64	1155.58
6/6/1963	Severe Storm/Thunder Storm	Wasatch	0	0	34666.85	0
9/9/1963	Lightning	Summit	0	0	17333.43	0
4/3/1964	Wind	Utah	1	0	8666.71	0
4/11/1964	Wind	Utah	0.75	0	8666.71	0
5/1/1964	Winter Weather	Summit	0	0	216.67	0
5/1/1964	Winter Weather	Utah	0	0	216.67	0
5/1/1964	Winter Weather	Wasatch	0	0	216.67	0
6/3/1964	Lightning - Wind	Utah	0.25	0	8666.71	0
10/29/1964	Wind	Utah	0	0	11555.64	1155.58
11/15/1964	Wind	Utah	0.5	0	577780.84	0
12/23/1964	Flooding - Severe Storm/Thunder Storm - Wind	Utah	0.09	0	3151.56	315.12
12/23/1964	Flooding - Severe Storm/Thunder Storm - Wind	Wasatch	0.09	0	3151.56	315.12
6/12/1965	Lightning - Wind	Utah	0.33	0	11555.64	1155.58
7/9/1965	Tornado	Utah	0	0	3466.69	346.67
7/18/1965	Flooding - Severe Storm/Thunder Storm	Utah	0	0	346668.52	3466.69
7/30/1965	Flooding - Severe Storm/Thunder Storm	Utah	0	0	86667.13	866.67
8/14/1965	Lightning	Summit	1	0	0	0
8/21/1965	Flooding - Lightning - Severe Storm/Thunder Storm	Utah	0	0	8666.71	866.67
9/5/1965	Flooding - Hail - Lightning - Severe Storm/Thunder Storm	Utah	0.71	0	23111.21	2311.1
9/5/1965	Flooding - Hail - Lightning - Severe Storm/Thunder Storm	Summit	0.71	0	23111.21	2311.1
9/5/1965	Flooding - Hail - Lightning - Severe Storm/Thunder Storm	Wasatch	0.71	0	23111.21	2311.1
9/16/1965	Winter Weather	Wasatch	0	0	1195.38	119540.87
9/16/1965	Winter Weather	Summit	0	0	1195.38	119540.87
9/16/1965	Winter Weather	Utah	0	0	1195.38	119540.87
4/17/1966	Tornado	Utah	0	0	32499.19	0
3/7/1967	Wind - Winter Weather	Utah	0	0	2708.29	270.85

3/11/1967	Wind	Utah	0	0	406.24	406.24
3/29/1967	Wind - Winter Weather	Summit	0	0	112066.17	3249.92
3/29/1967	Wind - Winter Weather	Utah	0	0	112066.17	3249.92
3/29/1967	Wind - Winter Weather	Wasatch	0	0	112066.17	3249.92
7/3/1967	Lightning - Severe Storm/Thunder Storm - Wind	Utah	0	0	8124.8	812.48
7/16/1967	Flooding - Severe Storm/Thunder Storm	Wasatch	0	0	16249.59	1624.96
6/4/1968	Lightning	Utah	0	0	3058.85	0
7/20/1968	Wind	Utah	0	0	3058.85	3058.85
1/21/1969	Wind	Utah	0	0	2626.24	262.6
1/21/1969	Wind	Wasatch	0	0	2626.24	262.6
6/10/1969	Lightning - Wind	Utah	1.5	0	1444.42	144.44
7/29/1969	Flooding - Lightning - Severe Storm/Thunder Storm	Summit	0	0	7222.09	0
8/2/1969	Lightning - Wind	Utah	0	0	2626.24	262.6
8/2/1969	Lightning - Wind	Wasatch	0	0	2626.24	262.6
8/16/1969	Lightning	Utah	0	0	28888.38	0
12/14/1969	Fog - Winter Weather	Summit	0	0.1	996.13	0
12/14/1969	Fog - Winter Weather	Utah	0	0.1	996.13	0
12/14/1969	Fog - Winter Weather	Wasatch	0	0.1	996.13	0
5/21/1971	Wind	Summit	0	0	896.52	0
5/21/1971	Wind	Utah	0	0	896.52	0
5/21/1971	Wind	Wasatch	0	0	896.52	0
8/28/1971	Flooding - Severe Storm/Thunder Storm	Utah	0	1	32499.61	325
9/30/1971	Winter Weather	Utah	0	0	4333.26	433.31
9/30/1971	Winter Weather	Wasatch	0	0	4333.26	433.31
10/28/1971	Wind - Winter Weather	Summit	0	0	896.52	89.65
10/28/1971	Wind - Winter Weather	Utah	0	0	896.52	89.65
10/28/1971	Wind - Winter Weather	Wasatch	0	0	896.52	89.65
8/1/1972	Lightning	Utah	1.5	0	12999.84	0
12/28/1972	Wind - Winter Weather	Summit	0	0	28888.57	0
12/28/1972	Wind - Winter Weather	Utah	0	0	28888.57	0

12/28/1972	Wind - Winter Weather	Wasatch	0	0	28888.57	0
6/14/1973	Wind	Utah	0	0	24762.28	0
7/12/1973	Lightning - Wind	Utah	0	0	825.43	0
7/12/1973	Lightning - Wind	Wasatch	0	0	825.43	0
7/14/1973	Severe Storm/Thunder Storm	Summit	0	0	24762.28	0
8/17/1973	Lightning - Wind	Utah	0	0	82540.96	0
9/7/1973	Hail - Wind	Utah	0	0	3537.49	0
10/23/1973	Severe Storm/Thunder Storm - Wind	Utah	0	0	3537.49	0
11/12/1973	Wind	Utah	0	0	27513.67	0
5/12/1974	Wind	Utah	0	0	4333.32	0
3/25/1975	Winter Weather	Summit	0	0	71428.56	0
3/25/1975	Winter Weather	Utah	0	0	71428.56	0
3/25/1975	Winter Weather	Wasatch	0	0	71428.56	0
4/25/1975	Wind - Winter Weather	Summit	0	0	10000	0
4/25/1975	Wind - Winter Weather	Utah	0	0	10000	0
4/25/1975	Wind - Winter Weather	Wasatch	0	0	10000	0
5/11/1975	Wind	Utah	0	0	20000	20000
5/19/1975	Winter Weather	Utah	0	0	4000	4000
5/23/1975	Wind	Summit	0	0	20000	0
5/25/1975	Winter Weather	Utah	0	0	0	40000
7/10/1975	Severe Storm/Thunder Storm	Utah	0	0	50000	0
10/7/1975	Wind	Utah	0	0	2000	0
11/28/1975	Winter Weather	Summit	0	0	6896.56	0
11/28/1975	Winter Weather	Utah	0	0	6896.56	0
11/28/1975	Winter Weather	Wasatch	0	0	6896.56	0
12/30/1975	Winter Weather	Summit	0	0	8000	0
12/30/1975	Winter Weather	Wasatch	0	0	8000	0
6/14/1976	Winter Weather	Utah	0	0	0	1481455.13
3/9/1977	Wind	Utah	0	0	35861.57	0
5/11/1978	Winter Weather	Utah	0	0	0	1625012.19

1/1/1979	Winter Weather	Utah	0	0	13506.42	0
1/1/1979	Winter Weather	Wasatch	0	0	13506.42	0
7/1/1981	Lightning	Summit	0	0	40752.06	0
7/1/1981	Lightning	Utah	0	0	40752.06	0
7/1/1981	Lightning	Wasatch	0	0	40752.06	0
9/3/1983	Severe Storm/Thunder Storm	Utah	0	1	1805.54	0
9/3/1983	Severe Storm/Thunder Storm	Wasatch	0	0	1805.54	0
3/30/1984	Wind	Summit	0.2	0	20799.97	0
3/30/1984	Wind	Utah	0.2	0	20799.97	0
5/31/1984	Lightning - Severe Storm/Thunder Storm	Utah	1	1	0	0
4/4/1985	Wind	Wasatch	0	0	25000	0
12/8/1985	Winter Weather	Summit	0	0.14	7.14	0
12/8/1985	Winter Weather	Utah	0	0.14	7.14	0
12/8/1985	Winter Weather	Wasatch	0	0.14	7.14	0
12/10/1985	Wind	Utah	0	0	25000	0
1/6/1987	Winter Weather	Summit	0	0	630.29	0
1/6/1987	Winter Weather	Utah	0	0	630.29	0
1/6/1987	Winter Weather	Wasatch	0	0	630.29	0
3/26/1987	Wind	Utah	0	0	94544.77	0
4/18/1987	Wind	Utah	0	0	13506.4	0
7/18/1987	Wind	Wasatch	2	1	94.54	0
7/21/1987	Hail	Utah	8	0	945447.67	945447.67
12/14/1988	Wind	Utah	0	0	130325.08	0
12/14/1988	Wind	Utah	0	0	130325.08	0
12/25/1988	Severe Storm/Thunder Storm - Winter Weather	Utah	0	0	13032.51	0
3/2/1989	Lightning	Utah	0	0	86667.13	0
4/28/1990	Winter Weather	Summit	0	0	0	5502.63
4/28/1990	Winter Weather	Utah	0	0	0	5502.63
4/28/1990	Winter Weather	Wasatch	0	0	0	5502.63
4/30/1990	Winter Weather	Utah	0	0	0	16507.92

7/1/1990	Lightning	Wasatch	0	1	0	0
12/13/1990	Winter Weather	Summit	0	0	4126.98	0
12/13/1990	Winter Weather	Utah	0	0	4126.98	0
12/13/1990	Winter Weather	Wasatch	0	0	4126.98	0
12/18/1990	Winter Weather	Wasatch	1.55	0.24	28461.92	0
12/18/1990	Winter Weather	Summit	1.55	0.24	28461.92	0
12/18/1990	Winter Weather	Utah	1.55	0.24	28461.92	0
12/20/1990	Wind	Utah	0.4	0	16507.92	0
12/21/1990	Winter Weather	Summit	0.17	0.03	284619.23	28461.92
12/21/1990	Winter Weather	Utah	0.17	0.03	284619.23	28461.92
12/21/1990	Winter Weather	Wasatch	0.17	0.03	284619.23	28461.92
12/29/1990	Winter Weather	Wasatch	0	0	28461.92	2846.2
12/29/1990	Winter Weather	Summit	0	0	28461.92	2846.2
12/29/1990	Winter Weather	Utah	0	0	28461.92	2846.2
1/2/1991	Fog	Summit	1.8	0	7878.73	0
1/2/1991	Fog	Utah	1.8	0	7878.73	0
1/2/1991	Fog	Wasatch	1.8	0	7878.73	0
1/7/1991	Fog - Winter Weather	Utah	0.17	0.17	437.71	0
1/7/1991	Fog - Winter Weather	Summit	0.17	0.17	437.71	0
1/7/1991	Fog - Winter Weather	Wasatch	0.17	0.17	437.71	0
1/15/1991	Winter Weather	Summit	0.27	0	3581.25	0
1/15/1991	Winter Weather	Utah	0.27	0	3581.25	0
1/15/1991	Winter Weather	Wasatch	0.27	0	3581.25	0
4/10/1991	Winter Weather	Summit	0.36	0.07	562.76	0
4/10/1991	Winter Weather	Utah	0.36	0.07	562.76	0
4/10/1991	Winter Weather	Wasatch	0.36	0.07	562.76	0
5/8/1991	Wind	Summit	0	0	9848.41	0
5/8/1991	Wind	Utah	0	0	9848.41	0
5/8/1991	Wind	Wasatch	0	0	9848.41	0
8/2/1991	Lightning	Summit	2	2	0	0

8/4/1991	Hail	Utah	21.5	0	39393.65	0
9/9/1991	Severe Storm/Thunder Storm - Wind	Utah	0	0	78787.31	0
11/20/1991	Winter Weather	Summit	0	0	56.27	0
11/20/1991	Winter Weather	Utah	0	1	56.27	0
11/20/1991	Winter Weather	Wasatch	0	0	56.27	0
1/6/1992	Winter Weather	Summit	0.14	0	546.21	0
1/6/1992	Winter Weather	Utah	0.14	0	546.21	0
1/6/1992	Winter Weather	Wasatch	0.14	0	546.21	0
1/6/1993	Winter Weather	Utah	6	0.33	0	0
2/23/1993	Avalanche - Winter Weather	Summit	0	0.07	0	0
2/23/1993	Avalanche - Winter Weather	Utah	0	0.07	0	0
2/23/1993	Avalanche - Winter Weather	Wasatch	0	0.07	0	0
5/31/1994	Severe Storm/Thunder Storm - Wind	Utah	15	0	7294420.13	0
2/21/1996	Winter Weather	Summit	0	0	13684.2	0
2/21/1996	Winter Weather	Wasatch	0	0	13684.2	0
2/25/1996	Winter Weather	Summit	0.06	0.06	804.96	0
2/25/1996	Winter Weather	Utah	0.06	0.06	804.96	0
2/25/1996	Winter Weather	Wasatch	0.06	0.06	804.96	0
3/5/1996	Winter Weather	Utah	0.2	0	5473.68	0
3/17/1996	Wind	Utah	0	0	5701.75	0
3/28/1996	Wind	Summit	0	0	1789.47	0
3/28/1996	Wind	Wasatch	0	0	1789.47	0
3/28/1996	Wind	Utah	0	0	1789.47	0
7/16/1996	Severe Storm/Thunder Storm - Wind	Utah	1	0	273683.92	0
10/19/1996	Winter Weather	Summit	0	0	31578.91	0
10/19/1996	Winter Weather	Wasatch	0	0	31578.91	0
10/19/1996	Winter Weather	Utah	0	0	31578.91	0
10/24/1996	Winter Weather	Summit	0.83	0	57017.49	0
10/24/1996	Winter Weather	Utah	0.83	0	57017.49	0
10/24/1996	Winter Weather	Wasatch	0.83	0	57017.49	0

11/13/1996	Winter Weather	Utah	0	0	5263.15	0
11/13/1996	Winter Weather	Wasatch	0	0	5263.15	0
11/13/1996	Winter Weather	Summit	0	0	5263.15	0
11/15/1996	Winter Weather	Wasatch	0	0	17105.25	0
11/15/1996	Winter Weather	Summit	0	0	17105.25	0
11/22/1996	Winter Weather	Wasatch	0	0	760.24	0
11/22/1996	Winter Weather	Utah	0	0	760.24	0
11/22/1996	Winter Weather	Summit	0	0	760.24	0
11/28/1996	Winter Weather	Wasatch	0.67	0	11403.49	0
11/28/1996	Winter Weather	Utah	0.67	0	11403.49	0
11/28/1996	Winter Weather	Summit	0.67	0	11403.49	0
12/1/1996	Winter Weather	Wasatch	2.73	0	0	0
12/1/1996	Winter Weather	Utah	2.73	0	0	0
12/1/1996	Winter Weather	Summit	2.73	0	0	0
12/3/1996	Winter Weather	Summit	2.78	0	30.41	0
12/3/1996	Winter Weather	Wasatch	2.78	0	30.41	0
12/5/1996	Winter Weather	Summit	1.33	0	27368.39	0
12/5/1996	Winter Weather	Utah	1.33	0	27368.39	0
12/5/1996	Winter Weather	Wasatch	1.33	0	27368.39	0
12/5/1996	Wind	Utah	0	0	195.49	0
12/16/1996	Wind	Wasatch	0.29	0	6516.28	0
12/16/1996	Wind	Summit	0.29	0	6516.28	0
12/16/1996	Wind	Utah	0.29	0	6516.28	0
12/20/1996	Winter Weather	Summit	0.14	0	3110.05	0
12/20/1996	Winter Weather	Utah	0.14	0	3110.05	0
12/20/1996	Winter Weather	Wasatch	0.14	0	3110.05	0
12/27/1996	Wind	Wasatch	0	0	5701.75	0
12/27/1996	Wind	Summit	0	0	5701.75	0
12/27/1996	Wind	Utah	0	0	5701.75	0
1/2/1997	Winter Weather	Summit	0	0	2666.67	0

1/2/1997	Winter Weather	Wasatch	0	0	2666.67	0
1/11/1997	Winter Weather	Wasatch	1.79	0	1904761.91	0
1/11/1997	Winter Weather	Summit	1.79	0	1904761.91	0
1/11/1997	Winter Weather	Utah	1.79	0	1904761.91	0
1/22/1997	Winter Weather	Wasatch	0.45	0	30.31	0
1/22/1997	Winter Weather	Utah	0.45	0	30.31	0
1/22/1997	Winter Weather	Summit	0.45	0	30.31	0
1/25/1997	Winter Weather	Summit	1.33	1	26666.67	0
1/25/1997	Winter Weather	Utah	1.33	1	26666.67	0
1/25/1997	Winter Weather	Wasatch	1.33	1	26666.67	0
2/2/1997	Winter Weather	Wasatch	0.29	0	3921.57	0
2/2/1997	Winter Weather	Utah	0.29	0	3921.57	0
2/2/1997	Winter Weather	Summit	0.29	0	3921.57	0
2/5/1997	Winter Weather	Wasatch	0.4	0	10666.67	0
2/5/1997	Winter Weather	Summit	0.4	0	10666.67	0
2/5/1997	Winter Weather	Utah	0.4	0	10666.67	0
2/12/1997	Winter Weather	Utah	0.13	0	1777.77	0
2/12/1997	Winter Weather	Summit	0.13	0	1777.77	0
2/12/1997	Winter Weather	Wasatch	0.13	0	1777.77	0
2/17/1997	Winter Weather	Summit	0.15	0	4102.56	0
2/17/1997	Winter Weather	Utah	0.15	0	4102.56	0
2/17/1997	Winter Weather	Wasatch	0.15	0	4102.56	0
2/24/1997	Wind	Summit	0.33	0	637037.04	0
2/26/1997	Winter Weather	Wasatch	0.87	0	28985.51	0
2/26/1997	Winter Weather	Utah	0.87	0	28985.51	0
2/26/1997	Winter Weather	Summit	0.87	0	28985.51	0
3/2/1997	Winter Weather	Wasatch	1.88	0	41666.67	0
3/2/1997	Winter Weather	Summit	1.88	0	41666.67	0
3/2/1997	Winter Weather	Utah	1.88	0	41666.67	0
3/31/1997	Winter Weather	Wasatch	3	0	133333.33	0

3/31/1997	Winter Weather	Utah	3	0	133333.33	0
3/31/1997	Winter Weather	Summit	3	0	133333.33	0
4/2/1997	Wind	Summit	1.82	0	521212.12	0
4/2/1997	Wind	Utah	1.82	0	521212.12	0
4/4/1997	Winter Weather	Utah	0.22	0	7407.41	0
4/4/1997	Winter Weather	Summit	0.22	0	7407.41	0
4/4/1997	Winter Weather	Wasatch	0.22	0	7407.41	0
4/9/1997	Winter Weather	Wasatch	0	0	1111.11	0
4/9/1997	Winter Weather	Summit	0	0	1111.11	0
4/9/1997	Winter Weather	Utah	0	0	1111.11	0
4/12/1997	Severe Storm/Thunder Storm - Wind	Utah	0	0	26666.67	0
4/23/1997	Winter Weather	Wasatch	0	0	2807.01	0
4/23/1997	Winter Weather	Utah	0	0	2807.01	0
4/23/1997	Winter Weather	Summit	0	0	2807.01	0
5/1/1997	Winter Weather	Summit	0	0	3333.33	0
5/1/1997	Winter Weather	Utah	0	0	3333.33	0
5/1/1997	Winter Weather	Wasatch	0	0	3333.33	0
5/25/1997	Winter Weather	Wasatch	0	0	13333.33	0
5/25/1997	Winter Weather	Utah	0	0	13333.33	0
5/25/1997	Winter Weather	Summit	0	0	13333.33	0
6/18/1997	Hail	Utah	0	0	2666.67	0
6/30/1997	Wind	Utah	0	0	7500	0
8/12/1997	Severe Storm/Thunder Storm - Wind	Utah	1	1	0	0
8/20/1997	Severe Storm/Thunder Storm - Wind	Summit	0	1	0	0
9/7/1997	Hail	Utah	0	0	33333.33	0
9/7/1997	Lightning	Utah	0	0	13333.33	0
10/6/1997	Wind	Utah	0	0	20000	0
10/10/1997	Winter Weather	Utah	0.12	0	1066.67	0
10/10/1997	Winter Weather	Summit	0.12	0	1066.67	0
10/10/1997	Winter Weather	Wasatch	0.12	0	1066.67	0

10/23/1997	Winter Weather	Wasatch	0	0	1481.48	0
10/23/1997	Winter Weather	Summit	0	0	1481.48	0
10/23/1997	Winter Weather	Utah	0	0	1481.48	0
11/11/1997	Winter Weather	Summit	0	0	289.85	0
11/11/1997	Winter Weather	Utah	0	0	289.85	0
11/11/1997	Winter Weather	Wasatch	0	0	289.85	0
11/26/1997	Winter Weather	Wasatch	0	0	987.65	0
11/26/1997	Winter Weather	Summit	0	0	987.65	0
11/26/1997	Winter Weather	Utah	0	0	987.65	0
12/1/1997	Winter Weather	Utah	0	0	2666.67	0
12/7/1997	Winter Weather	Utah	0.69	0.03	9195.4	0
12/7/1997	Winter Weather	Summit	0.69	0.03	9195.4	0
12/7/1997	Winter Weather	Wasatch	0.69	0.03	9195.4	0
12/21/1997	Winter Weather	Wasatch	0	0	740.75	0
12/21/1997	Winter Weather	Utah	0	0	740.75	0
12/21/1997	Winter Weather	Summit	0	0	740.75	0
12/23/1997	Winter Weather	Summit	0.08	0	4102.56	0
12/23/1997	Winter Weather	Utah	0.08	0	4102.56	0
12/23/1997	Winter Weather	Wasatch	0.08	0	4102.56	0
12/27/1997	Wind	Utah	0	0	1212.12	0
12/27/1997	Wind	Summit	0	0	1212.12	0
12/27/1997	Wind	Wasatch	0	0	1212.12	0
1/4/1998	Winter Weather	Utah	0.32	0	2078.61	0
1/4/1998	Winter Weather	Wasatch	0.32	0	2078.61	0
1/10/1998	Winter Weather	Summit	0	0	235.08	0
1/10/1998	Winter Weather	Utah	0	0	235.08	0
1/10/1998	Winter Weather	Wasatch	0	0	235.08	0
1/11/1998	Winter Weather	Summit	0.31	0	7088.57	1012.65
1/11/1998	Winter Weather	Utah	0.31	0	7088.57	1012.65
1/11/1998	Winter Weather	Wasatch	0.31	0	7088.57	1012.65

1/15/1998	Winter Weather	Summit	0.72	1	10531.58	1053.16
1/15/1998	Winter Weather	Utah	0.72	0	10531.58	1053.16
1/15/1998	Winter Weather	Wasatch	0.72	0	10531.58	1053.16
1/19/1998	Winter Weather	Summit	0.08	0	1579.74	263.29
1/19/1998	Winter Weather	Utah	0.08	0	1579.74	263.29
1/19/1998	Winter Weather	Wasatch	0.08	0	1579.74	263.29
1/30/1998	Winter Weather	Summit	0	0	822.78	0
1/30/1998	Winter Weather	Wasatch	0	0	822.78	0
1/30/1998	Winter Weather	Utah	0	0	822.78	0
2/3/1998	Wind	Utah	0	0	2256.77	1504.52
2/4/1998	Winter Weather	Summit	0	0	146.27	0
2/4/1998	Winter Weather	Utah	0	0	146.27	0
2/4/1998	Winter Weather	Wasatch	0	0	146.27	0
2/7/1998	Winter Weather	Summit	0.74	0.07	3900.58	975.15
2/7/1998	Winter Weather	Utah	0.74	0.07	3900.58	975.15
2/7/1998	Winter Weather	Wasatch	0.74	0.07	3900.58	975.15
2/11/1998	Winter Weather	Summit	0	0	1645.56	0
2/11/1998	Winter Weather	Utah	0	0	1645.56	0
2/11/1998	Winter Weather	Wasatch	0	0	1645.56	0
2/14/1998	Winter Weather	Utah	0.2	0	2632.9	658.22
2/14/1998	Winter Weather	Wasatch	0.2	0	2632.9	658.22
2/18/1998	Winter Weather	Summit	0	0	299.19	29.92
2/18/1998	Winter Weather	Utah	0	0	299.19	29.92
2/18/1998	Winter Weather	Wasatch	0	0	299.19	29.92
2/21/1998	Winter Weather	Utah	2.67	0	78986.86	17552.63
3/3/1998	Winter Weather	Summit	0	0	548.52	0
3/3/1998	Winter Weather	Utah	0	0	548.52	0
3/3/1998	Winter Weather	Wasatch	0	0	548.52	0
3/5/1998	Winter Weather	Utah	0.53	0	8337.5	438.81
3/14/1998	Avalanche	Wasatch	0.71	0	9403.2	0

3/14/1998	Avalanche	Utah	0.71	0	9403.2	0
3/14/1998	Avalanche	Summit	0.71	0	9403.2	0
3/17/1998	Winter Weather	Wasatch	0	0	1316.45	438.81
3/17/1998	Winter Weather	Utah	0	0	1316.45	438.81
3/17/1998	Winter Weather	Summit	0	0	1316.45	438.81
3/27/1998	Winter Weather	Utah	0.24	0	4212.63	315.95
3/27/1998	Winter Weather	Wasatch	0.24	0	4212.63	315.95
3/27/1998	Winter Weather	Summit	0.24	0	4212.63	315.95
4/7/1998	Winter Weather	Summit	0	0	376.12	94.03
4/7/1998	Winter Weather	Utah	0	0	376.12	94.03
4/7/1998	Winter Weather	Wasatch	0	0	376.12	94.03
4/11/1998	Severe Storm/Thunder Storm - Wind	Utah	0	0	0	43.88
4/12/1998	Winter Weather	Summit	0.11	0	1410.48	141.04
4/12/1998	Winter Weather	Utah	0.11	0	1410.48	141.04
4/12/1998	Winter Weather	Wasatch	0.11	0	1410.48	141.04
4/17/1998	Winter Weather	Summit	0	0	202.54	20.25
4/17/1998	Winter Weather	Utah	0	0	202.54	20.25
4/17/1998	Winter Weather	Wasatch	0	0	202.54	20.25
5/21/1998	Severe Storm/Thunder Storm - Wind	Utah	0	0	1316.45	1316.45
5/21/1998	Hail	Summit	0	0	0	263.29
5/22/1998	Winter Weather	Summit	0	0	0	37.61
5/22/1998	Winter Weather	Utah	0	0	0	37.61
5/22/1998	Winter Weather	Wasatch	0	0	0	37.61
5/26/1998	Wind	Utah	0	0	291	485.01
5/29/1998	Wind	Utah	0	0	157.97	210.63
6/3/1998	Lightning	Utah	0	0	65822.38	0
6/3/1998	Hail - Severe Storm/Thunder Storm - Wind	Utah	0	0	10531.58	6582.24
6/4/1998	Winter Weather	Summit	0	0	0	37.61
6/4/1998	Winter Weather	Utah	0	0	0	37.61
6/4/1998	Winter Weather	Wasatch	0	0	0	37.61

6/7/1998	Severe Storm/Thunder Storm	Utah	0	0	342276.4	13164.48
6/7/1998	Hail	Utah	0	0	0	526.58
6/13/1998	Severe Storm/Thunder Storm	Utah	0	0	36860.54	3949.34
6/16/1998	Winter Weather	Summit	0	0	1950.29	390.06
6/16/1998	Winter Weather	Utah	0	0	1950.29	390.06
6/16/1998	Winter Weather	Wasatch	0	0	1950.29	390.06
7/5/1998	Severe Storm/Thunder Storm - Wind	Utah	0	0	1316.45	1316.45
7/24/1998	Severe Storm/Thunder Storm	Summit	0	0	131644.77	39493.43
7/27/1998	Severe Storm/Thunder Storm	Utah	0	0	26328.95	5265.79
7/30/1998	Severe Storm/Thunder Storm - Wind	Utah	0	0	789.87	2632.9
8/26/1998	Hail	Utah	0	0	394934.31	131644.77
9/12/1998	Hail	Utah	0	0	0	1053.16
10/3/1998	Lightning	Utah	1	0	131644.77	0
10/15/1998	Winter Weather	Summit	0	0	14627.2	0
10/15/1998	Winter Weather	Utah	0	0	14627.2	0
10/15/1998	Winter Weather	Wasatch	0	0	14627.2	0
11/5/1998	Winter Weather	Summit	0	0	9113.87	0
11/5/1998	Winter Weather	Utah	0	0	9113.87	0
11/5/1998	Winter Weather	Wasatch	0	0	9113.87	0
11/8/1998	Winter Weather	Summit	0.38	0	25316.3	0
11/8/1998	Winter Weather	Utah	0.38	0	25316.3	0
11/8/1998	Winter Weather	Wasatch	0.38	0	25316.3	0
11/17/1998	Winter Weather	Summit	0	0	1097.04	0
11/17/1998	Winter Weather	Utah	0	0	1097.04	0
11/17/1998	Winter Weather	Wasatch	0	0	1097.04	0
11/23/1998	Wind	Summit	0	0	5723.69	0
11/23/1998	Wind	Utah	0	0	5723.69	0
11/23/1998	Wind	Wasatch	0	0	5723.69	0
12/4/1998	Winter Weather	Summit	0	0	5485.2	0
12/4/1998	Winter Weather	Utah	0	0	5485.2	0

12/4/1998	Winter Weather	Wasatch	0	0	5485.2	0
12/19/1998	Winter Weather	Summit	0.36	0	4701.6	0
12/19/1998	Winter Weather	Utah	0.36	0	4701.6	0
12/19/1998	Winter Weather	Wasatch	0.36	0	4701.6	0
12/21/1998	Winter Weather	Summit	0	0	907.89	0
12/21/1998	Winter Weather	Utah	0	0	907.89	0
12/21/1998	Winter Weather	Wasatch	0	0	907.89	0
1/21/1999	Winter Weather	Summit	0	0	464.28	0
1/21/1999	Winter Weather	Utah	0	0	464.28	0
1/21/1999	Winter Weather	Wasatch	0	0	464.28	0
1/26/1999	Winter Weather	Summit	0.25	0	4062.5	0
1/26/1999	Winter Weather	Utah	0.25	0	4062.5	0
1/26/1999	Winter Weather	Wasatch	0.25	0	4062.5	0
1/29/1999	Avalanche	Utah	0	1	0	0
2/9/1999	Winter Weather	Summit	0	0	7647.06	0
2/9/1999	Winter Weather	Utah	0	0	7647.06	0
2/9/1999	Winter Weather	Wasatch	0	0	7647.06	0
4/1/1999	Winter Weather	Summit	2.92	0	18416.69	0
4/1/1999	Winter Weather	Utah	2.92	0	18416.69	0
4/1/1999	Winter Weather	Wasatch	2.92	0	18416.69	0
4/8/1999	Winter Weather	Summit	0	0	565.21	0
4/8/1999	Winter Weather	Utah	0	0	565.21	0
4/8/1999	Winter Weather	Wasatch	0	0	565.21	0
12/2/1999	Winter Weather	Summit	0.15	0	20000.03	0
12/2/1999	Winter Weather	Utah	0.15	0	20000.03	0
12/2/1999	Winter Weather	Wasatch	0.15	0	20000.03	0
1/1/2000	Winter Weather	Summit	0.08	0	1002.41	0
1/1/2000	Winter Weather	Wasatch	0.08	0	1002.41	0
1/1/2000	Winter Weather	Utah	0.08	0	1002.41	0
1/4/2000	Winter Weather	Summit	0.42	0	3132.52	0

1/4/2000	Winter Weather	Wasatch	0.42	0	3132.52	0
1/4/2000	Winter Weather	Utah	0.42	0	3132.52	0
1/11/2000	Avalanche	Summit	0	0.4	0	0
1/11/2000	Avalanche	Wasatch	0	0.4	0	0
1/11/2000	Avalanche	Utah	0	0.4	0	0
2/14/2000	Wind	Summit	0	0	5220.87	1044.17
2/14/2000	Wind	Wasatch	0	0	5220.87	1044.17
2/14/2000	Wind	Utah	0	0	5220.87	1044.17
2/25/2000	Avalanche	Summit	0.25	0	0	0
2/27/2000	Avalanche	Summit	0.13	0	0	0
3/20/2000	Wind	Wasatch	0	0	313251.8	21301.12
7/23/2000	Wind	Utah	0	0	1253.01	626.5
11/14/2000	Winter Weather	Summit	0	0	5695.48	0
11/14/2000	Winter Weather	Utah	0	0	5695.48	0
11/14/2000	Winter Weather	Wasatch	0	0	5695.48	0
12/15/2000	Winter Weather	Summit	0.08	0.08	1927.7	0
12/15/2000	Winter Weather	Utah	0.08	0.08	1927.7	0
12/15/2000	Winter Weather	Wasatch	0.08	0.08	1927.7	0
2/27/2001	Avalanche	Wasatch	0	0.2	0	0
2/27/2001	Avalanche	Summit	0	0.2	0	0
2/27/2001	Avalanche	Utah	0	0.2	0	0
3/10/2001	Avalanche	Wasatch	0	0.67	0	0
3/10/2001	Avalanche	Summit	0	0.67	0	0
3/27/2001	Hail - Severe Storm/Thunder Storm - Wind	Wasatch	1	1	1209.31	0
4/7/2001	Winter Weather	Summit	1	0.1	12093.07	0
4/7/2001	Winter Weather	Wasatch	1	0.1	12093.07	0
4/7/2001	Winter Weather	Utah	1	0.1	12093.07	0
4/28/2001	Avalanche	Wasatch	0	0.5	0	0
4/28/2001	Avalanche	Summit	0	0.5	0	0
6/2/2001	Wind	Utah	0	0	0	6046.53

6/12/2001	Wind	Utah	0	0	302326.71	30232.67
7/4/2001	Wind	Utah	0	1	0	0
7/14/2001	Hail	Utah	0	0	2418.61	0
11/22/2001	Winter Weather	Utah	0	0	56434.32	0
11/22/2001	Winter Weather	Summit	0	0	56434.32	0
11/22/2001	Winter Weather	Wasatch	0	0	56434.32	0
11/24/2001	Winter Weather	Wasatch	0.08	0	60465.34	5038.78
11/24/2001	Winter Weather	Utah	0.08	0	60465.34	5038.78
11/24/2001	Winter Weather	Summit	0.08	0	60465.34	5038.78
11/29/2001	Winter Weather	Utah	1	2	14684.44	0
11/29/2001	Winter Weather	Summit	0	0	14684.44	0
11/29/2001	Winter Weather	Wasatch	0	0	14684.44	0
12/2/2001	Winter Weather	Utah	0	0	4651.18	930.24
12/2/2001	Winter Weather	Summit	0	0	4651.18	930.24
12/2/2001	Winter Weather	Wasatch	0	0	4651.18	930.24
1/15/2002	Winter Weather	Wasatch	0	0	20229.85	0
1/15/2002	Winter Weather	Summit	0	0	20229.85	0
1/15/2002	Winter Weather	Utah	0	0	20229.85	0
1/27/2002	Winter Weather	Utah	2.92	0	66206.78	0
1/27/2002	Winter Weather	Summit	2.92	0	66206.78	0
1/27/2002	Winter Weather	Wasatch	2.92	0	66206.78	0
1/31/2002	Avalanche	Wasatch	0	1	0	0
2/3/2002	Fog	Utah	0.75	0.75	149425.01	0
4/15/2002	Wind	Utah	0.42	0	99616.67	4980.84
4/15/2002	Wind	Summit	0.42	0	99616.67	4980.84
4/15/2002	Wind	Wasatch	0.42	0	99616.67	4980.84
5/7/2002	Wind	Utah	0	0	5977	597.7
7/25/2002	Severe Storm/Thunder Storm - Wind	Wasatch	0	0	35862	11954
7/26/2002	Severe Storm/Thunder Storm - Wind	Utah	0	0	59770.01	11954
12/29/2002	Winter Weather	Wasatch	0	0	5692.38	0

12/29/2002	Winter Weather	Utah	0	0	5692.38	0
12/29/2002	Winter Weather	Summit	0	0	5692.38	0
3/26/2003	Severe Storm/Thunder Storm - Wind	Utah	0	0	5842.69	0
6/9/2003	Tornado	Utah	0	0	2337.08	0
6/9/2003	Severe Storm/Thunder Storm - Wind	Utah	0	0	2337.08	0
7/19/2003	Lightning	Summit	3	2	0	0
8/14/2003	Lightning	Summit	2	1	0	0
8/29/2003	Lightning	Utah	1	0	0	0
10/1/2003	Lightning	Wasatch	0	1	0	0
11/13/2003	Wind	Utah	0	0	37977.49	29213.46
11/21/2003	Winter Weather	Wasatch	0	0	58426.91	0
11/21/2003	Winter Weather	Summit	0	0	58426.91	0
11/21/2003	Winter Weather	Utah	0	0	58426.91	0
11/25/2003	Winter Weather	Summit	0	0	25967.51	0
11/25/2003	Winter Weather	Utah	0	0	25967.51	0
11/25/2003	Winter Weather	Wasatch	0	0	25967.51	0
11/27/2003	Fog	Utah	2	1	23370.77	0
12/20/2003	Winter Weather	Summit	0	0.13	26292.11	0
12/25/2003	Winter Weather	Wasatch	0	0	76209.02	0
12/25/2003	Winter Weather	Summit	0	0	76209.02	0
12/25/2003	Winter Weather	Utah	0	0	76209.02	0
12/26/2003	Avalanche	Summit	0	3	0	0
12/28/2003	Winter Weather	Utah	0	0.09	16257.92	0
12/28/2003	Winter Weather	Summit	0	0.09	16257.92	0
12/28/2003	Winter Weather	Wasatch	0	0.09	16257.92	0
1/1/2004	Winter Weather	Utah	0	0	152.38	0
1/1/2004	Winter Weather	Summit	0	0	152.38	0
1/1/2004	Winter Weather	Wasatch	0	0	152.38	0
1/25/2004	Winter Weather	Wasatch	0	0	9523.81	0
1/25/2004	Winter Weather	Utah	0	0	9523.81	0

1/25/2004	Winter Weather	Summit	0	0	9523.81	0
4/20/2004	Winter Weather	Wasatch	0	0	351.65	0
4/20/2004	Winter Weather	Summit	0	0	351.65	0
4/20/2004	Winter Weather	Utah	0	0	351.65	0
4/28/2004	Wind	Summit	0.11	0	952.38	0
4/28/2004	Wind	Utah	0.11	0	952.38	0
4/28/2004	Wind	Wasatch	0.11	0	952.38	0
4/28/2004	Wind	Summit	0	0	444.45	0
4/28/2004	Winter Weather	Summit	0	0	142.86	0
5/10/2004	Wind	Utah	0	0	1942.86	0
5/10/2004	Wind	Summit	0	0	1942.86	0
5/10/2004	Wind	Summit	0	0	95.23	0
5/10/2004	Wind	Wasatch	0	0	95.23	0
8/2/2004	Severe Storm/Thunder Storm - Wind	Utah	0	0	5714.29	0
9/18/2004	Wind	Summit	0	0	888.88	0
11/12/2004	Wind	Summit	0	0	1142.86	0
11/12/2004	Wind	Wasatch	0	0	1142.86	0
11/12/2004	Wind	Utah	0	0	1142.86	0
11/27/2004	Winter Weather	Summit	0.44	0	12800	0
11/27/2004	Winter Weather	Utah	0.44	0	12800	0
11/27/2004	Winter Weather	Wasatch	0.44	0	12800	0
12/10/2004	Avalanche	Utah	0	0.8	0	0
12/10/2004	Avalanche	Wasatch	0	0.8	0	0
12/10/2004	Avalanche	Summit	0	0.8	0	0
1/10/2005	Wind	Utah	0	0	603.47	0
1/10/2005	Wind	Wasatch	0	0	603.47	0
5/5/2005	Severe Storm/Thunder Storm - Wind	Utah	0	0	2212.76	0
1/1/2006	Winter Weather	Utah	0	0.08	0	0
3/25/2006	Wind	Utah	0	0	297.83	0
7/1/2006	Severe Storm/Thunder Storm - Wind	Utah	0	0	6433005.61	0

8/1/2006	Severe Storm/Thunder Storm - Wind	Utah	0	0	4288670.4	0
8/1/2006	Severe Storm/Thunder Storm - Wind	Utah	0	0	3216502.8	0
10/13/2007	Lightning	Summit	2	1	0	0
12/25/2007	Avalanche	Summit	0	0.33	0	0
12/25/2007	Avalanche	Wasatch	0	0.33	0	0
12/31/2007	Avalanche	Summit	0.67	0.33	0	0
12/31/2007	Avalanche	Wasatch	0.67	0.33	0	0

SHELDUS University of South Carolina 2009

State Fire Marshal Data

HAZUS Event Reports

HAZUS-MH: Earthquake Event Report

Region Name: Utah County Earthquake

Earthquake Scenario: UC 7.0 M Earthquake

Print Date: December 17, 2008

Totals only reflect data for those census tracts/blocks included in the user's study region.

Disclaimer:
The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

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General Description of the Region

HAZUS is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Utah

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 2,138.07 square miles and contains 85 census tracts. There are over 99 thousand households in the region and has a total population of 368,536 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 85 thousand buildings in the region with a total building replacement value (excluding contents) of 17,905 (millions of dollars). Approximately 97.00 % of the buildings (and 73.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 2,997 and 846 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

HAZUS estimates that there are 85 thousand buildings in the region which have an aggregate total replacement value of 17,905 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 77% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

HAZUS breaks critical facilities into two (2) groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 6 hospitals in the region with a total bed capacity of 1,044 beds. There are 179 schools, 30 fire stations, 18 police stations and 3 emergency operation facilities. With respect to HPL facilities, there are 33 dams identified within the region. Of these, 22 of the dams are classified as 'high hazard'. The inventory also includes 85 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 2 and 3.

The total value of the lifeline inventory is over 3,843.00 (millions of dollars). This inventory includes over 560 kilometers of highways, 314 bridges, 13,850 kilometers of pipes.

Table 2: Transportation System Lifeline Inventory

System	Component	# locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	314	379.70
	Segments	107	2,069.10
	Tunnels	2	1.80
		Subtotal	**2,450.60**
Railways	Bridges	3	0.20
	Facilities	1	2.10
	Segments	135	237.60
	Tunnels	0	0.00
		Subtotal	**239.90**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	1	1.10
		Subtotal	**1.10**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	6	32.00
	Runways	9	274.10
		Subtotal	**306.20**
		Total	**2,997.70**

Table 3: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	138.50
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**138.50**
Waste Water	Distribution Lines	NA	83.10
	Facilities	8	522.10
	Pipelines	0	0.00
		Subtotal	**605.20**
Natural Gas	Distribution Lines	NA	55.40
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**55.40**
Oil Systems	Facilities	2	0.20
	Pipelines	0	0.00
		Subtotal	**0.20**
Electrical Power	Facilities	3	323.40
		Subtotal	**323.40**
Communication	Facilities	11	1.10
		Subtotal	**1.10**
		Total	**1,123.80**

Earthquake Scenario

HAZUS uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.

Scenario Name	UC 7.0 M Earthquake
Type of Earthquake	User-defined
Fault Name	NA
Historical Epicenter ID #	NA
Probabilistic Return Period	NA
Longitude of Epicenter	NA
Latitude of Epicenter	NA
Earthquake Magnitude	7.00
Depth (Km)	NA
Rupture Length (Km)	NA
Rupture Orientation (degrees)	NA
Attenuation Function	NA

Building Damage

HAZUS estimates that about 22,215 buildings will be at least moderately damaged. This is over 26.00 % of the total number of buildings in the region. There are an estimated 2,960 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 4 below summaries the expected damage by general occupancy for the buildings in the region. Table 5 summaries the expected damage by general building type.

Table 4: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	16	0.07	29	0.07	25	0.16	12	0.29	9	0.30
Commercial	167	0.75	395	0.96	606	4.01	320	7.73	249	8.42
Education	14	0.06	27	0.07	31	0.20	17	0.41	15	0.49
Government	9	0.04	25	0.06	39	0.26	21	0.51	17	0.58
Industrial	50	0.22	103	0.25	186	1.23	99	2.39	79	2.65
Other Residential	1,227	5.50	2,685	6.52	1,839	12.16	1,804	43.63	886	29.92
Religion	13	0.06	27	0.07	28	0.19	13	0.32	10	0.33
Single Family	20,816	93.29	37,907	92.01	12,366	81.78	1,848	44.71	1,696	57.30
Total	**22,313**		**41,199**		**15,121**		**4,134**		**2,960**	

Table 5: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	19,348	86.71	37113	90.08	9,108	60.23	129	3.12	16	0.54
Steel	48	0.21	110	0.27	405	2.68	263	6.35	99	3.34
Concrete	60	0.27	213	0.52	302	2.00	147	3.56	125	4.21
Precast	39	0.17	94	0.23	212	1.40	77	1.85	67	2.25
RM	2,789	12.50	3528	8.56	4,038	26.71	1,363	32.98	1,048	35.41
URM	19	0.08	67	0.16	284	1.88	631	15.26	923	31.17
MH	11	0.05	73	0.18	772	5.10	1,524	36.87	683	23.08
Total	**22,313**		**41,199**		**15,121**		**4,134**		**2,960**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 1,044 hospital beds available for use. On the day of the earthquake, the model estimates that only 88 hospital beds (8.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 55.00% of the beds will be back in service. By 30 days, 91.00% will be operational.

Table 6: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	6	1	0	0
Schools	179	62	33	2
EOCs	3	2	1	0
PoliceStations	18	0	0	1
FireStations	30	5	2	3

Transportation and Utility Lifeline Damage

Table 7 provides damage estimates for the transportation system.

Table 7: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	107	0	0	107	107
	Bridges	314	188	151	131	135
	Tunnels	2	0	0	2	2
Railways	Segments	135	0	0	135	135
	Bridges	3	1	0	2	3
	Tunnels	0	0	0	0	0
	Facilities	1	1	0	1	1
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	1	0	0	1	1
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	6	0	0	6	6
	Runways	9	0	0	9	9

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 8-10 provide information on the damage to the utility lifeline systems. Table 8 provides damage to the utility system facilities. Table 9 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, HAZUS performs a simplified system performance analysis. Table 10 provides a summary of the system performance information.

Table 8 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	8	8	0	0	8
Natural Gas	0	0	0	0	0
Oil Systems	2	2	0	0	2
Electrical Power	3	3	0	0	3
Communication	11	6	0	11	11

Table 9 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	6,925	15667	3917
Waste Water	4,155	12391	3098
Natural Gas	2,770	13246	3312
Oil	0	0	0

Table 10: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	99,937	97,816	97,737	97,570	96,244	84,867
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. HAZUS uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 18 ignitions that will burn about 0.08 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 112 people and burn about 4 (millions of dollars) of building value.

Debris Generation

HAZUS estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 0.00 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 0.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 4,683 households to be displaced due to the earthquake. Of these, 4,188 people (out of a total population of 368,536) will seek temporary shelter in public shelters.

Casualties

HAZUS estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 11 provides a summary of the casualties estimated for this earthquake

Table 11: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	27	8	1	3
	Commuting	1	1	1	0
	Educational	0	0	0	0
	Hotels	10	3	0	1
	Industrial	38	11	2	4
	Other-Residential	708	190	27	52
	Single Family	998	274	45	89
	Total	**1,782**	**488**	**76**	**148**
2 PM	Commercial	1,595	484	81	159
	Commuting	5	7	12	2
	Educational	732	221	37	73
	Hotels	2	1	0	0
	Industrial	281	84	14	27
	Other-Residential	86	23	3	6
	Single Family	161	45	7	14
	Total	**2,862**	**865**	**155**	**282**
5 PM	Commercial	1,317	397	67	129
	Commuting	179	224	395	76
	Educational	167	51	9	17
	Hotels	3	1	0	0
	Industrial	176	53	9	17
	Other-Residential	270	73	11	20
	Single Family	391	109	18	34
	Total	**2,503**	**907**	**508**	**293**

Economic Loss

The total economic loss estimated for the earthquake is 3,770.13 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 3,268.50 (millions of dollars); 16 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 43 % of the total loss. Table 12 below provides a summary of the losses associated with the building damage.

Table 12: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	10.14	162.95	8.59	10.07	191.76
	Capital-Related	0.00	4.27	149.21	5.21	2.66	161.34
	Rental	27.75	46.44	91.94	2.89	5.11	174.12
	Relocation	3.17	1.19	5.23	0.28	1.45	11.32
	Subtotal	**30.91**	**62.03**	**409.33**	**16.96**	**19.30**	**538.53**
Capital Stock Loses							
	Structural	146.24	69.18	173.85	43.84	31.24	464.35
	Non_Structural	546.98	318.54	511.13	153.26	98.97	1,628.88
	Content	173.12	69.22	223.76	94.00	45.90	606.00
	Inventory	0.00	0.00	7.81	21.97	0.97	30.75
	Subtotal	**866.34**	**456.93**	**916.54**	**313.07**	**177.09**	**2,729.98**
	Total	**897.26**	**518.96**	**1,325.87**	**330.03**	**196.38**	**3,268.50**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, HAZUS computes the direct repair cost for each component only. There are no losses computed by HAZUS for business interruption due to lifeline outages. Tables 13 & 14 provide a detailed breakdown in the expected lifeline losses.

HAZUS estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 15 presents the results of the region for the given earthquake.

Table 13: Transportation System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	2,069.08	$0.00	0.00
	Bridges	379.74	$121.51	32.00
	Tunnels	1.76	$0.02	1.19
	Subtotal	**2450.60**	**121.50**	
Railways	Segments	237.57	$0.00	0.00
	Bridges	0.16	$0.04	23.87
	Tunnels	0.00	$0.00	0.00
	Facilities	2.14	$0.67	31.41
	Subtotal	**239.90**	**0.70**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	1.07	$0.33	30.57
	Subtotal	**1.10**	**0.30**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	32.05	$6.86	21.40
	Runways	274.13	$0.00	0.00
	Subtotal	**306.20**	**6.90**	
	Total	**2997.70**	**129.40**	

Table 14: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	138.50	$70.50	50.90
	Subtotal	**138.51**	**$70.50**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	522.10	$111.07	21.27
	Distribution Lines	83.10	$55.76	67.10
	Subtotal	**605.25**	**$166.83**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	55.40	$59.61	107.59
	Subtotal	**55.40**	**$59.61**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.20	$0.04	20.82
	Subtotal	**0.20**	**$0.04**	
Electrical Power	Facilities	323.40	$75.06	23.21
	Subtotal	**323.40**	**$75.06**	
Communication	Facilities	1.10	$0.16	14.69
	Subtotal	**1.08**	**$0.16**	
	Total	**1,123.83**	**$372.20**	

Table 15. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of $)

	LOSS	Total	%
First Year			
	Employment Impact	659	0.69
	Income Impact	(23)	-0.59
Second Year			
	Employment Impact	266	0.28
	Income Impact	(75)	-1.90
Third Year			
	Employment Impact	6	0.01
	Income Impact	(98)	-2.48
Fourth Year			
	Employment Impact	0	0.00
	Income Impact	(98)	-2.49
Fifth Year			
	Employment Impact	0	0.00
	Income Impact	(98)	-2.49
Years 6 to 15			
	Employment Impact	0	0.00
	Income Impact	(98)	-2.49

Appendix A: County Listing for the Region

Utah,UT

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Utah					
	Utah	368,536	13,053	4,852	17,905
Total State		**368,536**	**13,053**	**4,852**	**17,905**
Total Region		**368,536**	**13,053**	**4,852**	**17,905**

HAZUS-MH: Earthquake Event Report

Region Name: Summit County Earthquake

Earthquake Scenario: SC 5.0 M Earthquake

Print Date: December 17, 2008

Totals only reflect data for those census tracts/blocks included in the user's study region.

Disclaimer:
The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

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General Description of the Region

HAZUS is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Utah

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 1,879.18 square miles and contains 5 census tracts. There are over 10 thousand households in the region and has a total population of 29,736 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 13 thousand buildings in the region with a total building replacement value (excluding contents) of 3,204 (millions of dollars). Approximately 97.00 % of the buildings (and 81.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 1,245 and 326 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

HAZUS estimates that there are 13 thousand buildings in the region which have an aggregate total replacement value of 3,204 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 77% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

HAZUS breaks critical facilities into two (2) groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 0 hospitals in the region with a total bed capacity of 0 beds. There are 20 schools, 14 fire stations, 3 police stations and 0 emergency operation facilities. With respect to HPL facilities, there are 46 dams identified within the region. Of these, 11 of the dams are classified as 'high hazard'. The inventory also includes 0 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 2 and 3.

The total value of the lifeline inventory is over 1,571.00 (millions of dollars). This inventory includes over 262 kilometers of highways, 156 bridges, 8,098 kilometers of pipes.

Table 2: Transportation System Lifeline Inventory

System	Component	# locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	156	120.70
	Segments	60	1,047.60
	Tunnels	0	0.00
		Subtotal	**1,168.20**
Railways	Bridges	1	0.00
	Facilities	0	0.00
	Segments	46	76.50
	Tunnels	0	0.00
		Subtotal	**76.60**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	1	1.10
		Subtotal	**1.10**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	0	0.00
	Runways	0	0.00
		Subtotal	**0.00**
		Total	**1,245.90**

Table 3: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	81.00
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**81.00**
Waste Water	Distribution Lines	NA	48.60
	Facilities	5	326.30
	Pipelines	0	0.00
		Subtotal	**374.90**
Natural Gas	Distribution Lines	NA	32.40
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**32.40**
Oil Systems	Facilities	3	0.30
	Pipelines	0	0.00
		Subtotal	**0.30**
Electrical Power	Facilities	0	0.00
		Subtotal	**0.00**
Communication	Facilities	3	0.30
		Subtotal	**0.30**
		Total	**488.90**

Earthquake Scenario

HAZUS uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.

Scenario Name	SC 5.0 M Earthquake
Type of Earthquake	Historical
Fault Name	NA
Historical Epicenter ID #	1087
Probabilistic Return Period	NA
Longitude of Epicenter	-111.50
Latitude of Epicenter	41.00
Earthquake Magnitude	5.00
Depth (Km)	10.00
Rupture Length (Km)	1.41
Rupture Orientation (degrees)	0.00
Attenuation Function	WUS Shallow Crustal Event - Extensional

Building Damage

HAZUS estimates that about 13 buildings will be at least moderately damaged. This is over 0.00 % of the total number of buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 4 below summaries the expected damage by general occupancy for the buildings in the region. Table 5 summaries the expected damage by general building type.

Table 4: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	8	0.06	0	0.08	0	0.13	0	0.16	0	0.11
Commercial	265	1.91	2	3.60	1	5.87	0	7.37	0	7.91
Education	5	0.04	0	0.06	0	0.08	0	0.10	0	0.08
Government	9	0.06	0	0.07	0	0.10	0	0.10	0	0.10
Industrial	44	0.31	0	0.56	0	0.92	0	1.08	0	0.52
Other Residential	1,186	8.55	9	15.25	3	20.65	0	9.15	0	5.02
Religion	19	0.14	0	0.21	0	0.29	0	0.32	0	0.35
Single Family	12,338	88.93	47	80.16	9	71.96	1	81.72	0	85.91
Total	**13,874**		**59**		**12**		**1**		**0**	

Table 5: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	10,653	76.78	29	48.74	1	7.95	0	0.00	0	0.00
Steel	123	0.89	0	0.50	0	0.64	0	0.41	0	0.00
Concrete	101	0.73	1	1.18	0	1.02	0	0.59	0	0.00
Precast	49	0.36	0	0.72	0	1.45	0	1.89	0	0.00
RM	2,073	14.94	10	17.93	4	34.80	0	34.70	0	0.00
URM	291	2.10	12	19.73	5	37.11	1	57.18	0	100.00
MH	584	4.21	7	11.20	2	17.03	0	5.22	0	0.00
Total	**13,874**		**59**		**12**		**1**		**0**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 0 hospital beds available for use. On the day of the earthquake, the model estimates that only 0 hospital beds (0.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 0.00% of the beds will be back in service. By 30 days, 0.00% will be operational.

Table 6: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	0	0	0	0
Schools	20	0	0	20
EOCs	0	0	0	0
PoliceStations	3	0	0	3
FireStations	14	0	0	12

Transportation and Utility Lifeline Damage

Table 7 provides damage estimates for the transportation system.

Table 7: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	60	0	0	60	60
	Bridges	156	0	0	156	156
	Tunnels	0	0	0	0	0
Railways	Segments	46	0	0	46	46
	Bridges	1	0	0	1	1
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	1	0	0	1	1
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	0	0	0	0	0
	Runways	0	0	0	0	0

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 8-10 provide information on the damage to the utility lifeline systems. Table 8 provides damage to the utility system facilities. Table 9 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, HAZUS performs a simplified system performance analysis. Table 10 provides a summary of the system performance information.

Table 8 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	5	0	0	5	5
Natural Gas	0	0	0	0	0
Oil Systems	3	0	0	3	3
Electrical Power	0	0	0	0	0
Communication	3	0	0	3	3

Table 9 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	4,049	1	0
Waste Water	2,430	1	0
Natural Gas	1,620	1	0
Oil	0	0	0

Table 10: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	10,332	0	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. HAZUS uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

HAZUS estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 0.00 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 0.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 0 households to be displaced due to the earthquake. Of these, 0 people (out of a total population of 29,736) will seek temporary shelter in public shelters.

Casualties

HAZUS estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 11 provides a summary of the casualties estimated for this earthquake

Table 11: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	0	0	0	0
	Total	**0**	**0**	**0**	**0**
2 PM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	0	0	0	0
	Total	**0**	**0**	**0**	**0**
5 PM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	0	0	0	0
	Total	**0**	**0**	**0**	**0**

Economic Loss

The total economic loss estimated for the earthquake is 5.64 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 1.10 (millions of dollars); 22 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 58 % of the total loss. Table 12 below provides a summary of the losses associated with the building damage.

Table 12: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	0.01	0.06	0.00	0.00	0.08
	Capital-Related	0.00	0.00	0.07	0.00	0.00	0.08
	Rental	0.02	0.02	0.04	0.00	0.00	0.08
	Relocation	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal	**0.02**	**0.04**	**0.18**	**0.00**	**0.00**	**0.24**
Capital Stock Loses							
	Structural	0.11	0.02	0.05	0.01	0.01	0.19
	Non_Structural	0.30	0.07	0.10	0.02	0.01	0.52
	Content	0.07	0.01	0.04	0.01	0.01	0.15
	Inventory	0.00	0.00	0.00	0.00	0.00	0.00
	Subtotal	**0.48**	**0.10**	**0.20**	**0.04**	**0.03**	**0.86**
	Total	**0.50**	**0.14**	**0.38**	**0.04**	**0.03**	**1.10**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, HAZUS computes the direct repair cost for each component only. There are no losses computed by HAZUS for business interruption due to lifeline outages. Tables 13 & 14 provide a detailed breakdown in the expected lifeline losses.

HAZUS estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 15 presents the results of the region for the given earthquake.

Table 13: Transportation System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	1,047.57	$0.00	0.00
	Bridges	120.65	$0.01	0.01
	Tunnels	0.00	$0.00	0.00
	Subtotal	**1168.20**	**0.00**	
Railways	Segments	76.52	$0.00	0.00
	Bridges	0.05	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**76.60**	**0.00**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	1.07	$0.01	0.85
	Subtotal	**1.10**	**0.00**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	0.00	$0.00	0.00
	Runways	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
	Total	**1245.90**	**0.00**	

Table 14: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	81.00	$0.01	0.01
	Subtotal	**80.98**	**$0.01**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	326.30	$4.50	1.38
	Distribution Lines	48.60	$0.01	0.01
	Subtotal	**374.93**	**$4.50**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	32.40	$0.01	0.02
	Subtotal	**32.39**	**$0.01**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.30	$0.00	0.07
	Subtotal	**0.29**	**$0.00**	
Electrical Power	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Communication	Facilities	0.30	$0.00	0.51
	Subtotal	**0.29**	**$0.00**	
	Total	**488.90**	**$4.51**	

Table 15. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of $)

	LOSS	Total	%
First Year			
	Employment Impact	0	0.00
	Income Impact	0	0.00
Second Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Third Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Fourth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Fifth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.01
Years 6 to 15			
	Employment Impact	0	0.00
	Income Impact	0	-0.01

Appendix A: County Listing for the Region

Summit,UT

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Utah					
	Summit	29,736	2,598	605	3,204
Total State		**29,736**	**2,598**	**605**	**3,204**
Total Region		**29,736**	**2,598**	**605**	**3,204**

HAZUS-MH: Earthquake Event Report

Region Name: Wasatch County Earthquake

Earthquake Scenario: WC 5.0 Earthquake

Print Date: December 17, 2008

Totals only reflect data for those census tracts/blocks included in the user's study region.

Disclaimer:
The estimates of social and economic impacts contained in this report were produced using HAZUS loss estimation methodology software which is based on current scientific and engineering knowledge. There are uncertainties inherent in any loss estimation technique. Therefore, there may be significant differences between the modeled results contained in this report and the actual social and economic losses following a specific earthquake. These results can be improved by using enhanced inventory, geotechnical, and observed ground motion data.

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General Description of the Region

HAZUS is a regional earthquake loss estimation model that was developed by the Federal Emergency Management Agency and the National Institute of Building Sciences. The primary purpose of HAZUS is to provide a methodology and software application to develop earthquake losses at a regional scale. These loss estimates would be used primarily by local, state and regional officials to plan and stimulate efforts to reduce risks from earthquakes and to prepare for emergency response and recovery.

The earthquake loss estimates provided in this report was based on a region that includes 1 county(ies) from the following state(s):

Utah

Note:
Appendix A contains a complete listing of the counties contained in the region.

The geographical size of the region is 1,207.46 square miles and contains 4 census tracts. There are over 4 thousand households in the region and has a total population of 15,215 people (2000 Census Bureau data). The distribution of population by State and County is provided in Appendix B.

There are an estimated 6 thousand buildings in the region with a total building replacement value (excluding contents) of 1,110 (millions of dollars). Approximately 98.00 % of the buildings (and 77.00% of the building value) are associated with residential housing.

The replacement value of the transportation and utility lifeline systems is estimated to be 842 and 107 (millions of dollars) , respectively.

Building and Lifeline Inventory

Building Inventory

HAZUS estimates that there are 6 thousand buildings in the region which have an aggregate total replacement value of 1,110 (millions of dollars) . Appendix B provides a general distribution of the building value by State and County.

In terms of building construction types found in the region, wood frame construction makes up 77% of the building inventory. The remaining percentage is distributed between the other general building types.

Critical Facility Inventory

HAZUS breaks critical facilities into two (2) groups: essential facilities and high potential loss (HPL) facilities. Essential facilities include hospitals, medical clinics, schools, fire stations, police stations and emergency operations facilities. High potential loss facilities include dams, levees, military installations, nuclear power plants and hazardous material sites.

For essential facilities, there are 1 hospitals in the region with a total bed capacity of 19 beds. There are 9 schools, 5 fire stations, 2 police stations and 0 emergency operation facilities. With respect to HPL facilities, there are 26 dams identified within the region. Of these, 13 of the dams are classified as 'high hazard'. The inventory also includes 0 hazardous material sites, 0 military installations and 0 nuclear power plants.

Transportation and Utility Lifeline Inventory

Within HAZUS, the lifeline inventory is divided between transportation and utility lifeline systems. There are seven (7) transportation systems that include highways, railways, light rail, bus, ports, ferry and airports. There are six (6) utility systems that include potable water, wastewater, natural gas, crude & refined oil, electric power and communications. The lifeline inventory data are provided in Tables 2 and 3.

The total value of the lifeline inventory is over 949.00 (millions of dollars). This inventory includes over 165 kilometers of highways, 24 bridges, 5,493 kilometers of pipes.

Table 2: Transportation System Lifeline Inventory

System	Component	# locations/ # Segments	Replacement value (millions of dollars)
Highway	Bridges	24	24.90
	Segments	30	777.20
	Tunnels	0	0.00
		Subtotal	**802.00**
Railways	Bridges	1	0.10
	Facilities	0	0.00
	Segments	7	4.30
	Tunnels	0	0.00
		Subtotal	**4.40**
Light Rail	Bridges	0	0.00
	Facilities	0	0.00
	Segments	0	0.00
	Tunnels	0	0.00
		Subtotal	**0.00**
Bus	Facilities	0	0.00
		Subtotal	**0.00**
Ferry	Facilities	0	0.00
		Subtotal	**0.00**
Port	Facilities	0	0.00
		Subtotal	**0.00**
Airport	Facilities	1	5.30
	Runways	1	30.50
		Subtotal	**35.80**
		Total	**842.20**

Table 3: Utility System Lifeline Inventory

System	Component	# Locations / Segments	Replacement value (millions of dollars)
Potable Water	Distribution Lines	NA	54.90
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**54.90**
Waste Water	Distribution Lines	NA	33.00
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**33.00**
Natural Gas	Distribution Lines	NA	22.00
	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**22.00**
Oil Systems	Facilities	0	0.00
	Pipelines	0	0.00
		Subtotal	**0.00**
Electrical Power	Facilities	1	107.80
		Subtotal	**107.80**
Communication	Facilities	1	0.10
		Subtotal	**0.10**
		Total	**217.80**

Earthquake Scenario

HAZUS uses the following set of information to define the earthquake parameters used for the earthquake loss estimate provided in this report.

Scenario Name	WC 5.0 Earthquake
Type of Earthquake	Historical
Fault Name	NA
Historical Epicenter ID #	1775
Probabilistic Return Period	NA
Longitude of Epicenter	-111.50
Latitude of Epicenter	40.50
Earthquake Magnitude	5.00
Depth (Km)	10.00
Rupture Length (Km)	1.41
Rupture Orientation (degrees)	0.00
Attenuation Function	WUS Shallow Crustal Event - Extensional

Building Damage

HAZUS estimates that about 48 buildings will be at least moderately damaged. This is over 1.00 % of the total number of buildings in the region. There are an estimated 0 buildings that will be damaged beyond repair. The definition of the 'damage states' is provided in Volume 1: Chapter 5 of the HAZUS technical manual. Table 4 below summaries the expected damage by general occupancy for the buildings in the region. Table 5 summaries the expected damage by general building type.

Table 4: Expected Building Damage by Occupancy

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Agriculture	3	0.05	0	0.05	0	0.08	0	0.11	0	0.10
Commercial	78	1.31	4	1.69	2	3.65	0	5.58	0	7.24
Education	2	0.03	0	0.04	0	0.07	0	0.09	0	0.10
Government	7	0.11	0	0.13	0	0.23	0	0.29	0	0.31
Industrial	25	0.41	1	0.46	0	0.99	0	1.33	0	1.04
Other Residential	331	5.50	23	10.85	9	21.06	1	13.93	0	3.98
Religion	5	0.08	0	0.08	0	0.14	0	0.17	0	0.20
Single Family	5,564	92.52	187	86.69	32	73.78	4	78.49	0	87.03
Total	**6,014**		**216**		**43**		**5**		**0**	

Table 5: Expected Building Damage by Building Type (All Design Levels)

	None		Slight		Moderate		Extensive		Complete	
	Count	(%)	Count	(%)	Count	(%)	Count	(%)	Count	(%)
Wood	4,691	78.00	155	71.65	13	29.30	0	7.62	0	0.00
Steel	37	0.61	1	0.47	0	0.88	0	0.67	0	0.28
Concrete	27	0.45	1	0.61	0	0.94	0	0.87	0	0.17
Precast	18	0.31	1	0.48	1	1.35	0	2.17	0	1.01
RM	911	15.15	25	11.68	13	30.39	2	38.59	0	2.50
URM	111	1.85	15	6.95	8	18.56	2	38.81	0	95.27
MH	219	3.63	18	8.16	8	18.59	1	11.27	0	0.77
Total	**6,014**		**216**		**43**		**5**		**0**	

*Note:

RM Reinforced Masonry
URM Unreinforced Masonry
MH Manufactured Housing

Essential Facility Damage

Before the earthquake, the region had 19 hospital beds available for use. On the day of the earthquake, the model estimates that only 18 hospital beds (97.00%) are available for use by patients already in the hospital and those injured by the earthquake. After one week, 100.00% of the beds will be back in service. By 30 days, 100.00% will be operational.

Table 6: Expected Damage to Essential Facilities

Classification	Total	# Facilities		
		At Least Moderate Damage > 50%	Complete Damage > 50%	With Functionality > 50% on day 1
Hospitals	1	0	0	1
Schools	9	0	0	6
EOCs	0	0	0	0
PoliceStations	2	0	0	2
FireStations	5	0	0	1

Transportation and Utility Lifeline Damage

Table 7 provides damage estimates for the transportation system.

Table 7: Expected Damage to the Transportation Systems

System	Component	Number of Locations				
		Locations/ Segments	With at Least Mod. Damage	With Complete Damage	With Functionality > 50 %	
					After Day 1	After Day 7
Highway	Segments	30	0	0	30	30
	Bridges	24	0	0	24	24
	Tunnels	0	0	0	0	0
Railways	Segments	7	0	0	7	7
	Bridges	1	0	0	1	1
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Light Rail	Segments	0	0	0	0	0
	Bridges	0	0	0	0	0
	Tunnels	0	0	0	0	0
	Facilities	0	0	0	0	0
Bus	Facilities	0	0	0	0	0
Ferry	Facilities	0	0	0	0	0
Port	Facilities	0	0	0	0	0
Airport	Facilities	1	0	0	1	1
	Runways	1	0	0	1	1

Note: Roadway segments, railroad tracks and light rail tracks are assumed to be damaged by ground failure only. If ground failure maps are not provided, damage estimates to these components will not be computed.

Tables 8-10 provide information on the damage to the utility lifeline systems. Table 8 provides damage to the utility system facilities. Table 9 provides estimates on the number of leaks and breaks by the pipelines of the utility systems. For electric power and potable water, HAZUS performs a simplified system performance analysis. Table 10 provides a summary of the system performance information.

Table 8 : Expected Utility System Facility Damage

System	# of Locations				
	Total #	With at Least Moderate Damage	With Complete Damage	with Functionality > 50 %	
				After Day 1	After Day 7
Potable Water	0	0	0	0	0
Waste Water	0	0	0	0	0
Natural Gas	0	0	0	0	0
Oil Systems	0	0	0	0	0
Electrical Power	1	0	0	1	1
Communication	1	0	0	1	1

Table 9 : Expected Utility System Pipeline Damage (Site Specific)

System	Total Pipelines Length (kms)	Number of Leaks	Number of Breaks
Potable Water	2,747	2	1
Waste Water	1,648	2	0
Natural Gas	1,099	2	1
Oil	0	0	0

Table 10: Expected Potable Water and Electric Power System Performance

	Total # of Households	Number of Households without Service				
		At Day 1	At Day 3	At Day 7	At Day 30	At Day 90
Potable Water	4,743	0	0	0	0	0
Electric Power		0	0	0	0	0

Induced Earthquake Damage

Fire Following Earthquake

Fires often occur after an earthquake. Because of the number of fires and the lack of water to fight the fires, they can often burn out of control. HAZUS uses a Monte Carlo simulation model to estimate the number of ignitions and the amount of burnt area. For this scenario, the model estimates that there will be 0 ignitions that will burn about 0.00 sq. mi 0.00 % of the region's total area.) The model also estimates that the fires will displace about 0 people and burn about 0 (millions of dollars) of building value.

Debris Generation

HAZUS estimates the amount of debris that will be generated by the earthquake. The model breaks the debris into two general categories: a) Brick/Wood and b) Reinforced Concrete/Steel. This distinction is made because of the different types of material handling equipment required to handle the debris.

The model estimates that a total of 0.00 million tons of debris will be generated. Of the total amount, Brick/Wood comprises 0.00% of the total, with the remainder being Reinforced Concrete/Steel. If the debris tonnage is converted to an estimated number of truckloads, it will require 0 truckloads (@25 tons/truck) to remove the debris generated by the earthquake.

Social Impact

Shelter Requirement

HAZUS estimates the number of households that are expected to be displaced from their homes due to the earthquake and the number of displaced people that will require accommodations in temporary public shelters. The model estimates 0 households to be displaced due to the earthquake. Of these, 0 people (out of a total population of 15,215) will seek temporary shelter in public shelters.

Casualties

HAZUS estimates the number of people that will be injured and killed by the earthquake. The casualties are broken down into four (4) severity levels that describe the extent of the injuries. The levels are described as follows;

- Severity Level 1: Injuries will require medical attention but hospitalization is not needed.
- Severity Level 2: Injuries will require hospitalization but are not considered life-threatening
- Severity Level 3: Injuries will require hospitalization and can become life threatening if not promptly treated.
- Severity Level 4: Victims are killed by the earthquake.

The casualty estimates are provided for three (3) times of day: 2:00 AM, 2:00 PM and 5:00 PM. These times represent the periods of the day that different sectors of the community are at their peak occupancy loads. The 2:00 AM estimate considers that the residential occupancy load is maximum, the 2:00 PM estimate considers that the educational, commercial and industrial sector loads are maximum and 5:00 PM represents peak commute time.

Table 11 provides a summary of the casualties estimated for this earthquake

Table 11: Casualty Estimates

		Level 1	Level 2	Level 3	Level 4
2 AM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	1	0	0	0
	Total	**1**	**0**	**0**	**0**
2 PM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	0	0	0	0
	Total	**1**	**0**	**0**	**0**
5 PM	Commercial	0	0	0	0
	Commuting	0	0	0	0
	Educational	0	0	0	0
	Hotels	0	0	0	0
	Industrial	0	0	0	0
	Other-Residential	0	0	0	0
	Single Family	0	0	0	0
	Total	**1**	**0**	**0**	**0**

Economic Loss

The total economic loss estimated for the earthquake is 8.46 (millions of dollars), which includes building and lifeline related losses based on the region's available inventory. The following three sections provide more detailed information about these losses.

Building-Related Losses

The building losses are broken into two categories: direct building losses and business interruption losses. The direct building losses are the estimated costs to repair or replace the damage caused to the building and its contents. The business interruption losses are the losses associated with inability to operate a business because of the damage sustained during the earthquake. Business interruption losses also include the temporary living expenses for those people displaced from their homes because of the earthquake.

The total building-related losses were 4.31 (millions of dollars); 12 % of the estimated losses were related to the business interruption of the region. By far, the largest loss was sustained by the residential occupancies which made up over 51 % of the total loss. Table 12 below provides a summary of the losses associated with the building damage.

Table 12: Building-Related Economic Loss Estimates

(Millions of dollars)

Category	Area	Single Family	Other Residential	Commercial	Industrial	Others	Total
Income Loses							
	Wage	0.00	0.01	0.13	0.01	0.01	0.16
	Capital-Related	0.00	0.00	0.13	0.00	0.00	0.14
	Rental	0.05	0.03	0.11	0.00	0.00	0.20
	Relocation	0.01	0.00	0.01	0.00	0.00	0.01
	Subtotal	**0.05**	**0.05**	**0.37**	**0.02**	**0.02**	**0.51**
Capital Stock Loses							
	Structural	0.28	0.04	0.16	0.04	0.02	0.54
	Non_Structural	1.14	0.20	0.57	0.23	0.08	2.22
	Content	0.38	0.05	0.35	0.16	0.05	0.99
	Inventory	0.00	0.00	0.01	0.04	0.00	0.06
	Subtotal	**1.79**	**0.29**	**1.09**	**0.47**	**0.16**	**3.81**
	Total	**1.85**	**0.33**	**1.47**	**0.49**	**0.18**	**4.31**

Transportation and Utility Lifeline Losses

For the transportation and utility lifeline systems, HAZUS computes the direct repair cost for each component only. There are no losses computed by HAZUS for business interruption due to lifeline outages. Tables 13 & 14 provide a detailed breakdown in the expected lifeline losses.

HAZUS estimates the long-term economic impacts to the region for 15 years after the earthquake. The model quantifies this information in terms of income and employment changes within the region. Table 15 presents the results of the region for the given earthquake.

Table 13: Transportation System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Highway	Segments	777.15	$0.00	0.00
	Bridges	24.89	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Subtotal	**802.00**	**0.00**	
Railways	Segments	4.29	$0.00	0.00
	Bridges	0.11	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**4.40**	**0.00**	
Light Rail	Segments	0.00	$0.00	0.00
	Bridges	0.00	$0.00	0.00
	Tunnels	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Bus	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Ferry	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Port	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**0.00**	
Airport	Facilities	5.34	$0.49	9.27
	Runways	30.46	$0.00	0.00
	Subtotal	**35.80**	**0.50**	
	Total	**842.20**	**0.50**	

Table 14: Utility System Economic Losses

(Millions of dollars)

System	Component	Inventory Value	Economic Loss	Loss Ratio (%)
Potable Water	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	54.90	$0.01	0.02
	Subtotal	**54.93**	**$0.01**	
Waste Water	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	33.00	$0.01	0.03
	Subtotal	**32.96**	**$0.01**	
Natural Gas	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Distribution Lines	22.00	$0.01	0.04
	Subtotal	**21.97**	**$0.01**	
Oil Systems	Pipelines	0.00	$0.00	0.00
	Facilities	0.00	$0.00	0.00
	Subtotal	**0.00**	**$0.00**	
Electrical Power	Facilities	107.80	$3.62	3.36
	Subtotal	**107.80**	**$3.62**	
Communication	Facilities	0.10	$0.00	2.14
	Subtotal	**0.10**	**$0.00**	
	Total	**217.76**	**$3.65**	

Table 15. Indirect Economic Impact with outside aid
(Employment as # of people and Income in millions of $)

	LOSS	Total	%
First Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.04
Second Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.13
Third Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.17
Fourth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.17
Fifth Year			
	Employment Impact	0	0.00
	Income Impact	0	-0.17
Years 6 to 15			
	Employment Impact	0	0.00
	Income Impact	0	-0.17

Appendix A: County Listing for the Region

Wasatch,UT

Appendix B: Regional Population and Building Value Data

State	County Name	Population	Building Value (millions of dollars)		
			Residential	Non-Residential	Total
Utah					
	Wasatch	15,215	855	255	1,110
Total State		**15,215**	**855**	**255**	**1,110**
Total Region		**15,215**	**855**	**255**	**1,110**

Meeting Signup Sheets or Minutes

MOUNTAINLAND
ASSOCIATION OF GOVERNMENTS
Serving Summit, Utah and Wasatch Cities & Counties

MOUNTAINLAND ASSOCIATION OF GOVERNMENTS

EXECUTIVE COUNCIL MEETING

Midway Community Center
160 West Main Street

Thursday, April 23, 2009
7:00 p.m.

MINUTES

Attending:	***Representing:***
Mayor Burtis Bills, Chair	Payson
Commissioner Larry Ellertson	Utah County
Commissioner Gary Anderson	Utah County
Commissioner Steve White	Utah County
Councilmember Dave Ure	Summit County
Mayor Heber Thompson	American Fork
Mayor Duane Schmidt	Coalville
Mayor Mike Duggin	Daniel Town
Mayor John Bergen	Francis
Mayor Eric Hazelet	Genola
Mayor Jay Franson	Highland
Mayor Lewis Marchant	Kamas
Mayor Howard Johnson	Lehi
Mayor Connie Tatton	Midway
Mayor Jerry Washburn	Orem
Mayor Mike Daniels	Pleasant Grove
Mayor Lewis Billings	Provo
Mayor Gene Mangum	Springville
Mayor Randy Farnworth	Vineyard
Gene Clark	Mountainland Continuum of Care

Excused

Mayor David Phillips	Mayor Dorothy Sprague	Mayor Laurel Brady
Mayor Dennis Dunn	Mayor Lynn Gillies	Mayor Lane Henderson
Mayor Heather Jackson	Councilman Kendall Crittenden	Mayor Jim Dain
Councilman Val Draper	Mayor Roger Keller	

Mountainland Staff

Darrell Cook Bob Allen Nan Kuhn
Scott McBeth Heidi DeMarco
Mayor Burtis Bills, Chair, called the meeting to order at 7:05 p.m. with introductions.

Approve meeting minutes for the January 22, 2009 and February 26, 2009 meeting
Mayor John Bergen moved to approve the minutes for January 22, 2009 and February 26, 2009 minutes. Mayor Jay Franson seconded the motion. The motion carried unanimously.

Interoperable Emergency Communications Grant Program (IECGP) - Bob Allen
MAG has been given a grant from the Utah Department of Public Safety to develop a region wide Tactical Interoperability Communication Plan (TICP). The TICP will identify the current emergency communication equipment used by local entities and describe the procedures and protocols for emergency communication. If agencies outside of the region such as, FEMA, National Guard, or emergency services from other regions or states are needed to help with an emergency they will know how to communicate with the local officials.

The grant funds can be used to develop the TICP, training personnel who attend approved interoperability training, and can help offset some of the costs that incur during a regularly state scheduled emergency exercise. The funds in this grant cycle are not eligible for purchasing new equipment. It is hoped through this process that local officials will become more aware of interoperable emergency communication issues and expenditures.

General Assessment - Darrell Cook
Jurisdictional Cash Assessments for 2009-2010 was handed out. The assessments are based off the 2007 GOPB population estimates for each jurisdiction. The General Assessment Funds is a formula of $.25 per capita times the 2007 population estimate for the Mountainland region. The Third Class City assessment is $500 while towns are $200. Special assessments are studies or projects that have been requested by the communities or counties identified on the chart. The Strategic Plan: Utah County only and is non-federal funds for consulting services both local and in Washington DC. MPO Match: Utah County only and helps to match the federal funds the MPO receives. Studies in the MPO: Central Valley Transit, Central Valley Trail Study, Nebo II, and Pony Express Parkway Study. The Wasatch RPO and the Summit Trail Planner are ongoing.

This is a draft for your planning purposes. The total amounts may change and could go lower but they will not go higher.

Pre-Disaster Hazard Mitigation Plan Update - Bob Allen
The Pre-Disaster Hazard Mitigation is a FEMA program and provides funds to states and communities for hazard mitigation planning and implementing mitigation projects prior to a disaster. MAG is currently updating the Mountainland Plan for the Utah Division of Homeland Security. Funding of the plans and projects helps reduce overall risks to the population and structures. Also, it reduces the dependence on funding from actual disasters.

Staff is updating the regional risk assessment by identifying and estimating the potential lost for the following hazards: flood, wildfire, earthquake, landslide, severe weather, infestation, dam failure, and drought.
The Plan will develop regional mitigation goals, strategies, and mitigation projects.

The Plan should be completed by March 2010. A formal resolution, decree, declaration, or ordinance is required for all jurisdictions in order for them to be eligible for FEMA funds prior to a disaster.

Recommendation for Housing and Urban Development Homelessness Prevention and Rapid Re-Housing Program (HPRH) - Gene Carly, Mountainlands Continuum of Care
Under the American Recovery and Re-Investment Act HUD has designed $1.5 billion for communities to provide financial assistance and services to either prevent individuals or families from becoming homeless or to help those experiencing homelessness to be quickly re-housed. The state of Utah will receive about $8.4 million of which Provo should get $700,321 the funds will go through the Mountainland Continuum of Care for the entire Mountainland region.

This is temporary financial assistance for individuals or families. It is not a mortgage program. Funds are only for eligible help program participants, whether renters or homeowners, with utilities, moving costs, security deposits and rent for a new unit, storage fees, help those who have been evicted, and other financial costs or services. There is no match requirement.

The program is coordinated through the local Continuum of Care and must be aligned with CoC's strategies for preventing and ending homelessness. The CoC has reviewed the homelessness prevention programs currently being administered and finds that they help to fulfill the coals in preventing homelessness, and the programs uphold the value of building self-reliance.

Mayor Billings asked for more information at the next meeting.

Commissioner Larry Ellertson moved to approve the following programs as being eligible entities to receive HPRH funding from the state to assist residents of Utah, Wasatch, and Summit Counties. Commissioner Gary Anderson seconded the motion. The motion passed with Mayor Eric Hazelton voting no and Mayor Jay Franson abstaining.

Commissioner Steve White moved to open the Public Hearing for the Agency on Aging Four-Year Plan, 2010. Commissioner Larry Ellertson seconded the motion.

Public Hearing - Heidi DeMarco
The Area Agency on Aging Four-Year Plan was written and adopted in FY-2008 and meets the requirements of the Older Americans Act. The original plan outlined broad areas of focus and identified all the assurance that must be met by the Area Agency on Aging in order to comply with federal guidelines. The plan tonight is the third-year update to the original plan. The Advisory Council approved the plan and recommends it for approval to the Executive Council. The plan and budget will then be submitted to the State for approval by the State Board on Aging in May, allowing the State to contract with the Area Agency on Aging for the upcoming year.

Original Goals and Objectives

- Provide services to older individual with the greatest economic need, greatest social need, individuals at risk for institutional placement, low-income minorities, limited English efficiency, and those living in rural areas.
- Facilitate the area-wide development and implementation of a comprehensive, coordinated system for providing long-term care in home and community-based settings.
- Develop a long-range emergency preparedness plan

- Increase public awareness and remove barriers for treatment of mental health disorders in the senior population.
- Use trained volunteers to provide direct services to older individuals.
- Implement programs to assist older individuals in reducing the risk of injury, disease, and disability.
- Advocate for improved and additional senior transportation services.
- Readiness Assessment.

Accomplishments This Year

- Implement a Volunteer Home Delivered Meal Program in Utah County
- Developing long-term strategies for funding services to address the need of seniors
- Advocate for improved and additional senior transportation services.

FY-2010 Goals and Objectives

- Continue development of the Home-Delivered Volunteer Program
- Provide support to two transportation initiative
  - Coordinate with Wasatch Transportation to develop a senior transportation pilot project
  - Coordinate with the Mountainland MPO on Coordinated Human Services Mobility Management Study
- Conduct training programs throughout the service area on healthy aging of seniors
- Develop an Emergency Preparedness Plan
- Participate in a study to identify and gather data on aging individuals who are likely to need long-term care in the next five to ten years
- Participate with Summit County to identify and obtain funding for a needs assessment survey on housing and other senior service needs. If funding is secured the AAA will assist in implementing the survey.

While the department will realize a reduction in state funding, service levels for the coming fiscal year will generally be consistent with services provided in the current year.

For more detailed information or a copy of the Four-Year Plan 2010 contact Heidi DeMarco or go to www.mountainland.org.

Commissioner Steve White moved to close the Public Hearing. Mayor Lewis Marchant seconded the motion.

Approval of Agency on Aging Four-Year Plan, 2010

Mayor Jerry Washburn moved to approve the Agency on Aging Four-Year Plan, 2010 and budget, with the ability to amend the budget should the need arise. Also, the Council appreciates the Aging Advisory Committee and staff's hard work on the putting the plan and budget together. Commissioner Steve White seconded the motion. The motion passed unanimously.

Other Business

Darrell hand out a Memo on Congressional Earmarks requests to be included in the new transportation bill. Representatives Matheson and Bishop have accepted requests for pavement preservation projects that had been approved by the Utah Transportation Commission. Utah County has no projects slated, since the majority of the county is in Representative Chaffetz district and his office is not receiving any earmark requests. There could be millions of dollars lost to Utah County.

Darrell asked that they get in touch with Representative Chaffetz office to ask them to reconsider receiving earmark requests.

Mayor Billings stated that Representative Chaffetz was looking into allotting an earmark to UDOT to use at their discretion.

Next meeting will be May 28, 2009, 7:00 p.m., Mountainland Conference Room, 586 East 800 North, Orem. Mayor John Bergen moved to adjourn the meeting at 8:40 p.m., Councilman Dave Ure seconded.

MOUNTAINLAND
ASSOCIATION OF GOVERNMENTS
Serving Summit, Utah and Wasatch Cities & Counties

MOUNTAINLAND ASSOCIATION OF GOVERNMENTS

EXECUTIVE COUNCIL MEETING

Mountainland Conference Room
586 East 800 North, Orem

Thursday, January 28, 2010
7:00 p.m.

MINUTES

Attending:	***Representing:***
Mayor Lewis Marchant, Chair	Kamas
Commissioner Gary Anderson	Utah County
Commissioner Larry Ellertson	Utah County
Councilmember Kendall Crittenden	Wasatch County
Councilmember Neil Anderton	Wasatch County
Councilmember Dave Ure	Summit County
Councilmember Chris Robinson	Summit County
Mayor J.H. Hadfield	American Fork
Mayor Duane Schmidt	Coalville
Mayor Ken Lutes	Elk Ridge
Mayor Lee Snelgrove	Francis
Mayor Randy Ovard	Herefer
Mayor Rich Sprung	Hideout
Mayor Lynn Ritchie	Highland
Mayor Bert Wilson	Lehi
Mayor Jim Dain	Lindon
Mayor Brian Wall	Mapleton
Mayor Connie Tatton	Midway
Mayor Rick Moore	Payson
Mayor Bruce Call	Pleasant Grove
Mayor John Curtis	Provo
Mayor Randy Farnworth	Vineyard
Mayor Wilford Clyde	Springville
Mayor Roger Keller	Wallsburg
Donna Sackett	Senator Bennett's Office
Greg Gardner	Workforce Services
Jon Pierpont	Workforce Services
Dave Lewis	Workforce Services
Sara Lenz	Deseret News

Excused

Mayor Heather Jackson
Mayor Steve Lauritzen
Mayor Mike Duggin
Mayor Wayne Andersen
Mayor Darrell Smith

Mountainland Staff

Andrew Jackson	Scott McBeth	Bob Allen
Liz Merrell	Vicki Erickson	Nan Kuhn

Mayor Lewis Marchant, Chair, called the meeting to order at 7:05 p.m. He welcomed all those present and asked for introductions.

Approve meeting minutes for the October 22 and December 3, 2009 meetings
Councilmember Chris Robinson moved to approve both the October 22 and December 3, 2009 minutes. Commissioner Gary Anderson seconded the motion. The motion carried unanimously.

Orientation/Calendar Schedule - Andrew Jackson
All the AOGs scheduled meetings dates and times are on one calendar. Executive Council meetings rotate monthly, and there will be no meetings in July or November.

Mayor Jim Dain moved to adopt the Calendar of Meetings for the Mountainland Association of Governments with one correction, change Revolting to Revolving. Mayor J.H. Hadfield seconded the motion. The carried unanimously.

Ratify Appointments for Advisory Committees - Andrew Jackson
The MAG Executive Council is the primary decision-making body for the Association and provides oversight to all program activities and budgets. All the mayors, commissioners, councilmembers of the three counties are voting members.

Regional Planning: Provides oversight to the activities of the Metropolitan Planning Organization (MPO) which deals with transportation issues in Utah County. The MPO Committee members meet in February and they elect a chair and vice chair and will ratify the members of this committee next month.

Regional Review Committee (RRC): Provides oversight to the CDBG program, completes rating and ranking of CDBG applications, review of Consolidated Plan. The RRC has a new member Mayor Wilford Clyde, a new list was handed out.

Economic Development District (EDD): Provides oversight for the Comprehensive Economic Development Strategy (CEDS) and related activities. There are four vacancies on the EDD committee; we will not fill these at this time. Some membership requirements are changing and when we know those changes we will come back to this committee for your recommendations and approval.

Revolving Loan Fund (RLF): Provides oversight for the policies and procedures for the loan fund.

Agency Advisory: Provides oversight to the Aging programs and services.

Title XX Social Service Block Grant (SSBG): Provides oversight to the annual application review process for funding.

RSVP: Provides oversight of the senior volunteer program.

Councilmember Kendall Crittenden moved to ratify the committee members as presented. The Regional Planning Committee will wait until the next meeting. Councilmember Neil Anderton seconded the motion. The motion carried unanimously.

Department of Workforce Services Area Configuration - Greg Gardner, DWS
The Department of Workforce Services (DWS) is considering realigning its service areas to expand into nine service areas instead of current six. DWS after studying economic data, workforce trends, and commuter trips are proposing to align Summit County with Salt Lake and Tooele Counties, instead of with Wasatch and Utah counties in the current DWS Mountainland Region. The realignment would also place Juab County in the Mountainland Region.

The state has five Metropolitan Statistical Areas: the Provo-Orem Area is Utah and Juab Counties. A metropolitan statistical area is defined as one or more counties which include the core urban area and adjacent counties. There is a high degree of social and economic integration which is measured by commuting to work in the urban core.

Discussion:

- There are many Summit County residents who commute to Salt Lake City of employment but they also commute to Wasatch County.
- Many residents live in Wasatch County and commute to Summit County
- Salt Lake and Tooele should be their own service area, leave Summit County in the Mountainland Region.
- Representatives from Juab County feel that moving into the Mountainland Region benefits their residents as many commute to Utah County
- The 2000 census showed that 14% commute out of Utah County for work
- Commuter trends have changed since the 2000 census and now the commute between Salt Lake and Utah Counties is about equal
- Summit County is tied more to Wasatch and Utah County and it should stay that way
- The majority of the committee thought Summit County should stay in the Mountainland Region and if Juab County wanted to join that was find with them
- DWS asked if Workforce Services was on an Executive Council agenda that we invite representatives from Juab County to the night. Andrew stated we would invite them.

DWS stated they want to continue working with MAG and this discussion has been very helpful. They thanked everyone for their suggestions and planned to keep improving the partnership between DWS and MAG.

The 2009 Christmas Miracle - Liz Merrell and Vicki Erickson
MAG's Aging Services raised $1,000 in community contributions for the Holiday Season 2008 senior giving project, and helped 80 clients be remembered at Christmas.

In 2009, MAG raised $15,000 in cash, gift cards, and merchandise for Meals-on-Wheels and In-home Services clients. The generous support helped to provide gifts and personal visits to 770 clients which made them feel less isolated and alone during the holiday season.

This miracle was accomplished by personalizing the request and telling stories about the individuals the donations would benefit. Newspaper articles were written and a MOW Facebook page was started that now has over a 1,000 friends.

Hazard Mitigation Plan Update - Bob Allen
The Disaster Hazard Mitigation is a FEMA program that provides funds to states and communities for hazard mitigation planning and implementing mitigation projects prior to a disaster. Funding of the plans and projects helps reduce overall risks to the population and structures. Also, it reduces the dependence for funding from actual disasters.

Mountainland Staff is updating the existing plan for the region. The plan helps to make communities eligible to apply for FEMA's hazard mitigation grant as well as some additional post disaster funding.

The plan identifies potential natural hazards in the region and estimates the potential damages that may occur. The following hazards: flood, wildfire, earthquake, landslide, severe weather, infestation, dam failure, and drought are some of the regional hazards eligible for funding. Each jurisdiction has been asked to submit mitigation projects for which they may pursue grant funding.

The plan update is nearing completion and should be done this spring after which it will be submitted to the State Department of Homeland Security and FEMA for their approval. After which a formal resolution is required for all jurisdictions in order for them to be eligible for FEMA funds prior to a disaster.

Commissioner Anderson stated he hadn't seen the plan and asked Bob to re-send the information to everyone again.

Other Business
The next meeting will be February 25, Kamas City Hall, 170 North Main. Mayor Randy Farnworth moved to adjourn the meeting at 8:55 p.m. Commissioner Larry Ellertson seconded.

MOUNTAINLAND
ASSOCIATION OF GOVERNMENTS
Serving Summit, Utah and Wasatch Cities & Counties

PRE DISASTER HAZARD MITIGATION MEETING
AUGUST 11, 2008

Name	Representing	E-mail Address, telephone & Mailing Address include Zip Code
Matt Shipp	Highland City	matt@highlandcity.org
Dave Bennett	Utah County Sheriff	daveb.ucso@State.ut.us
JoAnna Larsen	Utah County Sheriff's Dept.	Joannala.ucso@State.ut.us
Edward Rhoades	Heber city	erhoades@ci.heber.ut.us
Connie Richardson	Utah County Fire	crichardson@sfcn.org
DEL JAY	UTAH Co. FIRE	delbertj.ucso@State.ut.us
Alisa Weyher	Francis Town	weyher@msn.com
Brad Bartholomew	State DPS HLS	bbart@utah.gov

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Mountainland Pre –Disaster Hazard Mitigation Plan

Wasatch County Risk Assessment Meeting

Tuesday, April 7, 2009

Name	Representing	Phone	Email
KENT BERG	WASATCH COUNTY	435-654-1661	
Valorie Cummings	Wasatch County	435-654-1661	vcummings@co.wasatch.ut.us
Don J. Wood	Wasatch County	435-657-3156	dwood@co.wasatch.ut.us

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Mountainland Pre –Disaster Hazard Mitigation Plan

Utah County Risk Assessment Meeting

Wednesday, April 8, 2009

Name	Representing	Phone	Email
Don Thomas	Spanish Fork	798-5077	dthomas@spanishfork.org
Scott Spencer	Payson	465-5252	scotts@payson.org
Jill Spencer	Payson	465-5233	jills@payson.org
ANDY HALL	DRAPER	576-6560	andy@draper.org
Shane Sorensen	Alpine	763-9862	ssorensen@alpinecity.org
MATT SHIPP	Highland	772-9510	matt@highlandcity.org
Dave Bennett	Utah County Sheriff	851-4132	daveb.ucso@state.ut.us
Leonard J. Dubois	American Red Cross	822-4055	Leonard@redcrossut.net
Robyn Clark	Lindon City PD	769-8600	rclark@lindoncity.org
Adam Cowie	Lindon	785-7687	acowie@lindoncity.org
Dell Gordon	SPRINGVILLE CITY P.D.	801 491-5531	dgordon@springville.org
Ron Foggin	Lehi City	801-769-7100	rfoggin@lehi-ut.gov
Rand Andrus	Eagle Mountain	801-789-6714	randrus@emcity.org
DEGEN LEWIS	PLEASANT GROVE	9224522	dlewis@pgcity.org
GREG ROBINSON	CEDAR HILLS	801.785.9668	GROBINSON@CEDARHILLS.ORG

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Mountainland Pre –Disaster Hazard Mitigation Plan

Mitigation Strategies Meeting

Monday October 19, 2009

Name	Representing	Phone	Email
Ron Foggin	Lehi City	801-768-7100	rfoggin@lehi-ut.gov
Dale Elkins	"	801-768-7130	delkins@lehi-ut.gov
Christie Hutchings	"	801-768-7120	chutchings@lehi-ut.gov
Don Thomas	Sp. Fork	801-801-4755	dthomas@spanishfork.org
Nancy Barr	State Utah	801-538-3721	nbarr@utah.gov
Butch Swenson	Summit County	435-649-1910	RSWENSON@allwest.net
JoAnna Larsen	Utah County	801-635-5776	Joannala.ucso@state.ut.us
JEFFREY BEATY	OREM	8012297146	JGBEATY@OREM.ORG
Woodworth Matatele	Lindon City	801-785-7687	woody@lindoncity.org
Alison Weyher	Francis	435-615-9760	aweyher@msn.com
PAUL GOODRICH	OREM	801-229-7320	prgoodrich@orem.org
Dennis Marker	Santaquin City	801 754-3211	dmarker@santaquin.org
Brandon Snyder	Springville City	801-491-7886	bsnyder@springville.org
Nicole Wilcox	UTA	801-227-8913	nwilcox@rideuta.com
DOUG LEWIS	PG. City	8019224522	dlewis@pgcity.org
Valorie Cummings	Wasatch County	435-654-1661	vcummings@co.wasatch.ut.us
MIKE HADLEY	EAGLE MOUNTAIN	801-789-6615	mhadley@emcity.org

PCFD Administration Bld

LEPC Sign-In Sheet

Date: 4.9.09

NAME	AGENCY	PHONE	EMAIL
Robert Swenson	S.C. Emergency Mgt	640-1910	RSWENSON@allwest.net
Bob Swenson	SCPH	435-336-3237	bswenson@Utah.gov
David Actor	SBWRD	214-5235	dactor@sbwrd.org
JeFF Schoedbacher	PCMC	615.5058	JSchoedbacher@ParkCity.org
Roger Evans	PCMC	615-5113	revans@parkcity.org
Kevin Callahan	SCPH	615-3978	KCallahan@co.summit.ut.us
Rick Rupkey	SC Pub	615-3983	RRupkey@co.summit.ut.us
Ashley Koehler	S.C. Planning	615-3128	AKoehler@co.summit.ut.us
Terry Taylor	SSummit EMS	640-0811	tdavis@allwest.net
Brad Bartholomew	State HLS	801-330-4461	bbart@utah.gov
Bob Allen	Mountainland AOG	801-229-3813	rallen@mountainland.org
Andrew Wooley	Mountainland AOG	801-229-3844	awooley@mountainland.org
Kory Iman	Mountainland AOG	801-229-3823	kiman@mountainland.org
JEAN MOREWELL	WVP	801-750-3267	SHOPEWELL@OLYPARKS.com
DAVID A. WICHOWSKI	UOP	801-750-2820	DAVID.WICHOWSKI AT OLYPARKS.COM
Steve Oliver	PCSD	435-731-6082	soliver@pcschools.us
Cheryl Ovard	SC News	801-898-0900	cheryl.ovard@gmail.com
Dave Berg	PCFSD	435-901-2510	dberg@pcfd.org
Katie Mullay	SCHD	615-3951	kmullay@utah.gov
Kim Hammer	State HLS	801 209 6238	khammer@utah.gov
BRENT OVARD	SCPH	435-336-3278	bovard@Utah.gov
Gary Hayes	Red Cross/ARES	801 597 8392	KC7EPY@Comcast.Net

Add to your email

LEPC Sign-In Sheet

Date:_____

NAME	AGENCY	PHONE	EMAIL
Rick L. Ryan	Park City Police	435-615-5500	rick@parkcity.org
Wade K. Carpenter	Park City P.D.	435-659-8556	WADE@PARKCITY.ORG
Allson Weyher	Granas	801 910-2262	aweyher@msn.com
Laurie Backus	Utah State Parks	435-649-9109	lauriebackus@utah.gov

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Mountainland Pre –Disaster Hazard Mitigation Plan

Plan Maintenance Meeting

Monday January 11, 2010

Name		Representing
Adam Cowie	acowie@lindoncity.org	Lindon City
Butch Swenson	RSWENSON@allwest.net	Summit County
Valorie Cummings	vcummings@co.wasatch.ut.us	All of Wasatch County
Scott Spencer	Scotts@payson.org	Payson City
JoAnna Larsen	Joannala.ucso@state.ut.us	Utah County Sheriff
Shane Sorensen	ssorensen@alpinecity.org	Alpine City
Richard Nielson	richardjn.ucpw@utah.gov	Utah County PW

Staff Report to City Council

Agenda Date: Tuesday, December 21, 2010

Staff Contacts: Bill Bushman

Reviewed By: Dale Robinson

Subject: City Office Building Elevator Repair

Background Discussion:

The Otis elevator in the city office building has failed due to a worn out and damaged hydraulic cylinder. We have contacted three elevator service and repair companies to solicit quotes for the replacement of the hydraulic cylinder and associated parts, materials and labor.

Budgetary Impact:

We received a quote from Otis Elevator Company of Salt Lake City to complete the project for the amount of $23,638.00. In addition Spanish Fork City is responsible to maintain the integrity of the well hole. There is a chance that as the old cylinder is removed the hole could collapse. If it does we would have to pay for the re-drilling of the hole by another contractor. This cost could exceed $3,000.00. Also, we are responsible to properly label and dispose of the excavation spoils and existing cylinders according to regulatory requirements. This cost is estimated at $500.00. Total budgetary impact is estimated at $27,138.00.

Alternatives:

We received additional quotes from ThyssenKrupp Elevator Company for $25,448.00 and Schindler Elevator Company for $26,564.00. Both of these quotes did not include the extra costs as indicated above.

Recommendation:

We recommend we award the repair contract to Otis Elevator Company. They were the lowest bid. They have always had and currently have the service agreement for the elevator at the city office building. They have always demonstrated professional workmanship.

Attachments: Otis Elevator Proposal and Acceptance for hydraulic cylinder replacement. (4 pages)

OTIS

DATE: December 2, 2010

TO:
Spanish Fork City
40 South Main St.
Spanish Fork, UT 84660

FROM:

Otis Elevator Company
401 Ironwood Drive
Salt Lake City, UT 84115

PROJECT LOCATION:
Spanish Fork City Office
40 South Main St.
Spanish Fork, UT 84660

PROPOSAL NUMBER: QRQ101202105531

OTIS HYDRAULIC CYLINDER REPLACEMENT

We propose to furnish the necessary material and labor to remove and replace the existing hydraulic cylinder on elevator number(s) **Only** based on the following:

New Cylinder with Sealed PVC Protection

The cylinder shall be of a double bottom design constructed of steel pipe of sufficient thickness and suitable for the operating pressure as prescribed by the latest revision of the ASME A17.1 or CAN3-B44 codes. The top of the cylinder shall be equipped with a new cylinder head with a drip ring to collect any oil seepage as well as an internal guide ring and self-adjusting packing. The cylinder exterior shall be covered with a protective coating. Sealed PVC Protection helps protect the cylinder from corrosion, permits monitoring and evacuation of liquids to make sure the cylinder does not come in contact with water, and helps contain oil should the cylinder leak. The sealed PVC Protection can help protect your property against possible environmental contamination and clean-up costs.

New Plunger

The plunger shall be constructed of selected steel tubing or pipe of proper diameter machined true and smooth with a fine polished finish. The plunger shall be provided with a stop ring electrically welded to it to prevent the plunger from leaving the cylinder.

Installation

The plunger and new cylinder shall be installed plumb and shall operate freely with minimum friction.

Pit Equipment, Pit Channel and Buffer Springs

New Pit channels and Buffer springs will be provided. The Pit channels will accommodate the new buffer springs and cylinder evacuation fittings. The Pit channels and springs shall comply with latest revision of ASME A17.1 and CSA/CAN-B44 codes.

Cylinder Head Support Removal - Otis

Otis will remove the existing cylinder-head support for cylinder replacement. After installation of the new cylinder and sealed PVC Protection System is complete, Otis will provide a new cylinder-head support.

Removal of Equipment and Hole Preparation

This proposal includes removing the existing cylinder from the original well hole. **Drilling work is not included in this proposal.** *If any physical obstruction, hindrance, ground water, or cave-in is encountered below the ground, we shall be provided with written authorization to proceed with the excavation utilizing any additional special hoisting or excavating equipment required.* Otis Elevator Company shall be reimbursed for all additional costs incurred subsequent to encountering the physical obstruction or hindrance, including the costs of the special equipment,

Removal of Excavation Spoils

All excavation spoils removed by Otis and its agents or (sub)contractors during the performance of this work will be placed in 55 gallon drums at the site. It shall remain the owner's responsibility to properly label and dispose of the excavation spoils and existing cylinders according to regulatory requirements.

Warranty

Otis cylinder and sealed PVC protection warranty is available for the initial term of your Otis full-coverage maintenance agreement, up to 20 years.

WORK NOT INCLUDED IN THE ELEVATOR CONTRACT

When needed, we will provide protection for floors, walls and elevator entrances for normal activities associated with this work. If special drilling or excavation of contaminant material equipment is required, the owner will be responsible for all building protection and alterations needed to bring this equipment in, use and take off of the premises.

To complete this installation, the following items must be performed or furnished by the owners or their agent according to governing codes. The price and installation schedule of the elevator contractor is based on the following conditions prevailing at the beginning and during installation of the elevator equipment and includes the following:

Provide electric power for light, tools, hoists, welding, drilling rig (if necessary), etc. required for the duration of this project.

Owner will provide full access to the work area for the contractors works and their agents at all times during the agreed upon work hours for the duration of the project.

The owner will provide on site storage space adequate to store cylinder, PVC, oil, tools, etc. during the project. The storage space should be close proximity to the work area.

It shall remain the owner’s responsibility that the well hole is free of contaminants and clear of any obstructions.

The owner will provide all necessary permits for welding, gas burning and cutting in the elevator hoistway.

The owner is responsible for deactivating and reactivating all fire, smoke and/or combustion sensors in the work area that may be activated by the effects of the operations required to complete this work.

PRICE: **$23,638**
Twenty-Three Thousand Six Hundred Thirty-Eight and 00/100 Dollars

This price is based on a **twenty-five percent (25%)** downpayment in the amount of **$ 5,909**.

This proposal, including the provisions printed on the pages following, shall be a binding contract between you, or the party identified below for whom you are authorized to contract (collectively referred to herein as "you"), and us when accepted by you through execution of this proposal by you and approved by our authorized representative; or by your authorizing us to perform work for the project and our commencing such work.

Submitted by: _____
Steven J. Hobbs

Accepted in Duplicate

CUSTOMER
Approved by Authorized Representative

Date: _____

Signed: X _____

Print Name: _____

Title: _____

OTIS ELEVATOR COMPANY
Approved by Authorized Representative

Date: _____

Signed: _____

Print Name: **Steve Morley**

Title: **General Manager**

Name of Company: _____

☐ Principal, Owner or
Authorized Representative of Principal or Owner

☐ Agent _____
(Name of Principal or Owner)

OTIS HYDRAULIC CYLINDER REPLACEMENT

TERMS AND CONDITIONS

The work shall be performed for the agreed price plus any applicable Goods and Service Tax (GST), Harmonized Sales Tax (HST), Quebec Sales Tax (QST), sales, excise or similar taxes as required by law.

In addition to the agreed price, you shall pay to us any future applicable tax imposed on us, our suppliers or you in connection with the performance of the work described.

This quotation is subject to change or withdrawal by us prior to acceptance.

We warrant to you that the work performed by us hereunder shall be free from defects, and workmanship for one (1) year from the date of substantial completion. Our duty and your remedy under this warranty are limited to our correcting any such defect you report to us within the warranty period by, at our opinion, repair or replacement, provided all payments due under the terms of this contract have been made in full. All parts used for repair or replacement under this warranty shall be good quality and furnished on an exchange basis. Printed circuit boards used for replacement parts under this warranty may be refurbished boards. Exchanged parts become our property.

We shall perform the work during our regular working hours of our regular working days unless otherwise agreed in writing. You shall be responsible for providing suitable storage space at the site for our material.

You shall obtain title to all the equipment furnished hereunder when final payment for such material is received by us. In addition, you shall be granted a license to use any software incorporated into any such equipment solely for operating such equipment.

Any drawings, illustrations or descriptive matter furnished with the proposal are submitted only to show the general style, arrangement and dimensions of the equipment.

Payments shall be made as follows: A down payment of twenty-five percent (25%) of the price shall be paid by you upon your signing of this document. Full payment shall be made on completion if the work is completed within a thirty day period. If the work is not completed within a 30-day period, monthly progress payments shall be made based on the value of any equipment ready or delivered, if any, and labor performed through the end of the month less a five percent (5%) retainage and the aggregate of previous payments. The retainage shall be paid when the work is completed. We reserve the right to discontinue work at any time until payments have been made as agreed and we have assurance satisfactory to us that subsequent payments will be made when due. Payments not received within thirty (30) days of the date of invoice shall be subject to interest accrued at the rate of eighteen percent (18%) per annum or at the maximum rate allowed by applicable law, whichever is less. We shall also be entitled to reimbursement from you of the expenses, including attorney's fees, incurred in collecting any overdue payments.

Our performance is conditioned upon your securing any required governmental approvals for the installation of any equipment provided hereunder and your providing our workmen with adequate electrical power at no cost to us with a safe place in which to work, and we reserve the right to discontinue our work in the building whenever, in our opinion, working conditions are unsafe. If overtime work is mutually agreed upon and performed, an additional charge thereof, at our usual rates for such work, shall be added to the contract price. The performance of our work hereunder is conditioned on your performing the preparatory work, providing any required government notifications, obtaining required permits, and supplying the necessary data specified on the front of this proposal or in the attached specification, if any. Should we be required to make an unscheduled return to your site to begin or complete the work due to your request, acts or omissions, then such return visits shall be subject to additional charges at our current labor rates.

We shall retain a security interest in all material furnished hereunder and not paid for in full. You agree that a copy of this Agreement may be used as a financing statement for the purpose of placing upon public record our interest in any material furnished hereunder, and you agree to execute a UCC-1 form or any other document reasonably requested by us for that purpose.

Except insofar as your equipment may be covered by an Otis maintenance or service contract, it is agreed that we will make no examination of your equipment other than that necessary to do the work described in this contract and assume no responsibility for any part of your equipment except that upon which work has been done under this contract.

Neither you nor we shall be liable to the other party hereto for any loss, damage or delay due to any cause beyond your or our reasonable control including, but not limited to, acts of government, strikes, lockouts, fire, explosion, theft, floods, riot, civil commotion, war, mischief, or act of God; provided, however, that, should loss of or damage to our material or work occur at the site, you shall compensate us unless such loss or damage results from our acts or omissions.

We do not agree under our warranty to bear the cost of repairs or replacements due to vandalism, abuse, misuse, neglect, normal wear and tear, modifications not performed by us, improper or insufficient maintenance by others, or any cause beyond our control.

We shall conduct, at our own expense, the entire defense of any claim, suit or action alleging that, without further combination, the use by you of any equipment provided hereunder directly infringes any patent, but only on the conditions that (a) we receive prompt written notice of such claim, suit or action and full opportunity to assume the sole defense thereof, including settlement and appeals, and all information available to you for such defense; (b) said equipment is made according to a specification or design furnished by us; and (c) the claim, suit or action is brought against you. Provided all of the foregoing conditions have been met, we shall, at our own expense, either settle said claim, suit or action or shall pay all damages excluding consequential damages and costs awarded by the court therein and, if the use or resale of such equipment is finally enjoined, we shall, at our option, (i) procure for you the right use of the equipment, (ii) replace the equipment with equivalent non-infringing equipment, (iii) modify the equipment so it becomes non-infringing but equivalent, or (iv) remove the equipment and refund the purchase price (if any) less a reasonable allowance for use, damage or obsolescence.

The express warranties set forth in this agreement are the exclusive warranties given: we make no other warranties express or implied, and specifically make no warranty of merchantability or of fitness for any particular purpose; and the express warranties set forth in this agreement are in lieu of any such warranties and any other obligation or liability on our part.

Under no circumstances shall we be liable for any special, indirect or consequential damages of any kind including, but not limited to, loss of profit, loss of good will, loss of business opportunity, additional financing costs, or loss of use of any equipment or property, whether in contract, in tort, in warranty or otherwise, not withstanding any provision to the contrary.

Your remedies set forth herein are exclusive and our liability with respect to any contract, or anything done in connection therewith such as performance or breach thereof, or from the manufacture, sale, delivery, installation, repair or use of any equipment furnished under this contract, whether in contract, in tort, in warranty or otherwise, shall not exceed the price for the equipment or services rendered.

It is agreed that after completion of our work, you shall be responsible for ensuring that the operation of any equipment furnished hereunder is periodically inspected. The interval between such inspections shall not be longer than what may be required by the applicable governing safety code.

By accepting delivery of parts incorporating software, you agree that the transaction is not a sale of such software but merely a license to use such software solely for operating the unit(s) for which the part was provided, not to copy or let others copy such software for any purpose whatsoever, to keep such software in confidence as a trade secret, and not to transfer possession of such part to others except as a part of a transfer of ownership of the equipment in which such part is installed, provided that you inform us in writing about such ownership transfer and the transferee agrees in writing to abide by the above license terms prior to any such transfer.

Our work shall not include the identification, detection, abatement, encapsulation or removal of asbestos, polychlorinated biphenyl (PCB), or products or materials containing asbestos, PCBs , oil, or any hazardous substances in soil, water or elsewhere. In the event we encounter any such product or materials in the course of performing work, we shall have the right to discontinue our work and remove our employees from the project until you have taken the appropriate action to abate, encapsulate or remove such products or materials, and any hazards connected therewith, or until it is determined that no hazard exists (as the case may require). We shall receive an extension of time to complete the work hereunder and compensation for delays encountered as a result of such situation.

The disposal of the cylinders, underground piping, and any and all related materials shall be the sole responsibility of the Owner. Additionally, the Owner is solely responsible for the removal and/or disposal of oil, contaminated soil, water and or other by-products. In the event that any contaminated soil or groundwater is discovered during the performance of the work, Otis will notify the Owner in writing. During the time the Owner is performing any such removal or disposal, Otis is excused from its performance under this Agreement, and Owner will compensate Otis for any and all costs attributable to any such delay. Furthermore, Owner will indemnify and hold harmless Otis from any cost, liability or expense imposed upon, or incurred by, Otis under any state, provincial, federal or other law because of or arising out of any contamination, alleged contamination of the property (including reporting requirements with regard to same, if applicable), or removal or disposal of oil, contaminated soil or water or otherwise.

This Agreement constitutes the entire understanding between the parties regarding the subject matter hereof and may not be modified by any terms on your order form or any other document, and supersedes any prior written or oral communication relating to the same subject. Any amendment or modifications to this Agreement shall not be binding upon either party unless agreed to in writing by an authorized representative of each party. Both parties agree that any form issued by you that contains any terms that are inconsistent with those contained herein shall not modify this Agreement, nor shall it constitute an acceptance of any additional terms.

Staff Report to City Council

Agenda Date:	**Tuesday, December 21, 2010**
Staff Contacts:	**Bill Bushman, Dale Robinson**
Reviewed By:	**Junior Baker**
Subject:	**Justice Center Elevator Service Contract**

Background Discussion:

The Justice Center Facility operates four hydraulic passenger elevators that require periodic inspection, management and maintenance by a qualified and certified elevator technician. These preventive maintenance contracts are typically in effect for a five-year period. The contract covers periodic inspections (usually monthly or bi-monthly), cleaning, lubrication, adjustments where necessary and repair or replacement of broken or malfunctioning components. These contracts also include all yearly and 5-year load tests required by the State of Utah.

To solicit maintenance contract proposals for the Justice Center elevator preventive maintenance and management I contacted the representatives of three elevator maintenance companies: Schindler Elevator, Otis Elevator and ThyssenKrupp Elevator.

Currently Otis Elevator carries the contract on the City Office Building. ThyssenKrupp carries the contracts on the Senior Center, the Library and the Public Safety Building. To my knowledge both companies have done a great job in their respective responsibilities.

Budgetary Impact:

Below is the monthly cost calculated for quarterly and annual payments of each of the quotes.

Otis Elevator	$700.40 per month paid in advance quarterly ($8,404.80 per year)
	$680.00 per month paid in advance annually ($8,160.00 per year)
Shindler Elevator	$535.60 per month paid in advance quarterly ($6,427.20 per year)
	$520.00 per month paid in advance annually ($6,240.00 per year)
ThyssenKrupp	$540.00 per month paid in advance quarterly ($6,480.00 per year)
	$523.80 per month paid in advance annually ($6,285.60 per year)

Recommendation:

I recommend that we enter into a 5-year contract with Schindler Elevator Company to service the elevators at the Justice Center. Schindler offered the lowest quote, Schindler elevators are installed at the Justice Center, and they offer a free online maintenance record report and email alert of any service conducted. The contract will start on January 1, 2011.

Attachments:

Schindler EW – Extended Warranty Agreement (4 pages)

Schindler EW - Extended Warranty Agreement

Schindler Elevator Corporation
2448 So. Progress Drive
West Valley City, UT 84119-1339
Phone: 801-487-0705
Fax: 801-487-0308

To: Bill Bushman
Spanish Fork City
P. O. Box 358
Spanish Fork, UT 84660

Agent For:
Spanish Fork Justice Center
789 West Center Street

This warranty is in lieu of all other warranties referred to or set forth in the Contract Documents for the Spanish Fork Justice Facility project, located at 700 W Center St, Spanish Fork, UT 84660 and this Agreement takes precedence over, and incorporates no additional or different terms from any contract documents associated with the project.

Schindler warrants that the Equipment as furnished will comply with the contractual specification; sections; "warranty". If properly notified, Schindler will, at its expense, correct any defects and workmanship and materials occurring for 5 years from November 01, 2010, which are due to ordinary wear and tear and not to improper use, care, or vandalism. Schindler's total cumulative liability under this warranty or anything done in connection therewith, including breach, shall not exceed the price of the part upon which such liability based. The warranty provided herein shall be void if inspection / repair is performed by someone other than Schindler Elevator Corporation, in a manner less than Schindler Elevator Corporation's standards. Schindler Elevator Corporation maintains high and rigid standards for its personnel in product knowledge and training requirements. In addition, Schindler will extend the routine inspection necessary to maintain this warranty in force through October 31, 2015. This warranty shall be extended for additional periods of 5 years unless terminated by either party by written notice not less than 90 (ninety) days prior to the above date or the termination date of any renewal period. This Agreement will be assigned to any successor in interest, should your interest be terminated prior to the above date, or prior to the expiration date of any subsequent renewal, upon notification to and acceptance by us of such assignment.

As part of its inspection requirements, Schindler will regularly examine, clean, lubricate, adjust and where conditions warrant, repair or replace broken or malfunctioning components, including: all labor and material to keep Equipment running to original specifications by Schindler, the original Equipment manufacturer. See attached Equipment list for a ***Description of Equipment*** covered by this agreement.

WE WILL remotely monitor (if applicable) those functions of the Equipment described above which are remote monitoring capable. Our **Remote Monitoring System ("SRM")** will automatically notify us if any monitored component or function is operating outside established parameters. **WE WILL** then communicate with you to schedule appropriate service calls. Monitoring will be performed on a 24 hour, 7 day basis and will communicate toll free with our **CUSTOMER SERVICE NETWORK** using dedicated elevator telephone service. The operation and monitoring of SRM is contingent upon availability and maintenance of dedicated elevator telephone service. You have the responsibility to install, maintain and pay for such telephone service, and to notify us at any time of any interruption of such telephone service.

You will provide the proper wiring diagrams for the Equipment covered. These diagrams will remain your property, and will be maintained by Schindler for use in troubleshooting and servicing the Equipment.

Schindler will use only competent technicians specially trained to service this Equipment. Items beyond Schindler's control, such as vandalism and abuse of the Equipment are not covered under Schindler's inspection responsibilities. Schindler will provide emergency minor warranty service and/or repair work on a twenty-four (24) hours a day, seven (7) days a week basis, excluding elevator trade holidays. A request for service will be considered an "emergency minor warranty service and/or repair work" if it is to correct a malfunction or adjust the equipment and requires immediate attention and is not caused by misuse, abuse or other factors beyond our control. The term does not include any correction or adjustment that requires more than one technician or more than two hours to complete. If you authorize callbacks outside regular working hours, on weekends, or on elevator trade holidays, Schindler will invoice the Owner at Schindler's standard billing rates, including travel time and expenses.

For emergency repairs, please notify Schindler at 1-800-225-3123. The following information will be required:
Building identification number and a brief description of the problem.

The price of this extended warranty agreement shall be $520.00 (Dollars) per month, payable in annual installments of $6,240.00, plus any applicable sales, use or other taxes. You may alternatively choose to make semi-annual payments of $3,151.20 (a 1% premium for a price of $525.20 per month; initial here if semi-annual ____), or quarterly payments of $1,606.80 (a 3 % premium for a price of $535.60 per month; initial here if quarterly _____). The price shall be adjusted annually as of the date of the local labor rate adjustment, to reflect changes in Schindler costs for labor. If there is a delay in determining a new labor rate, we will notify you and adjust the price at the time of such determination, and we will retroactively bill or issue credit, as appropriate, for the period of such delay. We also reserve the right to adjust the contract price quarterly / annually on the basis of changes in other expenses such as fuel, waste disposal, government regulations or administrative costs. This offer is firm for 90 days from the date of our proposal. Acceptance beyond that date may require updates of the Price and Price Adjustment Provisions.

The terms and conditions attached here to are incorporated herein by reference.

Acceptance by you as owner's agent or authorized representative and subsequent approval by our authorized representative will be required to validate this agreement.

Diane Rawson		
Proposed By: Diane Rawson	Approved By: Joe Stumph	Accepted By:
Estimate Number: DRAN-8AMVZ5 (2010.6)	For: Schindler Elevator Corporation	For: Spanish Fork Justice City
Date: October 27, 2010	Date:	Date:

M00011

Terms and Conditions

Excluded from Schindler's inspection responsibilities are the following:
Hoistway door hinges, panels, frames, gates and sills; cabs and cab flooring; cab doors, gates and removable cab panels; cab mirrors and handrails; power switches, fuses and feeders to controllers; light fixtures and lamps; cover plates for signal fixtures and operating stations; smoke detectors; cleaning of cab interiors and exposed sills; plungers, casings and cylinders; all piping and connections except that portion which is exposed in the machine room and hoistway; emergency power generators; emergency cab lighting; communication devices; intercom or music systems; air conditioners or heaters, fireman's phones and card readers. Exterior panels; skirt and deck panels; balustrades; relamping of illuminated balustrades; power switches, fuses and feeders to controllers; cleaning of exposed surfaces; escalator steps and electric walk pallets; any batteries associated with the equipment; obsolete items, (defined as parts, components or equipment either 20 or more years from original installation, or no longer available from the original equipment manufacturer or an industry parts supplier, replaceable only by refabrication.)

Other than title, there are no additional warranties or guarantees, expressed or implied, including but not limited to, warranties of merchantability or fitness for a particular purpose, which are expressly disclaimed.

The purchaser agrees to provide Schindler with full and free access to the Equipment to render inspection/service thereon, to provide a safe work place for Schindler's employees, and to remove any hazardous materials in accordance with applicable laws and regulations.

Schindler has based its price on the assumption that, in performing the work required by this Agreement, it will not encounter conditions having an unusual or adverse effect on the Equipment or the circumstances under which it must perform the work, it shall not be responsible for any adverse effects resulting from such conditions. If Schindler encounters such conditions, it may at its option, suspend the performance of Inspection and its warranty obligations under the Agreement pending negotiation of additional charges as compensation for increases in its costs.

Possession or control of the Equipment shall remain with the Purchaser, and the Purchaser shall retain its normal responsibility and liability as Owner, Possessor, or Custodian of the Equipment. The Purchaser agrees to at all times carefully monitor the Equipment and its use and, in the event of the malfunction, operation problem, or dangerous condition, to immediately remove the unit from service, erect barriers and post warnings to prevent use of the Equipment, and promptly notify Schindler using the Schindler Customer Service Network.

Schindler hereby disclaims responsibility for accidents, injuries or malfunctions related to misuse of the Equipment or vandalism, or for obsolescence, or other causes beyond our control, or for Equipment failures not detectable upon normal examination or otherwise not found to be the result of Schindler's specific negligent act or omission.

Schindler will not be responsible for a loss, damage, detention, or delay caused by strikes, lockouts, labor troubles, or disputes, fire, explosion, theft, earthquake, severe or unusual weather conditions, shortage of material or workers, malicious mischief, war, governmental orders, acts of God, or by any other cause beyond its control. Schindler will in no event be liable for special, indirect, incidental or consequential damages.

You will assign this Agreement to your successor in interest, should your interest in the premises cease prior to the initial or any renewal termination date. If this Agreement is terminated prematurely for any reason, other than our default, including failure to assign to a successor in interest as required above, you will pay as liquidated damages (but not penalty) one/half the remaining amount due under this agreement.

If either party shall default in the performance of any of its obligations, the non-defaulting party may send written notice reasonably describing the default. If the defaulting party, within a reasonable time (not to exceed (10) days), does not commence to take reasonable steps to cure the default, or if having commenced, fails to carry the cure to reasonable and timely completion, the non-defaulting party, by a further ten (10) days written notice, may terminate this Agreement.

Invoices (including invoices for extra work outside the fixed price) will be paid upon presentation, on or before the last day of the month prior to the billing period. Late or non-payments will result in:

(a) Interest on past due amounts at 1½% per month or the highest legal rate available;
(b) Termination of the Agreement on ten (10) days prior written notice; and
(c) Attorneys' fees, costs of collection and any other appropriate remedies for breach of contract.

Any proprietary material, information, data or devices contained in the equipment or work provided hereunder, or any component or feature thereof, remains our property. This includes, but is not limited to, any tools, devices, manuals, software (which is subject to a limited license for use in this building/premises/ equipment only), modems, source/ access/ object codes, passwords and the Schindler Remote Monitoring feature ("SRM") (if applicable) which we will deactivate and remove if the Agreement is terminated.

You will prevent access to the Equipment, including the SRM feature and/or dedicated telephone line if applicable, by anyone other than us. We will not be responsible for any claims, losses, demands, lawsuits, judgment, verdicts, awards or settlements ("claims") arising from the use or misuse of SRM, if it or any portion of it has been modified, tampered with, misused or abused. We will not be responsible for use, misuse, or misinterpretation of the reports, calls, signals, alarms or other such SRM output, nor for claims arising from acts or omissions of others in connection with SRM or from interruptions of telephone service to SRM regardless of cause. You agree that you will defend, indemnify and hold us harmless from and against any such claims, and from any and all claims arising out of or in connection with this Agreement, and/or the Equipment, unless caused directly and solely by our established fault.

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Schindler Elevator Corporation is insured at all locations where it undertakes business for the type of insurance. You agree to accept in full satisfaction of the insurance requirements for this Agreement, our standard Certificate of Insurance. We will not name additional insureds. Limits of liability as follows:

Schindler

(a) Workers' Compensation - Equal to or in excess of limits of Workers' Compensation laws in all states and the District of Columbia.
(b) Comprehensive Liability - Up to Two Million Dollars ($2,000,000.00) single limit per occurrence, Products/Completed Ops Aggregate $5,000,000.
(c) Auto Liability - $5,000,000 CSL.
(d) Employer's Liability - $5,000,000 Each Accident/Employee/Policy Limit.

M00011

Spanish Fork Justice Facility
Equipment List

Schindler

EQUIPMENT DESCRIPTION:

Qty	Manufacturer	Equipment Application	Description	Rise/Length Openings	Capacity	Speed	Install#
Spanish Fork Justice Facility - $520.00							
700 W Center St Spanish Fork, UT 84660							
4	Schindler	Hydraulic Passenger	1-4	2F/0R	2500	125	

M00011

Memo

To: Mayor and City Council

From: Chris Thompson, Assistant Public Works Director

Date: December 16, 2010

Re: North Park Questar Gas Easement

Staff Report

The attached easement has been requested by Questar Gas. Our utility divisions and the parks and recreation department have reviewed this and do not see any adverse consequences to the city in granting the easement. We therefore recommend that the city council grant this easement to Questar.

Memo

To: Mayor and City Council

From: Chris Thompson, Assistant Public Works Director

Date: December 16, 2010

Re: NRCS River Trail Grant Deadline Extension, Agreement Modification 5

Staff Report

This agreement modification will extend the deadline for full completion of all work funded by grant funds to June 30, 2011. While a large majority of the work is now complete we had some significant cost savings in the fence construction. We plan to use these savings to complete as much additional trail as possible in the Spring.

We recommend that the city council approve the NRCS River Trail Grant Agreement modification number 5.

Attached: Proposed Modification

69-8D43-6-02
MODIFICATION 005
To Grant Agreement
Between
SPANISH FORK CITY (Recipient)
Located in the State of Utah
And the
UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE (NRCS)

AUTHORITY:

The citation for program authority and appropriation of funds for the 2010 funding follows:

1. Soil and Water Conservation Act of 1036, as amended, Public Law 74-46, 16 U.S.C. 590 a-f. (CFDA 10.902)

2. H.R. Public Law 111-80 Omnibus Appropriations Act of 2010

All other program and appropriation citations shall remain unchanged.

PURPOSE:

The purpose for this Modification 005 is to extend the agreement expiration date from December 31, 2010 to June 30, 2011.

JUSTIFICATION:

Justification for this request is found in Attachment 005-A (Request a Modification to the Plan of Work for the Spanish Fork River Parkway). Weather has become a factor in completion of fencing of the trail. The recipient was able to save money when purchasing supplies for the project and has remaining funding that will allow them to further pave the dirt trail. It is anticipated that this final work can be completed by June 30, 2011.

ATTACHMENTS:

The following Attachments are made a part of the agreement by this reference:

Attachment 005-A Request a Modification to the Plan of Work for the Spanish Fork River Parkway

Attachment 005-B Revised Plan of Work (2010)
Attachment 005-C Revised Budget, SF424, SF424A,

PERIOD OF AWARD:

The expiration date for this agreement shall be changed from December 31, 2010 to June 30, 2011.

BUDGET AND PLAN OF WORK CHANGES:
NRCS agrees to accept the revision of the budget and plan of work as expressed in Attachment 005-B and 005-C.

All other terms and conditions as described in the Grant Agreement and Modifications 001, 002, 003, and Modification 004, shall remain the same.

The United States Department of Agriculture, Natural Resources Conservation Service, and Spanish Fork City execute this agreement as of the date of final signature by USDA/NRCS. The signatories below represent that each is duly authorized to bind their respective organization to this agreement.

Spanish Fork City		**United States Department of Agriculture** **Natural Resources Conservation Service**	
Wayne Anderson Mayor	Date	Sylvia A. Gillen State Conservationist	Date

DRAFT

Attachment 005- A
LETTER OF REQUEST FOR MODIFICATION 005

DRAFT

December 14, 2010

Kerry Goodrich, ASTC-FO Area 1
USDA-Natural Resources Conservation Service
2871 South Commerce Way
Ogden, UT 84401

Amendments to Plan of Work
Spanish Fork River Parkway, December 14, 2010
Contract Number 69-8D43-6-02

This letter is to request a modification to the completion deadline for the Spanish Fork River Parkway Project. Spanish Fork City requests that the following changes be made to our grant agreement #69-8D43-6-02. We would like to request that our previously agreed upon completion date be extended to June 30, 2011 to allow the completion of the final phase of the Spanish Fork River Parkway construction. The remainder of the funds allocated to us will be used to construct a fence along the trail that is needed to keep trail users out of the agricultural fields and pastures protecting the farmers and ranchers. All of the funds for 2006, 2008, and 2009 will have been used by our original date of completion, December 31, 2010; thus, only the 2010 funds will remain. The funds will all be used by June 30, 2011.

The following time line changes are proposed in this modification:

PHASE	Original Date	New Date
1. River Bank Stability Analysis (2006 Funds)	6-30-2008	n/a
2. Interpretive Trail and Bridge Construction (2006 Funds)	8-31-2010	n/a
3. Complete FEMA CLOMR Study to be Delivered to FEMA (2006 Funds)	12-17-2008	n/a
4. NEPA Study Documents (2006 Funds)	5-31-2010	n/a
5. Trail Design (2006 Funds)	7-14-2009	n/a
6. Easement Acquisition (2006 Funds)	8-31-2010	n/a
7. Interpretive Trail and Bridge Construction (2008 Funds)	8-31-2010	n/a
8. Engineering, Construction and Project Management (City Match)	8-31-2010	n/a
9. Land and Easement Acquisition (City Match)	8-31-2010	n/a
10. Interpretive Trail and Bridge Construction (2009 Funds)	8-31-2010	n/a
11. Interpretive Trail and Bridge Construction (2010 Funds)	**n/a**	**6-30-2011**
12. Engineering, Construction and Project Management (City Match 2010	**n/a**	**6-30-2011**
13. Land and Easement Acquisition (City Match 2010)	**n/a**	**6-30-2011**

Spanish Fork City will be adjusting budget amounts for the following phases:

PHASE	Original NRCS	2010 NRCS	Original City	2010 City
1. River Bank Stability Analysis (2006 Funds)	$30,000	$30,000		
2. Interpretive Trail and Bridge Construction (2006 Funds)	$157,900	$157,900		
3. Complete FEMA CLOMR Study to be Delivered to FEMA (2006 Funds)	$115,000	$115,000		
4. NEPA Study Documents (2006 Funds)	$60,000	$60,000		
5. Trail Design (2006 Funds)	$37,100	$37,100		
6. Easement Acquisition (2006 Funds)	$50,000	$50,000		
7. Interpretive Trail and Bridge Construction (2008 Funds)	$285,000	$285,000		
8. Engineering, Construction and Project Management (City Match)			$130,000	$130,000
9. Land and Easement Acquisition (City Match)			$274,833	$274,833
10. Interpretive Trail and Bridge Construction (2009 Funds)	$275,500	$275,500		
11. Interpretive Trail and Bridge Construction (2010 Funds)	$285,000	$285,000		
12. Engineering, Construction and Project Management (City Match 2010)			$15,000	$15,000
13. Land and Easement Acquisition (City Match 2010)			$80,000	$80,000

Thank you,

G. Wayne Andersen

Mayor G. Wayne Andersen
Spanish Fork City

CORPORATE SEAL OF SPANISH FORK CITY
UTAH

Attest: Kent R. Clark
12-14-10

Attachment 005-B

MODIFICATION 004 PLAN OF WORK

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The following time line changes are proposed in this modification:

PHASE		Original Date	New Date
1.	River Bank Stability Analysis (2006 Funds)	6-30-2008	n/a
2.	Interpretive Trail and Bridge Construction (2006 Funds)	8-31-2010	n/a
3.	Complete FEMA CLOMR Study to be Delivered to FEMA (2006 Funds)	12-17-2008	n/a
4.	NEPA Study Documents (2006 Funds)	5-31-2010	n/a
5.	Trail Design (2006 Funds)	7-14-2009	n/a
6.	Easement Acquisition (2006 Funds)	8-31-2010	n/a
7.	Interpretive Trail and Bridge Construction (2008 Funds)	8-31-2010	n/a
8.	Engineering, Construction and Project Management (City Match)	8-31-2010	n/a
9.	Land and Easement Acquisition (City Match)	8-31-2010	n/a
10.	Interpretive Trail and Bridge Construction (2009 Funds)	8-31-2010	n/a
11.	**Interpretive Trail and Bridge Construction (2010 Funds) 6-30-2011**	**n/a**	

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12.	**Engineering, Construction and Project Management (City Match 2010**	**n/a**	**6-30-2011**
13.	**Land and Easement Acquisition (City Match 2010)**	**n/a**	**6-30-2011**

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Spanish Fork City will be adjusting budget amounts for the following phases:

	PHASE	Original NRCS	2010 NRCS	Original City	2010 City
1.	River Bank Stability Analysis (2006 Funds)	$30,000	$30,000		
2.	Interpretive Trail and Bridge Construction (2006 Funds)	$157,900	$157,900		
3.	Complete FEMA CLOMR Study to be Delivered to FEMA (2006 Funds)	$115,000	$115,000		
4.	NEPA Study Documents (2006 Funds)	$60,000	$60,000		
5.	Trail Design (2006 Funds)	$37,100	$37,100		
6.	Easement Acquisition (2006 Funds)	$50,000	$50,000		
7.	Interpretive Trail and Bridge Construction (2008 Funds)	$285,000	$285,000		
8.	Engineering, Construction and Project Management (City Match)			$130,000	$130,000
9.	Land and Easement Acquisition (City Match)			$274,833	$274,833
10.	Interpretive Trail and Bridge Construction (2009 Funds)	$275,500	$275,500		
11.	Interpretive Trail and Bridge Construction (2010 Funds)	$285,000	$285,000		

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	PHASE	Original NRCS	2010 NRCS	Original City	2010 City
12.	Engineering, Construction and Project Management (City Match 2010)			$15,000	$15,000
13.	Land and Easement Acquisition (City Match 2010)			$80,000	$80,000

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Attachment 005-C
REVISED BUDGET
STANDARD FORMS 424 AND 424A

DRAFT

APPLICATION FOR FEDERAL ASSISTANCE

Version 7/03

1. TYPE OF SUBMISSION: Application ☑ Construction ☐ Non-Construction	Pre-application ☐ Construction ☐ Non-Construction	**2. DATE SUBMITTED** 12/14/2010	Applicant Identifier
		3. DATE RECEIVED BY STATE	State Application Identifier
		4. DATE RECEIVED BY FEDERAL AGENCY	Federal Identifier 69-8D43-6-02

5. APPLICANT INFORMATION

Legal Name: Spanish Fork City Corporation		**Organizational Unit:**	
		Department:	
Organizational DUNS: 073105488		Division:	
Address:		**Name and telephone number of person to be contacted on matters involving this application (give area code)**	
Street: 40 South Main Street		Prefix:	First Name: Chris
City: Spanish Fork		Middle Name M.	
County: Utah		Last Name Thompson	
State: Utah	Zip Code 84660	Suffix:	
Country: USA		Email: cthompson@spanishfork.org	
6. EMPLOYER IDENTIFICATION NUMBER *(EIN)*: 87-6000284		Phone Number (give area code) (801) 804-4556	Fax Number (give area code) (801) 804-4556
8. TYPE OF APPLICATION: ☐ New ☑ Continuation ☐ Revision If Revision, enter appropriate letter(s) in box(es) (See back of form for description of letters.) ☐ ☐ Other (specify)		**7. TYPE OF APPLICANT:** (See back of form for Application Types) C Other (specify)	
		9. NAME OF FEDERAL AGENCY: USDA-NRCS	
10. CATALOG OF FEDERAL DOMESTIC ASSISTANCE NUMBER: 10-902 TITLE (Name of Program):		**11. DESCRIPTIVE TITLE OF APPLICANT'S PROJECT:** Spanish Fork River Enhancement, Wetland Creation and Trail Project	
12. AREAS AFFECTED BY PROJECT *(Cities, Counties, States, etc.)*: Utah County, Utah			
13. PROPOSED PROJECT		**14. CONGRESSIONAL DISTRICTS OF:**	
Start Date: August 7, 2006	Ending Date: June 30, 2011	a. Applicant (Utah) Three	b. Project (Utah) Three
15. ESTIMATED FUNDING:		**16. IS APPLICATION SUBJECT TO REVIEW BY STATE EXECUTIVE ORDER 12372 PROCESS?**	
a. Federal	$ 1,295,500.00	a. Yes. ☐ THIS PREAPPLICATION/APPLICATION WAS MADE AVAILABLE TO THE STATE EXECUTIVE ORDER 12372 PROCESS FOR REVIEW ON DATE:	
b. Applicant	$ 499,833.00		
c. State	$ .00		
d. Local	$ .00	b. No. ☐ PROGRAM IS NOT COVERED BY E. O. 12372	
e. Other	$ .00	☐ OR PROGRAM HAS NOT BEEN SELECTED BY STATE FOR REVIEW	
f. Program Income	$ .00	**17. IS THE APPLICANT DELINQUENT ON ANY FEDERAL DEBT?**	
g. TOTAL	$ 1,795,333.00	☐ Yes If "Yes" attach an explanation. ☑ No	

18. TO THE BEST OF MY KNOWLEDGE AND BELIEF, ALL DATA IN THIS APPLICATION/PREAPPLICATION ARE TRUE AND CORRECT. THE DOCUMENT HAS BEEN DULY AUTHORIZED BY THE GOVERNING BODY OF THE APPLICANT AND THE APPLICANT WILL COMPLY WITH THE ATTACHED ASSURANCES IF THE ASSISTANCE IS AWARDED.

a. Authorized Representative		
Prefix	First Name G.	Middle Name Wayne
Last Name Andersen		Suffix
b. Title Mayor		c. Telephone Number (give area code) (801-804-4530)
d. Signature of Authorized Representative G. Wayne Andersen		e. Date Signed 12/14/10

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Standard Form 424 (Rev.9-2003)
Prescribed by OMB Circular A-102

Attest: Kent R. Clark

CORPORATE SEAL OF SPANISH FORK CITY UTAH

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Total Page 1		$	$	$ 302,900.00	$	$ 302,900.00
2. Total Page 2				147,100.00		147,100.00
3. Total Page 3				285,000.00	404,833.00	689,833.00
4. Total Page 4				560,500.00	95,000.00	655,500.00
5. Totals		$ 0.00	$ 0.00	$ 1,295,500.00	$ 499,833.00	$ 1,795,333.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total
	(1) Total Page 1	(2) Total Page 2	(3) Total Page 3	Total Page 4	(5)
a. Personnel	$	$	$ 130,000.00	$ 15,000.00	$ 145,000.00
b. Fringe Benefits					0.00
c. Travel					0.00
d. Equipment					0.00
e. Supplies					0.00
f. Contractual	145,000.00	147,100.00			292,100.00
g. Construction	157,900.00		285,000.00	560,500.00	1,003,400.00
h. Other			274,833.00	80,000.00	354,833.00
i. Total Direct Charges *(sum of 6a-6h)*	302,900.00	147,100.00	689,833.00	655,500.00	1,795,333.00
j. Indirect Charges					0.00
k. TOTALS *(sum of 6i and 6j)*	$ 302,900.00	$ 147,100.00	$ 689,833.00	$ 655,500.00	$ 1,795,333.00
7. Program Income	$	$	$	$	$ 0.00

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Standard Form 424A (Rev. 7-97)
Prescribed by OMB Circular A-102

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Riverbank Stability	CFDA 10.902	$	$	$ 30,000.00	$	$ 30,000.00
2. Inter. Trail - 2006	CFDA 10.902			157,900.00		157,900.00
3. FEMA-CLOMR	CFDA 10.902			115,000.00		115,000.00
4.						0.00
5. Totals		$ 0.00	$ 0.00	$ 302,900.00	$ 0.00	$ 302,900.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total
	(1) Riverbank Stability	(2) Inter. Trail-2006	(3) FEMA-CLOMR	FEMA-CLOMR	(5)
a. Personnel	$	$	$	$	$ 0.00
b. Fringe Benefits					0.00
c. Travel					0.00
d. Equipment					0.00
e. Supplies					0.00
f. Contractual	30,000.00		115,000.00		145,000.00
g. Construction		157,900.00			157,900.00
h. Other					0.00
i. Total Direct Charges *(sum of 6a-6h)*	30,000.00	157,900.00	115,000.00	0.00	302,900.00
j. Indirect Charges					0.00
k. TOTALS *(sum of 6i and 6j)*	$ 30,000.00	$ 157,900.00	$ 115,000.00	$ 0.00	$ 302,900.00
7. Program Income	$	$	$	$	$ 0.00

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Standard Form 424A (Rev. 7-97)
Prescribed by OMB Circular A-102

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. NEPA Study	CFDA 10.902	$	$	$ 60,000.00	$	$ 60,000.00
2. Trail Design	CFDA 10.902			37,100.00		37,100.00
3. Ease. Acq. - 2006	CFDA 10.902			50,000.00		50,000.00
4.						0.00
5. Totals		$ 0.00	$ 0.00	$ 147,100.00	$ 0.00	$ 147,100.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total
	(1) NEPA Study	(2) Trail Design	(3) Ease. Acq.-2006	Ease. Acq.-2006	(5)
a. Personnel	$	$	$	$	$ 0.00
b. Fringe Benefits					0.00
c. Travel					0.00
d. Equipment					0.00
e. Supplies					0.00
f. Contractual	60,000.00	37,100.00	50,000.00		147,100.00
g. Construction					0.00
h. Other					0.00
i. Total Direct Charges *(sum of 6a-6h)*	60,000.00	37,100.00	50,000.00	0.00	147,100.00
j. Indirect Charges					0.00
k. TOTALS *(sum of 6i and 6j)*	$ 60,000.00	$ 37,100.00	$ 50,000.00	$ 0.00	$ 147,100.00
7. Program Income	$	$	$	$	$ 0.00

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Prescribed by OMB Circular A-102

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Inter. Trail - 2008	CFDA 10.902	$	$	$ 285,000.00	$	$ 285,000.00
2. Eng. Const & Proj.	CFDA 10.902				130,000.00	130,000.00
3. Land & Ease. Acq.	CFDA 10.902				274,833.00	274,833.00
4.						0.00
5. Totals		$ 0.00	$ 0.00	$ 285,000.00	$ 404,833.00	$ 689,833.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total
	(1) Inter. Trail - 2008	(2) Eng. Const & Proj.	(3) Land & Ease. Acq.	Land & Ease. Acq.	(5)
a. Personnel	$	$ 130,000.00	$	$	$ 130,000.00
b. Fringe Benefits					0.00
c. Travel					0.00
d. Equipment					0.00
e. Supplies					0.00
f. Contractual					0.00
g. Construction	285,000.00				285,000.00
h. Other			274,833.00		274,833.00
i. Total Direct Charges *(sum of 6a-6h)*	285,000.00	130,000.00	274,833.00	0.00	689,833.00
j. Indirect Charges					0.00
k. TOTALS *(sum of 6i and 6j)*	$ 285,000.00	$ 130,000.00	$ 274,833.00	$ 0.00	$ 689,833.00
7. Program Income	$	$	$	$	$ 0.00

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Prescribed by OMB Circular A-102

BUDGET INFORMATION - Non-Construction Programs

OMB Approval No. 0348-0044

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Inter. Trail - 2009	CFDA 10.902	$	$	$ 275,500.00	$	$ 275,500.00
2. Inter. Trail - 2010	CFDA 10.902			285,000.00		285,000.00
3. Eng. Const - 2010	CFDA 10.902				15,000.00	15,000.00
4. Land Acq. - 2010	CFDA 10.902				80,000.00	80,000.00
5. Totals		$ 0.00	$ 0.00	$ 560,500.00	$ 95,000.00	$ 655,500.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total
	(1) Inter. Trail - 2009	(2) Inter. Trail - 2010	(3) Eng. Const & Proj. - 2010	(4) Land & Ease. Acq. 2010	(5)
a. Personnel	$	$	$ 15,000.00	$	$ 15,000.00
b. Fringe Benefits					0.00
c. Travel					0.00
d. Equipment					0.00
e. Supplies					0.00
f. Contractual					0.00
g. Construction	275,500.00	285,000.00			560,500.00
h. Other				80,000.00	80,000.00
i. Total Direct Charges *(sum of 6a-6h)*	275,500.00	285,000.00	15,000.00	80,000.00	655,500.00
j. Indirect Charges					0.00
k. TOTALS *(sum of 6i and 6j)*	$ 275,500.00	$ 285,000.00	$ 15,000.00	$ 80,000.00	$ 655,500.00
7. Program Income	$	$	$	$	$ 0.00

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Standard Form 424A (Rev. 7-97)
Prescribed by OMB Circular A-102

SECTION C - NON-FEDERAL RESOURCES				
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS
8. Spanish Fork City	$ 443,293.00	$	$ 56,540.00	$ 499,833.00
9.				0.00
10.				0.00
11.				0.00
12. TOTAL *(sum of lines 8-11)*	$ 443,293.00	$ 0.00	$ 56,540.00	$ 499,833.00

SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$ 152,893.16	$ 53,512.60	$ 99,380.56	$ 0.00	$ 0.00
14. Non-Federal	50,000.00	25,000.00	25,000.00		
15. TOTAL *(sum of lines 13 and 14)*	$ 202,893.16	$ 78,512.60	$ 124,380.56	$ 0.00	$ 0.00

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT				
(a) Grant Program	FUTURE FUNDING PERIODS (Years)			
	(b) First	(c) Second	(d) Third	(e) Fourth
16. Spanish Fork City	$ 0.00	$	$	$
17.				
18.				
19.				
20. TOTAL *(sum of lines 16-19)*	$ 0.00	$ 0.00	$ 0.00	$ 0.00

SECTION F - OTHER BUDGET INFORMATION	
21. Direct Charges:	22. Indirect Charges:
23. Remarks:	

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Standard Form 424A (Rev. 7-97) Page 2

SPANISH FORK CITY
STAFF REPORT TO CITY COUNCIL

Agenda Date:	12/21/2010
Staff Contacts:	Dave Oyler, City Manager Seth Perrins, Assistant City Manager Chris Workman, Management Intern
Reviewed By:	Junior Baker, City Attorney
Subject:	Utah Benchmarking Project

Background Discussion:

Spanish Fork City has participated in the Utah Benchmarking Project over the past several years. This program allows city management the ability to compare our strengths and weakness to other cities of similar size and identify where we are succeeding and where our greatest areas for improvement lie.

This year, the data will be made available to participating cities online and comparisons can be customized to make this tool even more useful. With this increased access comes increased responsibility.

Please see the attached Utah City Data User Agreement and Policy Terms for additional information.

Recommendation:

Staff's recommendation is to continue participating in this program and approve the Mayor to sign the Utah City Data User Agreement. This agreement holds those with access to the online data accountable to its use, prohibiting the publishing of another city's data without its written consent and baring the sharing of usernames and passwords.

This has been a valuable tool in years past and promises to become even more useful tool with the increased accessibility and adaptability.

UTAH
CITY
DATA

Utah City Data User Agreement

Partners

The partners for this project are the member cities, Utah City Managers Association (UCMA), Utah League of Cities and Towns (ULCT), the University of Utah's Center for Public Policy & Administration, and Brigham Young University's Marriott School of Management.

Member responsibilities and agreements

All members agree to comply with the timelines outlined in the system. This includes:

- Entering all Survey data by the second week of January at the latest
- Reviewing data for accuracy by the second week of February.

There is a $500 annual fee for joining the UCMA benchmarking project and Utah City Data System. This fee covers:

- System maintenance and backup
- Data storage
- Data entry by CPPA
- Data analysis in a printed report
- Access to data for viewing or downloading

The fee is paid to the Utah League of Cities and Towns

The city provides permission to the partners noted on this document to conduct benchmarking analyses.

The City also agrees to comply with the Acceptable Use Policy that is included as page two of this document.

Name	Signature
City	Date
Phone number	Email

Acceptable Use Policy for Utah City Data

Acceptance of Terms through Use

This site provides access, for users with an account, to proprietary data on Utah's cities and towns, for the purpose of benchmarking and performance management. By using this site, you signify your agreement to the terms, conditions and notices of this policy. "You" when used in this statement shall mean the utahcitydata.org user of record. Violating this policy grants the utahcitydata.org administrator the authority to take action to restrict or terminate your access to utahcitydata.org. We reserve the right, at our discretion, to update or revise this policy. If the policy is changed, all users will be notified.

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You must use this site and the utahcitydata.org services in accordance with the terms of this policy, and in accordance with all federal, state and local laws, ordinances, and regulations.

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In order to maintain an informative and valuable service that meets the needs of the users of this site and utahcitydata.org services, the following rules have been established to protect against abuse.

Use of this site or utahcitydata.org services for any purpose that is unlawful or in any manner which could damage, disable, overburden or impair the operation of this site, the utahcitydata.org network or utahcitydata.org services or any other party's use of this site, the utahcitydata.org or utahcitydata.org services, is strictly prohibited. In addition, utahcitydata.org has established the following specific rules:

- You may share your <u>own</u> city data as your internal policies and applicable law dictate and/or allow.
- You may share your cluster data in averages as long as there is a minimum of 5 cities in the cluster.
- You <u>may not</u> share any other city or town data, outside of your own city data, without written permission from the management staff of the applicable city or town.
- You <u>may not</u> share account login and password information with anyone who does not need access to the system for city business. You are responsible for all activities that occur via your user account.
- You <u>may not</u> attempt to use or gain unauthorized access to data, accounts, hosts, servers, systems or networks of this site, or to probe, scan or test the vulnerability of a system or network of this site – utahcitydata.org or those of any other party.

Contract between Spanish Fork City
and
The Diamond Fork Riding Club

COMES NOW Spanish Fork City, a Municipal Corporation of the State of Utah, hereinafter CITY, and the Diamond Fork Riding Club, a non-profit corporation of the State of Utah, hereinafter RIDING CLUB who recite and agree as follows:

1. Each year during a Municipal celebration known as "Fiesta Days" held for approximately one week surrounding the State Holiday of July 24th it has been a tradition to stage a rodeo in the city rodeo arena.

2. The Riding Club has performed tremendous public service in producing the rodeo for a number of years.

3. Production of the rodeo greatly benefits the city's celebration and the public at large.

4. There is considerable risk of loss from the production of the rodeo because of the possibility of inclement weather and the rising costs of the production.

WHEREFORE, the parties agree as follows:

1. PRODUCTION & MANAGEMENT. City and Riding Club shall henceforth be the co-producers of the rodeo. The Spanish Fork Rodeo Committee, consisting of two appointees from the Riding Club and two appointees from the City, shall manage the rodeo.

2. TERM OF AGREEMENT. This agreement shall be for the years 2011, 2012, 2013, 2014, and 2015. The Riding Club shall be given the first right to accept or reject an offer by the City to co-produce the rodeo for the four years thereafter.

3. RODEO PROGRAMS. Publication and sale of advertisement in printed rodeo programs during the term of this agreement and any extensions hereunder shall be the exclusive right and obligation of the Riding Club. Riding Club shall be entitled to all advertising revenue generated from the sale of ads in the programs and to any revenue derived from the sale of the programs themselves but shall also be responsible for the cost of producing and printing the programs.

4. ARENA ADVERTISING. Riding Club shall have the right to sell advertising to be placed on the inside top rail in the rodeo arena and receive all revenue pertaining to said sales. The number, location, size, and material of such signs shall be specified by the City. Advertising signs will be constructed to city specifications by the Riding Club at Riding Club expense. The City shall have the right to control and sell all other advertising signs, including box seat advertising, inside and outside of the arena. In the event part or all of the rodeo arena is rebuilt, the City shall have the right to designate where, if any, advertising will be placed in the new arena.

5. DUTIES OF THE RIDING CLUB. The Riding Club agrees to perform the following services:

A. Riding Club shall manage and promote the rodeo queen contest within the constraints of the budget;
B. Riding Club shall assist in promoting the rodeo by riding in the Fiesta Days parade, stock parade, rodeo grand entry, and specialty acts, as determined by the Rodeo Committee;
C. Riding Club shall distribute advertising such as posters, place mats etc, throughout the area.
D. Riding Club shall provide all necessary people, as determined by the Rodeo Committee, to perform the following functions: park vehicles, sell tickets, take tickets and usher at the fairgrounds the days of the rodeo. These functions shall begin at 6:00 p.m. and continue until the end of the rodeo each night. Adjustments to the time schedule can be authorized by the Rodeo Committee.
E. Riding Club shall provide and pay for all arena and chute help during the rodeo and slack;

F. Riding Club shall use its best efforts to perform other minor services and functions necessary for the production and presentation of a successful rodeo, as suggested by the Rodeo Committee;

G. Riding Club shall perform scheduled work projects at the fairgrounds based upon assignments made by the Rodeo Committee prior to April 1st of each year.

6. EXPENSES. All expenses for production of the rodeo with the exception of those involved in the preparation of the programs and arena advertising shall be born by the City. All said expenses shall be approved by the Spanish Fork Rodeo Committee and budgeted in the City's annual budget.

7. RODEO INCOME. Rodeo net income shall be determined by deducting "rodeo expenses" from "rodeo gross receipts" which are defined as follows:

Rodeo Gross Receipts shall be the total of all sums received from rodeo ticket sales, and any other income from any activities related to the rodeo other than the sale of rodeo programs, arena advertising, or rodeo food concessions.

Expenses shall include but not be limited to costs for stock contractor, clowns, announcers, judges, insurance, sales tax, specialty acts, added money, prizes, sound system, contestants hospitality, advertising and tickets; costs associated with the operation of the queen contest, expenses for the Rodeo Committee and spouses to attend the annual PRCA convention to secure rodeo performers and stock contractor; expenses for members of the Rodeo Committee to attend the Association of Rodeo Committees annual convention as determined by the Rodeo Committee, costs of any unusual preparation of the rodeo arena; the flat fee of $1,000 per performance to be paid yearly to the Riding Club as specified hereinafter; and any other miscellaneous expenses reasonably associated with the production

of the rodeo.

8. PAYMENT TO THE RIDING CLUB. City shall pay to the Riding Club $1,000 per performance on or before August 1st following the rodeo plus 10 percent (10%) of rodeo net income to be paid on or before November 1st following the rodeo.

9. TICKETS TO RIDING CLUB. Riding Club will be given two tickets per rodeo for each Honorary Member. In addition, the Riding Club will receive two tickets per rodeo for each active member who performs their function each night of the rodeo. The Riding Club will purchase ten seats each for rounds one through ten to the NFR on an annual basis, reserving ten Round #1 and #2 tickets for the Rodeo Committee to be purchased at face value.

10. USE OF ARENAS AND HIGH CHAPARRAL. The Riding Club shall be entitled to the use an indoor arena for two nights each week from April 1st through Oct 1st each year for club activities, and an indoor arena for one additional night each month from Nov.1st through April 1st each year for club activities at no charge provided that if a paying customer desires to rent the arena from the City, the paying customer shall have the first right to use of the arena. It is agreed that in the event a paying customer contracts to use the arena on a night regularly scheduled for the Riding Club, the Riding Club shall be entitled to use a different arena on another night during the same week, if a free night is available. If a free night is not available, Riding Club forfeits its right to use an arena during that week.

The Riding Club shall also be entitled to use indoor arena #3, at no cost, for five Saturdays between November 1st and the following March 31st for the purpose of promoting rodeo through youth activities. These youth events must be scheduled prior to October 31st each year. The Riding Club shall further be entitled to use the outdoor arena once every five to six years to hold the District

riding club competition.

The Riding Club shall be entitled to use the High Chaparral two nights each month for Club meeting and board of directors meeting. They shall also be entitled to use the High Chaparral four additional times during the year for club activities. The Riding Club shall be responsible to set up and take down tables and chairs as needed for each use and leave the facility in the same condition as they found it.

11. ATTORNEY'S FEES. In the event this agreement is breached, the non-breaching party shall be entitled to recover, in addition to actual damages, attorney fees and costs of court actually incurred in the enforcement of this agreement.

12. TIME IS OF THE ESSENCE. Time is of the essence in this agreement.

SPANISH FORK CITY

_____
G. WAYNE ANDERSEN, Mayor

Attest:

KENT R. CLARK, City Recorder

DIAMOND FORK RIDING CLUB

_____
President

ATTEST:

Secretary

Memo

To: Mayor and City Council

From: Chris Thompson, Assistant Public Works Director

Date: December 16, 2010

Re: I15 ICORE Supplemental Agreement 7003 for the 200 East Sewer Trunkline Relocation at 200 East and I-15

Staff Report

UDOT and Spanish Fork City have an agreement as part of the I15 ICORE project to realign the north end of the 200 East sewer trunkline. Initial exploratory work revealed that this realignment would not have to be as extensive as initially thought. This supplement modifies that agreement to accurately portray what now needs to be done. The existing sewer manholes and necessary trunklines will be moved out of proposed road and freeway alignments.

We recommend that the city council approve the supplemental agreement 7003 with the UDOT ICORE Project to modify the realignment plans for the 200 East I-15 sewer trunkline.

SUPPLEMENTAL AGREEMENT

PROJECT NO. MP-I15-6(178)245; UTAH COUNTY
I-15; UTAH COUNTY CORRIDOR EXPANSION PROJECT
CHARGE ID NO. 70963 PIN NO. 7037

Supplemental Agreement Number 7003

THIS SUPPLEMENTAL AGREEMENT made and entered into this_____ day of _____, 2010, by and between the UTAH DEPARTMENT OF TRANSPORTATION ("UDOT") and SPANISH FORK CITY, a Municipal Corporation in the State of Utah ("City").

The parties hereto entered into a Master Utility Agreement dated November 13, 2009 UDOT Finance No. 108402. All the terms of said Master Utility Agreement remain in full force and effect unless otherwise specified herein.

The parties hereto agree as follows:

1. Design-Builder will perform the following described work in accordance with the terms and conditions of the Master Utility Agreement.

Location of work:

Design-Builder Design Package: Z-U1 – Location is at 200 East along Industrial Park Drive in Spanish Fork City. I-15 CORE MAINLINE station 961+50 LT.

Description of work to be performed, including proposed location:

Design-Builder Design Package: Z-U1 Spanish Fork City 24-inch Sewer Line Relocation

Work involves:

- Abandoning a portion of the existing 24-inch RCP sewer line,
- Abandoning one sewer manhole,
- Removing cones, manhole sections and bases on the existing manholes,
- Placing two new sewer manholes,
- Placing 24-inch RCP sewer line, and
- Placing 24-inch PVC sewer line.

See Exhibit A-1, A-2, and A-3 for the design plans.

Anticipated duration of work:

Schedule is attached and marked Exhibit B.

Estimated total cost of work:

Detailed estimates are not attached; all associated utility work for this supplemental is out of the Design Builder's lump sum contract.

Betterments included:

None.

TOTAL COST OF SUPPLEMENTAL AGREEMENT NO. 7003 – Inc'd

TOTAL COST OF UDOT PARTICIPATION – Inc'd

TOTAL COST OF CITY PARTICIPATION - $0.00

UDOT's contact person for the I-15 CORE Project is Merrell Jolley, UDOT Project Engineering Director ("UDOT Project Representative"), located at, 2912 West Executive Parkway #125 Lehi, Utah 84043, telephone number (801) 341-6405, or his representative as assigned.

2. Company and UDOT shall coordinate with one another and give notification at least 2 business days in advance of beginning work covered herein or in accordance with the specific terms of the Master Utility Agreement.

3. Sign and return four (4) copies of this Supplemental Agreement to the UDOT I-15 CORE Project Office to the attention of the UDOT Engineering Director for execution.

IN WITNESS WHEREOF, the parties hereto have caused these presents to be executed by their duly authorized officers as of the day and year first written above.

Attest:

_____

Title: _____
Date: _____

Spanish Fork City, a Municipal Corporation in the State of Utah

_____

Title: _____
Date: _____

(IMPRESS SEAL)

. . . . . .

RECOMMENDED FOR APPROVAL:

_____

Title: Engineering Director
Date: _____

APPROVED AS TO FORM:
The Utah State Attorney General's Office has previously approved all paragraphs in this Agreement as to form.

UTAH DEPARTMENT OF TRANSPORTATION

_____

Title: Project Director
Date: _____

By: _____
UDOT Comptroller Office
Contract Administrator

Date: _____

_____

DESIGN BUILDER

_____

Title: _____
Date: _____

Table of Exhibits

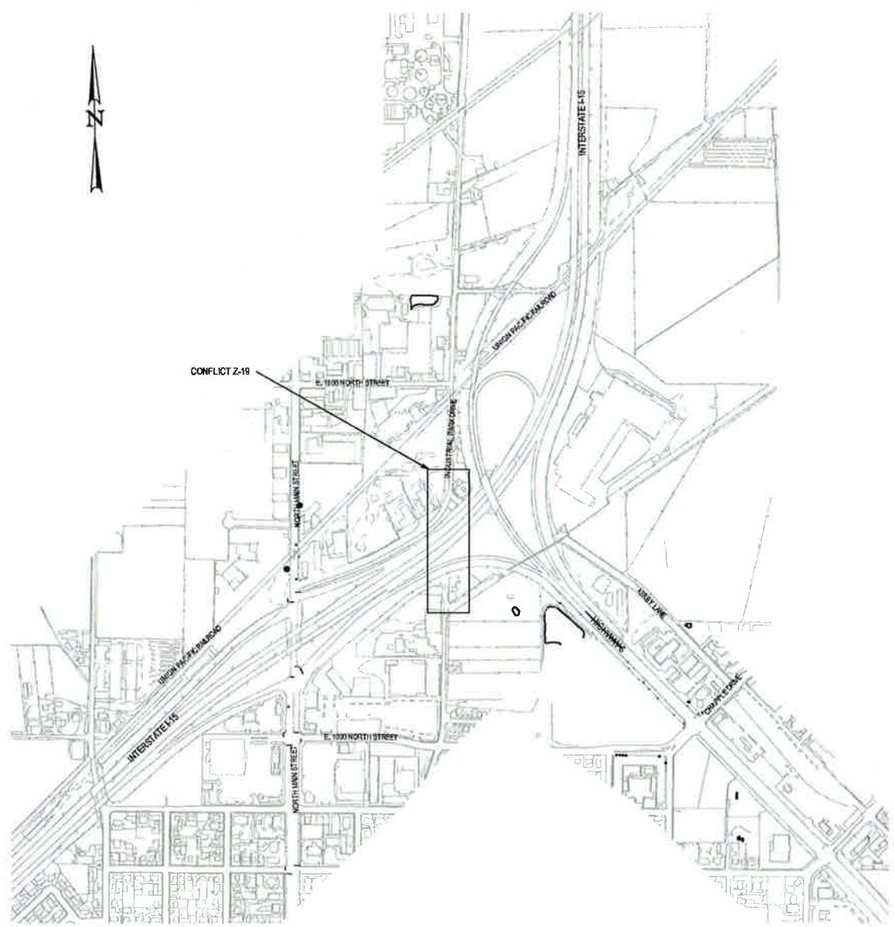
Exhibit A-1	**Design-Builder Design Plans**
Exhibit A-2	**Design-Builder Utility Relocation Plans**
Exhibit A-3	**Design-Builder Traffic Control Plans**
Exhibit B	**Design-Builder Schedule**

SPANISH FORK CITY RELOCATION DESIGN:
200 EAST 24" SEWER LINE
DESIGN PACKAGE Z-U1
RELEASE FOR CONSTRUCTION

SPANISH FORK CITY, UTAH

ISSUE DATE: 07-28-2010

SPANISH FORK CITY
VICINITY MAP



DESIGN PACKAGE Z-U1 SPANISH FORK CITY: 24" SEWER LINE							
CONFLICT NO.	UTILITY ID	UT SHEET #	UDOT STATION	UTILITY TYPE	SIZE	QTY	UNIT
Z-19	SWR-6-70-012R	Z1-UT-06	STA: 961+00 TO STA:962+00	RCP SANITARY SEWER PIPE	24"	25	LF
Z-19	MH-6-70-012R	Z1-UT-06	961+56.29	SANITARY SEWER MANHOLE	60"	1	EA
Z-19	SWR-6-70-013R	Z1-UT-06	STA: 961+00 TO STA:962+00	PVC SANITARY SEWER PIPE	24"	16	LF
Z-19	MH-6-70-013R	Z1-UT-06	961+72.57	SANITARY SEWER MANHOLE	60"	1	EA

LEGEND

EXISTING SANITARY SEWER LINE	SAN
PROPOSED SANITARY SEWER LINE	
EXISTING SANITARY SEWER MANHOLE	
PROPOSED SANITARY SEWER MANHOLE	
EXISTING UTILITY TO BE REMOVED	
EXISTING CONTOUR	
PROPOSED CONTOUR	
EXISTING	EX
PROPOSED	PR
NO DATA	ND

SHEET INDEX	
SHEET NO.	DRAWINGS
1	COVER SHEET
2	24" SEWER LINE PLAN VIEW: CONFLICT NO. Z-19
3	24" SEWER LINE PROFILE VIEW: CONFLICT NO. Z-19
4	DETAILS

REGISTERED PROFESSIONAL ENGINEER
313039
MATTHEW P. HIRST
8/2/10
STATE OF UTAH

EXHIBIT A-1

SPANISH FORK CITY
RELEASE FOR CONSTRUCTION

AGENT SIGNATURE — DATE 8/4/10

THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF PROVO RIVER CONSTRUCTORS AND IS NOT TO BE REPRODUCED, MODIFIED OR USED FOR ANY OTHER PROJECT OR EXTENSION OF THIS PROJECT EXCEPT BY AGREEMENT WITH PROVO RIVER CONSTRUCTORS.
© 2010

PRINCIPAL: MATT HIRST, PE
PROJECT MANAGER: JARED ANDERSON, PE
CHECKED BY: STEVE JACKSON, PE
DRAWN BY: BRANDON PREECE
DRAWING SCALE: 1"=20'
ISSUE DATE: 07-28-10

PROVO RIVER CONSTRUCTORS

LEHI OFFICE:
2912 WEST EXECUTIVE PKWY.,
SECOND FLOOR
LEHI, UTAH 84043

SPANISH FORK CITY RELOCATION DESIGN: 200 EAST 24" SEWER LINE
DESIGN PACKAGE Z-U1
COVER SHEET

SPANISH FORK — UTAH

STAMP: RFC SET

PROJECT NUMBER: 10001C.28
SHEET 1 OF 4
SHEET NUMBER: 1

FILE PATH AND NAME: P:\10001C\10001C.01-I-15 CORE Design Build\Design Package\Z-U1\Drawings\Sheet\10001C.28-Z-U1-Cover and Cover Notes.dwg
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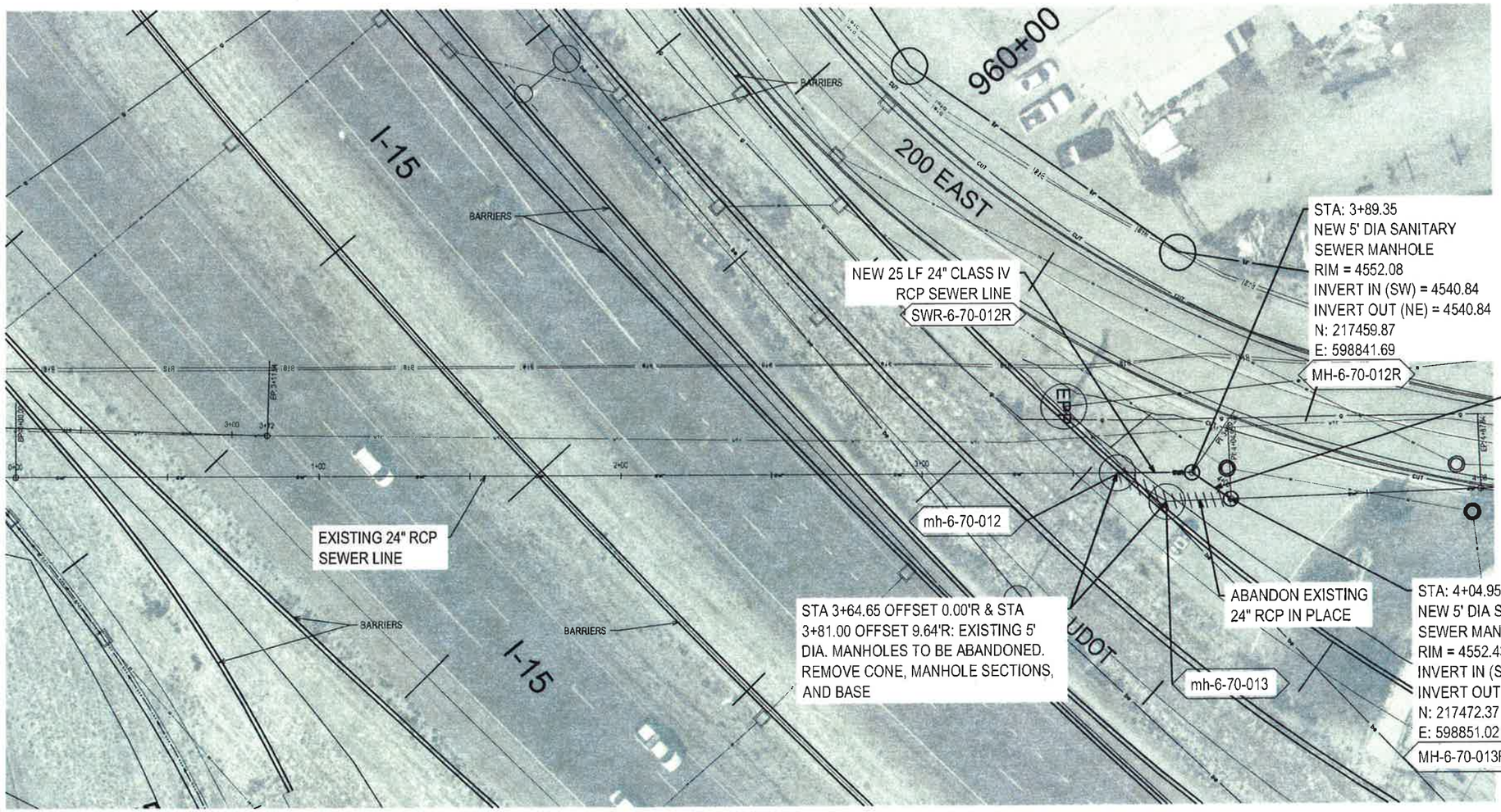

N

0 20' 40'
GRAPHIC SCALE: 1" = 40'

EXHIBIT A-1

24" RCP SEWER LINE - PLAN VIEW

STA: 01+00.00 TO 4+87.45
(UDOT STA: 961+00 TO 962+00)

REGISTERED PROFESSIONAL ENGINEER
313089
MATTHEW P. HIRST
8/3/10
STATE OF UTAH

NOTE:
EXISTING UTILITY LOCATIONS PROVIDED BY OTHERS. CONTRACTOR RESPONSIBLE TO VERIFY LOCATIONS AND DEPTHS

SURVEY CONTROL
SURVEY CONTROL PER UDOT I-15 CORE PROJECT
HORIZONTAL CONTROL AND ELEVATION MODIFIED
VERTICAL DATUM

SPANISH FORK CITY
RELEASE FOR CONSTRUCTION
CT — INITIALS
8/4/10 — DATE

FILE PATH AND NAME: P:\2010\10001C.09-I-15 CORE Design Build\Design Packages\Z-U1\Drawings\Sheet 10001C.28-Z-U1 Sanitary Sewer.dwg
T.A.D.: Z-U1 X SANITARY SEWER XR
PLOT DATE AND TIME: 8.3.2010 2:29 PM

PROJECT OF RECORD

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© 2010

PRINCIPAL: MATT HIRST, PE
PROJECT MANAGER: JARED ANDERSON, PE
ENGINEER: STEVE JACKSON, PE
DRAWN BY: BRANDON PREECE
DRAWING SCALE: AS SHOWN
ISSUE DATE: 07-28-10

PROVO RIVER CONSTRUCTORS

LEHI OFFICE:
2912 WEST EXECUTIVE PKWY.,
SECOND FLOOR
LEHI, UTAH 84043

SPANISH FORK CITY RELOCATION DESIGN: 200 EAST 24" SEWER LINE
DESIGN PACKAGE Z-U1
24" SEWER LINE PLAN VIEW- CONFLICT NO. Z-19

SPANISH FORK — UTAH

STAMP: RFC SET

PROJECT NUMBER: 10001C.28
SHEET 2 OF 4
SHEET NUMBER: 2

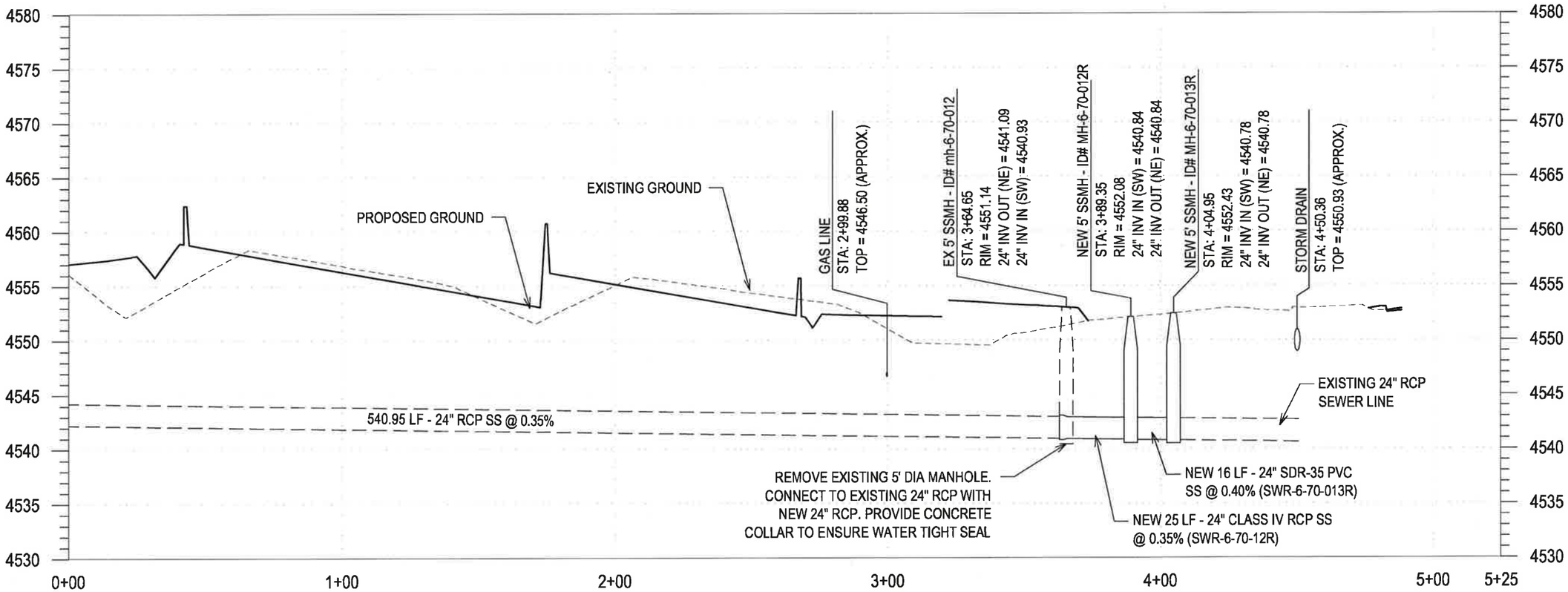

EXHIBIT A-1

24" RCP SEWER LINE - PROFILE VIEW

STA: 00+00.00 TO 5+00.00
HORRIZONTAL: 1"=40'
VERTICAL:1"=10'

REGISTERED PROFESSIONAL ENGINEER
313039
MATTHEW B. HIRST
8/3/10
STATE OF UTAH

NOTE:
EXISTING UTILITY LOCATIONS PROVIDED BY OTHERS. CONTRACTOR RESPONSIBLE TO VERIFY LOCATIONS AND DEPTHS.

SURVEY CONTROL
SURVEY CONTROL PER UDOT I-15 CORE PROJECT
HORIZONTAL CONTROL AND ELEVATION MODIFIED
VERTICAL DATUM

SPANISH FORK CITY
RELEASE FOR CONSTRUCTION
CT — INITIALS
8/4/10 — DATE

RECORD OF REVISIONS

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© 2010

PRINCIPAL: MATT HIRST, PE
PROJECT MANAGER: JARED ANDERSON, PE
CHECKED BY: STEVE JACKSON, PE
DRAWN BY: BRANDON PREECE
DRAWING SCALE: 1"=20'
ISSUE DATE: 07-28-10

PROVO RIVER CONSTRUCTORS

LEHI OFFICE:
2912 WEST EXECUTIVE PKWY.,
SECOND FLOOR
LEHI, UTAH 84043

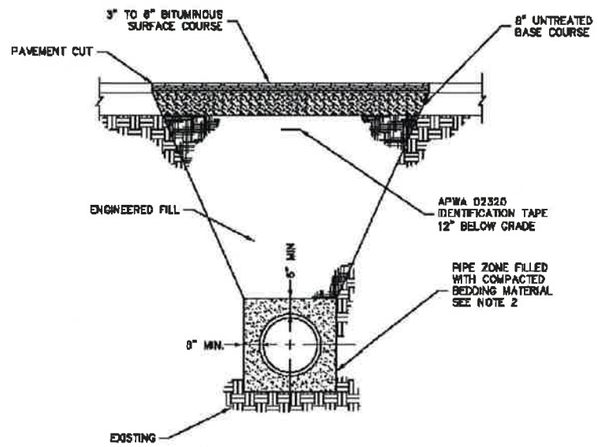
SPANISH FORK CITY RELOCATION DESIGN: 200 EAST 24" SEWER LINE
DESIGN PACKAGE Z-U1
24" SEWER LINE PROFILE VIEW- CONFLICT NO. Z-19

SPANISH FORK — UTAH

STAMP: RFC SET

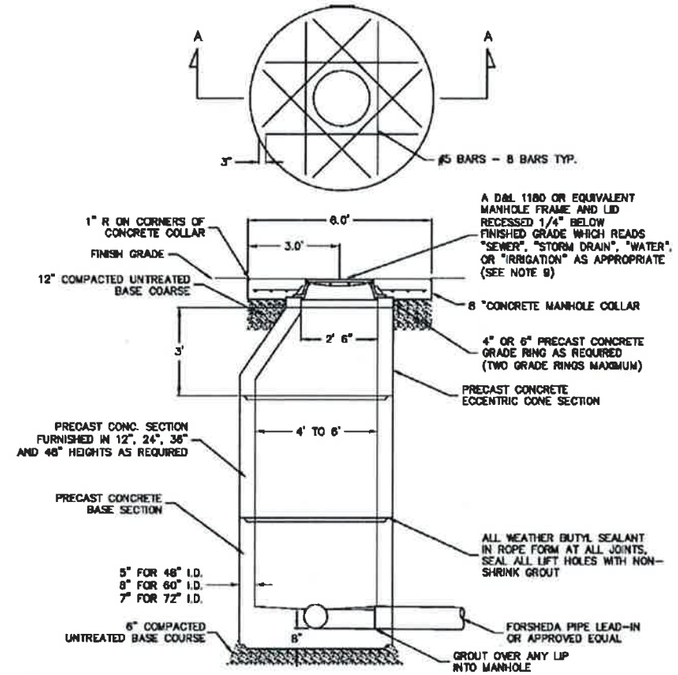
PROJECT NUMBER: 10001C.28
SHEET 3 OF 4
SHEET NUMBER: 3

FILE PATH AND NAME: P:\2010\10001C-I15 CORE Design Build\Design Packages\Z-U1\Drawings\Sheet\10001C-28-Z-U1 Sanitary Sewer.dwg
TAB: Z-19 SANITARY SEWER PROFILE
PLOT DATE AND TIME: 8/3/2010 2:28 PM



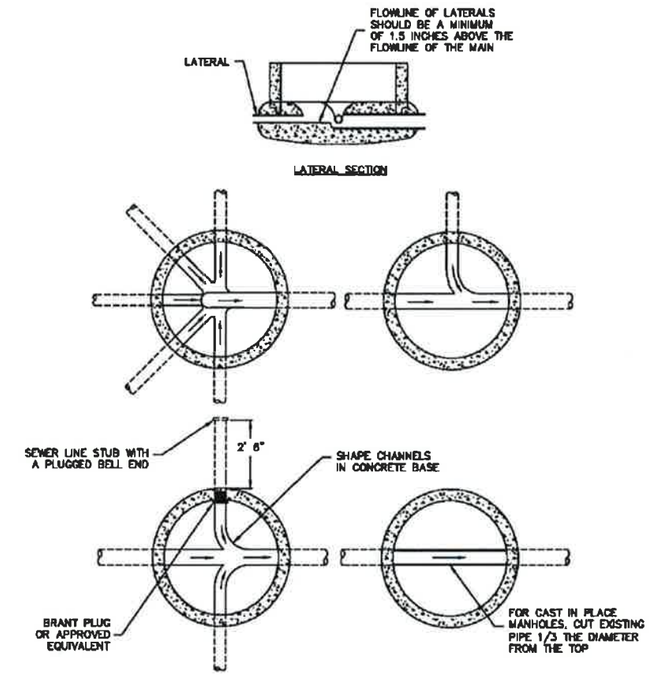
NOTES:
1. PAVEMENT CUTS SHALL BE MADE 6 INCHES OUTSIDE THE EDGE OF TRENCH FOR TRENCHES DEEPER THAN 4 FEET.
2. BEDDING MATERIAL SHALL EXTEND A MINIMUM OF 3" BELOW THE PIPE. FOR CONCRETE PIPE LARGER THAN 24" I.D. A MINIMUM OF 6" OF BEDDING MATERIAL SHALL BE PLACED BELOW THE PIPE.

A TRENCH SECTION
(SPANISH FORK STD DRAWING NO. 1) NTS



NOTES:
1. USE 4' I.D. MANHOLES FOR MAIN LINES LESS THEN 18" IN DIAMETER; 5' I.D. MANHOLES FOR MAIN LINES 18" TO 30" IN DIAMETER, AND 6' I.D. FOR MAIN LINES GREATER THAN 30" IN DIAMETER.
2. FLAT LIDS MAY BE USED IN LUE OF ECCENTRIC CONES WHERE NECESSARY. FLAT LIDS SHALL BE OF ECCENTRIC DESIGN AND MEET H20 LIVE LOADING. NO FLAT RING AND COVERS WILL BE ALLOWED UNLESS APPROVED BY CITY ENGINEER OR HIS/HER DESIGNEE.
3. MANHOLE RIMS PLACED IN FIELDS SHALL HAVE SOLID LIDS AND BE BURIED 2 FEET DEEP.
4. MANHOLE RIMS OUT OF STREETS SHALL BE PLACED 4 INCHES ABOVE GRADE.
5. CONCRETE COLLAR AND RIM SHALL BE INSTALLED 1/4" BELOW PAVEMENT SURFACE AFTER THE 1 YEAR OVERLAY.
6. MANHOLE COLLARS AND RINGS SHALL BE PROTECTED BY A COVERING DURING A SEAL COAT.
7. STORM MANHOLES MAY HAVE FLAT BOTTOMS IN THE BASES.
8. CONCRETE COLLAR SHALL BE PLACED AFTER THE 1 YEAR OVERLAY WHEN APPLICABLE.
9. IN PAVED AREAS WITH A SLOPE GREATER THAN 5% USE AN EJIW 3624 TWIST BASE OR APPROVED EQUIVALENT.

B MANHOLE
(SPANISH FORK STD DRAWING NO. 20) NTS



NOTES:
1. THERE SHALL BE 0.10 FOOT FALL THROUGH ALL MANHOLES.
2. MANHOLES INSTALLED OVER EXISTING SEWERS SHALL BE CAST IN PLACE OVER A SECTION OF EXISTING PIPE WITH THE TOP OF PIPE CUT OFF.

C SEWER MANHOLE FLOWS
(SPANISH FORK STD DRAWING NO. 22) NTS

REGISTERED PROFESSIONAL ENGINEER
313039
MATTHEW P. HIRST
8/3/10
STATE OF UTAH

EXHIBIT A-1

SURVEY CONTROL
SURVEY CONTROL PER UDOT I-15 CORE PROJECT
HORIZONTAL CONTROL AND ELEVATION MODIFIED
VERTICAL DATUM

SPANISH FORK CITY
RELEASE FOR CONSTRUCTION
CT — INITIALS
8/4/10 — DATE

RELEASE OF RAINING

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© 2010

PRINCIPAL: MATT HIRST, PE
PROJECT MANAGER: JARED ANDERSON, PE
CHECKED BY: STEVE JACKSON, PE
DRAWN BY: DSE
DRAWING SCALE: AS SHOWN
ISSUE DATE: 07-28-10

PROVO RIVER CONSTRUCTORS

LEHI OFFICE:
2912 WEST EXECUTIVE PKWY.,
SECOND FLOOR
LEHI, UTAH 84043

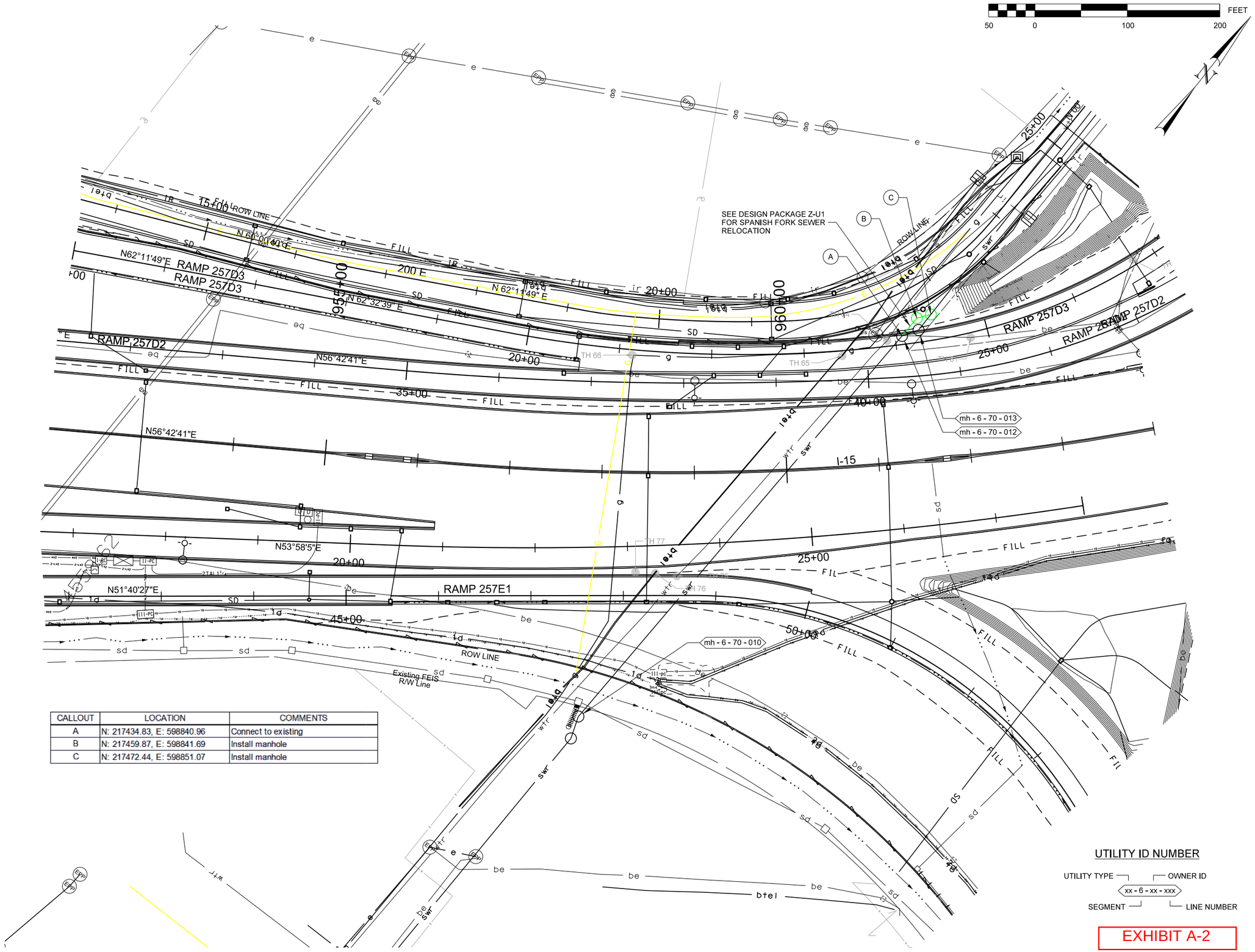
SPANISH FORK CITY RELOCATION DESIGN: 200 EAST 24" SEWER LINE
DESIGN PACKAGE Z-U1
DETAILS

SPANISH FORK UTAH

STAMP: RFC SET

PROJECT NUMBER: 10001C.28
SHEET 4 OF 4
SHEET NUMBER: 4

FILE PATH AND NAME: P:\2010\10001C.00 I-15 CORE Design Build\Design Packages\Z-U1\Drawings\Sewer\10001C.28 U1 Sanitary Sewer.dwg TAB: DETAIL PLOT DATE AND TIME: 8.3.2010 3:15 PM



CALLOUT	LOCATION	COMMENTS
A	N: 217434.83, E: 598840.96	Connect to existing
B	N: 217459.87, E: 598841.69	Install manhole
C	N: 217472.44, E: 598851.07	Install manhole

UTILITY ID NUMBER

UTILITY TYPE — OWNER ID

xx - 6 - xx - xxx

SEGMENT — LINE NUMBER

EXHIBIT A-2

NO.	DATE	APPROVED BY	REMARKS

REVISIONS

MH

BW

I-15; UTAH COUNTY CORRIDOR EXPANSION

ROAD & BRIDGE CONSTRUCTION

MP-I15-6(178)245

UTILITY RELOCATION

PROJECT

PROJECT NUMBER

SHEET NO. UR-1_Z-U1

DGN File: IP_PWP-dmed8520070307_UR-1_Z-U1.dgn

08-NOV-2010 11:54

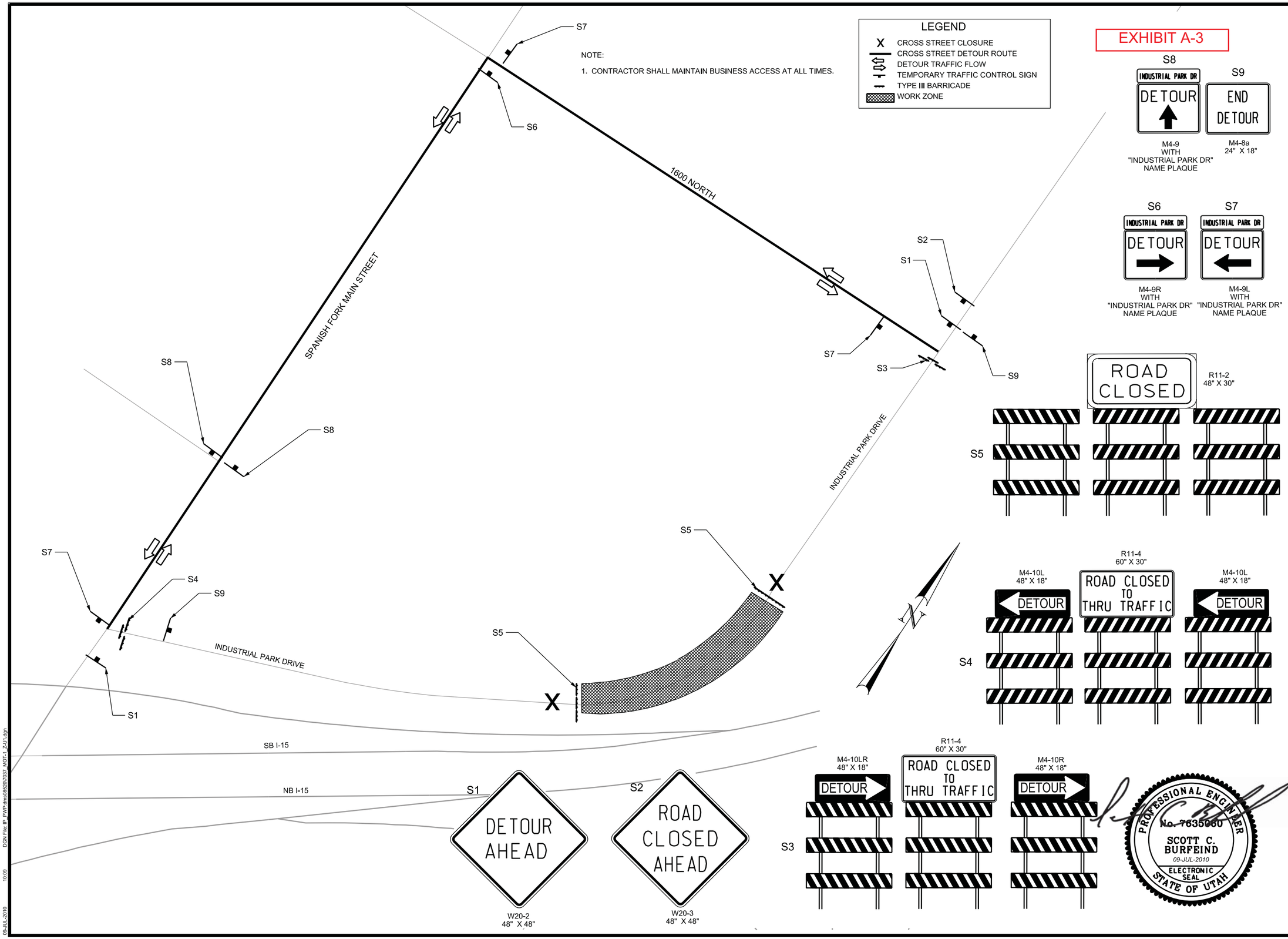
NOTE:

1. CONTRACTOR SHALL MAINTAIN BUSINESS ACCESS AT ALL TIMES.

LEGEND

- X — CROSS STREET CLOSURE
- CROSS STREET DETOUR ROUTE
- DETOUR TRAFFIC FLOW
- TEMPORARY TRAFFIC CONTROL SIGN
- TYPE III BARRICADE
- WORK ZONE

EXHIBIT A-3



NO.	DATE	APPROVED BY	REMARKS

REVISIONS

UTAH DEPARTMENT OF TRANSPORTATION

DRAWN BY SCB

QC CHECKED BY JBM

DATE 7/9/10

APPROVED

PROFESSIONAL ENGINEER

I-15; UTAH COUNTY CORRIDOR EXPANSION

ROAD & BRIDGE CONSTRUCTION

PROJECT NUMBER MP-I15-6(178)245

MOT FOR UTILITY RELOCATION

PROJECT

SHEET NO. MOT-1_Z-U1

DGN File: IP-PWP-dms08520/7037_MOT-1_ZU1.dgn 10:09 09-JUL-2010

Activity	Oct. 25	Nov. 1	Nov. 8	Nov. 15	Nov. 22	Nov. 29	Dec. 6	Dec. 13	Dec. 20
Supplemental Preparation and Approval									
Mobilization & Traffic Control									
Work by Design-Builder									
Finalize and Demobilize									

MEMO

To: Mayor and Council
From: S. Junior Baker
Date: 16 October 2010
Re: Riverbottoms Property Purchase Agreement

On the City Council agenda for December 21, is a consent item for the purchase of the property located in the Riverbottoms. This purchase was approved in a closed session during the last council meeting. The purchase price is $1,030,000.00, plus closing costs. The closing took place on December 16th and we now own the property.

Since the purchase has already been approved, it has been placed on the consent agenda.

REAL ESTATE PURCHASE AGREEMENT

COME NOW the parties hereto, Spanish Fork City (City) and Summit Energy Ventures, LLC (Summit), and in consideration of the mutual promises made herein, hereby contract, covenant and agree as follows:

1. Summit owns a parcel of real property in unincorporated Utah County, near Spanish Fork City more particularly described as follows (the Property):

   COMMENCING 6.67 CHAINS SOUTH AND NORTH 81^{0}00'00" WEST 2.83 CHAINS AND SOUTH 02^{0}00'00" EAST .14 CHAINS FROM THE CENTER OF SECTION 30, TOWNSHIP 8 SOUTH, RANGE 3 EAST, SALT LAKE BASE AND MERIDIAN; THENCE SOUTH 02^{0}00'00" EAST 9.42 CHAINS; THENCE SOUTH 79^{0}37'00" EAST 12.57 CHAINS; THENCE SOUTH 47^{0}30'00" WEST 1460.34 FEET; THENCE SOUTH 54^{0}30'02" EAST 11.46 FEET; THENCE SOUTH 47^{0}11'39" WEST 956.57 FEET; THENCE NORTH 79^{0}50'42" WEST 20.53 FEET; THENCE NORTH 15^{0}37'41" WEST 14.46 FEET; THENCE NORTH 15^{0}36'17" WEST 63.08 FEET; THENCE NORTH 04^{0}47'25" WEST 77.14 FEET; THENCE NORTH 21^{0}13'36" WEST 59.96 FEET; THENCE NORTH 29^{0}47'58" WEST 187.28 FEET; THENCE SOUTH 21^{0}35'17" WEST 133.68 FEET; THENCE NORTH 17^{0}15'00" WEST 284.30 FEET; THENCE NORTH 08^{0}00'00" 2.28 CHAINS; THENCE NORTH 47^{0}30'00" EAST 18.33 CHAINS; THENCE NORTH 42^{0}45'00" WEST 7.75 CHAINS; THENCE NORTH 09^{0}45'00" EAST 9.80 CHAINS; THENCE SOUTH 81^{0}08'00" EAST 8.48 CHAINS TO BEGINNING.

2. City is desirous of purchasing the Property upon the terms and conditions set forth herein.

3. City will pay the sum of $1,030,000.00 for the Property, together with forty (40) shares of Southeast Irrigation Company water and any appurtenant Strawberry water. One thousand dollars has been paid as earnest money, to be credited against the purchase price, with the balance of $1,029,000.00 due at closing. City shall be responsible for all closing costs.

4. The closing will take place on or before December 31, 2010. Possession shall be transferred at the time of closing.

5. The title to the property being conveyed shall be pursuant to a warranty deed and shall be vested in the name of Spanish Fork City.

6. The parties agree to use Cornerstone Title Insurance Company to provide a commitment for standard coverage title insurance in the amount of the purchase price. The policy shall insure that City shall be the fee simple owner of good and marketable title free and clear of all liens and encumbrances and subject to the standard exceptions as shown on the title policy. Each party shall have three (3) days after receipt of the commitment of title insurance and all relevant documents to notify the other in writing of any objections to the title. If no objection is made, all items shall be deemed permitted. If any exceptions to title are made, the other party shall have until closing to cure such exception. If exceptions are unable to be cured, the party so excepting may choose to void this agreement or to proceed with the exceptions. If voided, all obligations of the parties shall cease and this agreement shall be void without further recourse to the parties hereto.

7. City has heretofore investigated the property and determined that it is suitable for its purposes. City therefore accepts the property "as is."

8. Summit warrants and represents as follows:

   A. That no person or entity claiming under, by, or through Owner has any option or contract to purchase any or all of the property to be sold or any interest therein.

   B. The property will be free and clear of any mechanics liens resulting from work performed on or with respect to the property prior to such conveyance.

C. Summit has not received written notice from any governmental body claiming any current violations of any hazardous material law, or requiring compliance with hazardous material law, or demanding payment or contribution for environmental damage or injury to natural resources. For this purpose, hazardous material law means any State or Federal statute applicable to the property relating to the installation, use, storage, release, generation, discharge, disposal, treatment, handling, or transportation of hazardous materials.

D. Summit, nor to their knowledge any previous owner, tenant, or occupant of the property, has engaged in or permitted operations or activities upon or allowed any use or occupancy of the property for the purpose or in any way involving the handling, manufacturing, treatment, storage, use, generation, release, discharge, refining, dumping, or disposal of any hazardous materials, except for agricultural fertilization.

E. In the event, at any time prior to closing, that any party learns that any of the aforesaid representations and warranties are no longer valid, such party shall immediately notify the other in writing. The party so notified shall then have the option to proceed with this agreement subject to the changed conditions, or to void this agreement and have no further obligation to the other party.

9. This document represents the entire agreement between the parties. All prior negotiations, representations, commitments, or understandings are merged herein and superceded hereby. This agreement may only be amended by a written agreement entered into between the parties.

10. Time is of the essence of this agreement. In case either party shall fail to perform the requirements of this agreement, at the time performance is required, the other party may, at its election, terminate the agreement.

11. The obligations of the parties to this agreement shall survive the closing and shall not be merged into or become a part of any of the documents executed and delivered at closing.

12. If any action, suit, or proceeding is brought by a party with respect to a matter governed by this agreement, all costs and expenses of the prevailing party in such action, suit, or proceeding, including reasonable attorneys fees, shall be paid by the non-prevailing party.

13. All risk of loss or damage to the property shall be borne by the seller until possession exchanges.

DATED this 14 day of December, 2010.

SPANISH FORK CITY by:

G. WAYNE ANDERSEN, Mayor

Attest:

KENT R. CLARK, Recorder

CORPORATE SEAL OF SPANISH FORK CITY UTAH

SUMMIT ENERGY VENTURES, LLC by:

DAVID LILLYWHITE, Manager

Memo

To: Mayor and City Council

From: Chris Thompson, Assistant Public Works Director

Date: December 16, 2010

Re: NRCS Grant River Trail Project Change Order #6

Staff Report

This change order is to true up quantities on the River Bottoms Trail contract. We used more engineer fill in the soft sandy areas, bridge and street connections and less road base overall. Other items such as fabric, weed and erosion control have been included to the project to meet city standards.

This cost would be covered by existing grant funds for the trail project. We recommend that the City Council approve this change order to Sunroc's contract.

Attached: Change Order #6

Spanish Fork City
Contract Change Order

Change Order Number: **6**

Contract for River Bottoms Trail

Owner Spanish Fork City

To Sunroc

You are hereby requested to comply with the following changes from the contract plans and specifications:

Description of Changes (Supplemental Plans and Specifications Attached)	Decrease in Contract Price	Increase in Contract Price
ACF200 Woven Geotextile 15'x360' - 64 @ 336.00 per Roll + tax		$ 22,977.02
Spray walk way with Post Emergence Herbicide for Agriculture, Turf and Ornamental		$ 3,600.00
Weed Control and Roundup. 3.0 mil @ $1200 per mile		
Supply and Install additional 630 LF of Waddel @ $1.80 LF		$ 1,134.00
Engineered Fill 2,106.62 Tons Installed @ $15.00 / Ton		$ 31,599.30
Engineered Fill 105 Tons Installed @ $22.00 / Ton		$ 2,310.00
Culverts - Labor and Equipment to Install Culverts Beneath Trail		$ 2,469.24
Decrease Supply and Install of Erosion Control Silt Fence 8,922 @ $1.15 LF	$ (10,260.30)	
Decrease of Untreated Base Course 3886 Tons @ $15.00 / Ton	$ (58,290.00)	
TOTALS :	$ (68,550.30)	$ 64,089.56
NET CHANGE IN CONTRACT PRICE :		$ (4,460.74)

JUSTIFICATION

Change Order includes materials required to complete trail cross section to current City Construction Standards.

Erosion control has been changed to represent actual completed in field. Additional Engineered Fill was required for abutments and trail shaping. Untreated Base Course has been reduced to cover trail project actual needs.

The amount of the contract will be decreased by the sum of : One Thousand Four Hundred Fifty-Three Dollars and 44/100.

Dollars $ (4,460.74)

The contract total including this and previous change orders will be : Three Hundred Thousand Eight Hundred Fifty-Seven Dollars 26/100. Dollars $300,857.26

This document will become a supplement to the contract and all provisions will apply herein.

Requested: _____ (Owner) Date: _____

Recommended: _____ (Owner's Architect/Engineer) Date: _____

Accepted: _____ (Contractor) Date: _____

Memo

To: Mayor and City Council

From: Chris Thompson, Assistant Public Works Director

Date: December 15, 2010

Re: Contract Approval to have Horrocks Engineering use the Latest Census Information to Update our Citywide Traffic Model to Project out to 2040

Staff Report

We now have the updated demographic information from the 2010 Census that allows us to update our transportation model to the year 2040. Our current model goes through 2030. This contract is to hire Horrocks Engineering for the amount of $9,823 to update our model. This update will also integrate several other new developments that have occurred since this masterplan was first adopted, including the addition of the interchange at 2700 North and impacts from the reconstruction of Interstate 15. Horrocks Engineering currently has the master contract to perform city transportation engineering services when needed.

Attached: Proposal

To: Chris Thompson, P.E.
Public Works Director
Spanish Fork City

From: Ron Mortimer, T.E., Principal
John Dorny, P.E.

Date: December 10, 2010 PN10.040

Subject: 2040 Travel Demand Model and TAZ Update

Thank you for allowing Horrocks to submit this proposal to perform a 2040 Travel Demand Model update. The purpose in performing the Scope of Work detailed below is to update the socio-economic data to 2040 per Mountainland Association of Governments (MAG). There have also been substantial changes to the Spanish Fork road network including new interchanges and developments that need to be included in the Transportation Master Plan. This Scope of Work is to accommodate the many changes that have not yet been modeled and updated.

Scope of Work

1. Travel Demand Modeling

In order to accurately analyze proposed changes to the Spanish Fork transportation master plan, changes to the travel demand model are needed. These changes include splitting existing traffic analysis zones (TAZ) into more, smaller TAZ. Additional model links representing the newly proposed roadways within the city of Spanish Fork will also be added to the model. These changes also require that the model be re-calibrated to reflect the base (2008) conditions corresponding to traffic data collected in conjunction with the original transportation master plan in 2008. Once the model is appropriately calibrated, the roadway network will be modeled for the design year (2040) based on socioeconomic and land use projections provided by the Mountainland Association of Governments (MAG) and in accordance with established engineering practices.

2. Documentation

Appropriate maps showing projected 2040 daily volumes on each of the model roadways as well as PM peak hour volume to capacity ratios on the roadway network will be created and delivered to the city. A technical memo outlining the changes to the travel demand model and it's socioeconomic and land use assumptions will also be presented.

3. Meetings

Horrocks will present the data to Spanish Fork City in a meeting that is included in the proposal cost. All other meetings will be on an as-needed basis and will be billed on a time and materials basis.

2162 W. Grove Parkway, Suite 400
Pleasant Grove, UT 84062
Tel: 801.763.5100
Fax: 801.763.5101

The cost to complete the work described is **$9,823** including all direct costs such as travel, phone, fax, computer, etc. Additional work due to site plan changes and/or additional project meetings will be performed/attended only at your request per our hourly rate schedule.

We can complete the work described in approximately 20 working days from receiving authorization to proceed.

We look forward to performing this work and can begin immediately at your request. If you have any questions, please feel free to contact Horrocks.

Sincerely,

Ron Mortimer

Cost of Tasks 1-3 **$9,800**

Additional Tasks

1. Public Meetings **Time & Materials**

Due to the dynamic nature of development projects and public input it is impossible to estimate the effort required to support the project team. We have included this task in case Horrocks will need to attend other public meetings planned by the development. Horrocks will bill these on a time and materials basis based on our fee schedule.

Authorization to Proceed

Approved by: _____ Date:_____

Signature

_____

Please Print

2162 W. Grove Parkway, Suite 400
Pleasant Grove, UT 84062

Tel: 801.763.5100
Fax: 801.763.5101

HORROCKS ENGINEERS FEE PROPOSAL

SPANISH FORK CITY TRANSPORTATION MASTER PLAN MODELING UPDATE

Description	Labor Cost	Total Hours	Ron M Senior Traffic Engineer	Jayson C Principal Engineer, P.E.	John D Sr. Engineer, P.E.	Philip Huff Sr. Engineer, P.E.	Steven L Engineer	As Required Clerical
Hourly Rate			$163	$135	$141	$141	$86	$49
Task 1 - Travel Demand Modeling								
TAZ Splits	$2,275	23	1		4		18	
Model Link Additions	$688	8					8	
Model Calibration	$602	7					7	
2040 Socioeconomic Data Configuration	$344	4					4	
Model Runs	$258	3					3	
Model Analysis	$688	8					8	
QA/QC	$810	6		6				
Subtotal	*$5,665*	*59*	*1*	*6*	*4*	*0*	*48*	*0*
Task 2 - Documentation								
Map Preparation	$688	8					8	
Draft Memo	$884	12					8	4
Final Memo	$884	12					8	4
QA/QC	$282	2				2		
Subtotal	*$2,738*	*34*	*0*	*0*	*0*	*2*	*24*	*8*
Task 3 - Meetings								
Data Presentation Meeting	$952	8	2		2		4	
Subtotal	*$952*	*8*	*2*	*0*	*2*	*0*	*4*	*0*
Total Labor	**$9,355**	**101**	**3**	**6**	**6**	**2**	**76**	**8**
Direct Cost (5%)	**$468**							

Total Cost	**$9,823**

Memo

To: Spanish Fork City Council and Mayor Anderson

From: Chris Thompson, Assistant Public Works Director

Date: December 17, 2010

Re: Change Order for North Park Connector Trail

STAFF REPORT

This change order is to adjust quantities and changes made to construct the North Park Connector Trail to meet City Standards. This is the original trail project from Center Street to Chappel Drive funded in part by a state grant. During the construction of the Connector Trail, fiber optic lines were discovered at the same elevation the trail was planned to be at. An additional 1,384.38 tons of Engineering Fill (E-Fill) was installed to raise the elevation of the trail to avoid conflicts with the utility. Additional Items including gates, Rip Rap, Landscaping and fencing are also addressed in this change order.

We had some difficulty isolating the weigh tickets of this project from other projects that Sunroc was constructing for the city and have only been able to recently quantify exactly how much additional fill it took to construct the trail. The staff recommends approving this change order for a total of $24,728.90.

Attached: Proposed Change Order

Spanish Fork City

Contract Change Order

Change Order Number: **4**

Contract for North Park Connector Trail

Owner Spanish Fork City

To Sunroc

You are hereby requested to comply with the following changes from the contract plans and specifications:

Description of Changes (Supplemental Plans and Specifications Attached)	Decrease in Contract Price	Increase in Contract Price
Spray walk way with Post Emergence Herbicide for 4 Agriculture, Turf and Ornamental Weed Control and Roundup.		$ 1,188.00
Engineered Fill 900 Tons Installed @ $11.50 / Ton		$ 10,350.00
Engineered Fill 484.38 Tons Installed @ $15.00 / Ton		$ 7,265.00
Untreated Base Course 82.71 Tons Installed @ $15.00 / Ton		$ 1,240.00
Fencing - Gates Change from 18' ($1,500.00) to 22' ($2,750.00)		$ 1,250.00
Rip Rap & Slope Work (Lump)		$ 1,790.90
Sprinkler System Rebuild (Lump)		$ 2,645.00
Temporary Fencing	$ (1,000.00)	
TOTALS :	$ (1,000.00)	$ 25,728.90
NET CHANGE IN CONTRACT PRICE :		$ 24,728.90

JUSTIFICATION

The amount of the contract will be increased by the sum of : Twenty Four Thousand Seven Hundred -Twenty Eight Dollars and 90/100. Dollars $ 24,728.90

The contract total including this and previous change orders will be : Three Hundred Fifty Thousand Four Hundred Seventy Seven Dollars and 75/100. Dollars $350,477.75

This document will become a supplement to the contract and all provisions will apply herein.

Requested: _____ (Owner) Date: _____

Recommended: _____ (Owner's Architect/Engineer) Date: _____

Accepted: _____ (Contractor) Date: _____

Memo

To: Spanish Fork City Council and Mayor Anderson

From: Chris Thompson, Assistant Public Works Director

Date: December 17, 2010

Re: Change Order for North Park Trail

STAFF REPORT

This change order is to adjust quantities and changes made to construct the North Park Trail to meet City Standards. An additional 664.07 tons of Engineering Fill (E-Fill) was installed to raise the elevation of the trail to avoid conflicts with the Storm Drain. To reduce cost or moving the storm drain, E-filled was hauled in to raise the elevation of the trail. UDOT plans on widening US-6 to three lanes in each direction; the City was able to conserve the amount of E-Fill placed by having slopes to match the trail at the end of the intersection construction. Additional Items of untreated base course, fabric and weed spray control have been addressed in this change order.

We had some difficulty isolating the weigh tickets of this project from other projects that Sunroc was constructing for the city and have only been able to recently quantify exactly how much additional fill it took to construct the trail. The staff recommends approving this change order for a total of $12,010.

Attached: Proposed Change Order

Spanish Fork City
Contract Change Order

Change Order Number: **5**

Contract for North Park Trail

Owner Spanish Fork City

To Sunroc

You are hereby requested to comply with the following changes from the contract plans and specifications:

Description of Changes (Supplemental Plans and Specifications Attached)	Decrease in Contract Price	Increase in Contract Price
Woven Geotextile 12.5'x432' 2 rolls @ 336.00 + 46.03 tax		$ 718.03
Spray walk way with Post Emergence Herbicide for 4 Agriculture, Turf and Ornamental Weed Control		$ 594.00
and Roundup Weed Control and Roundup.		
Untreated Base Course 48.14 Tons Installed @ $15.00 / Ton		$ 722.10
Engineered Fill 665.07 Tons Installed @ $15.00 / Ton		$ 9,976.05
TOTALS :	$ -	$ 12,010.18
NET CHANGE IN CONTRACT PRICE :	$ -	$ 12,010.18

JUSTIFICATION

The amount of the contract will be increased by the sum of : Twelve Thousand Ten Dollars and 18/100.

Dollars $ 12,010.18

The contract total including this and previous change orders will be : Sixty Three Thousand Six Hundred Forty-Five Dollars and 18/100.

Dollars $63,645.18

This document will become a supplement to the contract and all provisions will apply herein.

Requested: _____ (Owner) Date: _____

Recommended: _____ (Owner's Architect/Engineer) Date: _____

Accepted: _____ (Contractor) Date: _____

Memo

To: Mayor and City Council

From: Chris Thompson, Assistant Public Works Director

Date: December 17, 2010

Re: 100 North I-15 Storm Drain Detention Basin Design

Staff Report

We currently have a contract with UDOT through the ICORE Project to design and build a masterplanned detention basin at 100 North and I-15. Some UDOT I-15 storm water will flow into this basin so UDOT has agreed to do all the land acquisition for the basin.

This contract is to hire Bowen, Collins and Associates to design this detention basin. Bowen, Collins and Associates currently has the contract to do our storm drain modeling and masterplan work. We have enough money in the Westfields Impact Fee account to pay all the expenses for this design work and therefore recommend that the city council award this contract.

Attached: Proposal

TASK ORDER No. 6
100 North Detention Basin Design
City of Spanish Fork

Task Order No. 6 is issued by the City of Spanish Fork (herein called OWNER) pursuant to the General Services Agreement between the OWNER and Bowen, Collins & Associates, Inc. (herein called ENGINEER) dated May 7, 2008.

1. SERVICES

Bowen Collins & Associates will prepare final design drawings for a detention pond at 100 North just east of I-15. The tasks listed below will be completed as part of the project.

Task 1 Geotechnical Investigation

BC&A will retain AGEC, a local geotechnical firm, to perform a geotechnical investigation of the soil at the proposed detention basin location. This work will consist of the following tasks:

- Drill two bore holes on the site to a depth of 15 feet in order to categorize the soil type and ground water elevation.
- Set a piezometer so that groundwater measurements can be made next spring.
- Prepare a report summarizing the findings and recommendations including stable side slope and under drain requirements.

Task 2: Survey

BC&A will retain Apex Land Surveyors to perform a surface feature survey of the site, collect rim and invert information of existing storm drain manholes. The information collected in the field will be included on the site plan in the design drawing set.

Task 3: Design Drawings

BC&A will prepare design drawings for the completion of the proposed detention basin. It is assumed that the design will include the following drawings:

Sheet No.	Description
1	Project Location Map and Index of Drawings
2	Standard Legends, Abbreviations and Symbols
3	General Notes, Coordinate Schedule, and Detention Basin Design Information
4	Site Grading Plan and Subsurface Drainage System
5	Sections and Details
6	Inlet/Outlet Structure and Pipe Improvements
7	Standard Details – 1
8	Standard Details – 2
9	Structural Details

Task 4: Seed Mix Design

BC&A will provide a seed mix design to be used by Spanish Fork City to procure seed for the detention basin after construction.

Task 5: Coordination Meetings

BC&A will attend up to four meetings with City and UDOT staff to coordinate work on the project and to obtain review comments.

Work Not Included in this Scope of Work

- Preparation of technical specifications and contract documents for the project
- Bid period services
- Landscape design

2. COMPENSATION

BC&A proposes to complete the scope of services on a cost reimbursable basis with an estimated fee not to exceed $21,000. A breakdown for this fee estimate is attached.

3. SCHEDULE

We are prepared to begin work immediately upon approval, and will meet the following schedule:

3 weeks following approval: Grading Plan
6 weeks following approval: 90% Design Plans

We anticipate completing the 100% design plan set within 1 to 2 weeks of receiving comments on the 90% design plans.

The parties have executed this Task Order effective this 14th day of October, 2010.

OWNER		**ENGINEER**	
By	_____	By	Craig R. Bagley
Name	_____	Name	Craig R. Bagley
Title	_____	Title	Vice President

Exhibit A

Spanish Fork City
100 North Detention Basin
Engineering Man-Hour and Fee Estimate

Last Updated 9/30/2010

		Office/Support		Technic.				Subtotal Hours	Subtotal Labor	Subtotal Expenses	Total Cost
	Labor Category	Office	Editor	Tech 3	Engineer 1	Lands. Arch.	Engineer 6				
	Labor Rate	$60	$60	$80	$80	$90	$135				
Task No.	**Task Description**										
1	Geotechnical Investigation				2			**2**	$ 160.00	$4,192	$ 4,352.00
2	Survey				2			**2**	$ 160.00	$1,112	$ 1,272.00
3	Design Drawings	4		80	54	4	6	**148**	$ 12,130.00	$962	$ 13,092.00
4	Seed Mix Design					8		**8**	$ 720.00	$48	$ 768.00
4	Coordination Meetings				8		4	**12**	$ 1,180.00	$312	$ 1,492.00
	Total Hours	**4**	**0**	**80**	**66**	**12**	**10**	**172**			
	Total Cost								**$ 14,350.00**	**$ 6,650.00**	**$ 21,000.00**

Expenses include:

Mileage reimbursement at $0.75/mile
Computer/Communications Charge at $6/labor hour
10% Markup on Outside Services
AGEC (Geotechnical Investigation)

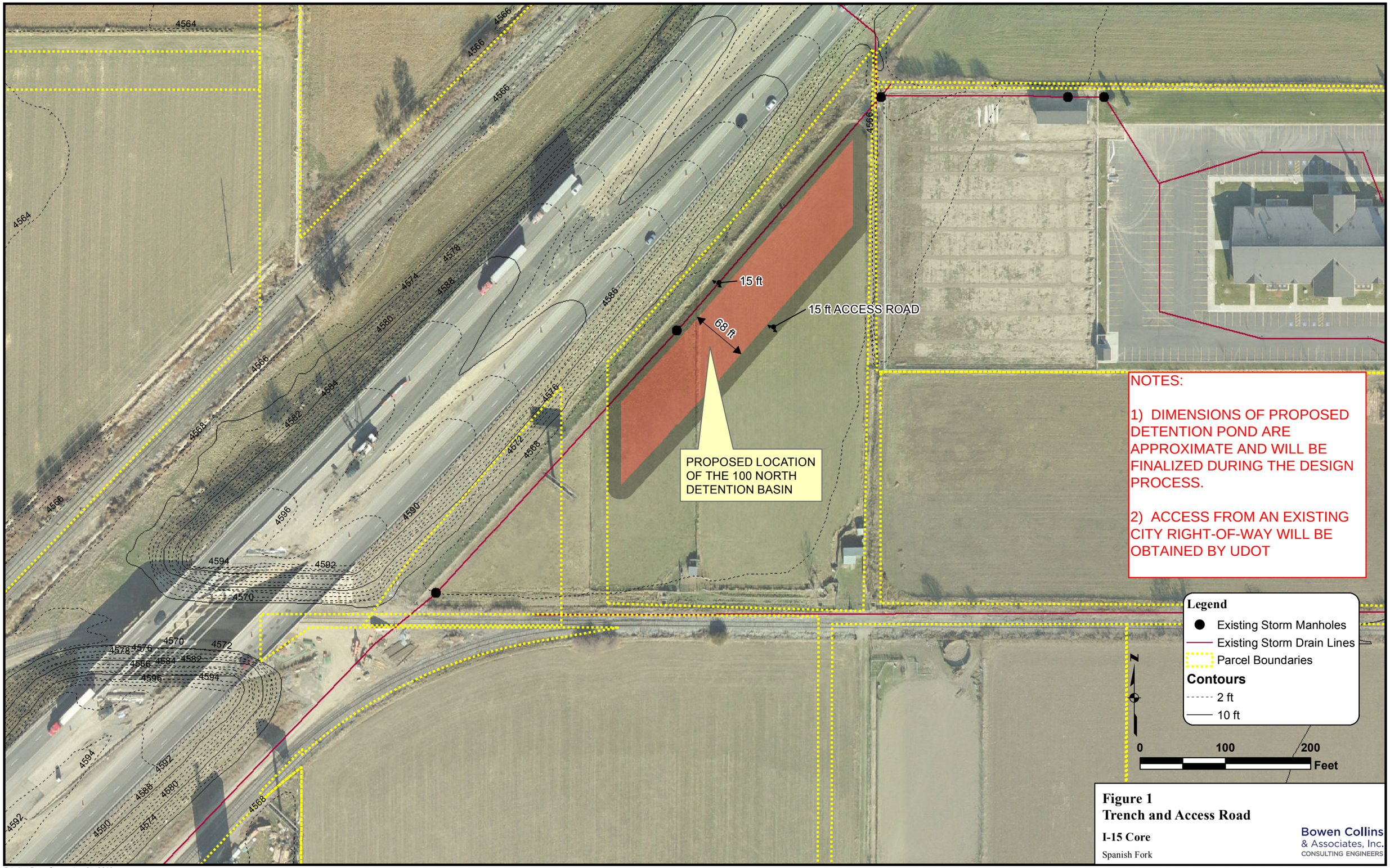


Figure 1
Trench and Access Road

I-15 Core

Spanish Fork

Bowen Collins & Associates, Inc.
CONSULTING ENGINEERS

Printing Date: September 21, 2010
File: P:\Spanish Fork City\Task 2 - Flood Consulting\I-15 CORE\400 North\GIS\MXDs\TrenchFigure.mxd

WIRELINE CROSSING AGREEMENT
(Interlocal Municipal Wireline Form)

UTA Contract # TI/U/2164/U
Mile Post Location: 3.76
Spanish Fork City, Utah

THIS WIRELINE CROSSING AGREEMENT (the "Agreement") is made and entered into as of the _____ day of _____, 2011, by and between UTAH TRANSIT AUTHORITY, a public transit district organized pursuant to the laws of the state of Utah (hereinafter "UTA"), and Spanish Fork City, a political subdivision of the state of Utah (hereinafter "Licensee").

RECITALS

WHEREAS, UTA is the fee owner of a certain railroad corridor known as the Tintic Industrial Lead (the "Right of Way") acquired by UTA for the development and expansion of its public transportation system; and

WHEREAS, Licensee owns and operates an existing Overhead Distribution Line (represented by UTA Contract # TI/U/0864/W) and desires to remove and relocate this Distribution Line underground within two new 6-inch Fibreglass Conduits, which will be encased in one 18-inch Steel Casing (collectively, the "Wireline"), which will cross diagonally beneath the surface of the Right of Way; and

WHEREAS, Licensee desires a license for the construction, operation and maintenance of the Wireline.

AGREEMENT

<u>IMPORTANT NOTICE</u>. THIS AGREEMENT AND ITS EXHIBITS CONTAIN SPECIAL PROVISIONS, MANDATED SPECIALIZED TRAINING FOR WORKERS WITHIN THE RAILROAD RIGHT-OF-WAY, TRACK ACCESS PERMIT REQUIREMENTS, NOTIFICATION REQUIREMENTS, AND OTHER OUT-OF-THE-ORDINARY SPECIFICATIONS THAT MUST BE STRICTLY FOLLOWED. LICENSEE SHALL REVIEW THIS AGREEMENT INCLUDING ITS EXHIBITS THOROUGHLY AND AGREES TO STRICTLY COMPLY WITH ALL PROVISIONS AND REQUIREMENTS.

NOW THEREFORE, on the stated Recitals, which are incorporated herein by reference, and for and in consideration of the mutual covenants and agreements hereinafter set forth, the mutual benefits to the Parties to be derived herefrom, and for other valuable consideration, the receipt and sufficiency of which the Parties acknowledge, it is hereby agreed as follows:

ARTICLE I
INCORPORATED TERMS AND DEFINITIONS

For purposes of this Agreement, the following definitions shall apply:

1.1 "Construct" and "Construction" mean the initial installation of the Wireline (or any improvements to the Wireline) in or otherwise materially affecting the Right of Way, as well as any subsequent reconstruction, relocation, restoration or rehabilitation of the Wireline (or any improvements to the Wireline) in or otherwise materially affecting the Right of Way.

1.2 "Emergency Access Manager" means the person or office responsible for controlling emergency Construction and Maintenance access to the Right of Way. The Emergency Access Manager as of the execution of this Agreement is at **(801) 562-1229.** UTA may change the designated Emergency Access Manager from time to time by delivery of notice in accordance with Article XVI of this Agreement.

1.3 "Freight Operator" means any entity using the Right of Way, or any portion thereof, to provide common carrier freight operations.

1.4 "Governmental Authority" means any federal, state, municipal, local or other division of government, or any agency thereof, having or asserting jurisdiction with respect to any matter related to this Agreement.

1.5 "Hazardous Materials" mean any materials or substances: (i) which are present in quantities and in forms which require investigation, removal, cleanup, transportation, disposal, response or remedial action (as the terms "response" and "remedial action" are defined in Section 101 of the Comprehensive Environmental Compensation and Liability Act of 1980, as amended, 42 U.S.C. §9601 (23) and (24)) under any applicable federal, state or local environmental law, regulation, ordinance, rule or bylaw, as such are amended from time to time, whether existing as of the date hereof, previously enforced or subsequently amended (each hereafter an "Environmental Law"); or (ii) which are defined as "hazardous wastes," "hazardous substances," "pollutants" or "contaminants" under any Environmental Law.

1.6 "Losses" mean any losses, damages, claims, demands, actions, causes of action, penalties, expenses, litigation costs, attorneys' fees, expert witness fees, court costs, amounts paid in settlement, judgments, interest or other costs resulting from: (i) loss of or damage to the property of any Party or Third Person; (ii) death or personal injury to the agents of any Party or to any Third Person; or (iii) the cleanup or other requirements regarding any incident involving Hazardous Materials. The term "Losses" shall not include any losses, damages, claims, demands, actions, causes of action, penalties, expenses, litigation costs, attorneys' fees, expert witness fees, court costs, amounts paid in settlement, judgments, interest or other costs excluded from Licensee's indemnification obligations and assumed by UTA pursuant to Sections 8.1 and 8.2 of this Agreement.

1.7 "Maintain" and "Maintenance" mean the performance of any repair, restoration, rehabilitation, refurbishment, retrofitting, inspection, monitoring, observation, testing, or similar work with respect to the Wireline (or any improvements to the Wireline) in or otherwise materially affecting the Right of Way.

1.8 "Master Interlocal Agreement" means that certain Master Interlocal Agreement Regarding Fixed Guideway Systems Located Within Railroad Corridors, effective February 13,

2004, entered by and among UTA and the various municipalities and counties within which UTA's rights of way are situated.

1.9 "Party" and "Parties" mean UTA or Licensee, and UTA and Licensee, respectively.

1.10 "Third Person" means any individual, corporation or legal entity other than UTA and Licensee.

1.11 "Track Improvements" mean any and all tracks, rails, ties, switches, frogs, end of track barricades or bumpers and other barricades or bumpers, derail devices, tie plates, spikes, wires, fastenings and any other appurtenances related thereto, drainage structures, grading, ballast, subgrade stabilization, crossings, tunnels, bridges, trestles, culverts, structures, facilities, leads, spurs, turnouts, tails, sidings, signals, crossing protection devices, communications systems or facilities, catenary systems and wires, poles and all other operating and non-operating appurtenances located within the Right of Way.

1.12 "UTA System" means any light rail, commuter rail, trolley, guided busway, or similar public transportation system constructed by UTA in the Right of Way as contemplated in the Master Interlocal Agreement.

1.13 "Utility" and "Utilities" mean and include all properties, facilities, utilities, crossings, encroachments, lines and similar appurtenances located within the Right of Way by permissive or prescriptive authority including, but not limited to, pipelines, tubelines, water and gas lines or mains, electrical conduits, ditches and other drainage facilities, wires, fiber optics, communication lines, sewer pipes, overhead wiring and supporting structures and appurtenances, and all similar installations.

1.14 "Wireline" means the existing Overhead Distribution Line to be removed and relocated underground within two new 6-inch Fibreglass Conduits, which will be encased in one 18-inch Steel Casing, and located diagonally beneath the Right of Way, at approximately Milepost Number 3.76 of the Tintic Industrial Lead in Spanish Fork City, Utah. The term "Wireline" shall also apply to any and all rearrangements, modifications, reconstruction, relocations, removals and extensions or additions concerning the Wireline that are authorized and approved by UTA pursuant to this Agreement (unless they are the subject of a separate agreement that does not incorporate the terms hereof).

1.15 "Work Window" means the time period designated by UTA during which Construction, Maintenance and any other work with respect to the Wireline within the Right of Way is permissible. UTA may, at any time and at UTA's sole discretion, determine that the Work Window shall not be concurrent with any passenger operations within the Right of Way.

ARTICLE II
GRANT OF LICENSE AND REAL ESTATE USAGE CHARGE

2.1 UTA customarily assesses a standard administrative fee reflecting the clerical, administrative and handling expenses incurred in connection with the processing of this Agreement. The standard administrative fee has been waived consistent with the provisions of the Master Interlocal Agreement.

2.2 In consideration of the real estate usage charge to be paid by Licensee, and in further consideration of the covenants and agreements to be kept, observed and performed by Licensee hereunder, UTA hereby grants Licensee a license to Construct, Maintain and operate the Wireline in the location shown and in conformity with the dimensions and specifications indicated on the attached print dated **December 08, 2010**, and marked Exhibit "A" (Exhibit "A" is attached hereto and hereby incorporated into and made a part of this Agreement by reference).

2.3 Upon the execution of this Agreement, Licensee agrees to pay UTA one-time real estate usage charge of **N/A**, payable on or before the execution date of this Agreement.

ARTICLE III
ACCESS TO THE RIGHT OF WAY

3.1 Except in the event of an emergency (as provided in Section 3.2 below), Licensee shall request permission from UTA at least ten days (or such shorter period as may be approved by UTA) prior to performing any Construction or Maintenance in or otherwise materially affecting the Right of Way. Licensee's request to access the Right of Way shall be specific as to the time, date and activities for which Licensee seeks permission. The request shall also include a summary of the method and manner in which the Construction or Maintenance will be performed. As part of the application process, UTA may require Licensee (and its contractors or other agents seeking access to the Right of Way) to attend any track access coordination meetings, safety training or other instruction as may be deemed necessary by UTA. Once granted, UTA's permission to enter the Right of Way shall be formalized in writing and delivered to Licensee. After permission has been granted, Licensee shall comply with all conditions, instructions and requirements of such permit and with all instructions or directions given by UTA including, if required, daily telephone notification to the applicable rail dispatch center prior to each entry into the Right of Way. All contact with UTA shall be coordinated through the person designated by UTA from time to time as set forth in Article XVI of this Agreement. Provided that Licensee complies with the provisions of this Section, UTA agrees not to unreasonably withhold, condition, or delay its approval of Licensee's request.

3.2 Licensee shall have the right to enter the Right of Way in the event of an emergency to make repairs necessary to protect against imminent and serious injury or damage to persons or property. Licensee shall take all precautions necessary to ensure that such emergency entry does not compromise the safety of any operations conducted in the Right of Way by UTA or the Freight Operator. Licensee must notify the Emergency Access Manager of the emergency access and the work being performed by telephone prior to entering the Right of Way.

ARTICLE IV
CONSTRUCTION AND MAINTENANCE OF THE WIRELINE

4.1 All Construction and Maintenance with respect to the Wireline shall be performed to the satisfaction of UTA and in accordance with the conceptual, engineering and/or design plans ("Design Plans") previously approved by UTA and attached hereto as Exhibit "A." All Construction and Maintenance with respect to the Wireline shall be performed in compliance with the standards set forth in the National Electric Safety Code ("NESC") and/or the National Electric Code ("NEC"). UTA may impose requirements in addition to or more stringent than the NESC or NEC if UTA deems such requirements necessary for the safety of operations conducted in the Right of Way. UTA may also require additional fabrication methods, staging requirements or other precautions. All Construction and Maintenance with respect to the Wireline shall be performed during the designated Work Window. UTA shall have the right, but not the obligation,

to observe any and all work performed in or materially affecting the Right of Way in connection with the Wireline to ensure that such work is performed in accordance with the requirements set forth in this Agreement. In its Construction or Maintenance of the Wireline, Licensee shall not make any material deviation from the Design Plans without UTA's prior written approval.

4.1.1 With respect to any overhead facilities related to the Wireline, the Design Plans shall include: (a) a vertical clearance of not less than twenty-seven (27) feet between (above) the top of the highest rail and the lowest portion of the Wireline or other structure that crosses said rail; (b) a side clearance that is as great as reasonably possible but in no event less than eleven (11) feet from the center line of any rail; and (c) in any event not less than the minimum clearance standards set forth in the NESC and/or the NEC.

4.1.2 With respect to any underground facilities related to the Wireline, Licensee shall submit to UTA plans setting out the method and manner of handling all work to be performed under the Track Improvements including, without limitation, the shoring and cribbing, if any, required to protect the operations of UTA, the Freight Operator or the owner of any adjacent tracks. Licensee shall not proceed with any such work until Licensee's proposed methods have been approved by UTA. The Wireline shall be placed at the depth acceptable to UTA and shall not interfere with any Track Improvements.

4.2 Various Utilities exist on, over and under the surface of the Right of Way. Prior to commencing any Construction or Maintenance with respect to the Wireline, Licensee shall properly investigate and determine the location of all such Utilities. In addition to the required investigation, Licensee shall have all Utilities in the area of the Wireline "blue-staked" and clearly marked prior to any excavation. Licensee shall make arrangements for the protection of all Utilities and shall commence no excavation, boring or other penetration in the Right of Way until all such protection has been accomplished.

4.3 Fiber optic cable systems may be buried in the Right of Way. Protection of the fiber optic cable systems is of extreme importance since any break could disrupt service to users resulting in business interruption and loss of revenue and profits. Licensee shall be solely responsible for contacting UNION PACIFIC RAILROAD COMPANY during normal business hours (7:00 a.m. to 9:00 p.m. Central Time, Monday through Friday, except holidays) at 1-800-336-9193 (also a 24-hour, 7-day number for emergency calls) and for determining if fiber optic cable is buried near the location of the Wireline. If so, Licensee will contact the telecommunications company(ies) involved, make arrangements for a cable locator and, if applicable, make arrangements for relocation or other protection of the fiber optic cable. Licensee shall not commence any work until all such protection and/or relocation have been accomplished. Licensee shall be solely responsible for all coordination with Union Pacific and any telecommunications companies. In coordinating the relocation or protection of fiber optic cable, Licensee shall not rely on any statements, engineering drawings or other oral or written representations of UTA or its representatives. In addition to other indemnity provisions in this Agreement, Licensee shall indemnify, defend and hold the UTA Indemnitees (as defined in Section 8.1 of this Agreement) harmless from and against all Losses arising out of: (a) any damage to or destruction of any telecommunications system proximately caused by any Construction, Maintenance or other work performed by Licensee or its agents relative to the Wireline; and/or (b) any injury to or death of any person employed by or on behalf of any telecommunications company proximately caused by any Construction, Maintenance or other work performed by Licensee or its agents relative to the Wireline. Except to the extent that

liability is assumed by UTA as set forth in Sections 8.1 and 8.2 of this Agreement, Licensee shall not have or seek recourse against UTA for any claim or cause of action for alleged loss of profits or revenue or loss of service or other consequential damage to a telecommunication company using UTA's Right of Way or a customer or user of services of the fiber optic cable on UTA's Right of Way.

4.4 Licensee shall be solely responsible for obtaining any property rights, easements, licenses, rights of way or other permission from Third Persons (collectively "Third Person Property Rights") as may be necessary to Construct, Maintain or operate the Wireline including, without limitation, any needed permission from the owner of any adjacent railroad corridor. Licensee shall also be solely responsible for obtaining any necessary franchises, permits or other necessary approvals from Governmental Authorities (collectively "Approvals"). Licensee agrees to pay any and all costs and expenses relating to such Third Person Property Rights or Approvals, and to assume any and all liability therefore.

4.5 Except as authorized in this Agreement or as may be immediately required for (and only at the actual time of) performance of any Construction or Maintenance contemplated under this Agreement, and then only in full compliance with all clearance standards and other safety requirements, Licensee shall not place, permit to be placed, erect, pile, store, stack, park, suffer or permit any line, building, platform, fence, gate, vehicle, car, pole, or other structure, obstruction, or material of any kind within the Right of Way.

4.6 Licensee shall Construct, Maintain and operate the Wireline in compliance with all requirements imposed by any Governmental Authority including, without limitation, the requirements of the Federal Railroad Administration, the Occupational Safety and Health Administration and the Utah Department of Transportation. Licensee shall also Construct, Maintain and operate the Wireline in compliance with all applicable environmental laws. Licensee shall take all suitable precautions to prevent any interference (by induction, leakage of electricity, or otherwise) with the operation of the Track Improvements or any other UTA or Third Person installations or facilities. If for whatever reason the Construction of the Wireline causes interference with the operation of Track Improvements or any other UTA or Third Person installations or facilities existing prior to the Construction of the Wireline, Licensee shall, upon notification by UTA and at Licensee's sole cost and expense, take such action as is necessary to eliminate the interference.

4.7 At the request of UTA, Licensee shall install markers identifying the location of the Wireline and related appurtenances at the Right of Way boundaries (where the Wireline enters and exits the Right of Way) or other locations where UTA may designate. Markers shall be installed in a form and size as may be determined by UTA and at the sole cost and expense of Licensee. UTA hereby expressly reserves the right to require Licensee to erect and maintain, at Licensee's sole cost and expense, any and all signs of any character and nature whatsoever (e.g. location of Wireline, precautionary and/or warning signs, etc.) that UTA deems necessary or advisable in connection with the operation of the Wireline. Licensee shall install and/or erect any marker or sign that may be required under this Section within thirty (30) days after receiving written instructions from UTA.

4.8 Upon completion of any Construction or Maintenance relating to the Wireline, Licensee shall restore the surface of the Right of Way to its prior condition including, but not limited to, replacing any soil that was removed and thoroughly compacting it level with the adjacent surface of the ground and restoring any fences or other property that Licensee disturbed or removed from the Right of Way.

4.9 If a contractor is to perform any Construction or Maintenance contemplated in this Agreement, then the Licensee shall cause its contractor to comply with all applicable provisions of this Agreement. Additionally, Licensee shall require its contractor to execute UTA's form Contractor's Right of Entry Agreement (the "Contractor Agreement"). Licensee acknowledges receipt of a copy of the Contractor Agreement and will inform its contractor of the need to execute the Contractor Agreement. Any and all contractors used by Licensee in the Construction or Maintenance of the Wireline are subject to the approval of UTA, which approval shall not be unreasonably withheld, conditioned or delayed.

ARTICLE V
CONSTRUCTION OBSERVATION BY UTA – LICENSEE TO BEAR ALL COSTS

In the event that UTA, in its sole discretion, determines that any inspectors (technical or special), monitors, observers, safety personnel, flaggers or other persons are required given the nature of the Construction or Maintenance to be performed, UTA may, at its sole discretion, provide such personnel and Licensee shall, within 30 days, reimburse UTA for the reasonable costs thereby incurred.

ARTICLE VI
LICENSEE TO BEAR ALL COSTS RELATED TO WIRELINE

Except as otherwise set forth in the Master Interlocal Agreement, or in Sections 7.1 and 8.1 of this Agreement, Licensee shall be solely responsible for any and all costs incurred with respect to any Construction, Maintenance or other work related to the Wireline.

ARTICLE VII
SUBORDINATION OF RIGHTS GRANTED - RELOCATION OF WIRELINE

7.1 The rights granted pursuant to this Agreement shall be subject and subordinate to the prior and continuing right and obligation of UTA to fully use the Right of Way, including the right and power of UTA to construct, maintain, repair, renew, use, operate, modify, or relocate new or existing Track Improvements upon, along, above, or across any or all parts of the Right of Way and other UTA property, all or any of which may be freely done at any time or times by UTA. The grant of license for the Wireline is made without covenants of title or quiet enjoyment. UTA makes no warranties, either express or implied, regarding the nature, extent or status of its title to the Right of Way or regarding the existence or nonexistence of Third Person rights which may be superior to the license granted pursuant to this Agreement.

7.2 Licensee shall, within 60 days after receipt of written notice from UTA, modify or relocate (or, if agreed between the Parties, allow UTA to modify or relocate) all or any portion of the Wireline as UTA may reasonably designate. To the extent that the modification or relocation of the Wireline is necessitated by the construction, reconstruction, modification or relocation of any UTA System, UTA shall be responsible for the costs of such relocation. To the extent that the modification or relocation of the Wireline is necessitated because the Wireline is conflicting with or causing interference with any UTA or Third Person Track Improvements or Utilities existing prior to the Construction of the Wireline, then Licensee shall be responsible for the costs of such modification or relocation. All the terms, conditions and stipulations herein expressed with reference to the Wireline in the location described herein shall, so far as the Wireline remains on UTA property, apply to the Wireline as modified or relocated pursuant to this Section

7.3 The foregoing grant is also subject to the outstanding superior rights previously conveyed or granted to Third Persons by UTA, or its predecessors in interest, and the right of UTA to renew and extend the same.

ARTICLE VIII
INDEMNITY AND RELEASE

8.1 Licensee agrees to protect, defend, release, indemnify and hold harmless UTA, and any affiliates, successors, contractors, officers, directors, agents and employees of UTA (the "UTA Indemnitees") from and against any and all Losses resulting from: (a) negligence on the part of Licensee, or any employees, principals, contractors or agents of Licensee, in conjunction with any Construction, Maintenance or other work performed by or on behalf of Licensee with respect to the Wireline; (b) negligence on part of Licensee, or any employees, principals, contractors or agents of Licensee, in the use or operation of the Wireline; or (c) Licensee's breach of any provision of this Agreement. Notwithstanding the foregoing, Licensee shall not be required to indemnify UTA for, and UTA hereby assumes responsibility for, any losses, damages, claims, demands, actions, causes of action, penalties, expenses, litigation costs, attorneys' fees, expert witness fees, court costs, amounts paid in settlement, judgments, interest or other costs that are proximately caused by the negligence, recklessness or willful misconduct of UTA with respect to the construction, maintenance or operation of any UTA System.

8.2 Licensee acknowledges that the Right of Way may be subject to prospective purchaser agreements and covenants not to sue that UTA has entered with the Utah Department of Environmental Quality and the United States Environmental Protection Agency. Pursuant to such agreements, UTA is required to characterize any excavated soil that appears to contain (or has the potential to contain) Hazardous Materials and to handle and dispose of any such soil in compliance with applicable state and federal laws. Under these agreements, UTA is not required to excavate any soil except as required for construction related to the installation of a UTA System. Accordingly, any excavation that Licensee performs with respect to the Wireline exposes UTA to potential environmental liability that would not otherwise be present. As consideration for the rights granted to Licensee hereunder, Licensee agrees to assume all potential liability and responsibility for, and to indemnify and hold UTA harmless with respect to, any Losses related to the characterization and removal of any Hazardous Materials discovered during the performance of any Construction or Maintenance. Licensee agrees to perform any such characterization and removal in full compliance with all applicable state and federal environmental laws. Notwithstanding the foregoing, Licensee shall not be required to indemnify UTA for, and UTA hereby assumes responsibility for, any losses, damages, claims, demands, actions, causes of action, penalties, expenses, litigation costs, attorneys' fees, expert witness fees, court costs, amounts paid in settlement, judgments, interest or other costs related to any Hazardous Materials discovered as the result of modification or relocation work performed by or on behalf of Licensee in conjunction with the construction, reconstruction, modification or relocation of any UTA System. To the extent that either Party actually causes a release of Hazardous Materials into the Right of Way, such party shall be responsible for the characterization and removal of such Hazardous Materials and shall indemnify the other Party with respect to all losses resulting therefrom.

8.3 Licensee hereby releases UTA from, and agrees not to seek recourse against UTA with respect to, any claims, damages, fees, expenses or other losses proximately caused by Third Persons including, without limitation, Third Persons having licenses or other interests in the Right of Way. Nothing contained herein shall be construed or deemed to be a release of any Third Persons by Licensee.

8.4 The provisions of this Article shall survive the termination of this Agreement.

ARTICLE IX
CLAIMS AND LIENS FOR LABOR AND MATERIALS; TAXES

9.1 Licensee shall fully pay for all materials joined or affixed to the Right of Way in connection with the Wireline, and for all labor performed with respect to the Wireline. Licensee shall not permit or suffer any mechanic's or materialman's lien of any kind or nature to be enforced against the property for any work done or materials furnished thereon at the instance or request or on behalf of Licensee.

9.2 Licensee shall promptly pay or discharge all taxes, charges and assessments assessed or levied upon, in respect to, or on account of the Wireline to prevent the same from becoming a charge or lien upon the Right of Way and so that any taxes, charges and assessments levied upon or with respect to such property shall not be increased because of the Wireline or any improvements, appliances, or fixtures connected therewith.

ARTICLE X
TERMINATION

10.1 UTA may terminate this Agreement if: (a) Licensee ceases to use the Wireline in an active and substantial way for any continuous period of 1 year; (b) Licensee continues in default with respect to any provision of this Agreement for a period of 30 days after UTA delivers written notice to Licensee identifying the nature of Licensee's breach of this Agreement; provided, however that if the nature of Licensee's breach is such that it cannot be cured within such 30-day period, Licensee shall not be deemed in default if Licensee commences to cure the breach within 30 days and thereafter diligently continues to remedy the breach; or (c) Licensee removes the Wireline from the Right of Way.

10.2 Termination of this Agreement for any reason shall not affect any of the rights, obligations or liabilities that have accrued prior to or concurrent with such termination.

ARTICLE XI
INSURANCE

11.1 Licensee shall, at its sole cost and expense, obtain the insurance described in Exhibit "B" (Exhibit "B" is attached hereto and hereby incorporated into and made a part of this Agreement by reference). Licensee will also provide to UTA a Certificate of Insurance, identifying UTA Contract Number **TI/U/2164/U**, issued by its insurance carrier confirming the existence of such insurance and, unless otherwise approved by UTA, indicating that the policy or policies contain the following endorsement:

> "Utah Transit Authority is named as an additional insured with respect to all liabilities arising out of the existence, use or any work performed on or associated with the Wireline Crossing, located on railroad right of way at approximately Milepost Number 3.76, at or near Spanish Fork City, Utah County, Utah"

11.2 If Licensee is a public entity subject to any applicable statutory governmental immunity laws, the limits of insurance described in Exhibit "B" shall be the limits the Licensee then has in effect or that are required by applicable current or subsequent law, whichever is greater, a portion of which may be self insured with the consent and approval of UTA. Licensee does not waive any of its rights or entitlements to governmental immunity and limitations on liability to Third Persons under the Utah Governmental Immunity Act.

ARTICLE XII
REMOVAL OF WIRELINE UPON TERMINATION OF AGREEMENT

Upon termination of this Agreement pursuant to Article X hereof, Licensee shall, if requested in writing by UTA and at Licensee's sole cost and expense, remove the Wireline from the Right of Way and shall restore, to the satisfaction of UTA, such portions of the Right of Way to at least as good a condition as such were in at the time that Licensee first entered the Right of Way. If Licensee fails to do the foregoing within a reasonable time, UTA may, at its option, perform such removal and restoration work at the expense of Licensee. Licensee shall reimburse UTA for the costs incurred in any restoration or removal work performed under this Article within 30 days after receipt of the bill therefore. In the event UTA removes the Wireline pursuant to this Article, UTA shall in no manner be liable to the Licensee for any damage sustained by Licensee for or on account thereof, and such removal and restoration shall in no manner prejudice or impair any other right of action, including the recovery of damages, that UTA may have against the Licensee. The provisions of this Article shall survive the termination of this Agreement.

ARTICLE XIII
ASSIGNMENT

Licensee may not assign this Agreement, in whole or in part, or any rights herein granted, without UTA's written consent, which consent shall not be unreasonably withheld, conditioned, or delayed. Notwithstanding the foregoing, Licensee may assign this Agreement and its rights hereunder as part of a consolidation with an entity that: (a) is a successor governmental entity to Licensee; (b) is annexed with, merged into or consolidated with Licensee; or (c) that acquires substantially all of the assets of Licensee provided, however, that in any of the above instances such entity seeking an assignment under this Article must, as a condition to such assignment, assume all terms and conditions of this Agreement without limitation.

ARTICLE XIV
SUCCESSORS AND ASSIGNS

Subject to the provisions of Article XIII, this Agreement shall be binding upon and inure to the benefit of the Parties hereto, their officers, employees, representatives, successors and assigns.

ARTICLE XV
SEVERABILITY

This Agreement is executed by the Parties under current interpretation of any and all applicable federal, state, county, municipal, or other local statutes, ordinances, or laws. Furthermore, each and every separate division hereof shall have independent and severable status from each other division, or combination thereof, for the determination of legality, so that if any separate division herein is determined to be unconstitutional, illegal, violative of trade or commerce, in contravention of public policy, void, invalid or unenforceable for any reason, that separate division shall be treated as a nullity but such holding or determination shall have no effect upon the validity or enforceability of each and every other division, or other combination thereof.

ARTICLE XVI
NOTICES

Except as specifically provided elsewhere in this Agreement, all notices, requests, demands and other communications hereunder shall be in writing and shall be deemed given if personally delivered or mailed, certified mail, return receipt requested, or sent by overnight carrier to the addresses set forth herein. Addresses for notice may be changed by giving ten (10) days written notice of the change in the manner set forth herein.

If to UTA:

Utah Transit Authority
Attn: Property Management
669 West 200 South
Salt Lake City, Utah 84101-1004

With a Copy to:

Utah Transit Authority
Attn: General Counsel
PO Box 30810
Salt Lake City, Utah 84130-0810

If to Licensee:

Spanish Fork City Power
Attn: Tom Cooper, Electric Utility Planner
2160 North 175 East
Spanish Fork City, Utah 84660

ARTICLE XVII
NO IMPLIED WAIVER

The waiver by UTA of the breach by Licensee of any condition, covenant or agreement herein contained shall not impair any future ability of UTA to avail itself of any remedy or right set forth in this Agreement. Neither the right of supervision by UTA, nor the exercise or failure to exercise such right, nor the approval or failure to disapprove, nor the election by UTA to repair or reconstruct all or any part, of the work contemplated by this Agreement shall be deemed a waiver of any of the obligations of Licensee contained or set forth in this Agreement.

ARTICLE XVIII
ENTIRE AGREEMENT - COUNTERPARTS

This Agreement shall constitute the entire agreement and understanding of the Parties with respect to the subject matter hereof, and shall supersede all offers, negotiations and other agreements with respect thereto. Any amendment to this Agreement must be in writing and executed by an authorized representatives of each Party. This Agreement may be executed in any number of counterparts and by each of the Parties hereto on separate counterparts, each of which when so executed and delivered shall be an original, but all such counterparts shall together constitute but one and the same instrument. Any signature page of this Agreement may be detached from any counterpart and reattached to any other counterpart hereof. The facsimile transmission of a signed original of this Agreement or any counterpart hereof and the retransmission of any signed facsimile transmission hereof shall be the same as delivery of an original.

ARTICLE XIV
SPECIAL PROVISIONS

Special provisions, if any, are included in the attached Exhibit "C" (Exhibit "C" is attached hereto and hereby incorporated into and made a part of this Agreement by reference).

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed in duplicate as of the date first herein written.

Reviewed and Approved as to Form for UTA

UTA Engineering

UTA Legal

UTAH TRANSIT AUTHORITY:

By: _____
Paul Edwards
Senior Program Manager

By: _____
Troy S. Hamilton
Manager of Property Administration

By: _____
Brian W. Atkinson
Property Administrator

LICENSEE:

By: _____
Name:
Title:

EXHIBIT "A"
DESIGN PLANS

[Insert engineering drawings showing the proposed crossing including proposed construction methods, shoring and cribbing requirements and milepost location]

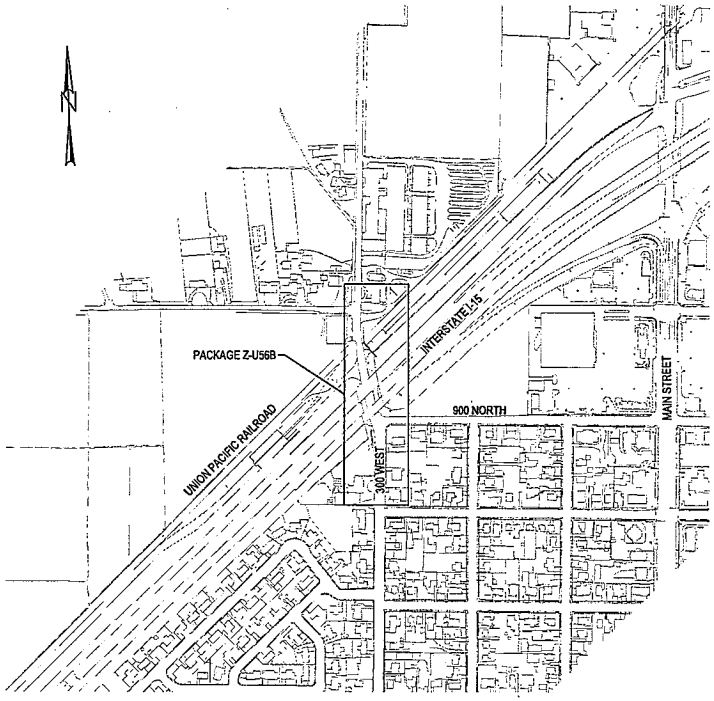
SPANISH FORK CITY POWER DEPARTMENT BETTREMENT: (2) 6" ELECTRICAL CONDUIT AND 18" CASING AT 300 WEST

DESIGN PACKAGE Z-U1B

SPANISH FORK CITY, UTAH

ISSUE DATE: 12-08-2010

SPANISH FORK CITY
VICINITY MAP



SHEET INDEX	
SHEET NO.	DRAWINGS
1	COVER SHEET
2	(2) 6" CONDUITS AND 18" CASING PLAN VIEW
3	(2) 6" CONDUITS AND 18" CASING PROFILE VIEW

LEGEND

EXISTING SEWER LINE	
PROPOSED SEWER LINE	
EXISTING SEWER MANHOLE	
PROPOSED SEWER MANHOLE	
EXISTING UTILITY TO BE REMOVED	
EXISTING	EX
PROPOSED	PR
NO DATA	ND

DESIGN PACKAGE Z-U56B SPANISH FORK CITY POWER DEPT.				
UT SHEET	UDOT STATION	UTILITY TYPE	QTY	UNIT
Z1-UT-03	925+00 TO 928+00	(2) 6" FIBERGLASS CONDUIT	616	LF
Z1-UT-03	925+00 TO 928+00	18" 3/8" STEEL CASING	108	LF

SPANISH FORK CITY POWER DEPARTMENT
RELEASE FOR CONSTRUCTION

AGENT SIGNATURE DATE

RECORD OF REVISIONS

THE INFORMATION CONTAINED IN THIS DRAWING IS THE PROPERTY OF PROVO RIVER CONSTRUCTORS AND IS NOT TO BE REPRODUCED, MODIFIED OR USED FOR ANY OTHER PROJECT OR EXTENSION OF THIS PROJECT EXCEPT BY AGREEMENT WITH PROVO RIVER CONSTRUCTORS.
© 2010

DESIGNED BY MATT HIRST, PE
PROJECT MANAGER JARED ANDERSEN, PE
CHECKED BY STEVE JACKSON, PE
DRAWN BY KLH
DRAWING SCALE AS NOTED
ISSUE DATE 12-08-2010

PROVO RIVER CONSTRUCTORS

LEHI OFFICE:
2912 WEST EXECUTIVE PKWY.,
SECOND FLOOR
LEHI, UTAH 84043

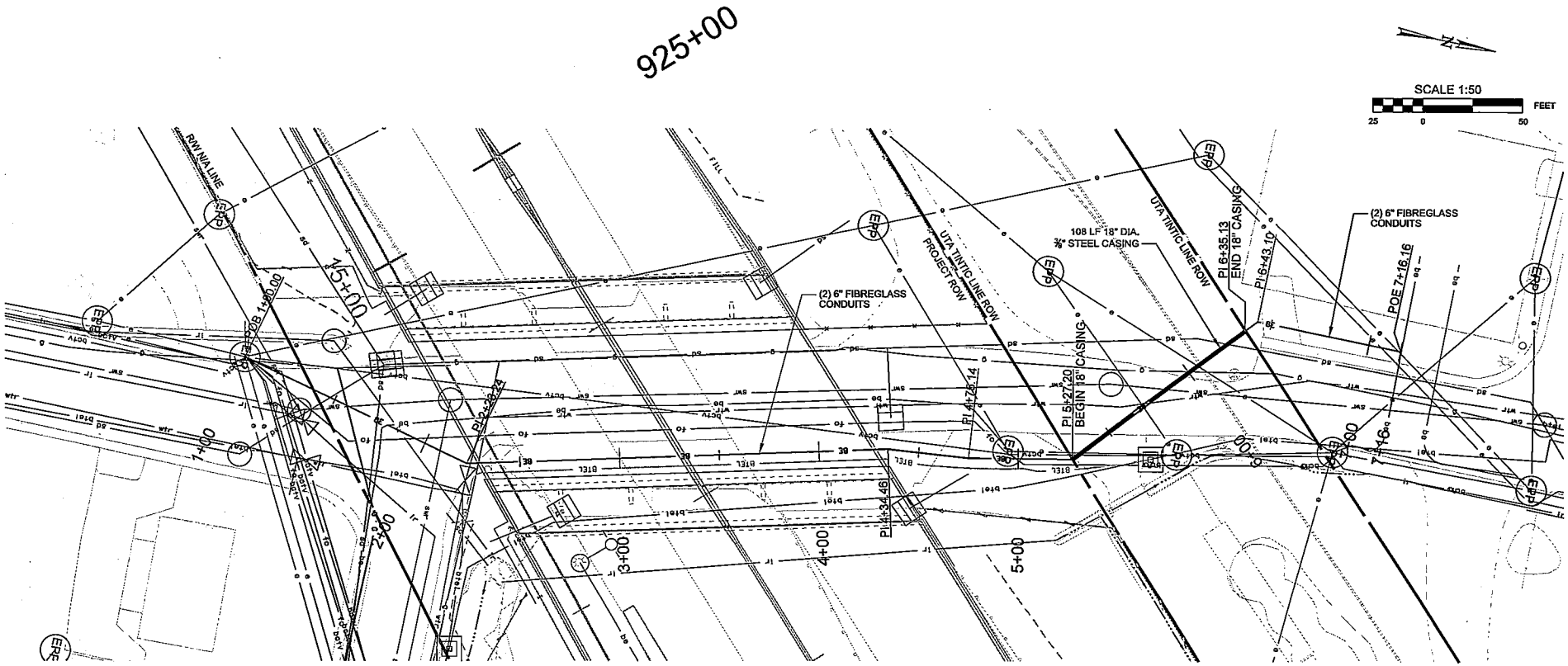
SPANISH FORK CITY POWER DEPARTMENT BETTREMENT:
(2) 6" ELECTRICAL CONDUIT AND 18" CASING AT 300 WEST

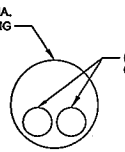
DESIGN PACKAGE Z-U1B
COVER SHEET

SPANISH FORK CITY UTAH

STAMP: 100% SUBMITTAL NOT FOR CONSTRUCTION

PROJECT NUMBER 10001C: 45
SHEET 1 OF 4
SHEET NUMBER 1





18" ELECTRICAL CASING - PLAN VIEW

STA: 1+00.00 TO 7+16.16
(UDOT STA: 925+00 TO 928+00)

NOTE:
EXISTING UTILITY LOCATIONS PROVIDED BY OTHERS. CONTRACTOR RESPONSIBLE TO VERIFY LOCATIONS AND DEPTHS.

SURVEY CONTROL
SURVEY CONTROL PER UDOT I-15 CORE PROJECT HORIZONTAL CONTROL AND ELEVATION MODIFIED VERTICAL DATUM

SPANISH FORK CITY POWER DEPT.
RELEASE FOR CONSTRUCTION

INITIALS | DATE

RECORD OF REVISIONS

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© 2010

PRINCIPAL	MATT HIRST, PE
PROJECT MANAGER	JARED ANDERSEN, PE
CHECKED BY	STEVE JACKSON, PE
DRAWN BY	KLH
DRAWING SCALE	AS NOTED
ISSUE DATE	12-08-2010

PROVO RIVER CONSTRUCTORS

LEHI OFFICE:
2912 WEST EXECUTIVE PKWY.,
SECOND FLOOR
LEHI, UTAH 84043

SPANISH FORK CITY POWER DEPARTMENT BETTREMENT:
(2) 6" ELECTRICAL CONDUIT AND 18" CASING AT 300 WEST

DESIGN PACKAGE Z-U1B
18" ELECTRCAL CASING PLAN VIEW

SPANISH FORK CITY | UTAH

STAMP: 100% SUBMITTAL NOT FOR CONSTRUCTION

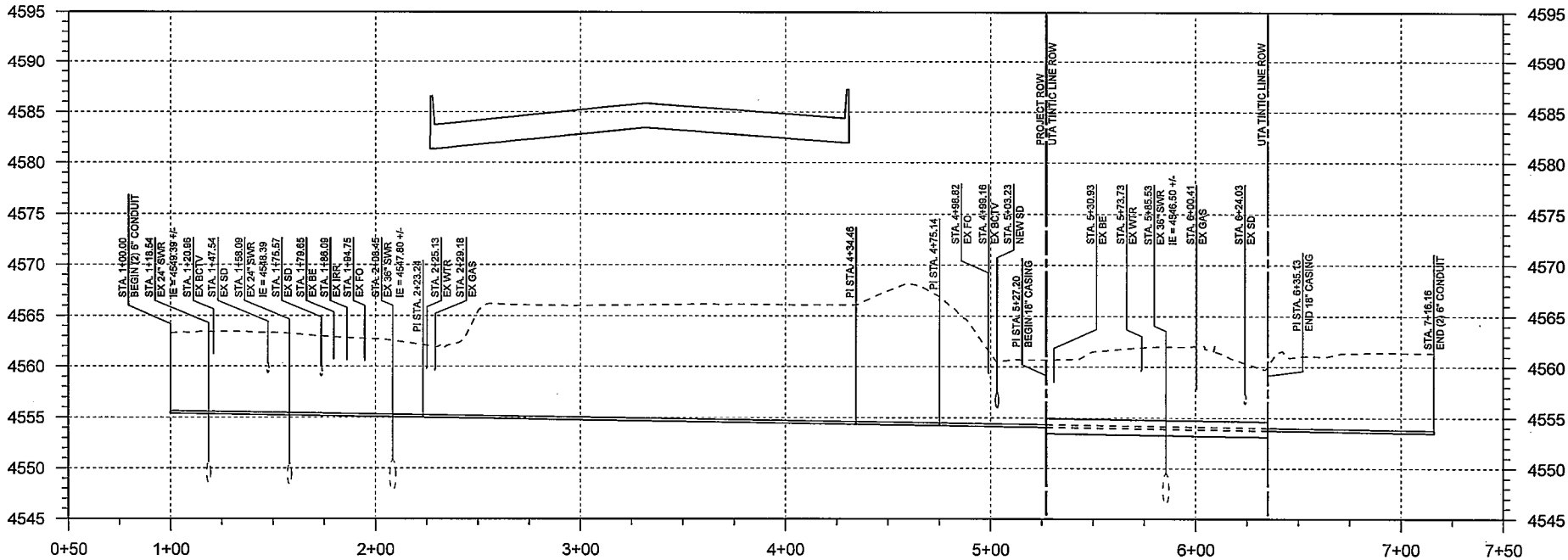
PROJECT NUMBER: 10001C: 45

SHEET 2 OF 4

SHEET NUMBER: 2

ELECTRICAL CASING PROFILE

HORIZONTAL SCALE: 0 — 50'
VERTICAL SCALE: 0 — 10'
FEET



NOTE:
EXISTING UTILITY LOCATIONS PROVIDED BY OTHERS. CONTRACTOR RESPONSIBLE TO VERIFY LOCATIONS AND DEPTHS.

SURVEY CONTROL
SURVEY CONTROL PER UDOT I-15 CORE PROJECT HORIZONTAL CONTROL AND ELEVATION MODIFIED VERTICAL DATUM

SPANISH FORK CITY POWER DEPT.
RELEASE FOR CONSTRUCTION

INITIALS _____ DATE _____

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© 2010

DESIGNED BY MATT HERST, PE
PROJECT MANAGER JARED ANDERSEN, PE
CHECKED BY STEVE JACKSON, PE
DRAWN BY KLH
DRAWING SCALE AS NOTED
ISSUE DATE 12-08-2010

PROVO RIVER CONSTRUCTORS

LEHI OFFICE:
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LEHI, UTAH 84043

SPANISH FORK CITY POWER DEPARTMENT BETTREMENT:
(2) 6" ELECTRICAL CONDUIT AND 18" CASING AT 300 WEST

DESIGN PACKAGE Z-U1B
18" ELECTRICAL CASING PROFILE VIEW

SPANISH FORK CITY UTAH

STAMP: 100% SUBMITTAL NOT FOR CONSTRUCTION

PACKAGE NUMBER 10001C: 45
SHEET 3 OF 4
SHEET NUMBER 3

EXHIBIT "B"
INSURANCE REQUIREMENTS

Licensee shall, at its sole cost and expense, procure and maintain during the life of this Agreement the following insurance coverage:

A. General liability policy providing coverage for death, personal injury and property damage with a combined single limit of at least $2 million each occurrence or claim and an aggregate limit of at least $4 million. The policy shall contain broad form contractual liability insurance covering the indemnity obligations assumed by Licensee in the Agreement. Exclusions for railroads (except where the Wireline is in all places more than 50 feet from any railroad tracks, bridges, trestles, roadbeds, terminals, underpasses or crossings), and explosion, collapse and underground hazard shall be removed. Coverage provided on a "claims made" form shall provide for at least a two-year extended reporting and discovery period if (a) the coverage changes from a claims made form to an occurrence form, (b) there is a lapse/cancellation of coverage, or (c) the succeeding claims made policy retroactive date is different for the expiring policy.

B. Automobile liability insurance providing bodily injury, property damage and uninsured vehicles coverage with a combined single limit of at least $2 million each occurrence or claim. This insurance shall cover all motor vehicles including hired and non-owned, and mobile equipment if excluded from coverage under the commercial general liability insurance.

C. Worker's compensation and employer's liability insurance covering Licensee's statutory liability under the laws of the State of Utah. If Licensee is self-insured, evidence of State approval must be provided.

Licensee and their insurers shall endorse the required insurance policy(ies) to waive their right of subrogation against UTA. Licensee's insurance shall be primary with respect to any insurance carried by UTA. Licensee's policy(ies) shall contain a provision that the insurance company will furnish UTA 30 days' advance written notice of any cancellation or lapse, or the effective date of any reduction in the amount or scope of coverage.

The required insurance policy(ies) shall be written by a reputable insurance company with a current AM Best's Insurance Guide Rate of A or better, or as may otherwise be acceptable to UTA. Such insurance company shall be authorized to transact business in the State of Utah.

The fact that insurance is obtained by Licensee shall not be deemed to release or diminish the liability of Licensee including, without limitation, liability under the indemnity provisions of this Agreement. Damages recoverable by UTA shall not be limited by the amount of the required insurance coverage.

EXHIBIT "C"
SPECIAL PROVISIONS

Because Union Pacific Railroad Company ("UPRR") does operate in this area, Spanish Fork City must obtain all necessary permits, and coordinate access with UPRR before any work can begin. Please contact Jim Marshall, the UPRR Special Projects Manager for this area, at (801) 212-2783, to coordinate the appropriate procedures.

Spanish Fork Community Network

Cable TV Rate Increase

- Providers increase our cost each year
- Our price increases only to cover the added channel costs
- The price increase will not increase SFCN profit

Channel Cost Increase

Service	Cost Increase
Basic	$.20
Expanded Basic	$1.95
Digital Basic	$2.14
Starz/Encore	$0
High Def	$0
HBO & Cinemax	$2.00
Triple Play	$1.95
Full Package	$4.14

Preventing Cost Increases

- To prevent further increases we would need to drop channels
  - You cannot drop off-air channels
  - The Shopping Channels pay us
  - The most popular channels charge the most
  - You can only drop channels when their contract expires

Rate Increase Proposal

Service	Old Price	New Price
Basic	$9.52	$9.89
Expand Basic	$41.44	$45.94
Digital Basic	$51.26	$53.40
HBO/Cinemax	$17	$19
HBO		$15
Cinemax		$6
Triple Play	85.95	87.90
Full Package	$79.22	$83.36

Competition Comparison

Service	SFCN	Competition
Basic	$9.89	$17.94
Expanded Basic	$45.94	$61.99
Digital Basic	$53.40	$78.94
HBO & Cinemax	$19	$39.95
HBO/Cinemax	$15 / $6	$19.95 / $19.95
Internet wo/TV	$35.00	$57.99
Internet w/TV	$28.00	$47.95

Staff Report to City Council

Agenda Date:	December 21, 2010
Staff Contacts:	Dale Robinson
Reviewed By:	Dave Oyler
Subject:	Pavilion Rental Fees

Background Discussion:
We have been reviewing several of our fee structures. In doing so we discovered that the pavilion fees have not been adjusted in many years (8-10). We conducted a pavilion rental study of 13 cities throughout the state. The majority of the cities are in Utah County. The findings indicate that Spanish Fork is the only city south of Orem who charges less than $50 for a pavilion rental time slot. Time slots vary from 4-6 hours. Springville and Payson both charge $50 for a four hour time slot. We charge $35 for a four hour time slot. We are also the only city that charges a separate fee for groups ($50). We also have two different deposits. I don't feel like we have to comply with what everyone else is doing, but I do feel like we need to keep up with the market or it will be increasingly difficult to bridge that gap. It is evident that we should have been making increases prior to this in order to keep pace.

Budgetary Impact:
Would possibly generate $5,000-6,000 additional revenue for the city.

Alternatives:
Leave fees the same or increase incrementally.

Recommendation:
Staff recommends that we charge the current market value which is $50 for a four hour time slot with a $50 deposit for all rentals. This will simplify the process so we will not be charging two different fees and two different deposits. This change includes all standard pavilions in the city that are fee use areas. It does not include the grand pavilion at north park.

Attachments:
None